

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENT MANAGEMENT PLAN

FOR OBTAINING

**Environmental Clearance under EIA Notification – 2006
Schedule Sl. No. 1 (a) (i): Mining Project**

“B1” CATEGORY (Cluster) – MINOR MINERAL – CLUSTER –

PATTA LAND - FRESH QUARRY

THIRU. A. SELVARAJ ROUGH STONE AND GRAVEL QUARRY

Extent – 3.66.0 Ha

Project Proponent



Thiru. A. SELVARAJ,

S/o. Arumugam,

No. 2/147, Saralai Thottam, Mookkanangkottai,

Uthiyur Village, Kangayam Taluk,

Tiruppur District, Tamil Nadu State – 638 703.

PROJECT LOCATION	PROPOSED PRODUCTION
S.F.No. 860/1, 860/2A(P), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk Tiruppur District	Reserves: For First Five Year Production 2,69,600 m ³ of Rough stone, 83,664m ³ of Weathered Rock & 59,508m ³ of Gravel For Second Five Year Production 3,45,000 m ³ of Rough stone Peak Production 70,500m ³ of Rough Stone, 28,884m ³ of Weathered rock & 21,888m ³ of Gravel Proposed Depth = 40m bgl
ToR obtained vide Lr No. SEIAA-TN/F.No.9835/ToR-1437/2023 Dated:24.04.2023	
Environmental Consultant GEO EXPLORATION AND MINING SOLUTIONS  Old No. 260-B, New No. 17, Advaitha Ashram Road, Alagapuram, Salem – 636 004, Tamil Nadu, India Accredited for sector 1 Cat ‘A’, sector 31 & 38 Cat ‘B’ Certificate No : NABET/EIA/2225/RA 0276 Phone: 0427-2431989, Email: infogeoexploration@gmail.com Web: www.gemssalem.com 	Laboratory GLOBAL LAB AND CONSULTANCY SERVICES S.F.NO:92/3A2, Geetha Nagar, Alagapuram Pudur, Salem – 636 016, Tamil Nadu, India. (NABET Accredited vide Certificate No. NABET/EIA/2225/RA 0276, valid up to 06.08.2025)
Baseline Monitoring Period October to December 2023 JANUARY 2024	

UNDERTAKING

I Thiru. A. Selvaraj given undertaking that this EIA & EMP report prepared for our Rough stone and Gravel quarry situated in S.F.No. 860/1, 860/2A(P), 861/1 & 861/2, over an extent of 3.66.0 Ha in Muthalipalayam Village, Kangayam Taluk Tiruppur District based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide Lr No. SEIAA-TN/F.No.9835/ToR-1437/2023 Dated:24.04.2023

I hereby assured that the Data's submitted and information given by me is true and correct to the best of my knowledge.

Signature of the Project Proponent



A. Selvaraj

Place: Tiruppur

Dated:

DECLARATION

I Dr. M. Ifthikhar Ahmed – EIA Co Ordinator declare that the EIA & EMP report for the Rough stone and Gravel quarry situated in S.F.No. 860/1, 860/2A(P), 861/1 & 861/2, over an extent of 3.66.0 Ha in Muthalipalayam Village, Kangayam Taluk Tiruppur District has been prepared by Geo Exploration and Mining Solutions, Salem, Tamil Nadu.

The Data's provided in the EIA report are true and correct to the best of my knowledge.

Signature of the EIA Co Ordinator



Dr. M. Ifthikhar Ahmed

Managing Partner

M/s. Geo Exploration and Mining Solutions

Place: Salem

Dated:

For easy representation of Proposed and Existing, Expired and Abandoned Quarries in the Cluster are given unique codes and identifies and studied in this EIA/ EMP Report.

PROPOSED QUARRY					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	Thiru. A. Selvaraj	Muthalipalayam	860/1, 860/2A(Part), 861/1 and 861/2	3.66.0	Lr.No. SEIAA- TN/F.No.9835/ToR-1437/2023 Dated:24.04.2023
TOTAL EXTENT				3.66.0	
EXISTING QUARRY					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
E-1	Thiru.K. Vijayakumar	Muthalipalayam	857/2, 860/2A(P), 860/2B	3.82.90	18.02.2020 to 17.02.2025
TOTAL EXTENT				3.82.90	
ABANDONED / EXPIRED QUARRY					
Ex-1	Thiru.D.Mohanrasu	Muthalipalayam	857/1(P)	0.81.0	27.03.2017 to 26.03.2022
TOTAL EXTENT				0.81.0	
TOTAL CLUSTER EXTENT				7.48.90 Ha	

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

TERMS OF REFERENCE (ToR) COMPLIANCE

Lr No. SEIAA-TN/F.No.9835/ToR-1437/2023 Dated:24.04.2023

SPECIFIC CONDITIONS		
1	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.	Noted and Agreed
2	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.,	Structure study has been conducted covering 0-300m radius with type of Structure, number of occupants are detailed in the Chapter No.3 Page No.81.
3	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within I km of the proposed quarry.	The Crusher is situated about 130m from the project site. The blasting study including vibration and fly rocks will be conducted by the reputed research institute.
4	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	There is no wild life Sanctuary, National Park within the radius of 500m. the area is devoid of major vegetation. The Bio Diversity study has been carried out by the inhouse expert (Ecology and Biodiversity) and the detailed report is given in the Chapter No.3 Page No.60 to 73
5	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.	Not applicable, it is a fresh lease.
6	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.	Proponent given Affidavit stating that the blasting operation will be carried out by the competent person as per the MMR 1961.
7	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.	The Blasting will be carried out by controlled blasting adopting muffle blasting and line drilling. The cost for the controlled blasting is allotted in the EMP, Chapter No.10 Table No. 10.10 Page No.133
8	The EIA Coordinates shall obtain and furnish the details of quarry /quarries operated by the PP in the past, either in the same location or elsewhere in the state with video and Photographic evidences.	No other Abandoned and proposed quarries in the name of proponent.
9	<ul style="list-style-type: none"> 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 	Not applicable, Since it is a fresh proposal.

	<p>d) Detail of approved depth of mining.</p> <p>e) Actual depth of the mining achieved earlier.</p> <p>f) Name of the person already mined in that leases area.</p> <p>g) If EC and CTO already obtained, the copy of the same shall be submitted.</p> <p>h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches</p>	
10	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)	<p>Coordinates for all the boundaries are given in the Chapter No.2 Table No.2.2 Page No.11</p> <p>Satellite imagery of the project site marked with Lease boundary, Safety area</p>
11	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,	Drone video survey covering the Cluster, Greenbelt and fencing will be submitted during appraisal.
12	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.	The Manpower in the Employment potential is given in the Chapter No.2 Page No.33
13	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.	<p>The Total Mineable Reserves of Rough stone is 6,14,600m³</p> <p>For First Five Year Production 2,69,600m³ of Rough stone, 83,664m³ of Weathered Rock & 59,508m³ of Gravel</p> <p>For Second Five Year Production 3,45,000m³ of Rough stone</p> <p>Peak Production 70,500m³ of Rough Stone, 28,884m³ of Weathered rock & 21,888m³ of Gravel</p> <p>Details of Reserves and methodology of mining is given in the Chapter No.2 Page No.18</p>
14	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.	<p>Noted and agreed.</p> <p>Detailed under Chapter 6.</p>
15	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	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details of open wells and borewells within 1km radius along with water level is given in the Chapter No.3

	groundwater. Necessary data and documentation in this regard may be provided.	
16	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.	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 to assess the cumulative impact of the proposed project on the environment is prepared. The details of Baseline study are given in the Chapter No. 3.
17	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 air pollution, water pollution. & Health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Cumulative impact study due to mining operations is explained in Chapter No.7, Page No.114 to 126
18	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	The rain water will be collected in the mine pit at the lower point later it will be utilized for the haul road maintenance, Greenbelt development etc.,
19	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use Land cover study within the radius of 10km is detailed in the Chapter No. 3 Page No.36 to 38
20	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use. R&R issues, if any. should be provided.	Not applicable, There are no wastages anticipated, the entire quarried out Rough stone material will be utilized.
21	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.	The area is not declared as Critically polluted area, no court case pending against the project. Proponent obtained Precise area communication letter, Approval for the Mining plan. The Details are enclosed as Annexure .
22	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	The rain water collected in the pits after spell of rain will be used for greenbelt development and dust suppression.
23	Impact on local transport infrastructure due to the Project should be indicated.	There is no group of Houses, Schools in the proposed transportation route. Proposed Transportation route with mitigation measures is given in the Chapter No.2 Page No.95
24	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.	The Flora study in the core zone has been carried out and the details are given in the Chapter No.3 Page No.62

25	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	The mine closure plan is detailed in the Chapter No.4 Page No.107 The budget for the mine closure is included in the Environmental Management plan in Chapter No.10, Table:10.10, Page No.138
26	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.	Noted and agreed. This Draft EIA report is prepared for the Public Hearing. The Public hearing Comments along with action plan will be submitted in the Final EIA and EMP report.
27	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Noted and agreed
28	The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.	Noted and agreed
29	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 Flora and Fauna study around the vicinity of the site is carried out by the Functional area experts along with Local School Students.
30	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.	The plantation in the project site will be carried out using native and mixed plantation. The recommended species for the plantation is given in the Chapter No.4 Table No.4.10, Page No.101
31	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	Noted and agreed. The plantation in the project site will be carried out using native and mixed plantation. The recommended species for the plantation is given in the Chapter No.4 Table No.4.10 Page No.101
32	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan is detailed in the Chapter No.7, Page No.116
33	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report.	A Risk Assessment and management Plan detailed in the Chapter No.7.
34	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 with mitigation measures are detailed in the Chapter No.7. Details of Periodical Medical Examination given in the Chapter No.10, Page No.135

35	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.	The details of the population in the impact zone (within 500m radius) are detailed in the Chapter No.3, Page No.82
36	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.	Socio Economic study covering 10 km radius is detailed in the Chapter No.3 Page No.80
37	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 court case and litigation pending against the project.
38	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	It is explained in Chapter -3- socio economic study
39	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.	Not applicable, the project is fresh proposal.
40	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP has been prepared for the entire life of the mine. Proponent given affidavit stating the EMP will be submitted during the appraisal after completion of public hearing.

ADDITIONAL CONDITIONS-Annexure-B		
<i>Cluster Management committee</i>		
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.	Details chapter 7 salient features of quarry with existing 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..	Noted & agreed
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.	Noted & agreed
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.	Transport details in chapter-2
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan	Noted & agreed
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.	Noted & agreed
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.	Noted & agreed
8	The committee shall furnish the Emergency Management within the cluster.	Details discussed in chapter 7.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Details discussed in chapter 10.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Noted & agreed
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Detailed discussed in chapter 7.
<i>Impact study of mining</i>		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood of the local people.	Species Recommended for Plantation in chapter 3&10.

	d) Possibilities of water contamination and impact on aquatic ecosystem health' e) Agriculture, Forestry & Traditional practices. 1) 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 steams.	
Agriculture & Agro-Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining Area.	Detailed discussed in chapter 4.
14	Impact on soil flora & vegetation around the project site.	Detailed discussed in chapter 4.
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.	Details in Chapter 2,3 and 7
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.	Details in Chapter 3
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted & agreed
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands. Horticulture, Agriculture and livestock.	The project area is bounded by Existing quarries on the East side. Proponent proposed to erect green mesh along with fencing on the North and West side besides, Budgetary allocation given in the Chapter No. 10.
Forest		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	Noted and agreed, there is no reserve forest and wildlife in the buffer zone.
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Ecology and Biodiversity environment deals in Chapter-3
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Ecology and Biodiversity environment deals in Chapter-3
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Anticipated Environment Impact and Mitigation measures are detailed in Chapter No.4
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.	Hydro-geological study considering the contour map of the water table detailing Chapter-3
24	Erosion Control measures.	Noted & agreed
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease	Details in Chapter 2

	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.	Details in Chapter 2 and 4 impact of bio diversity
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural Environment by the activities.	Noted & agreed
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.	Noted & agreed. Detailed under Chapter 3.
29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil, physical, chemical components and microbial components.	Details in Chapter 3 Soil environment.
30	The Environmental impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	Nearest agriculture activity is coconut plantation located North side of the project area. Proponent erected fencing in the previous lease period. The same will be reconstructed around the quarry pits
Energy		
31	The measures taken to control Noise. Air, Water. Dust Control and steps adopted to efficiently utilize the Energy shall be furnished.	Details in Chapter 3 environmental monitoring details.
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.	Details of carbon emission and mitigation activities are given in the Chapter No.4
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Details in Chapter-3 for meteorological and climate/weather data representation of graphs.
Mine Closure Plan		
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Details in Chapter 2 mine closure plan
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.	Detailed under Chapter 10
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.	Details in Green belt development in chapter 4
Risk Assessment		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Detailed under Chapter 7
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	Details in Study 7.3 Disaster Management Plan in Chapter -7

	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.,	Noted & agreed. Detailed under Chapter 4
40	As per the MoEF& CC office memorandum tr.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.	Noted and agreed
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.	Details of carbon emission and mitigation activities are given int the Chapter No.4
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 applied land for quarrying is a Patta Land. Document is enclosed along with Approved Mining Plan as Annexure Volume 1.
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	Noted & agreed.
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).	Map showing – Project area is with adjacent quarries details is enclosed in Figure No1.1 Project area boundary coordinates superimposed on Toposheet – Figure No. 1.1A Toposheet of the project area covering 10km radius – Figure No. 1.2 Geology map of the project area covering 10km radius - Figure No. 2.11
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.	Map showing – Geology map of the project area covering 10km radius - Figure No. 2.11 Geomorphological features are incorporated in the Toposheet map covering 10km radius around the project area Figure No. 2.12
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 applied 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	The proponent has framed their Environmental Policy and the same is discussed in the Chapter No 10.1.

	of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an opencast quarrying operation proposed to operate in Mechanized method. The rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 90 ⁰ bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
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.	Noted & agreed. The study area considered for this study is 10 km radius and all data contained in the EIA report such as waste generation etc., is for the Life of the Mine / lease period.
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3
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	Not Applicable. There is no waste anticipated during this quarry operation. The entire quarried out rough stone will be transported to the needy customers. No Dumps is proposed outside the lease area.
12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	Not Applicable. There is no Forest Land involved in the proposed project area. The proposed project area is a Patta land. Approved Mining Plan is enclosed as Annexure Volume 1.
13	Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not Applicable. The proposed project area does not involve any Forest Land.
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other	Not Applicable.

	Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	The project doesn't attract Recognition of Forest Rights Act, 2006.
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	No Reserve Forest within the Study Area.
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.	Not Applicable. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
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	Not Applicable. There are no National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
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.	Detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] was carried out and discussed under Chapter No. 3. 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.
19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range'.
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable. The project doesn't attract The C. R. Z. Notification, 2018.
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their	Not Applicable. There are no approved habitations within a radius of 300 meters. Therefore, R&R Plan / Compensation details for the Project Affected People (PAP) is not anticipated and Not Applicable for this project.

	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.	Baseline Data were collected for Post Monsoon Season (October to December 2023) as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
23	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD Model. Details in Chapter No. 4,
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.	Total Water Requirement for this project is given in the chapter No 2, Table No 2.13.
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Water for dust suppression, greenbelt development and domestic use will be obtained from accumulated rainwater/seepage water in mine pits. Drinking water will be sourced from the approved water vendors, No 2, Table No 2.13.
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.	The rain water collected in the pits after spell of rain will be used for greenbelt development and dust suppression.
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 Quality discussed in Chapter No. 4.
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	The ground water table is at 68m below ground level.

	will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The ultimate depth of this projects is 40m from the general ground profile. Maximum depth is proposed in this EIA project is 40m.
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.	Highest elevation of the project area is 265m AMSL Ultimate depth of the mine is 40m AMSL Water level in the area is 68m BGL
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.	Progressive greenbelt development plan has been prepared and discussed along with Recommended Species details are given in the Chapter 4, Table No.4.9
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.	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 much significant impact due to the proposed transportation from the project area. Details in Chapter 2.
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.	Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease and the same has been discussed in the Chapter No.2. .
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Discussed in chapter No 2.
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.	Details in Chapter 10.
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.	Details in Chapter 10.
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the	Details in Chapter 4,

	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.	Environment Management Plan Chapter 10.
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.	The outcome of public hearing will be updated in the final EIA/EMP report
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.	No litigation is pending in any court against this 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.	The proposed capital cost for Environmental Monitoring Programme is Rs 3,80,000/- and the recurring cost is Rs 76,000/- per annum. Details in Chapter 6.
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.	Details in Chapter 10.
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Details in Chapter 7.
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.	Details in Chapter.8.
44	Besides the above, the below mentioned general points are also to be followed: -	
A	Executive Summary of the EIA/EMP Report	Encloses as separate volume
B	All documents to be properly referenced with index and continuous page numbering.	All the documents are properly referenced with index and continuous page numbering.
C	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	List of Tables and source of the data collected are given properly.
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	Baseline monitoring reports are enclosed with mining plan
E	Where the documents provided are in a language other than English, an English translation should be provided.	Not Applicable.
F	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	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 are 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	Noted & agreed.

	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.	Not applicable.
J	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Surface Plan – Figure No. 2.2. Geological Plan – Figure No 2.9. Working Plan – Figure No 2.9. Closure Plan – Figure No.2.10.

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1.INTRODUCTION

1.0 PREAMBLE

Project History: -

The project proponent Thiru. A. Selvaraj applied for Rough Stone and Gravel Quarry over an extent of 3.66.0Ha in S.F.No. 860/1, 860/2A(Part), 861/1 and 861/2 of Muthalipalayam Village, Kangayam Taluk, Tiruppur District.

- Proponent applied for Rough stone and Gravel quarry lease on 31.01.2022.
- Precise area communication letter was issued by the Assistant Director vide Rc.No. 122/Mines/2022, Dated: 26.09.2022.
- The Mining plan has been prepared by the Qualified person and got approval vide Letter Rc.No. 122/Mines/2022, Dated: 14.10.2022.
- The Mining plan has been approved for the quantity of 6,14,600m³ of Rough stone, 83,664m³ of Weathered rock and 59,508m³ of Gravel upto the depth of 40m bgl for the period of ten years.

As per the EIA Notification, 2006 and subsequent amendments and OM. The proposal falls in the B1 Category- 1 Proposed and 1 Existing quarry forming Cluster Category {Total Extent of the Cluster is 7.48.9Ha}- Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016).

- Proponent applied for Terms of Reference vide Online Proposal No. SIA/TN/MIN/417547/2023, Dated 09.02.2023 and the ToR was Granted vide Lr.No. SEIAA-TN/F.No.9835/ToR-1437/2023, Dated:24.04.2023.

Based on the ToR Baseline Monitoring study has been carried out for one season i.e., **October - December 2023** and this EIA and EMP report is prepared for considering cumulative impacts arising out of these projects, the Cumulative Environmental Impact Assessment study is undertaken, which is followed by preparation of a detailed Environmental Management Plan (EMP) to minimize those adverse impacts.

Environmental Impact Assessment (EIA) is the management tool to ensure the sustainable development and it is a process, used to identify the environmental, social and economic impacts of a project prior to decision-making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for any project. EIA systematically examines both beneficial and adverse consequences of the project and ensures that these impacts are taken into account during the project designing. It also reduces conflicts by promoting community participation, information, decision makers, and helps in developing the base for environmentally sound project.

1.1 PURPOSE OF THE REPORT

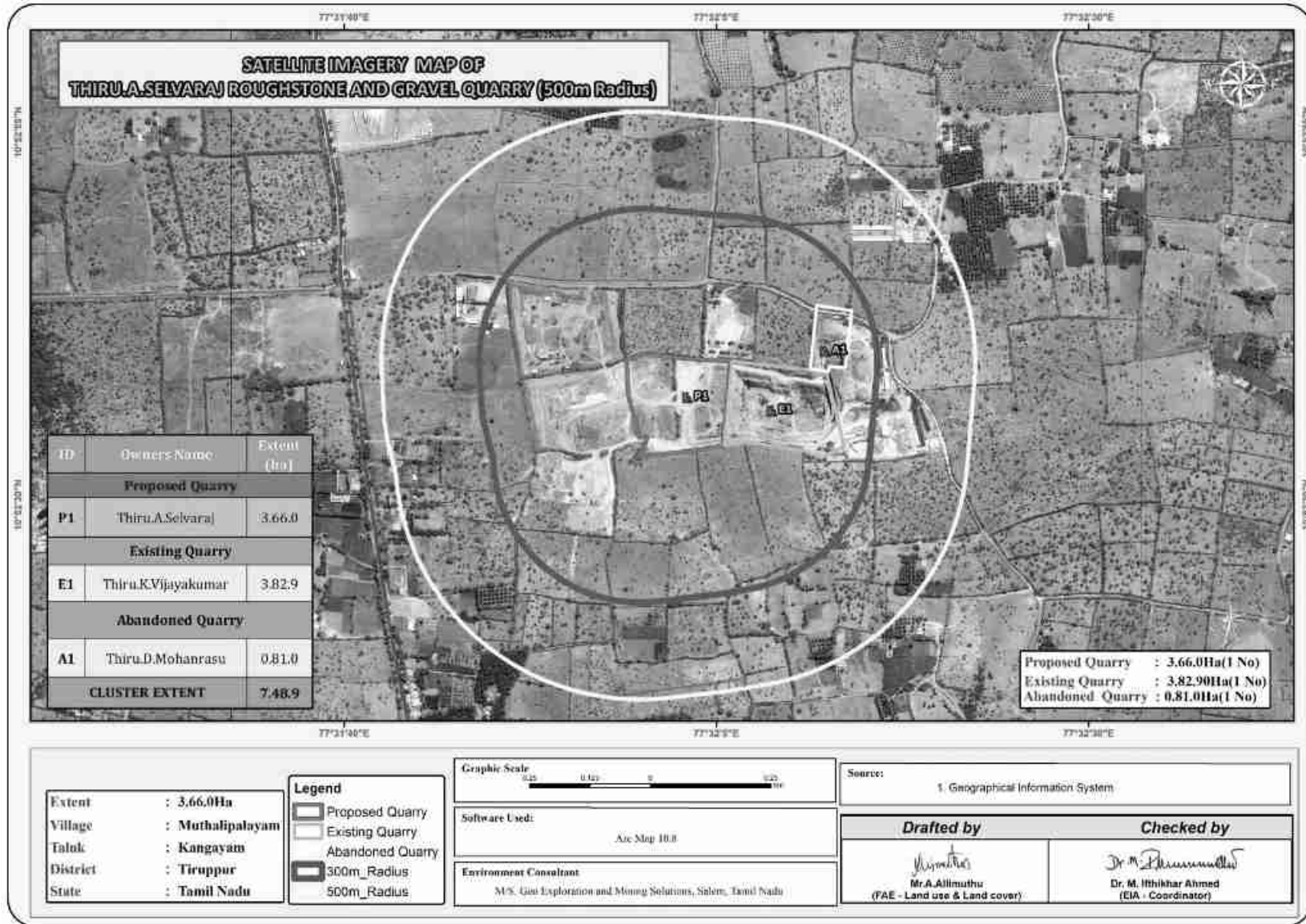
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 1889 of 20th April 2022, Mining Projects are classified under two categories i.e. A (> 250 Ha) and B (≤ 250 Ha), and Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation in Appendix–XI.

Now, as per 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 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B1 and appraised by SEAC/ SEIAA as well as for cluster situation.

The proposed projects are categorized under category “B1” Activity 1(a) (mining lease area in cluster situation) and will be considered at SEIAA – TN after conducting Public Hearing and Submission of EIA/EMP Report for Grant of Environmental Clearance.

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

FIGURE 1.1 SATELLITE IMAGERY CLUSTER QUARRIES



1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENTS

1.2.1 Identification of Project Proponent

TABLE 1.1: DETAILS OF PROJECT PROPONENT

Name of the Project Proponent	Thiru. A. Selvaraj Rough stone and Gravel quarry
Address	S/o. Arumugam No. 2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk Tiruppur District, Tamil Nadu State – 638 703
Mobile	+91 98656 68228
Email	sonybluemetal@gmail.com
Status	Individual

1.2.2 Identification of Project

TABLE 1.2: SALIENT FEATURES OF THE PROPOSED PROJECT

Name of the Project	Thiru. A. Selvaraj Rough stone and Gravel quarry		
S.F. No.	860/1, 860/2A(Part), 861/1 and 861/2		
Extent	3.66.0ha		
Village Taluk and District	Muthalipalayam Village, Kangayam Taluk, Tiruppur District		
Land Type	Patta land		
Land Ownership	It is a Patta land, registered in the name of Thiru. T. Jegadheeswaran, S/o. Thangamuthu. The applicant has registered lease deed from the Pattadar for a period of Ten years from the date of execution of lease deed.		
Existing quarry operation	Fresh Lease area		
Toposheet No	58 - F/09		
Latitude between	10°52'33.16"N to 10°52'40.05"N		
Longitude between	77°31'58.95"E to 77°32'05.92"E		
Elevation of the area	265m AMSL		
Lease period	10 Years		
Mining Plan period	10 years		
Proposed Depth of Mining	40m (2m Gravel + 3m Weathered rock +35m Rough Stone)		
	Rough Stone in m ³	Weathered Rock m ³	Gravel m ³
Geological Resources	12,81,000	1,09,800	73,200
Mineable Reserves	6,14,600	83,664	59,508
First Five years plan period as in the approved mining plan	2,69,600	83,664	59,508
Next Five years plan period as in the approved mining plan	3,45,000	-	-
Peak Production	70,500	28,884	21,888
Ultimate Pit Dimension	176m (L) x 173m (W) x 40m(D) bgl		
Water Level in the region	68m bgl		
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives		
Topography	The lease applied area is flat terrain. The gradient is gentle towards Southeast side and altitude of the area is 265m above from Mean Sea level. The area is covered by 2m thickness of Gravel, 3m Weathered rock and followed by Massive Charnockite which is clearly inferred from the surface outcrops.		
Machinery proposed	Jack Hammer	7 Nos	

	Compressor	2 Nos
	Excavator with Bucket and Rock Breaker	2 Nos
	Truck	4 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	32 Nos	
Project Cost	Rs. 2,82,87,000/-	
EMP Cost	Rs. 7,60,000/-	
Total Project cost	Rs. 2,90,47,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Canal	1.0 km-South
	Nellai karai Odai	6.0 km – North West
	Amaravathi River	7.0 km-South East
Greenbelt Development Plan	Proposed to plant 1850 Nos of trees considering 500 Nos of trees/ Ha criteria The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	2.5 KLD	
Nearest Habitation	510 m – South West	
Nearest Reserve Forest	Uthiyur R.F – 1.35 km – North West (Source - TNGIS)	
Nearest Wild Life Sanctuary	Vellode Bird Sanctuary – 43.0km – North East	

Source: Approved Mining & Land Documents.

1.3 BRIEF DESCRIPTION OF THE PROJECT

1.3.1 Nature and Size of the Project

The quarrying operation is proposed to be carried out by Opencast Mechanized Mining method with 5.0m bench height and 5.0m bench width by deploying Jack Hammer Drilling & Slurry Explosive during blasting. Hydraulic Excavator and tippers are used for Loading and transportation. Rock Breakers are deployed to avoid secondary blasting.

The peak production of Rough stone is 70,500m³. Weathered Rock is 28,884m³ and 21,888m³ of Gravel maximum in a year. The depth of the mining is 40m (2m Gravel + 3m Weathered rock +35m Rough Stone) below ground level.

1.3.2 Location of the Project

- The project site is located in Muthalipalayam Village, Kangayam Taluk, Tiruppur District.
- The lease applied area is located about 33km Southeast side of Tiruppur town, 14km Southwest side of Kangayam town and 1.6km Southwest side of Muthalipalayam Village.

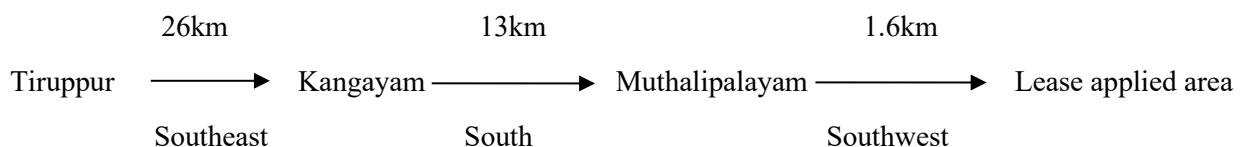
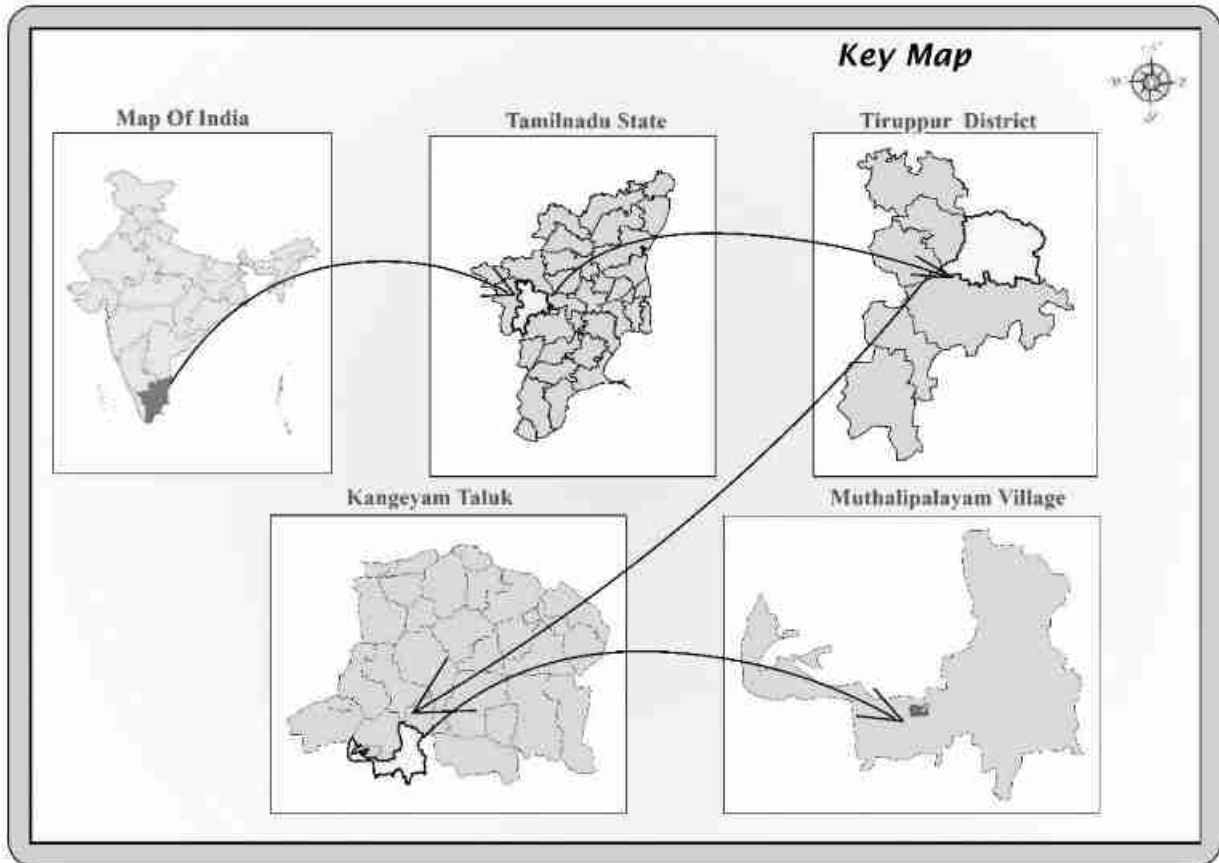


FIGURE 1.2 LOCATION MAP OF THE PROJECT SITE



Source: Survey of India Toposheet 58-A/15 & 16

FIGURE 1.3: TOPOSHEET MAP OF THE STUDY AREA 10 KM RADIUS

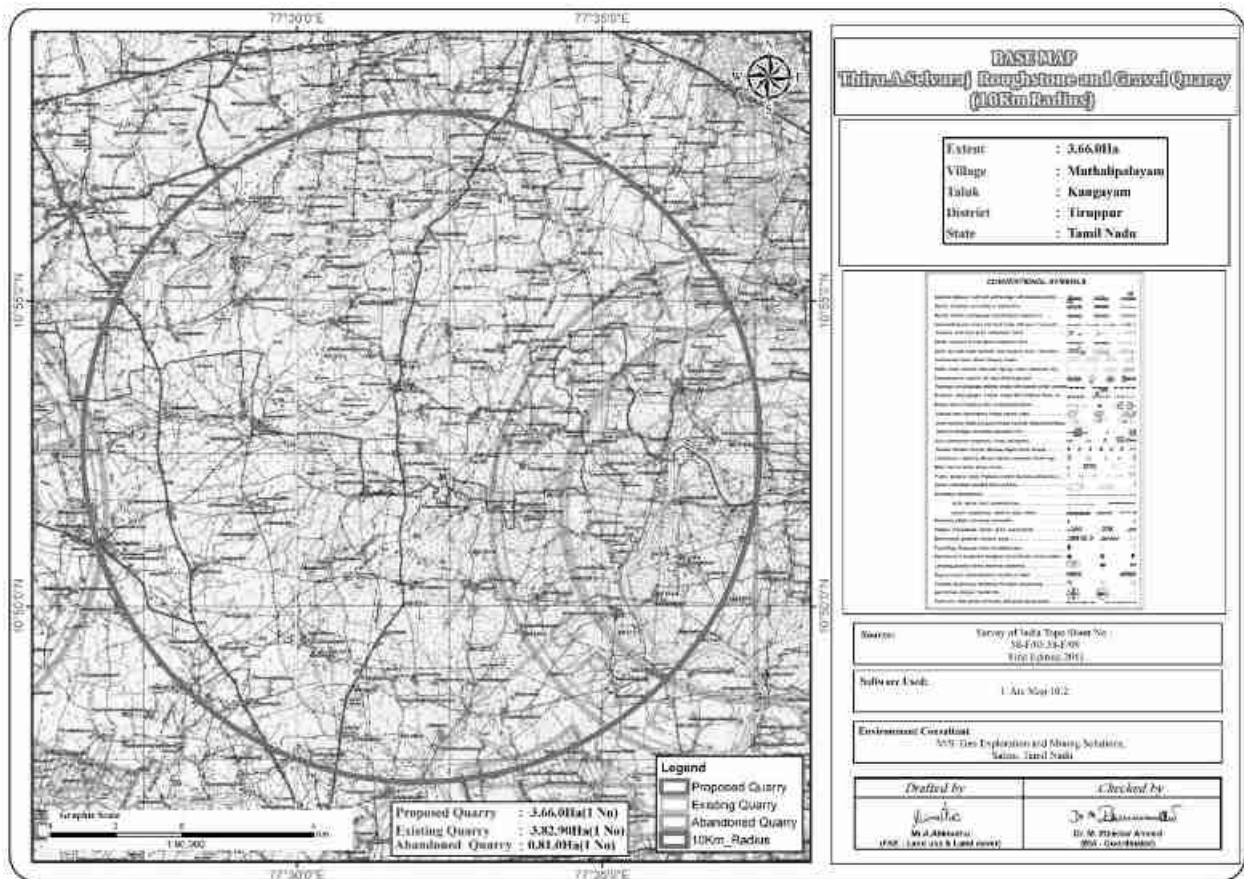
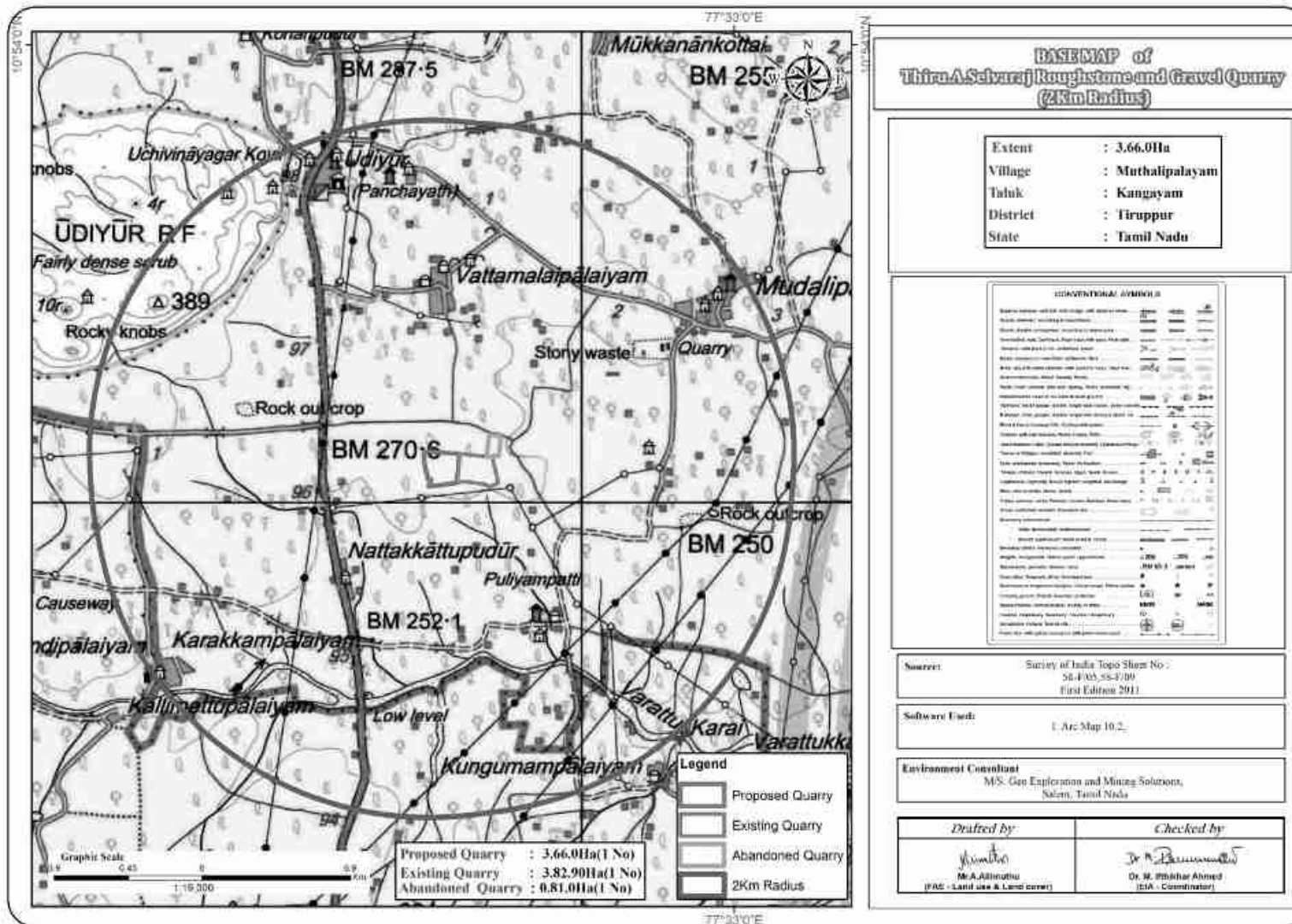


FIGURE 1.4: TOPOSHEET MAP OF THE STUDY AREA 2KM RADIUS



1.4 ENVIRONMENTAL CLEARANCE

The Environmental Clearance process for the project will comprise of four stages. These stages in sequential order are given below: -

- Screening,
- Scoping,
- Public consultation &
- Appraisal

SCREENING –

- The Proponent applied for Rough stone and Gravel quarry lease on 31.01.2022.
- Precise area communication letter was issued by the Assistant Director vide Rc.No. 122/Mines/2022, Dated: 26.09.2022.
- The Mining plan has been prepared by the Qualified person and got approval vide Letter Rc.No. 122/Mines/2022 Dated: 14.10.2022.
- The proposed project falls under “B1” Category as per 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
- Proponent applied for ToR for Environmental Clearance vide online Proposal No. SIA/TN/MIN/417547/2023, Dated 09.02.2023.

SCOPING:

- The proposal was placed in 367th SEAC meeting held on 31.03.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 614th SEIAA meeting held on 24.03.2023.
- The Proposal was consider issued ToR vide Lr.No. SEIAA-TN/F.No.9835/ToR-1437/2023 Dated:24.04.2023.

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.

APPRAISAL –

Appraisal is the detailed scrutiny by the State Expert Appraisal Committee (SEAC) of the application and other documents like the final EIA & EMP Report, outcome of the Public Consultations including Public Hearing Proceedings, submitted by the proponent to the regulatory authority concerned for grant of environmental clearance.

1.5 TERMS OF REFERENCE (ToR)

The ToR was issued by the SEIAA vide Lr.No. SEIAA-TN/F.No.9835/ToR-1437/2023 Dated:24.04.2023. The Details of the ToR Compliance is given in above.

1.6 POST ENVIRONMENT CLEARANCE MONITORING

The proponent shall submit a half-yearly compliance report in respect of stipulated Environmental Clearance terms and conditions to MoEF & CC Regional Office & SEIAA after grant of EC on 1st June and 1st December of each calendar year as per MoEF & CC Notification S.O. 5845 (E) Dated: 26.11.2018.

1.7 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.

1.8 THE SCOPE OF THE STUDY

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures. 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, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the post monsoon season (October 2023 to December 2023) for various environmental components so as 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.

TABLE 1.3: ENVIRONMENT ATTRIBUTES

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂	Continuous 24-hourly samples twice a week for three months at 7 locations (1 Core & 6 Buffer)
2	Meteorology	Wind speed and direction, temperature, relative humidity and rainfall	Near project site continuous for three months with hourly recording and from secondary sources of IMD station
3	Water quality	Physical, Chemical and Bacteriological parameters	Grab samples were collected at 6 locations – 1 Surface water and 5 Ground water samples; once during study period.
4	Ecology	Existing terrestrial and aquatic flora and fauna within 10 km radius circle.	Limited primary survey and secondary data was collected from the Forest department.
5	Noise levels	Noise levels in dB(A)	7 locations – data monitored once for 24 hours during EIA study
6	Soil Characteristics	Physical and Chemical Parameters	Once at 6 locations during study period
7	Land use	Existing land use for different categories	Based on Survey of India topographical sheet and satellite imagery and primary survey.
8	Socio-Economic Aspects	Socio-economic and demographic characteristics, worker characteristics	Based on primary survey and secondary sources data like census of India 2011.

9	Hydrology	Drainage pattern of the area, nature of streams, aquifer characteristics, recharge and discharge areas	Based on data collected from secondary sources as well as hydro-geology study report prepared.
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires and explosions and release of toxic substances	Based on the findings of Risk analysis done for the risk associated with mining.

Source: Field Monitoring Data

1.8.1 Regulatory Compliance & Applicable Laws/Regulations for all Proposed Quarries

- Application for Quarrying Lease as per Tamil Nadu Minor Mineral Concession Rules, 1959.
- Obtained Precise Area Communication Letter as per Tamil Nadu Minor Mineral Concession Rules, 1959 for Preparation of Mining Plan and obtaining Environmental Clearance.
- The Mining Plan has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959.
- ToR vide Lr.No. SEIAA-TN/F.No.9835/ToR-1437/2023, Dated:24.04.2023

2. PROJECT DESCRIPTION

2.0 GENERAL

Thiru. A. Selvaraj Rough Stone and Gravel Quarry requires Environmental Clearance. There are 1 proposed and 1 Existing quarry forming a cluster; calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is 7.48.90ha.

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

2.1 DESCRIPTION OF THE PROJECT

The proposed project is site specific and there is no additional area required for this project. There is no effluent generation/discharge from this project. Method of mining is opencast mechanized method involving splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers and rock breakers to avoid secondary blasting.

2.2 LOCATION OF THE PROJECT

The lease applied area is located about 26km Southeast side of Tiruppur town, 13km Southwest side of Kangayam town and 1.6km Southwest side of Muthalipalayam Village.

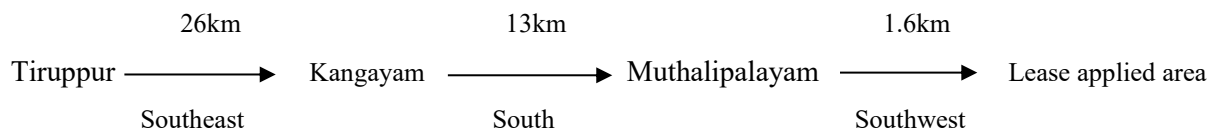


TABLE 2.1: SITE CONNECTIVITY

Nearest Roadway	NH (81) - Trichy – Coimbatore Road -12.0km- North SH (83A) - Kangayam – Dharapuram Road – 6000m-West
Nearest Village	Muthalipalayam – 1.6km NE
Nearest Town	Kangayam – 14.0km – NE
Nearest Railway Station	Tiruppur – 33.0km – NW
Nearest Airport	Coimbatore– 56.0 km –NW
Seaport	Kochi– 174.0km – SW

Source: Survey of India Toposheet

TABLE 2.2: CO-ORDINATES – PROJECT BOUNDARY

Corner Nos.	Latitude	Longitude
1	10° 52' 33.16"N	77° 31' 59.89"E
2	10° 52' 34.50"N	77° 32' 00.35"E
3	10° 52' 34.48"N	77° 31' 59.80"E
4	10° 52' 37.34"N	77° 31' 59.07"E
5	10° 52' 39.69"N	77° 31' 58.95"E

6	10° 52' 40.05"N	77° 32' 00.13"E
7	10° 52' 39.68"N	77° 32' 03.93"E
8	10° 52' 39.56"N	77° 32' 05.92"E
9	10° 52' 33.90"N	77° 32' 05.43"E
10	10° 52' 33.58"N	77° 32' 03.57"E
Datum: UTM-WGS84, Zone 43 North		

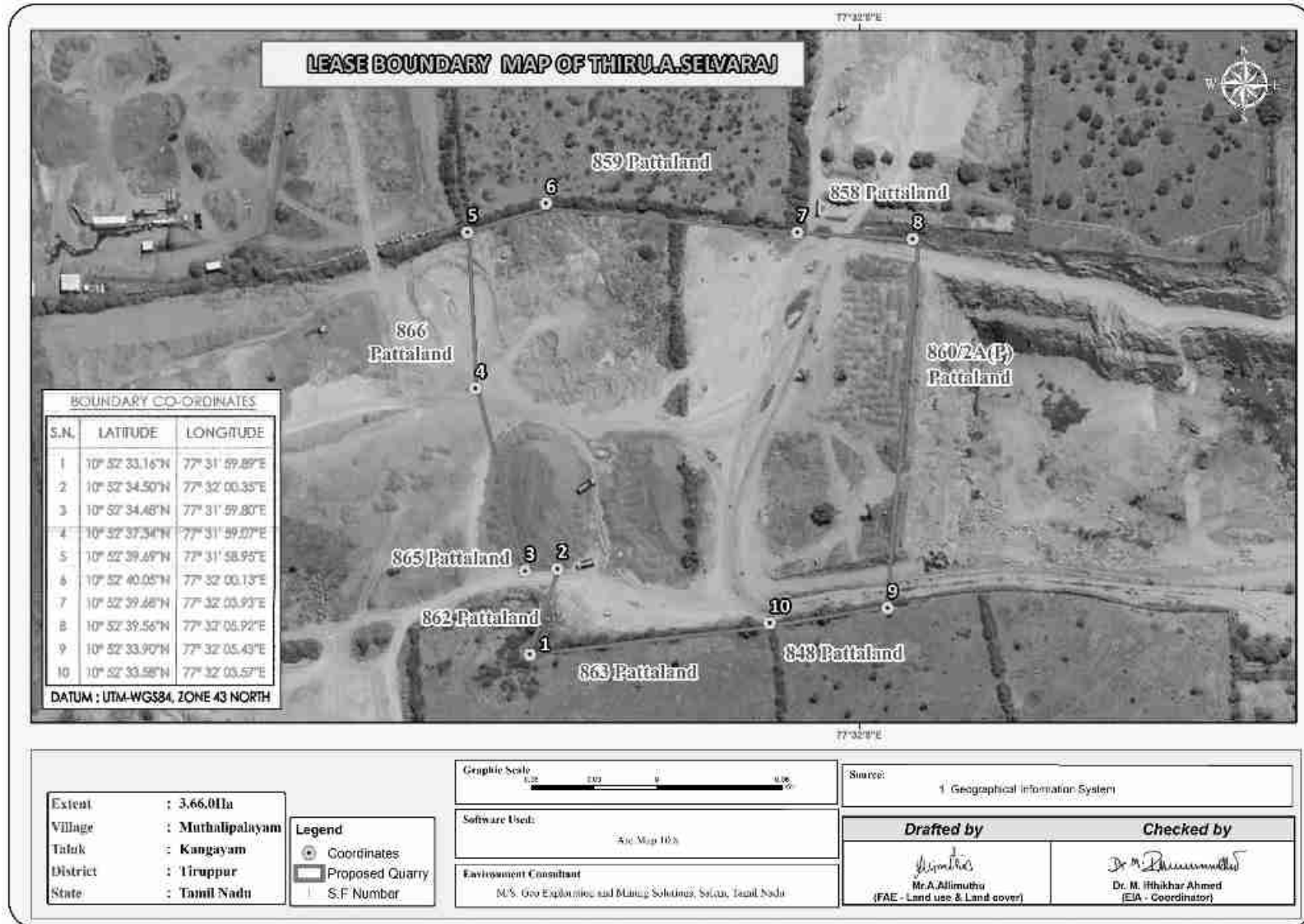
Source: Approved Mining Plan

FIGURE 2.1: TOPOGRAPHICAL VIEW OF PROJECT AREA
Project Site



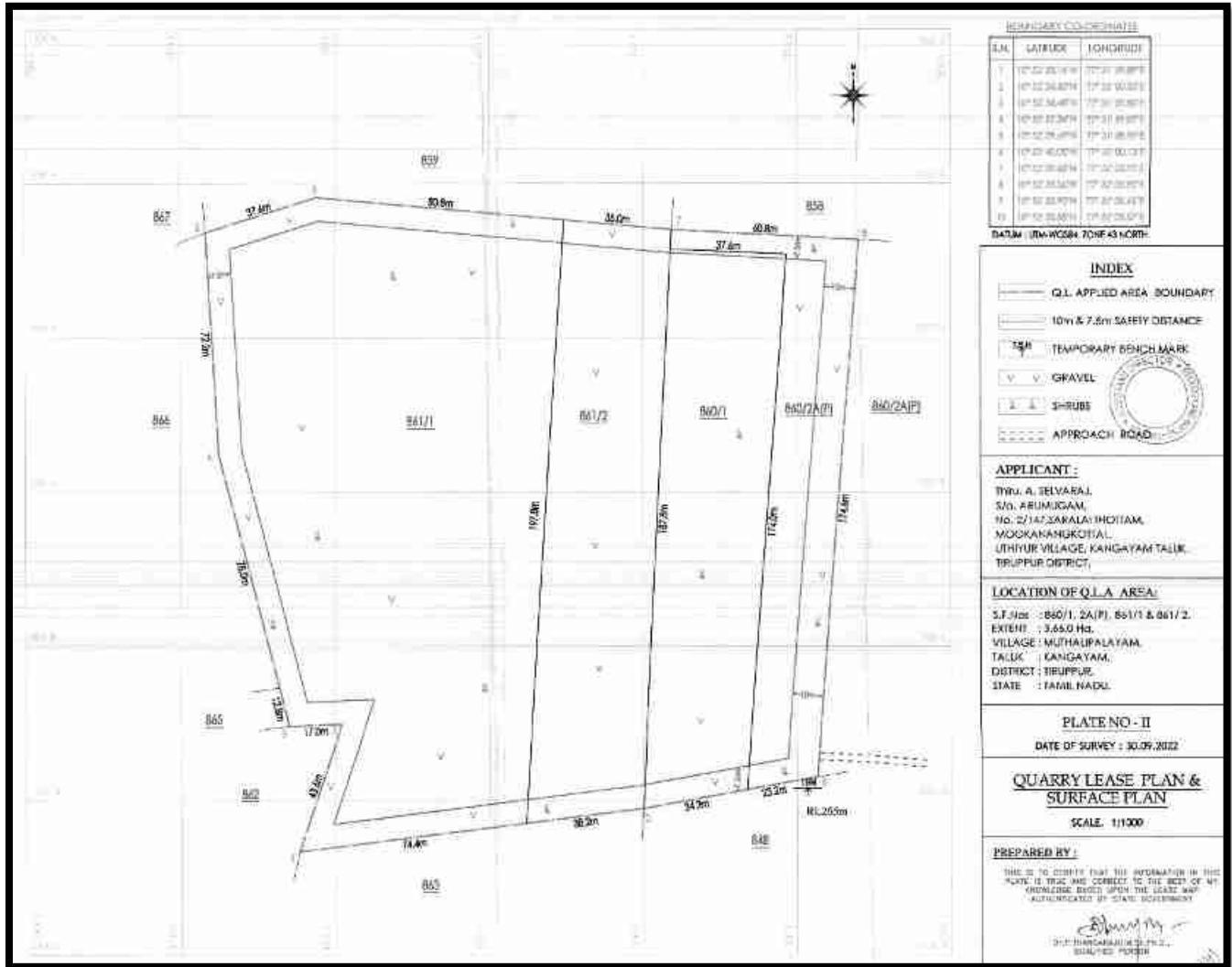
Crusher material stored temporarily in the project site

FIGURE 2.2: GOOGLE IMAGE OF THE PROJECT AREA



Source: Google Earth Imagery

FIGURE 2.3: QUARRY LEASE PLAN / SURFACE PLAN



Source: Approved Mining Plan

FIGURE 2.4: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE

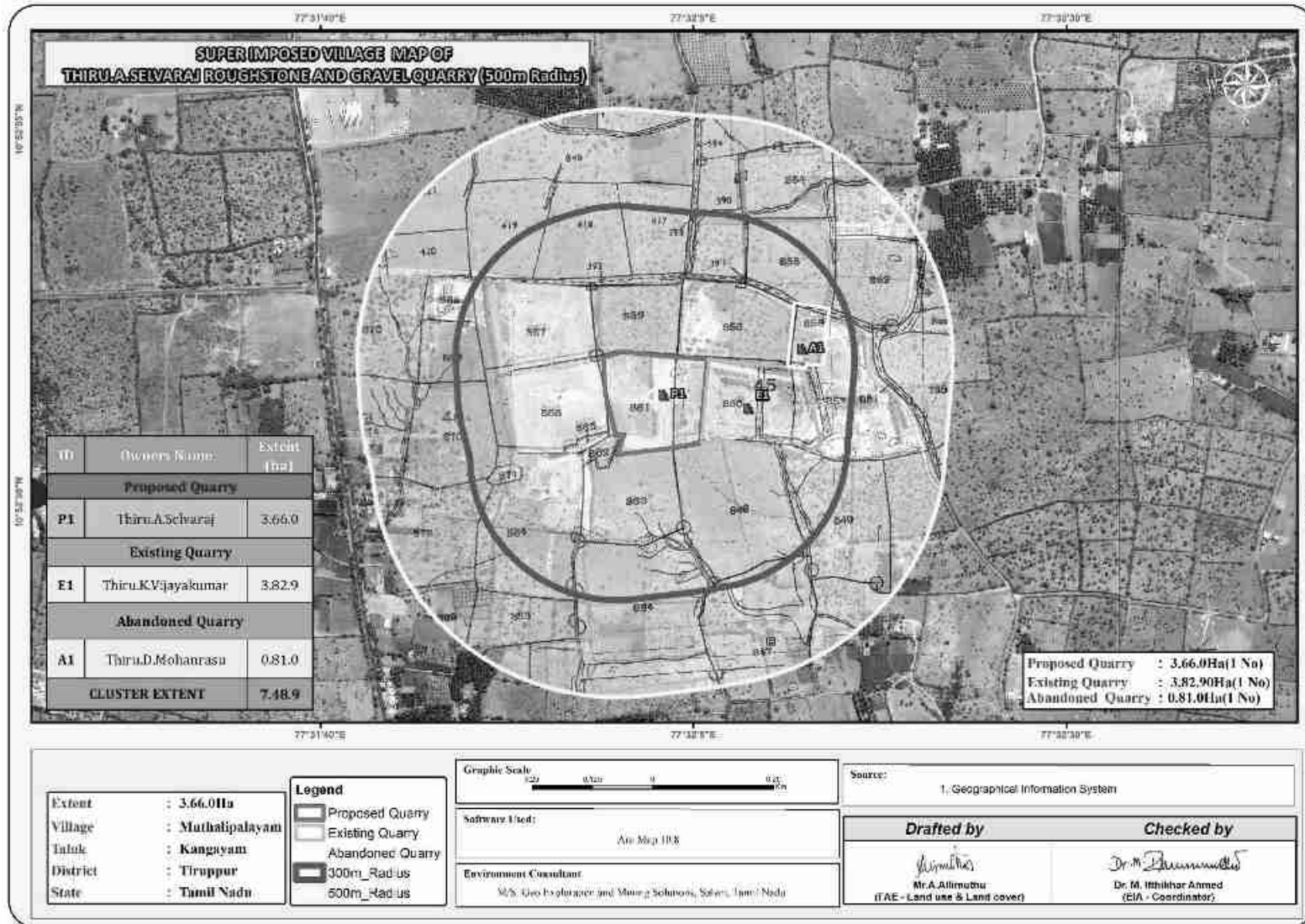


FIGURE 2.5: IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS

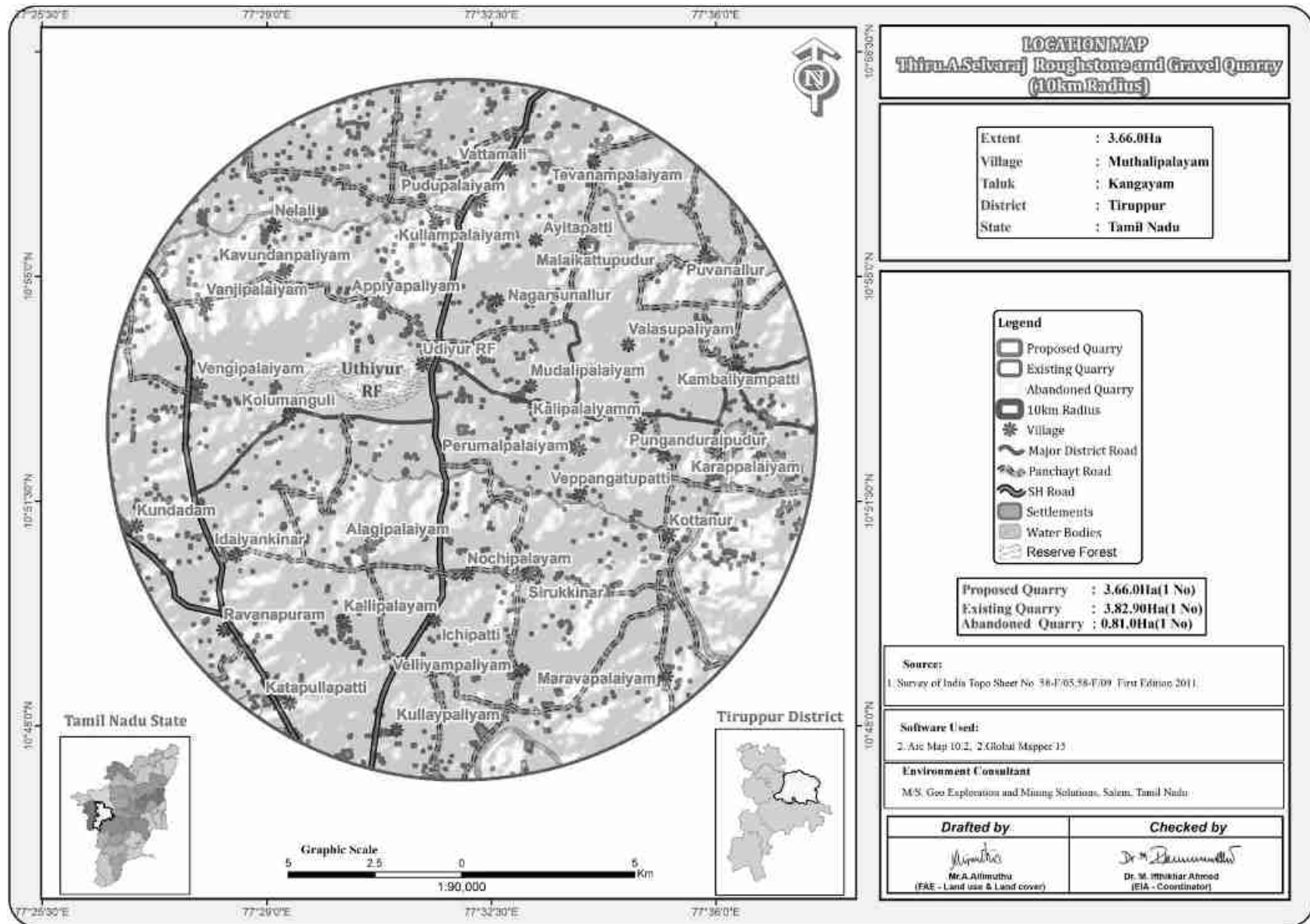
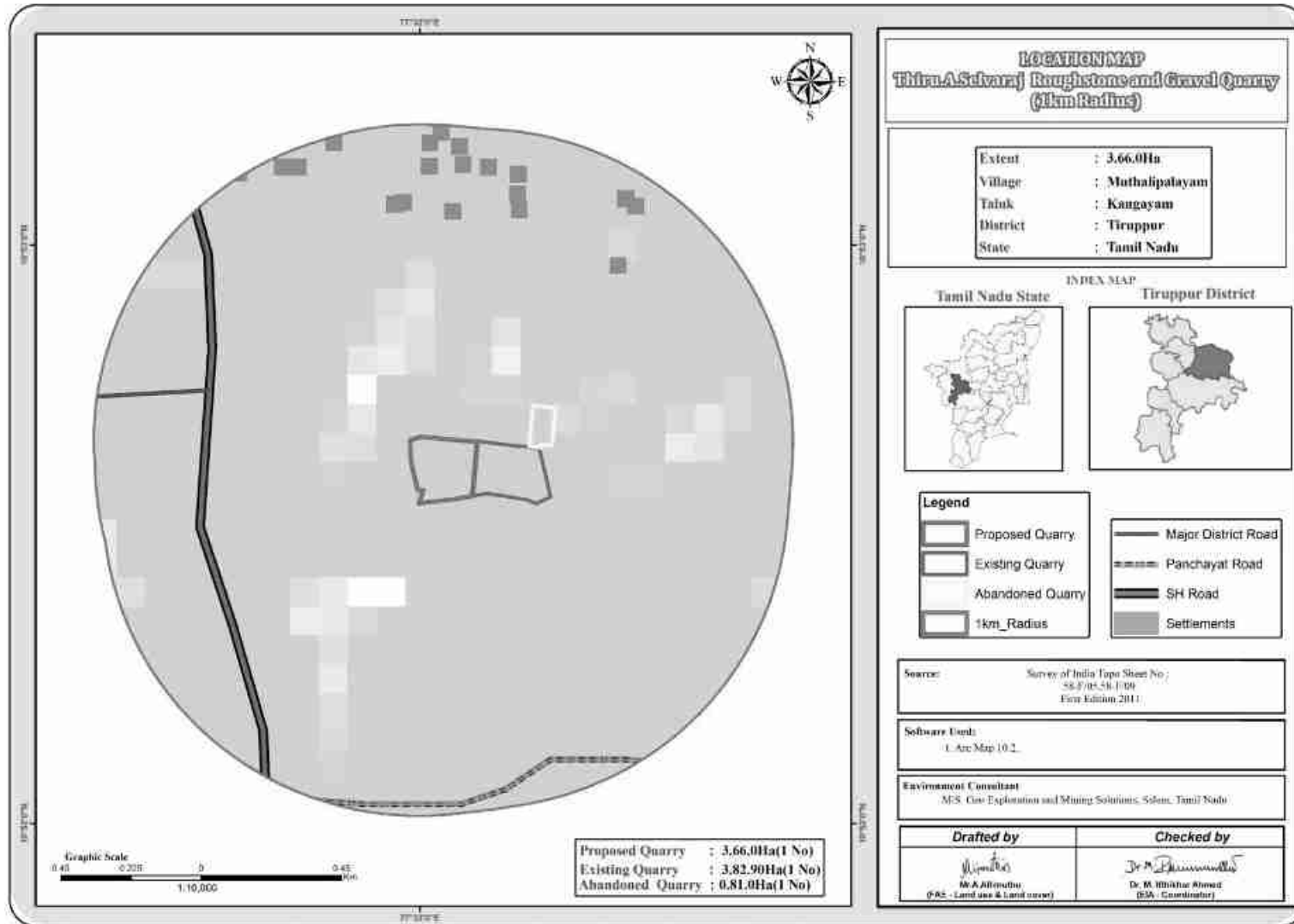


FIGURE 2.6: IMAGE SHOWING SURFACE FEATURES AROUND 1 KM RADIUS



2.2.1 Project Area

- The project is site specific & no beneficiation or processing in the project site.
- There is no forest land involved in the proposed projects and is devoid of major vegetation and trees.

TABLE 2.3: LAND USE PATTERN

Description	Present area in (Ha)	Area required during the First Five years of the Plan period (Ha)	Area at the end of Lease period (Ha)
Area under quarry	Nil	3.07.0	3.07.0
Infrastructure	Nil	0.01.0	0.01.0
Roads	Nil	0.02.0	0.02.0
Green Belt	Nil	0.15.0	0.31.0
Unutilized Area	3.66.0	0.41.0	0.25.0
Grand Total	3.66.0	3.66.0	3.66.0

Source: Approved Mining

2.2.2 Size or Magnitude of Operation

TABLE 2.4: RESOURCES AND RESERVES

PARTICULARS	DETAILS		
	Rough Stone in m ³	Weathered Rock in m ³	Gravel in m ³
Geological Resources	12,81,000	1,09,800	73,200
Mineable Reserves	6,14,600	83,664	59,508
Production for Ten-years plan period	6,14,600	83,664	59,508
Peak Production	70,500	28,884	21,888
Mining Plan Period / Lease Applied Period	10Years		
Number of Working Days	300 Days		
Production per day	205	93	66
No of Lorry loads (12m ³ per load)	17	8	6
Total Depth of Mining	40m (2m Gravel + 3m Weathered rock +35m Rough Stone)		

Source: Approved mining plan.

2.3 GEOLOGY

2.3.1 Regional Geology

Tiruppur district of Tamil Nadu forms a part of southern Granulitic terrain and is predominantly occupied by crystalline rocks of Archaean to late Proterozoic age. Regionally, the rocks can be grouped under five categories namely –

- I. Charnockite Group represented by Charnockite, Pyroxene Granulite and Magnetite Quartzite,
- II. Peninsular Gneissic Complex (II) comprising hornblende-biotite gneiss,
- III. Basic intrusive include Pyroxinite/Dunite
- IV. Younger intrusive comprising, Nepheline-Syenite, Pink Granite, Pegmatite and Quartz veins and
- V. Quaternary sediments of Kankar and soil.

Stratigraphy of the area

Age	Group	Lithology
Holocene		Block cotton soil/clay ± gypsum
Cenozoic		Kankar/calc-tufa
Neoproterozoic	Acid intrusives	Quartz veins Pegmatite Pink Granite
	Sivamalai syenite Complex	Nepheline-syenite
	Chalk Hills (Basic Intrusives)	Pyroxenite/Dunite
Archaean - Palaeoproterozoic	Peninsular Gneissic Complex (II) PGC (II)	Pink Granite Gneiss Hornblende Biotite gneiss
Archaean	Charnockite Group	Charnockite (Unclassified) Pyroxene Granulite Banded Magnetite Quartzite

Tiruppur District is predominantly occupied by hornblende Biotite gneisses of PGC (II) with enclaves of Magnetite Quartzite, Pyroxene Granulite and Charnockite. The area exposes several bands of Pyroxene Granulite which is medium grained, medium to dark grey in colour and stand out prominently in the gneissic country generally parallel to regional foliation. Charnockite is coarse grained, massive, many places it is foliated, grey colored and greasy and exposed as boulder outcrops and small knolls. It is well exposed in Central, Western and Southern parts of the Tiruppur District. The general strike of foliation varies from ENE-WSW, E-W with dipping towards NW and N respectively.

Hornblende-Biotite gneiss is well foliated, medium to coarse grained, pale grey and exposed as sheets and small knolls. Pink Granite gneiss occurs as thin bands and lensoidal bodies. It is a medium grained rock composed of alternating bands of mafic (mainly of biotite and hornblende) and felsic (Feldspar and Quartz) minerals. It is well recognized in Avinasi area.

Basic intrusives such as pyroxenite/dunite occurs as Outcrop and lensoidal bodies in the country rock and mostly concordant to the regional foliation. Many basic intrusive are reported in south and south-east of Tiruppur town. The trend of these bodies is east-west.

Nepheline syenite is a leucocratic, coarse-grained rock and composed mainly of Feldspar with Nepheline and shows pitted appearance due to removal of Nepheline. This alkaline rock is available in and around Sivamalai area only. Acid intrusives comprising pink granite, pegmatite and quartz veins are traversed country rocks in micro (cm wide-meter long) to meso-scale (few meters wide and several meter long) extend. Granite is exposed around 9 km SW of Avanashi. Small scale pegmatite and quartz veins are noticed almost in all the rock types. Acid intrusives are overlain by sediments of Quaternary age, represented by Kankar and black cotton soil with Gypsum. Most of the area is covered by brown and red brown soil. Some part of the area covered with black cotton soil contains Gypsum as lumps. Black cotton soil covers south-western part of the district.

Source: District Survey Report for Minor Minerals Tiruppur District – May 2019

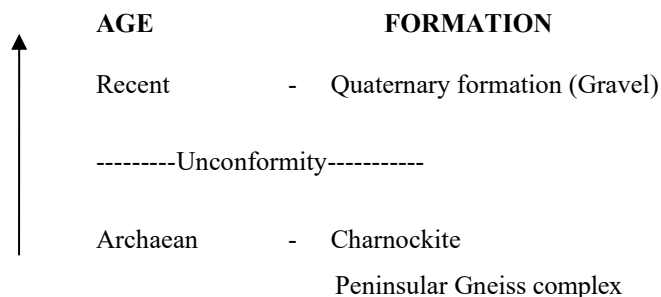
<https://cdn.s3waas.gov.in/s3d1f255a373a3cef72e03aa9d980c7eca/uploads/2019/05/2019052585.pdf>

2.3.2 Local Geology: -

The lease applied area is a flat terrain. The area has gentle sloping towards Southeast side and altitude of the area is 265m above from Mean Sea level. The area is covered by 2m thickness of Gravel, 3m thickness of Weathered rock and followed by Massive Charnockite which is clearly inferred from the surface outcrops.

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale of the Charnockite body is N45°E – S45°W with dipping towards SE60°.

The general geological sequences of the rocks in this area are given below:



2.3.3 Hydrogeology

Tiruppur District is underlain by crystalline metamorphic complex in the western parts of district and sedimentary tract in eastern side. An area of 4551 Sq.km is covered by crystalline rocks (63%) and 2671 Sq.km is covered by sediments (37%). The general geological sequence of formation is given below:

Quaternary - Laterites, Sands and Clays

Tertiary - Sandstone, Gravels and Clays

Cretaceous - Limestone, Calcareous Sandstone and Clay unconformity.

Archaean - Charnockites, Gneisses, Granites, Dolerites and Pegmatite

- The major part of the area is covered by metamorphic crystalline rocks of charnockite, granitic gneiss of Archaean age intruded by dolerite dykes and pegmatite veins. These rocks are highly metamorphosed and have been subjected to very severe folding, crushing and faulting.
- Ground Water occurs under the phreatic condition and wherever there are deep seated fractures, it occurs under semi-confined to confined conditions.
- Occurrence of Ground Water in hard rock depends upon the intensity and depth of weathering, fractures and fissures present in the rocks.
- Granites and gneisses yield moderately compared to the yield in Charnockites.
- Depth of well in hard rock generally ranges between 8 and 15m below ground level.
- Generally, yield in open wells ranges from 30 to 250m³ /day and in bore well between 260 and 430 m³ /day. The weathered thickness varies from 2.5 m to 42m in general there are 3 to 5 fracture zones within 100 m and 1 to 4 fracture zones between 100 and 200 m.

The Cretaceous formation is represented by Arenaceous Lime stone, Calcareous sand - stone and marl. The Tertiary formation is argillaceous comprising of Silty clay stones, argillaceous Lime stone.

The Quaternary deposits represented by the river deposits of Ponnaiyar and Varahanadhi spread over as patches in Tiruppur District. The alluvium consists of unconsolidated sands, gravelly sands, clays and clayey sands. The thickness of the sands ranges between 15 and 25 m in the alluvial formation which also form potential aquifers. In some areas, sand stone of tertiary formation are the potential groundwater reservoirs.

Aquifer Systems:

Occurrence and storage of groundwater depend upon three factors viz., Geology, Topography and rainfall in the form of precipitation. Apart from Geology, wide variation in topographic profile and intensity of rainfall constitutes the prime factors of groundwater recharge. Aquifers are part of the more complex hydro geological system

and the behaviour of the entire system cannot be interpreted easily. In hard rock terrain the occurrence of Ground Water is limited to top weathered, fissured and fractured zone which extends to maximum 30m on an average it is about 10-15 m in Tiruppur District.

In Sedimentary formations, the presence of primary inter granular porosity enhances the transmitting capacity of groundwater where the yield will be appreciable. The sedimentary area which occupies the eastern part of the district along the coastal tract is more favourable for groundwater recharge. Ground Water occurs both in semi confined and confined conditions. A brief description of occurrence of groundwater in each formation is furnished below.

Alluvial Formations

In the river alluvium groundwater occurs under water table condition. The maximum thickness is 37 m and the average thickness of the aquifer is approximately 12 m. These formations are porous and permeable which have good water bearing zones.

Tertiary Cuddalore sandstone

Tertiary formations are represented by Cuddalore Sandstone and characterised as fluvial to brackish marine deposits. Predominantly this formation is divided into Lower and Upper Cuddalore formations. In the Upper Cuddalore formations the groundwater occurs in semi confined conditions, whereas in the Lower Cuddalore the groundwater occurs in confined condition with good groundwater potential.

Cretaceous Formations

Groundwater occurring in the lens shape in the sandy clay lenses and fine sand is underlain by white and black clay beds which constitute phreatic aquifer depth which ranges 10m to 15m below ground level. Phreatic aquifer in Limestone is potential due to the presence of Oolitic Limestone.

Hard Rock Formations

Groundwater occurs under water table conditions but the intensity of weathering, joint, fracture and its development are much less in other type of rocks when compared to gneissic formation. The groundwater potential is low, when compared with the gneissic formations.

Granitic Gneiss

Groundwater occurs under water table conditions in weathered, jointed and fractural formations. The pore space developed in the weathered mantle acts as shallow granular aquifers and forms the potential water bearing and yielding zones water table is shallow in canal and tank irrigation regions and it is somewhat deeper in other regions.

Charnockite

Groundwater occurs under water table conditions but the intensity of weathering, joint, fracture and its development are much less when compared to gneissic formations. The groundwater potential is low, when compared with the gneissic formations.

Aquifer Parameters

The thickness of aquifer in this district is highly erratic and varies between 15 m to 40 m below ground level. The inter granular Porosity is essentially dependent on the intensity and degree of weathering and fracture development in the bed rock. As discussed earlier deep weathering has developed in Gneissic formations and moderate weathering in charnockite formations. The range of aquifer parameters in hard rock and sedimentary formations are given below:

TABLE 2.5: RANGE OF AQUIFER PARAMETERS

Name	Sp. Capacity (lpm/d)	Specific Yield (%)	T (m ² /d)	K (m/day)	Yield of wells (lps)
Alluvium	2.08	7.2	98	19.7	2.5
Tertiary	78-173	1.4-3.5	46-134	16-33	2-3.3
Cretaceous	33-782	0.3-2.56	33-782	10-66	1.1-3.5
Crystalline	27-224	0.8-2.5	16-60	5-20	1-2

Source: <http://nwm.gov.in/sites/default/files/Notes%20on%20Trippur%20District.pdf>

The Ground Water levels from the 38 number of observation wells of TWAD have been analyzed for Post-Monsoon and Pre-Monsoon.

FIGURE 2.8: GROUND WATER LEVEL VARIATIONS OF TIRUPPUR DISTRICT

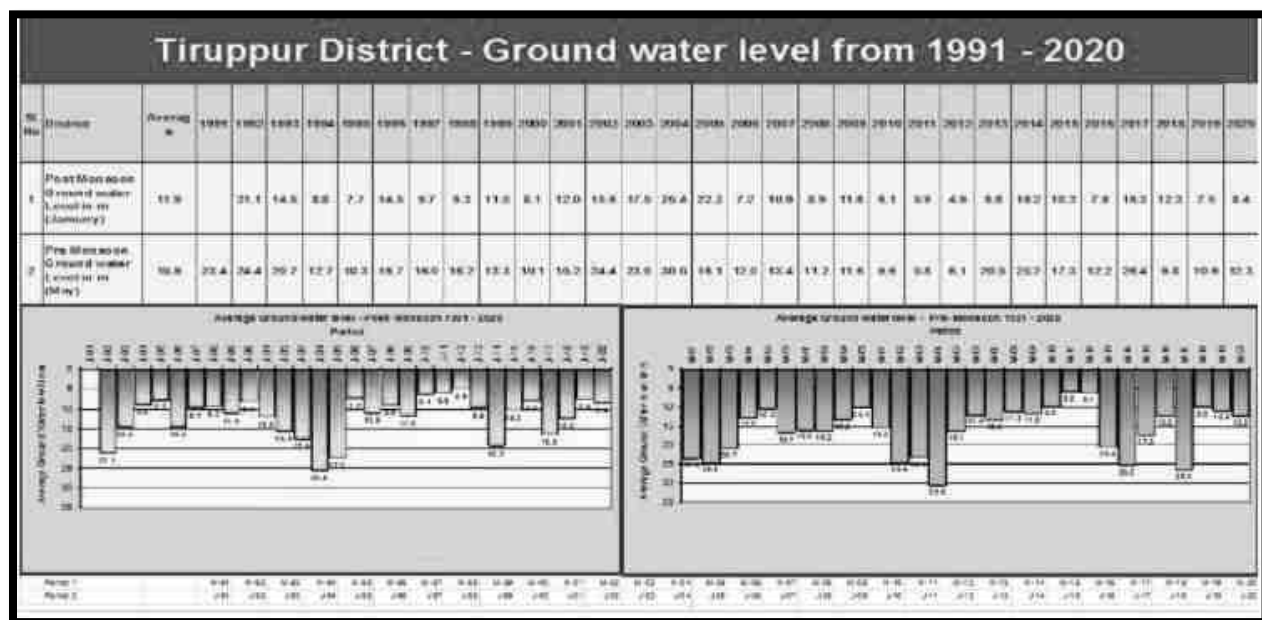


TABLE 2.6: GROUND WATER LEVEL VARIATIONS OF TIRUPPUR DISTRICT

Jan 2017	May 2017	Jan 2018	May 2018	Jan 2019	May 2019	Jan 2020	May 2020	Jan 2021	May 2021	5 Years Pre-Monsoon Average	5 Years Post Monsoon Average
16.3	26.4	12.4	9.8	7.6	10.9	8.4	12.3	7.1	10.6	11.9	8.8

Source: <https://www.twadboard.tn.gov.in/content/tiruppur>

FIGURE 2.7: REGIONAL GEOLOGY MAP

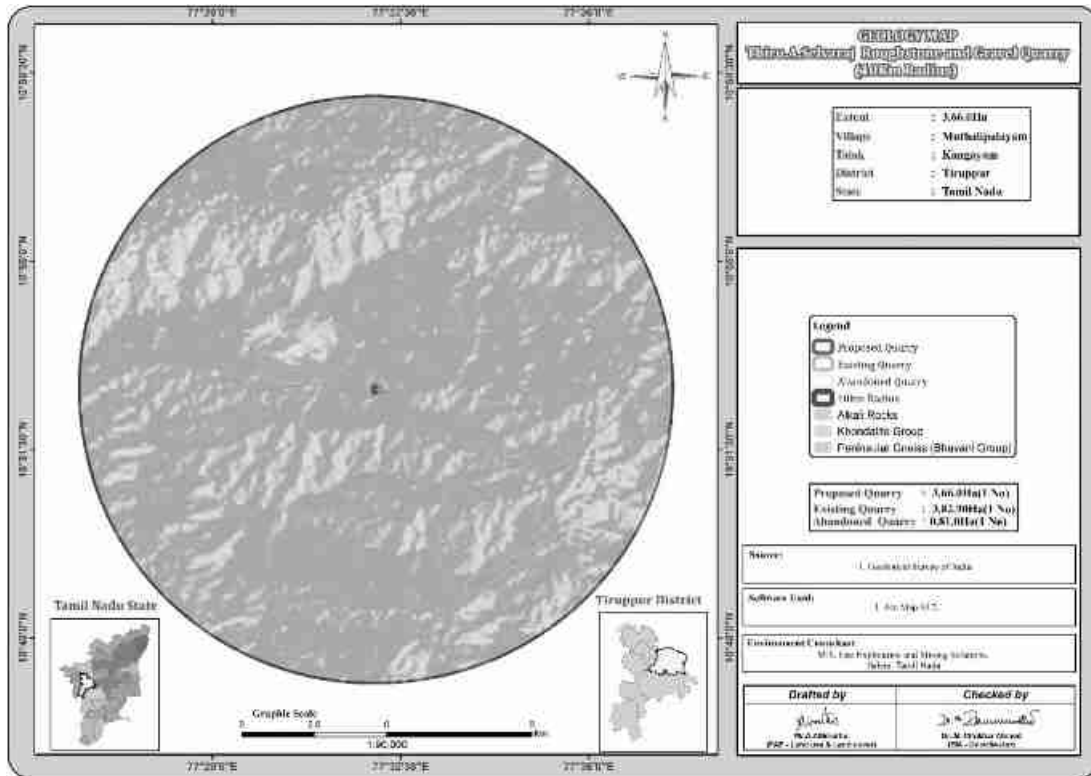
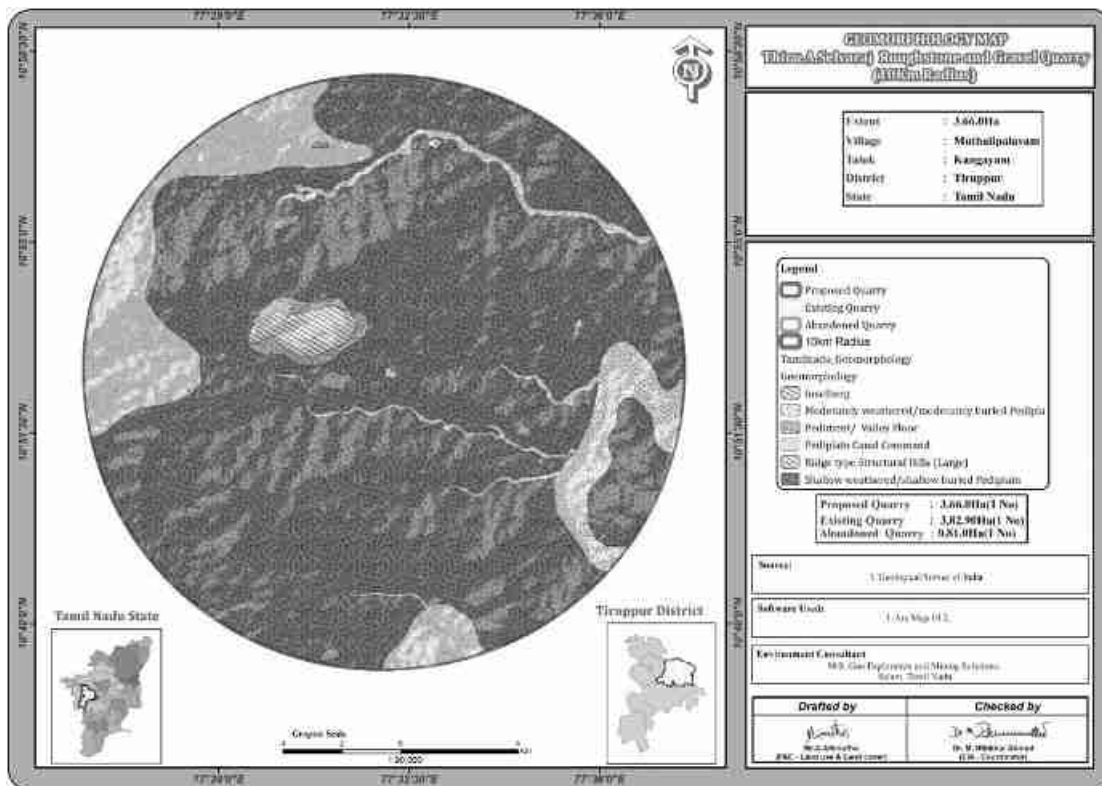


FIGURE 2.8: GEOMORPHOLOGY MAP



2.4 RESOURCES AND RESERVES

The Resources and Reserves of Rough Stone and Gravel were calculated based on Cross-Section Method by plotting sections to cover the maximum lease area. Based on the availability of Geological Resources the Mineable Reserves are calculated by considering excavation system of bench formation and leaving essential safety distance of 7.5 m (Safety Barrier all around the applied area) and safety distance as per precise area communication letter and deducting the locked up reserves during bench formation (Also called as Bench Loss) and the Mineable Reserves is calculated considering there is no waste / overburden / side burden (100% Recovery Anticipated).

TABLE 2.5: RESOURCES AND RESERVES

Description	Rough Stone m ³	Weathered Rock m ³	Gravel m ³
Geological Resource in m ³	12,81,000	1,09,800	73,200
Mineable Resource in m ³	6,14,600	83,664	59,508
Year wise production for first five-year plan period	2,69,600	83,664	59,508
Next five-year plan period	3,45,000	-	-

Source: Approved Mining Plan

TABLE 2.6: YEAR-WISE PRODUCTION PLAN

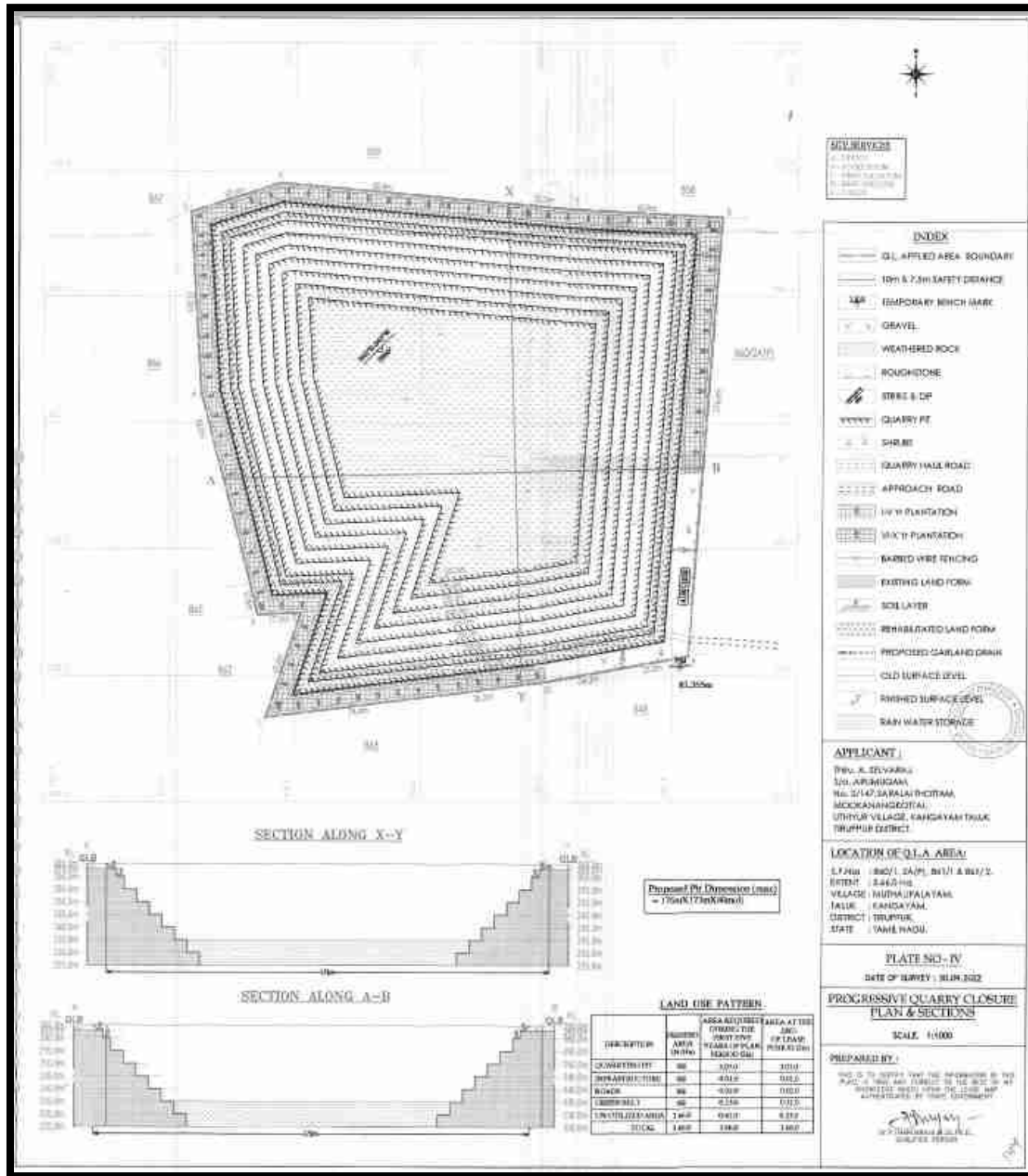
	Year	Rough Stone (m ³)	Weathered Gravel (m ³)	Gravel (m ³)
FIRST FIVE YEARS	I	41,600	28,884	21,888
	II	44,000	27,390	18,810
	III	44,000	27,390	18,810
	IV	69,500	-	-
	V	70,500	-	-
	Total	2,69,600	83,664	59,508
SECOND FIVE YEARS	VI	69,300	-	-
	VII	68,750	-	-
	VIII	68,350	-	-
	IX	69,500	-	-
	X	69,100	-	-
	Total	3,45,000	-	-

Source: Approved Mining Plan

Disposal of Waste

The overburden in the form of Gravel formation is about 59,508m³ up to depth 2m and Weathered formation is about 83,664m³ up to depth 3m for three years. The quarried-out Gravel and Weathered material will be directly loaded

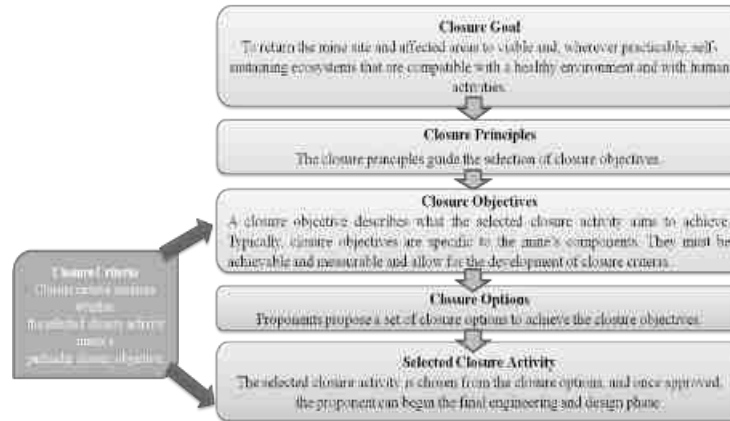
FIGURE 2.10: CLOSURE PLAN AND SECTIONS



Source: Approved Mining Plan

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

Closure Objectives –



- Access to be limited, for the safety of humans and wildlife.
- The open pit mine workings and pit boundary are physically and geo-technically stable.
- Water quality in flooded pits is safe for humans, aquatic life, and wildlife.
- Discharge of contaminated drainage has been minimized and controlled.
- Original or desired new surface drainage patterns have been established.
- For flooded pits, in-pit aquatic habitat has been established where practical and feasible.
- Emergency access and escape routes from flooded pits for humans and wildlife are in place.
- Dust levels are safe for people, vegetation, aquatic life, and wildlife.

Closure Planning & Options Considerations in Mine Design –

- The closure of mine is well planned at the initial stage of planning & design consideration by the internal and external stake holders
- Construction of 2m height bund all along the mine pit boundary and ensure its stability all time & construction of garland drain along the natural slope to avoid sliding and collection of soil to the pit & surface runoff during rainfall
- After complete exploitation of mineral, the lowest bench foot wall side will be maintained as plain surface without any sump pits to avoid any accidents
- All the sharp edges will be dressed to smoother face before the closure of mine and ensure no loose debris on hanging wall side
- The project proponent as a part of social responsibilities assures to supply the stored mine pit water to the nearby villages after effective treatment process as per the standards of TNPCB & TWAD
- Native species will be planted in 3 row patterns on the boundary barriers and 1st bench, a full-time sentry will be appointed at the gate to prevent inherent entry of public & cattle.
- The access road to the quarry will be cut-off immediately after the closure
- The layout design shall be prepared and get approved from Department of Geology and Mining.
- The proponent is instructed to construct as per the layout approved
- Physical and chemical stability of structures left in place at the site, the natural rehabilitation of a biologically diverse, stable environment, the ultimate land use is optimized and is compatible with the surrounding area and the requirements of the local community, and taking the needs of the local community into account and minimizing the socio-economic impact of closure
- There will be a positive change in the environmental and ecology due to the mine closure

2.5 METHOD OF MINING

Opencast Mechanized Mining Method is proposed by formation of 5.0-meter height bench with a bench width not less than the bench height. Bench slope will be maintained as 60°.

The Rough Stone is a batholith formation and the splitting of rock mass of considerable volume from the parent rock mass will be carried out by deploying jackhammer drilling and Slurry Explosives will be used for blasting. Hydraulic Excavator attached with rock breaker/ bucket with tipper combination will be involved for the excavation/breaking of Rough stone after blasting. Hydraulic excavators attached with bucket unit will be deployed for loading the Rough Stone into the tippers and then the stone is transported from pithead to the nearby crushers.

It is recommended to obtain necessary statutory permission from the Department of Geology and Mining for Using Heavy Earth Moving Machineries, Blasting and appointment of Mines Manager etc.,

2.5.1 Drilling & Blasting Parameters

Drilling will be carried out using Jack hammer and compressor, the depth of the hole will be maximum 1.5m Drilling & Blasting will be carried out as per parameters given below: -

Spacing	–	1.2m
Burden	–	1.0 m
Depth of hole	–	1.5 m
Charge per hole	–	0.50 – 0.75kg
Powder factor	–	6.0 tonnes/kg
Diameter of hole	–	32 mm
Production Capacity	=	205m ³ of Rough stone per day
Spacing X Burden X Depth	=	1.2m X 1.0m X 1.5m = 1.8m ³
	=	1.8m ³ X 2.6 (Bulk Density) = 4.6Ts per hole

hence for the production of 205m³ (533Ts) = 89 Nos of holes to be drilled per day

Explosives per hole = ½ kg hence 44.5 kg of Explosives will be utilized maximum considering the peak production

Type of Explosives to be used –

Slurry explosives (An explosive material containing substantial portions of a liquid, oxidizers, and fuel, plus a thickener), NONEL / Electric Detonator & Detonating Fuse.

Storage of Explosives –

No proposal for storage of explosives within the project area, the project proponent will made agreement with authorized explosives agencies for carrying out blasting activities and competent person as per DGMS guidelines will be employed for safety and supervision of overall quarrying activities.

The explosives will be sourced from the blasting agency on daily basis and the blasting will be carried out under the supervision of competent qualified Blaster and it will be ensured that there shall be no balance of explosive stock; any balance stock will be taken back by the supplier.

2.5.2 Extent of Mechanization

TABLE 2.8 PROPOSED MACHINERY DEPLOYMENT

S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	7	1.2m to 2.0m	Compressed air
2	Compressor	2	400psi	Diesel Drive
3	Excavator with Bucket and Rock Breaker	2	300 HP	Diesel Drive
4	Tippers	4	35 Tonnes	Diesel Drive

Source: Approved Mining Plan

2.6 GENERAL FEATURES

2.6.1 Existing Infrastructures

Infrastructures like Mine office, Temporary Rest shelters for workers, Latrine and Urinal Facilities will be constructed as per the Mine Rule after the grant of quarry lease in all the proposed quarries.

2.6.2 Drainage Pattern

There are no streams, canals or water bodies crossing within the project area. The drainage pattern of the area is dendritic – sub dendritic.

2.6.3 Traffic Density

The traffic survey conducted based on the transportation route of material, the Rough Stone is proposed to be transported mainly through

Traffic density measurements were performed at two locations

1. Panchayat Road - Puliampatti to Kungumapalayam Road
2. State Highway - Uthiyur to Nathakattupudur Road

Traffic density measurement was 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.

TABLE.2.9: TRAFFIC SURVEY LOCATIONS

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Puliampatti - Kungumapalayam	1.1Km - SE	Panchayat Road
TS2	Uthiyur -Nathakattupudu	720m - SW	State Road

Source: On-site monitoring by GEMS FAE & TM

TABLE 2.10: EXISTING TRAFFIC VOLUME

Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	80	240	95	285	110	330	855
TS2	245	735	165	495	255	675	1905

Source: On-site monitoring by GEMS FAE & TM

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

TABLE 2.11: ROUGH STONE & GRAVEL HOURLY TRANSPORTATION REQUIREMENT

Transportation of Rough Stone & Gravel per day		
Capacity of trucks	No. of Trips per day	Volume in PCU
35 tonnes	31	93

FIGURE.2.11: MINERAL TRANSPORTATION ROUTE MAP**Proposed Transportation Route:**

1. The Rough stone will be transported to the Crusher which is located 580m West side of the project site.
2. Existing approach road is located on the West side this road connecting in Palani – Erode Road (Total Stretch of the approach road = 1.6km)
3. Pachapalayam – Chettipalayam road connecting in the Major District Road (522) at a distance of 2km the total Stretch of the Transportation route is about 2.5 to 3km from the project site
4. No Major Habitation, Schools in the proposed transportation route.

TABLE 2.12: 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
Karamadai - Kariyampalayam State Highway (SH- 168)	855	93	948	1500
Senniveeranpalayam – Therampalayam –Panchayat Road	1905	93	1998	1200

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

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

2.6.4 Mineral Beneficiation and Processing

There is no proposal for the mineral processing or ore beneficiation in any of the proposed project.

2.7 PROJECT REQUIREMENT**2.7.1 Water Source & Requirement**

Detail of water requirements in KLD as given below:

TABLE 2.13: WATER REQUIREMENT FOR THE PROJECT

Purpose	Quantity	Source
Dust Suppression	1.5KLD	From the existing pit or from the water vendors
Green Belt	0.6KLD	From the existing pit or from the water vendors
Sanitation & Drinking	0.4KLD	From the existing pit or from the water vendors.
Total	2.5KLD	

Source: Prefeasibility report

2.7.2 Power and Other Infrastructure Requirement

Power is not required for the mining operation; the mining operation will be carried out using Diesel Generator and Earth moving machineries using diesel. The quarrying activity is proposed during day time only (General Shift 8 AM – 5 PM, Lunch Break 1 PM – 2 PM). Electricity for use in office and other internal infrastructure will be obtained from TNEB by project proponent.

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

2.7.3 Fuel Requirement

One Excavator will excavate 25m³ of Broken up Rough stone per hour and 60m³ of Weathered rock and Gravel per hour.

Production of Rough stone = 205m³

Production of Weathered rock = 93m³

Production of Gravel = 66m³

Production for the overburden (Gravel + Weathered rock) = 159

Type of machinery	Working hours	Average Diesel consumption/ Hour	Quantity of Diesel in Ltrs
Working hours of Excavator (Aprx)	205m ³ /25m ³ = 8.2 Hrs (Rough stone)	18 Ltrs	148
	159/60m ³ = 3 Hrs	18 Ltrs	54
Compressor	Working hours per day 3 Hrs	8 Ltrs	24
Tippers, Motor pumps to drain water	Occasionally		20
Total Diesel Consumption			246

The Maximum diesel consumption is around 246 Ltrs per day considering the peak production.

2.7.4 Project Cost

The Environmental Management plan has been prepared considering the mode of working, Safety of the employees and Monitoring periods the total Cost is 290.47Lakhs.

2.8 EMPLOYMENT REQUIREMENT:

The following manpower's are proposed in the mining plan to carry out the day-to-day quarrying activities, the same employment is maintaining aimed at the proposed production target and also to comply with the statutory provisions of the Metalliferous mine's regulations, 1961.

TABLE 2.14: PROPOSED MANPOWER DEPLOYMENT

Designation	No of persons
Mines Foreman	1
Mate/Blaster	1
Jack hammer operator	14
Excavator Operator & Driver	6
Security	1
Labour & Helper	3
Cleaner & Co-operator	6
Total	32

Source: Approved Mining Plan & Pre-Feasibility report.

2.9 PROJECT IMPLEMENTATION SCHEDULE

The mining operation will commence after the grant of Environmental Clearance, Consent to operate (CTO), Execution of Lease Deed and Obtaining permission from the DGMS (Notice of Opening).

TABLE 2.15: EXPECTED TIME SCHEDULE

Sl.No.	Particulars	Time Schedule (In Month)					Remarks if any
		1 st	2 nd	3 rd	4 th	5 th	
1	Environmental Clearance						
2	Consent to Operate						
3	Execution of Lease deed						
4	Permission from DGMS						
Time line may vary; subjected to rules and regulations /& other unforeseen circumstances							

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

3. DESCRIPTION OF ENVIRONMENT

3.0 GENERAL

The baseline environment quality represents the background environmental scenario of various environmental components such as Land, Water, Air, Noise, Biological and Socio-economic status of the study area. Field monitoring studies to evaluate the base line status of the project site were carried out covering October to December 2023 with CPCB guidelines for the following attributes –

- Land
- Water
- Air
- Noise
- Biological
- Socio-economic status

Environmental data has been collected with reference to cluster quarries Global Lab and Consultancy Services.

Study Area

An area of 10 km radius (aerial distance) from the periphery of the cluster is considered for EIA study. The study area has been divided into two zones viz **core zone** and **buffer zone**.

- Core zone is considered as cluster area
- Buffer zone taken as 10km radius from the periphery of the Cluster. Both Core zone and Buffer zone is taken as the study area.

Study Period

The baseline study was conducted during the summer season i.e., October to December 2023.

Study Methodology

- The project area was surveyed in detail with the help of Total Station Survey instruments and pillars were marked. The boundary coordinates were superimposed on the satellite imagery to understand the relief of the area, besides Land use pattern of the area was studied through the Bhuvan (ISRO)
 - Soil samples were collected and analysed for relevant physio-chemical characteristics in order to assess the impact due to mining activities and to recommend saplings for Greenbelt development.
 - Ground water samples were collected from the existing bore wells, Surface water was collected from water bodies in the buffer zone and analysed as per CPCB Guidelines.
 - An onsite meteorological station was setup in cluster area, to collect data about wind speed, wind direction, temperature, relative humidity, rainfall and general weather conditions were recorded throughout the study period.
 - Air quality Data were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, PM₁₀ and SO₂, NO_x with gaseous attachments & Fine Dust Samplers (FDS) for PM_{2.5} and other parameters as per NAAQ norms and analysed for primary air pollutants to work out the existing status of air quality.
 - The Noise level measurements were also made at various locations in different intervals of time with the help of sound level meter to establish the baseline noise levels in the impact zone.
 - Baseline biological studies were carried out to assess the ecology of the study area to study the existing flora and fauna pattern of the area.
-

- Socio-Economic survey was conducted at village and household level in the study area to understand the present socio-economic conditions and assess the extent of impact due to the proposed mining project. The sampling methodologies for the various environmental parameters required for the study, frequency of sampling, method of samples analysis, etc., are given below 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 10 km radius of the study area	Data's from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
*Soil	Physio-Chemical Characteristics	Once during the study period	6 (1 core & 5 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	6 (1 surface water & 5 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Auto matic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
*Ambient Air Quality	PM10 PM2.5 SO2 NOX Fugitive Dust	24 hourly twice a week (October to December 2023)	7 (1 core & 6 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	7 (1 core & 6 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrante & 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.

Source: On-site monitoring/sampling by GLCS in association with GEMS

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

3.1 LAND ENVIRONMENT

The main objective of this section is to provide a baseline status of the study area covering 10km radius around the proposed mine site so that temporal changes due to the mining activities on the surroundings can be assessed in future.

3.1.1 Land Use/ Land Cover

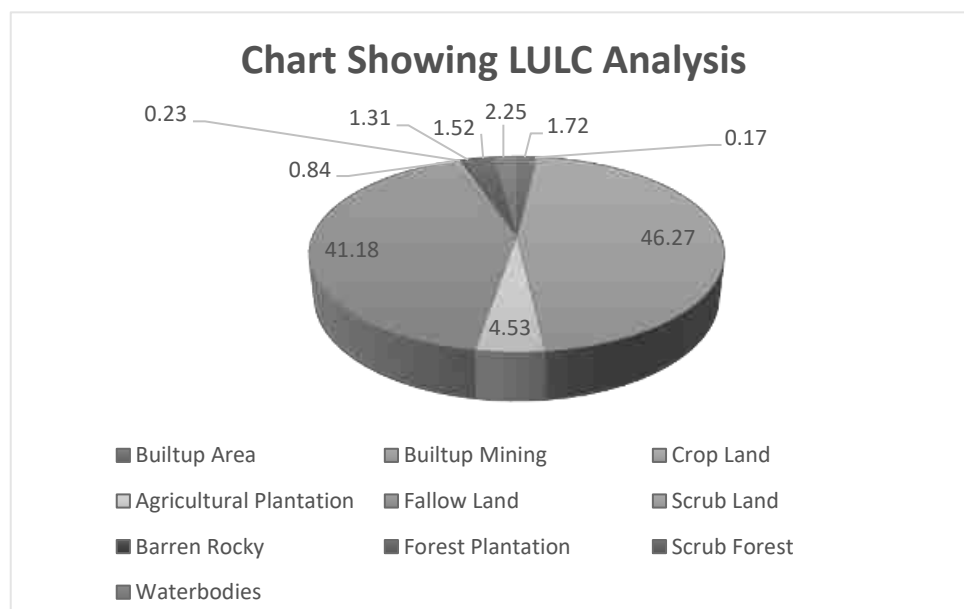
A visual interpretation technique has been adopted for land use classification based on the keys suggested in the chapter – V of the guidelines issued by NNRMS Bangalore & Level III classification with 1:50,000 scale for the preparation of land use mapping. Land use pattern of the area was studied through LISS III imagery of Bhuvan (ISRO). The 10 km radius map of study area was taken for analysis of Land use cover.

TABLE 3.2: LAND USE / LAND COVER TABLE 10 Km RADIUS

S.No	CLASSIFICATION	AREA_HA	AREA_%
BUILTUP			
1	Builtup Area	552.80	1.72
2	Builtup Mining	55.29	0.17
AGRICULTURAL LAND			
3	Crop Land	14904.73	46.27
4	Agricultural Plantation	1458.28	4.53
5	Fallow Land	13265.27	41.18
BARREN/WASTE LANDS			
6	Scrub Land	269.37	0.84
7	Barren Rocky	72.53	0.23
FOREST			
8	Forest Plantation	421.32	1.31
9	Scrub Forest	490.56	1.52
WETLANDS/ WATER BODIES			
10	Waterbodies	723.77	2.25
TOTAL		32213.93	100.00

Source: Survey of India Toposheet and Landsat Satellite Imagery

FIGURE 3.1: PIE DIAGRAM OF LAND USE AND LAND COVER



From the above table, pie diagram and land use map it is inferred that the majority of the land in the study area is Agriculture and fallow land (includes crop land) 91.98% followed by Built-up area– 1.72%, Build–up Mining – 0.17% Scrub Forest– 1.52%, Scrub Land – 0.84%, Forest Land – 46.27% and Water bodies - 2.25%.

The total mining area within the study area is 55.29 ha i.e., 0.17%. The cluster area of 7.48.90 ha contributes about 13.5% of the total mining area within the study area. This small percentage of Mining Activities shall not have any significant impact on the environment.

3.1.2 Topography

The project area is almost flat terrain having gentle slope towards Southeast side, the East side of the area is existing Rough stone and Gravel quarry. The Northwest side of the area is side casted up to the maximum 0.5m to utilize temporary storage of Crushed materials.

3.1.3 Drainage Pattern of the Area

The drainage pattern of the area is dendritic – sub dendritic. Drainage pattern is the pattern formed by the streams, rivers, and lakes in a particular drainage basin. They are governed by the topography of the land, whether a particular region is dominated by hard or soft rocks, and the gradient of the land. There are no streams, canals or water bodies crossing within the project area.

3.1.4 Seismic Sensitivity

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

3.1.5 Environmental Features in the Study Area

There is no Wildlife Sanctuaries, National Park and Archaeological monuments within project area. No Protected area is involved in the project area. Therefore, there will be no need to acquisition/diversion of forest land. The details related to the environment sensitivity around the proposed mine lease area i.e., 10 km radius, are given in the below Table 3.3.

TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE CLUSTER

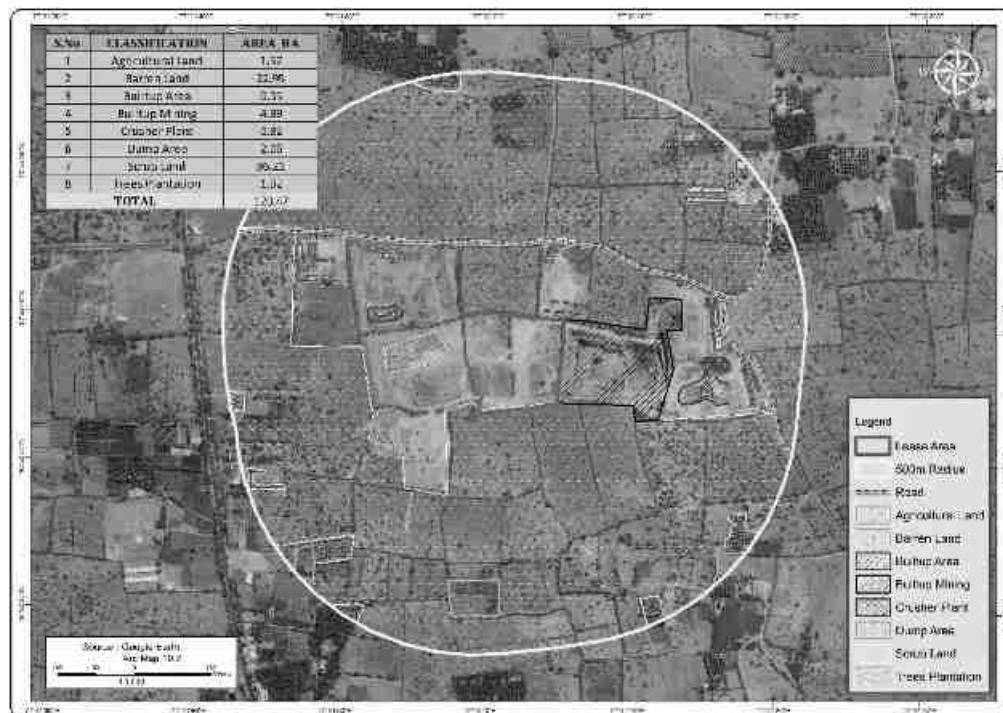
Sl.No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	Vellode Birds Sanctuary)	43 km – North East
2	Reserve Forest	Uthiyur R. F	1.35 Km North west
3	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	None	Nil within 10Km Radius
4	Critically Polluted Areas	Coimbatore - SIDCO Industrial Estate	Around 60.5 km- West
5	Mangroves	None	Nil within 10km Radius
6	Mountains/Hills	None	Nil within 10km Radius
7	Notified Archaeological Sites	None	Nil within 10km Radius
8	Industries/ Thermal Power Plants	None	Nil within 10km Radius
9	Defence Installation	None	Nil within 10km Radius

Source: Survey of India Toposheet

TABLE 3.4: NEARBY WATER BODIES FROM THE PROPOSED PROJECT SITE

Sl.No	NAME	DISTANCE & DIRECTION
1	Canal	1.0km - South
2	Nellai karai Aaru	6.0km – North West
3	Amaravathi River	7.0km – South East

Source: Village Cadastral Map and Field Survey

FIGURE 3.4: LAND USE LAND COVER MAP 500m RADIUS

Land use Landcover of the area within 500m radius were studied in detailed that the majority of the land within 500m is Scrub land (86.21) followed by Barren land and Mining areas are contributing majority of the land use.

3.1.6 Soil Environment

Soil quality of the study area is one of the important components of the land environment. The composite soil samples were collected from the study area and analysed for different parameters. The locations of the monitoring sites are detailed in Table 3.5 and Figure 3.5.

The objective of the soil sampling is -

To determine the baseline soil characteristics of the study area; study the impact of proposed activity on soil characteristics and study the impact on soil more importantly agriculture production point of view.

TABLE 3.5: SOIL SAMPLING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	S-1	Core Zone	Project Area	10°52'37.48"N 77°32'4.44"E
2	S-2	Mudhalipalayam	1.5km NE	10°53'6.20"N 77°32'47.47"E
3	S-3	Tammareddipalayam	5.5km SW	10°51'45.69"N 77°29'8.45"E
4	S-4	Punganthurai	5.8km SE	10°52'12.92"N 77°35'16.83"E
5	S-5	Nochipalayam	4km South	10°50'23.40"N 77°31'56.82"E
6	S-6	Sengodampalayam	5km NW	10°55'0.48"N 77°30'59.76"E

Source: On-site monitoring/sampling by Global Lab and Consultancy in association with GEMS.

Methodology –

For studying soil quality, sampling locations were selected to assess the existing soil conditions in and around the project site representing various land use conditions. The samples were collected by auger boring into the soil up to 90-cm depth. Six (6) locations were selected for soil sampling on the basis of soil types, vegetative cover, industrial & residential activities including infrastructure facilities, which would accord an overall idea of the soil characteristics. The samples were analysed for physical and chemical characteristics. The samples were sent to laboratory for analysis. The samples were filled in Polythene bags, coded and sent to laboratory for analysis and the details of methodology in respect are given in below Table 3.6.

TABLE 3.6: METHODOLOGY OF SAMPLING COLLECTION

Particulars	Details
Frequency	One grab sample from each station-once during the study period
Methodology	Composite grab samples of the topsoil were collected from 3 depths, and mixed to provide a representative sample for analysis. They were stored in airtight Polythene bags and analysed at the laboratory.

Source: On-site monitoring/sampling by Global Lab and Consultancy Services

Soil Testing Result –

The samples were analysed as per the standard methods prescribed in “Soil Chemical Analysis (M.L. Jackson, 1967) & Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India”. The important properties analysed for soil are bulk density, porosity, infiltration rate,

pH and Organic matter, kjeldahi Nitrogen, Phosphorous and Potassium. The standard classifications of soil are presented below in Figure 3.4 and the physico-chemical characteristics of the soil & Test Results in Table 3.7.

FIGURE 3.5: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS

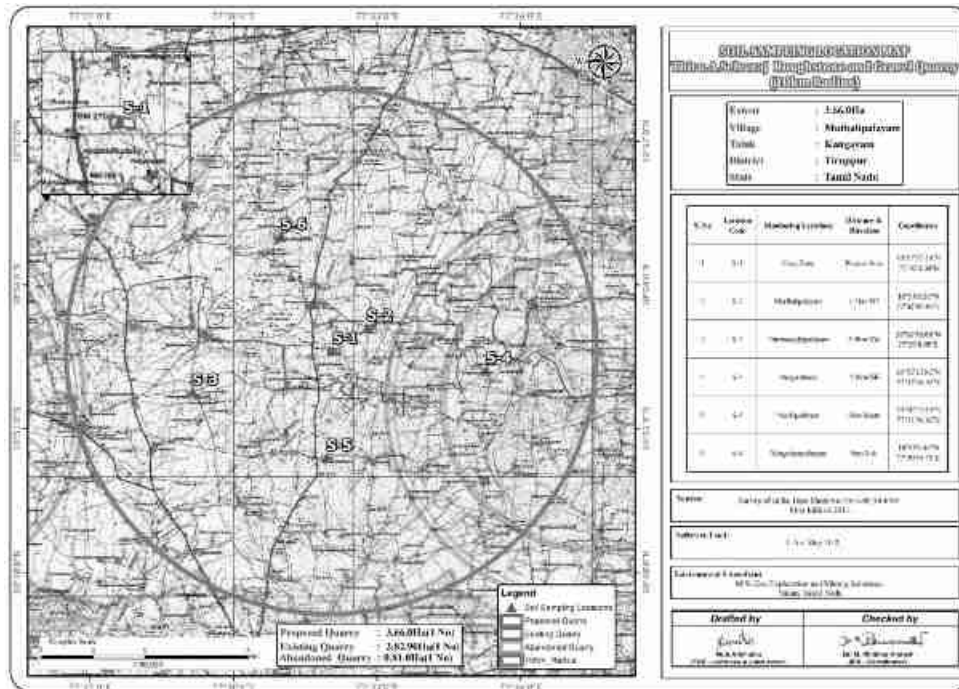
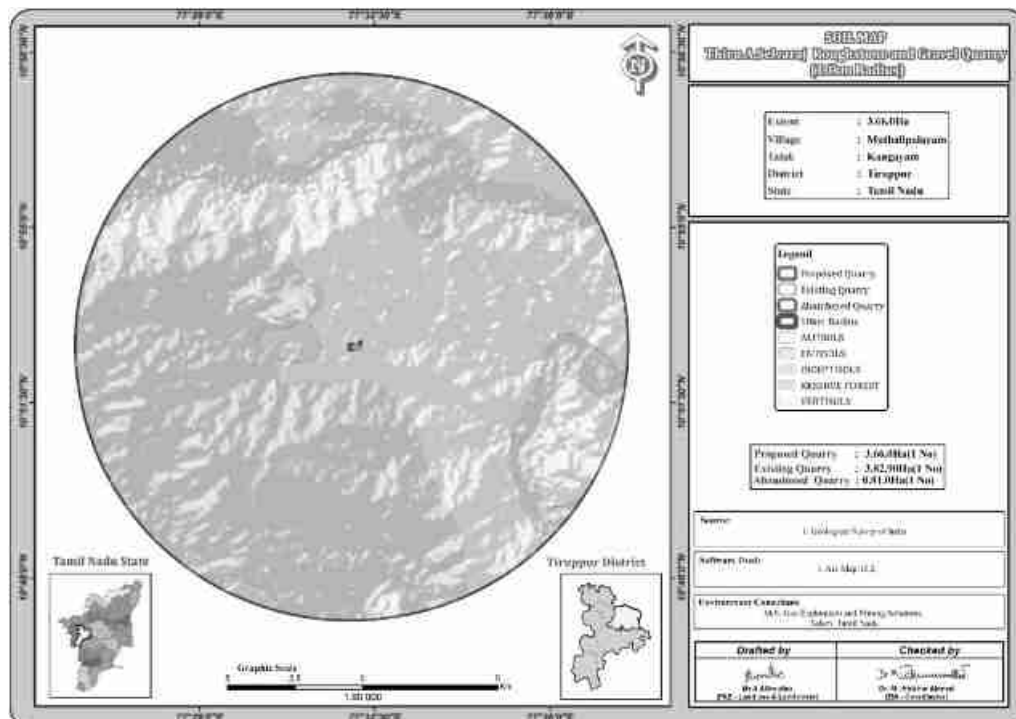


FIGURE 3.6: SOIL MAP



S. No	Test Parameters	Test Method	S-1 Project Area	S-2 Mudhalipalayam	S-3 Tammareddipalayam	S-4 Pungathurai	S-5 Nochipalayam	S-6 Sengodampalayam
01	pH @ 25°C	IS 2720 (Part 26)	8.12	8.34	7.91	8.43	7.78	8.56
02	Specific Conductivity Electrical	IS 14767	448µS/cm	470µS/cm	398µS/cm	415µS/cm	452µS/cm	386µS/cm
03	Texture:							
	Clay	GLCS/SOP/S/015	28.1%	32.5%	29.75%	33.7%	35.1%	29.6%
	Sand		27.5%	41.87%	41.2%	25%	35.6%	32.5%
	Silt		44.4%	25.63%	29.05%	41.3%	29.3%	37.9%
04	Permeability	By Permeameter	49%	42%	52%	49%	46%	50%
05	Water Holding Capacity	GLCS/SOP/S/016	54%	47.2%	48.6%	48.8%	51.6%	54 %
07	Bulk Density	GLCS/SOP/S/017	1.26 g/cc	1.14 g/cc	1.19g/cc	1.15g/cc	1.08g/cc	1.12g/cc
08	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	7.8meq/100g	8.6meq/100g	6.6meq/100g	7.8meq/100g	5.8meq/100g	7.0meq/100g
09	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	8.8 mg/100g	5.0mg/100g	4.4mg/100g	4.6mg/100g	5.0mg/100g	5.0mg/100g
10	Manganese as Mn	USEPA Method	32mg/kg	37mg/kg	25mg/kg	31 mg/kg	40mg/kg	33mg/kg
11	Zinc as Zn	USEPA Method	12 mg/kg	21mg/kg	29mg/kg	27mg/kg	4.5mg/kg	54mg/kg
12	Boron as B	USEPA 6010D	10 mg/kg	18.2mg/kg	16mg/kg	13.5mg/kg	23mg/kg	6.0mg/kg
13	Chloride as Cl (as in Saturation Extract)	GLCS/SOP/S/004	4.9meq/l	5.6meq/l	5.1meq/l	6.3meq/l	7.2meq/l	6.1meq/l
14	Sulphate as SO ₄	GLCS/SOP/S/009	52mg/100g	45.6mg/100g	59mg/100g	60mg/100g	53mg/100g	54.6mg/100g
15	Available Potassium as K	GLCS/SOP/S/026	1.16meq/l	1.34meq/l	1.01meq/l	1.34meq/l	1.35meq/l	1.37meq/l
16	Available Phosphorus as P	GLCS/SOP/S/005	17.1mg/kg	15.8mg/kg	15.9mg/kg	13mg/kg	14.6mg/kg	11.7mg/kg
17	Available Nitrogen as N	GLCS/SOP/S/029	200.7kg/hc	224kg/hc	175.6kg/hc	263.4kg/hc	213.2kg/hc	188.2kg/hc
18	Cadmium as Cd	USEPA Method	4.5mg/kg	4.8mg/kg	7.0mg/kg	6mg/kg	7.5mg/kg	4.0mg/kg
19	Chromium as Cr		24mg/kg	33mg/kg	22mg/kg	22mg/kg	32mg/kg	60.0mg/kg
20	Copper as Cu		4.5mg/kg	3.4mg/kg	5.0mg/kg	8.0mg/kg	8.0mg/kg	18.0mg/kg
21	Lead as Pb		2.0mg/kg	BDL (DL: 0.5) mg/kg	BDL (DL: 0.5) mg/kg	2.5mg/kg	3.5mg/kg	7.0mg/kg
22	Iron as Fe		10mg/kg	23mg/kg	33.0mg/kg	82mg/kg	54mg/kg	71.0mg/kg
23	Organic Matter	GLCS/SOP/S/003	1.69%	1.53%	1.08%	2.2%	1.76%	1.62%
24	Organic Carbon	GLCS/SOP/S/003	0.98%	0.89%	0.63 %	1.28%	1.02%	0.94%
25	Cation Exchange Capacity	GLCS/SOP/S/024	16.5meq/100 g of soil	16.7meq/100g of soil	17.2meq/100g of soil	16.6meq/100g of soil	16.8meq/100g of soil	17.5meq/100g of soil

TABLE 3.7: SOIL QUALITY OF THE STUDY AREA

Source: Sampling Results by Global Lab and Consultancy.

FIGURE 3.7: SOIL SAMPLE COLLECTION**Interpretation & Conclusion****Physical Characteristics –**

The physical properties of the soil samples were examined for texture, bulk density, Permeability and water holding capacity. The soil texture found in the study area is Clay (28.1% to 35.1%) to Sandy Clay Loam Soil and Bulk Density of Soils in the study area varied between 1.08– 1.26g/cc. The Water Holding Capacity of the soil samples is found to be medium i.e., ranging from 47.2% to 54%.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline with pH range 7.78 to 8.56
- The available Nitrogen content range between 1.75.6kg/hc to 263.4kg/hc
- The available Phosphorus content range between 11.7 to 17.1mg/kg
- The available Potassium range between 1.01meq/l to 1.37meq/l

Observation:

The pH of the Soil indicates that the soil is Neutral and arid region and ideal for plant growth.

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 water quality characteristics for critical parameters and evaluate the impacts on agricultural productivity, domestic community usage, recreational resources and aesthetics in the vicinity. The water samples were collected and transported as per the norms in pre-treated sampling cans to laboratory for analysis.

3.2.1 Surface Water Resources:

Amaravathi River is the major surface water body in the study area and the rainfall over the area is moderate, the rainwater storage in open wells and trenches are in practice over the area and the stored water acts as source of drinking water for few months after rainy season.

3.2.2 Ground Water Resources:

Groundwater occurs in all the crystalline formations of oldest Achaeans and Recent Alluvium. The occurrence and behaviour of groundwater are controlled by rainfall, topography, geomorphology, geology, structures etc., The weathering is controlled by the intensity of weathering and fracturing. Dug wells as wells as bore wells are more common ground water abstraction structures in the area. The diameter of the dug well is in the range of 7 to 10 m and depth of dug wells range from 7.2 to 13 m bgl. The dug wells yield up to 1 lps in summer months and few wells remains dry. The yield is adequate for irrigation for one or two crops in monsoon period.

3.2.3 Methodology

Reconnaissance survey was undertaken and monitoring locations were finalized based on;

- Drainage pattern;
- Location of Residential areas representing different activities/likely impact areas; and
- Likely areas, which can represent baseline conditions

One (1) surface water and Five (5) ground water samples were collected from the study area and were analysed for physio-chemical, heavy metals and bacteriological parameters in order to assess the effect of mining and other activities on surface and ground water. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012 and 'Standard methods for the Examination of Water and Wastewater' published by American Public Health Association (APHA). The water sampling locations are given in Table 3.8 and shown as Figure 3.5.

TABLE 3.8: WATER SAMPLING LOCATIONS

S.NO	CODE	LOCATIONS	DISTANCE & DIRECTION	CO-ORDINATES
SURFACE WATER				
1	SW-1	Amaravathi River	7km SE	10°50'38.30"N 77°35'25.09"E
GROUND WATER				
2	WW-1	Near Project Area	530m SE	10°52'20.39"N 77°32'16.65"E
3	WW-2	Sengodampalayam	5.5km NW	10°55'8.67"N 77°30'56.49"E
4	WW - 3	Tammareddipalayam	5.5km SW	10°51'40.54"N 77°29'26.41"E
5	BW-1	Near Project Area	270m NW	10°52'41.99"N 77°31'49.90"E
6	BW-2	Nochipalayam	4km South	10°50'23.98"N 77°32'4.12"E

Source: On-site monitoring/sampling by Global Lab and Consultancy in association with GEMS

FIGURE 3.8: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS

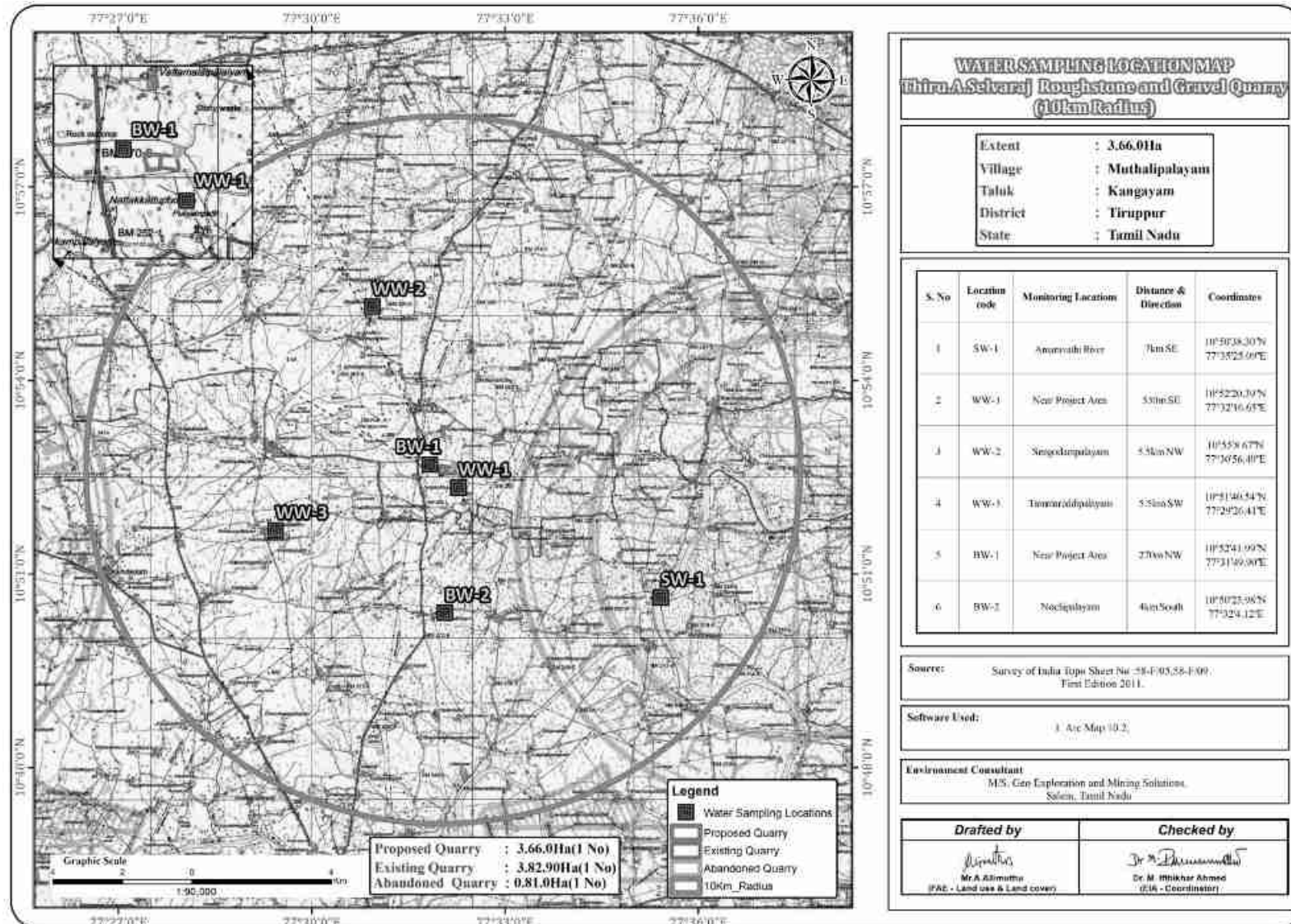


TABLE 3.9: GROUND WATER SAMPLING RESULTS

S.NO	Parameter	WW-1 Near Project Area	WW-3 Sengodampalayam	WW-3 Tammareddipalayam	BW-1 Near Project Area	BW-2 Nochipalayam
1	Color	5 Hazen	5 Hazen	<5 Hazen	<5 Hazen	<5 Hazen
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	7.34	7.28	7.7	7.28	7.68
4	Electrical Conductivity	1530 µS/cm	2086 µS/cm	1810 µS/cm	1320 µS/cm	1723 µS/cm
5	Turbidity	<1 NTU	<1 NTU	<1 NTU	<1 NTU	<1 NTU
6	Total Dissolved Solids	995 mg/l	1356 mg/l	1176 mg/l	858 mg/l	1120 mg/l
7	Total Alkanity as CaCO ₃	440 mg/l	560 mg/l	620 mg/l	410 mg/l	480 mg/l
8	Total Hardness as CaCO ₃	490 mg/l	670 mg/l	720 mg/l	380 mg/l	570 mg/l
9	Calcium as Ca	124 mg/l	136 mg/l	144 mg/l	64 mg/l	120 mg/l
10	Magnesium as Mg	44 mg/l	80 mg/l	87 mg/l	54 mg/l	66 mg/l
11	Chloride as Cl ⁻	258 mg/l	412 mg/l	218 mg/l	114 mg/l	323 mg/l
12	Sulphate as SO ₄ ⁻	80 mg/l	42 mg/l	48 mg/l	31 mg/l	17 mg/l
13	Iron as Fe	0.26 mg/l	0.53 mg/l	0.41 mg/l	0.24 mg/l	0.5 mg/l
14	Boron as B	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
15	Free Residual Chlorine as Cl ₂	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)
16	Fluoride as F	0.41 mg/l	0.44 mg/l	0.32 mg/l	0.5 mg/l	0.52 mg/l
17	Manganese as Mn	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
18	Nitrates as NO ₃	BDL (DL:2.0 mg/l)	BDL (DL:2.0 mg/l)	BDL (DL:2.0 mg/l)	BDL (DL:2.0 mg/l)	BDL (DL:2.0 mg/l)
19	Ammonical Nitrogen as NH ₃ N	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)
20	Total Coliforms	Absent Per 100ml	Absent Per 100ml	Absent Per 100ml	Absent Per 100ml	Absent Per 100ml
21	Escherichia Coli	Absent Per 100ml	Absent Per 100ml	Absent Per 100ml	Absent Per 100ml	Absent Per 100ml
21	Total Suspended Solids	BDL (DL:2.0 mg/l)	BDL (DL:2.0 mg/l)	BDL (DL:2.0 mg/l)	BDL (DL:2.0 mg/l)	BDL (DL:2.0 mg/l)
22	Phenolic Compounds	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
23						
24	Anionic Detergents	BDL (DL:0.05 mg/l)	BDL (DL:0.05 mg/l)	BDL (DL:0.05 mg/l)	BDL (DL:0.05 mg/l)	BDL (DL:0.05 mg/l)
25	Cyanide	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
26	Sulphide	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)
27	Copper as Cu	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
28	Mercury (Hg)	BDL (DL:0.002 mg/l)	BDL (DL:0.002 mg/l)	BDL (DL:0.002 mg/l)	BDL (DL:0.002 mg/l)	BDL (DL:0.002 mg/l)
29	Cadmium as Cd	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
30	Selenium	BDL (DL:0.002 mg/l)	BDL (DL:0.002 mg/l)	BDL (DL:0.002 mg/l)	BDL (DL:0.002 mg/l)	BDL (DL:0.002 mg/l)
31	Aluminium as Al	BDL (DL:0.01 mg/l)	0.054 mg/l	BDL (DL:0.01 mg/l)	0.028 mg/l	0.051 mg/l
32	Lead as Pb	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
33	Zinc as Zn	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
34	Chromium	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
35	Barium as Ba	BDL (DL:0.01 mg/l)	0.28 mg/l	BDL (DL:0.01 mg/l)	0.097 mg/l	0.064 mg/l
36	Molybdenum as Mo	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
37	Arsenic as As	BDL (DL:0.002 mg/l)	BDL (DL:0.002 mg/l)	BDL (DL:0.002 mg/l)	BDL (DL:0.002 mg/l)	BDL (DL:0.00 mg/l 2)

* IS: 10500:2012-Drinking Water Standards; # within the permissible limit as per the WHO Standard. The water can be used for drinking purpose in the absence of alternate sources. Note: WW- Well water, BW – Borewell water

TABLE 3.10: SURFACE WATER SAMPLING RESULTS

Sl. No.	Parameter	Unit	RESULT	CPCB Designated Best Use
			SW-1 Amaravathi River	
1	Color	Hazen	<5 Hazen	300
2	Odour	-	Agreeable	Not specified
3	pH	-	7.92	6.5 – 8.5
4	Electrical Conductivity	µs/cm	2368 µs/cm	-
5	Turbidity	NTU	<1 NTU	Not specified
6	Total Dissolved Solids	mg/l	1540 mg/l	1500
7	Total Alkalinity as CaCO ₃	mg/l	860mg/l	Not specified
8	Total Hardness as CaCO ₃	mg/l	920 mg/l	Not specified
9	Calcium as Ca	mg/l	194mg/l	Not specified
10	Magnesium as Mg	mg/l	107mg/l	Not specified
11	Chloride as Cl ⁻	mg/l	184mg/l	600
12	Sulphate as SO ₄ ⁻²	mg/l	40mg/l	400
13	Iron as Fe	mg/l	0.36mg/l	50
14	Boron as B	mg/l	BDL (DL:0.1 mg/l)	Not specified
15	Free Residual Chlorine as Cl ₂	mg/l	BDL (DL:1.0 mg/l)	400
16	Fluoride as F	mg/l	0.79mg/l	1.5
17	Manganese as Mn	mg/l	BDL (DL:0.1 mg/l)	Not specified
18	Nitrates as NO ₃	mg/l	BDL (DL:2.0 mg/l)	50
19	Dissolved Oxygen	mg/l	6 mg/l	4
20	Bio-Chemical Oxygen Demand @ 27°C for 3 days	mg/l	12 mg/l	3
21	Chemical Oxygen Demand	mg/l	32 mg/l	Not specified
22	Ammonical Nitrogen as NH ₃ N	mg/l	BDL (DL:1.0 mg/l)	Not specified
23	Total Coliforms	MPN/100ml	<2 MPN/100ml	5000
24	Escherichia Coli	MPN/100ml	<2 MPN/100ml	Not specified
25	Total Suspended Solids	mg/l	14 mg/l	-
26	Phenolic Compounds	mg/l	BDL(DL:0.1) mg/l	0.005
27	Anionic Detergents	mg/l	BDL(DL:0.05) mg/l	Not specified
28	Cyanide	mg/l	BDL(DL:0.02) mg/l	0.05
29	Sulphide	mg/l	BDL(DL:1.0) mg/l	Not specified
30	Copper as Cu	mg/l	BDL(DL:0.01) mg/l	1.5
31	Mercury (Hg)	mg/l	BDL(DL:0.002) mg/l	Not specified
32	Cadmium as Cd	mg/l	BDL(DL:0.01) mg/l	0.01
33	Selenium	mg/l	BDL(DL:0.002) mg/l	Not specified
34	Aluminium as Al	mg/l	BDL(DL:0.01) mg/l	Not specified
35	Lead as Pb	mg/l	BDL(DL:0.01) mg/l	0.1
36	Zinc as Zn	mg/l	BDL(DL:0.01) mg/l	15
37	Chromium	mg/l	BDL(DL:0.1) mg/l	0.05
38	Barium as Ba	mg/l	BDL(DL:0.01) mg/l	300
39	Molybdenum as Mo	mg/l	BDL(DL:0.01) mg/l	Not specified
40	Arsenic as As	mg/l	BDL(DL:0.002) mg/l	0.2

Note: BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number.

3.2.4 Interpretation & Conclusion

Surface Water

The pH value is 7.92 while the turbidity is found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH).

Total Dissolved Solids:

Total Dissolved Solids value is 1540mg/l, the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter.

Other parameters:

Chloride value is 184mg/l, Nitrates value is BDL (DL:2.0 mg/l), and sulphates value is 40 mg/l.

Ground Water

The pH of the water samples collected ranged from 7.28 to 7.68 and within the acceptable limit of 6.5 to 8.5. pH, Sulphates and Chlorides of water samples from all the sources are within the limits as per the Standard. On Turbidity, the water samples meet the requirement. Total Dissolved Solids were found in the range of 858-1356mg/l in all samples. Total hardness varied between 380-720mg/l for all samples.

On Microbiological parameters, the water samples from all the locations meet the requirement. The parameters thus analysed were compared with IS 10500:2012 and are well within the prescribed limits.

3.2.5 Hydrology and Hydrogeological studies

The district is underlain by hard rock formation fissured and fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-80 Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth 68m. The maximum depth proposed out of proposed projects is 40m (2m Gravel + 3m Weathered Gravel + 35m Rough stone) below ground level.

Ground water levels and Flow Direction based on the Bore well and open well Data's

In general, the ground water movement is based on the gradient i.e., water moves from the highest static ground water elevation to lowest static ground water elevation point. The ground water movement is important aspect to locating the recharge and discharge areas. Therefore, the data has been collected in the study area. Water level measured in the eight open well and 7 borewells.

The average water level in the open well is varies from = 11.6m to 12.5m bgl

The water level in the bore well is varies from = 53.7m to 54.4m bgl

Based on the water level contour map of the open well and bore well the water flow direction in the particular region is towards North side.

The water level in the area is above 60m hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area.

TABLE 3.11: POST MONSOON WATER LEVEL OF OPEN WELLS 1 KM RADIUS

S.NO	LABEL	LATITUDE	LONGITUDE	OCT	NOV	DEC
1	OW1	10° 52' 37.19"N	77° 31' 35.92"E	11	11.6	12.2
2	OW2	10° 52' 27.81"N	77° 31' 41.07"E	11.3	11.9	12.5
3	OW3	10° 52' 13.01"N	77° 31' 49.60"E	11.5	12.1	12.7
4	OW4	10° 52' 06.06"N	77° 32' 04.19"E	11.2	11.8	12.4
5	OW5	10° 52' 20.40"N	77° 32' 16.65"E	11.4	12	12.6
6	OW6	10° 52' 51.04"N	77° 32' 24.22"E	11.9	12.5	13.1
7	OW7	10° 53' 02.24"N	77° 32' 15.10"E	11.7	12.3	12.9
8	OW8	10° 53' 02.52"N	77° 31' 56.77"E	11.1	11.7	12.3

Source: Onsite monitoring data

FIGURE 3.9: OPEN WELL CONTOUR MAP OCTOBER -DECEMBER 2023

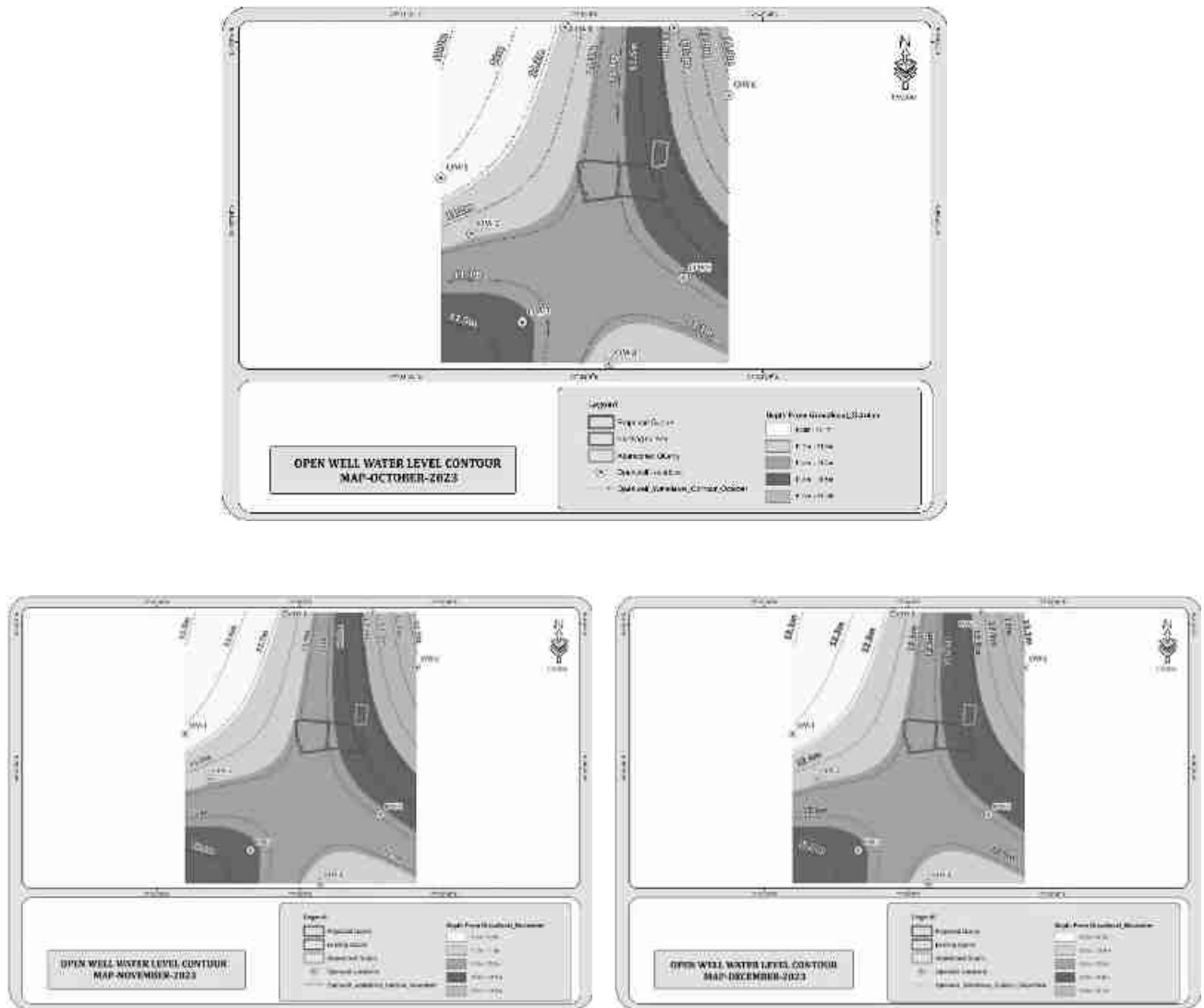


TABLE 3.12: POST MONSOON WATER LEVEL OF BOREWELLS 1 KM RADIUS

வ.எண்	நிலைய குறியீடு	அட்சரேகை	தீர்க்கரேகை	அக்டோபர் 2023	நவம்பர் 2023	டிசம்பர் 2023
1	BW1	10° 52' 43.79"N	77° 31' 48.22"E	53	53.6	54.2
2	BW2	10° 53' 05.27"N	77° 32' 03.31"E	53.4	54	54.6
3	BW3	10° 52' 49.79"N	77° 32' 17.66"E	53.6	54.2	54.8
4	BW4	10° 52' 25.78"N	77° 32' 18.80"E	53.2	53.8	54.4
5	BW5	10° 52' 17.57"N	77° 32' 11.59"E	53.1	53.7	54.3
6	BW6	10° 52' 13.49"N	77° 31' 45.92"E	53.5	54.1	54.7
7	BW7	10° 52' 29.52"N	77° 31' 43.39"E	53.8	54.4	55

Source: Onsite monitoring data

FIGURE 3.10: BOREWELL CONTOUR MAP – MARCH 2023

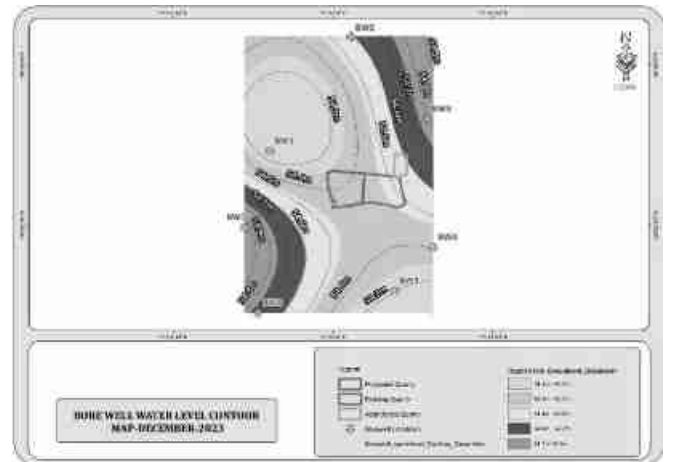
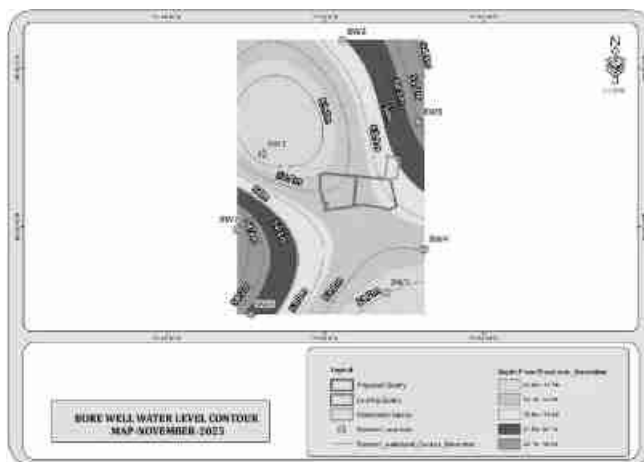
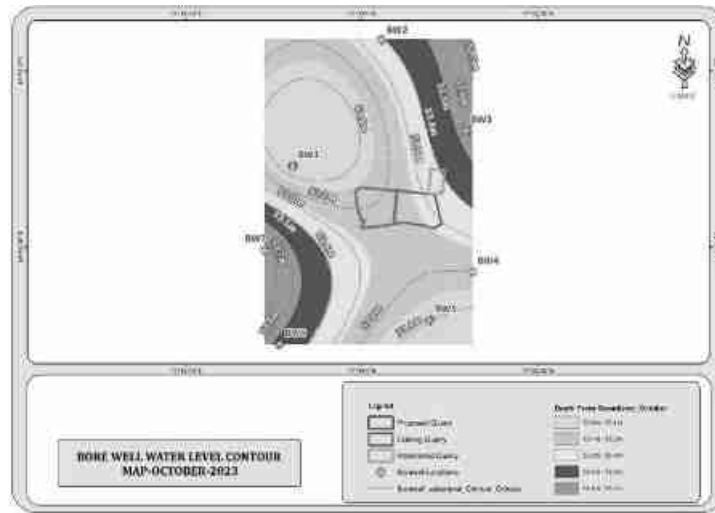
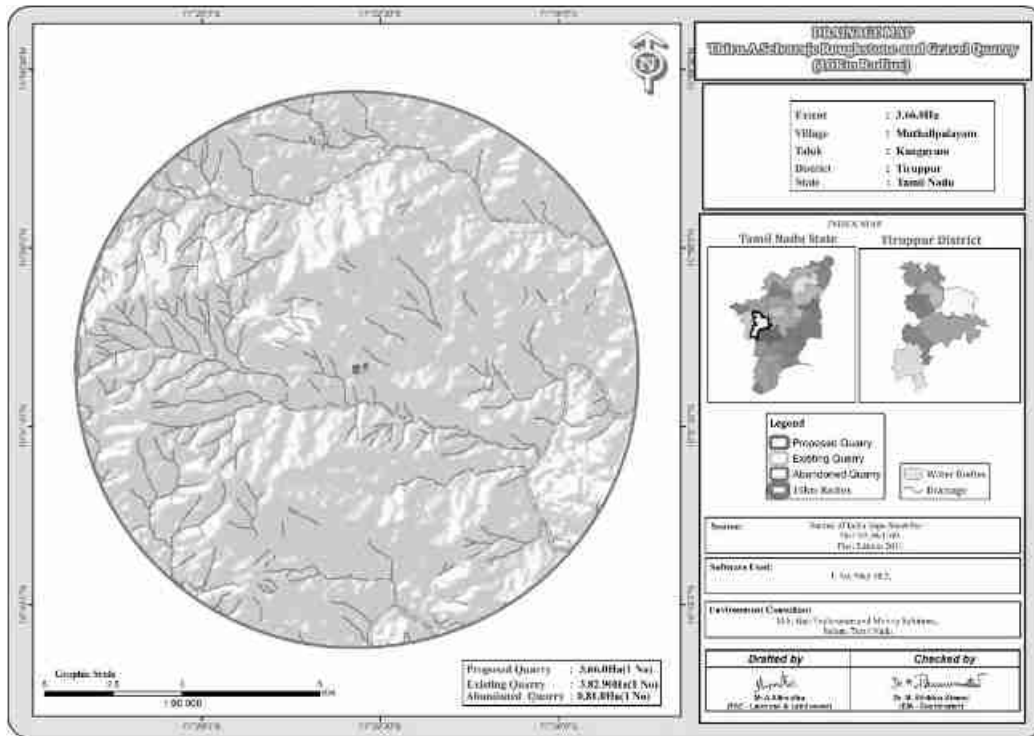
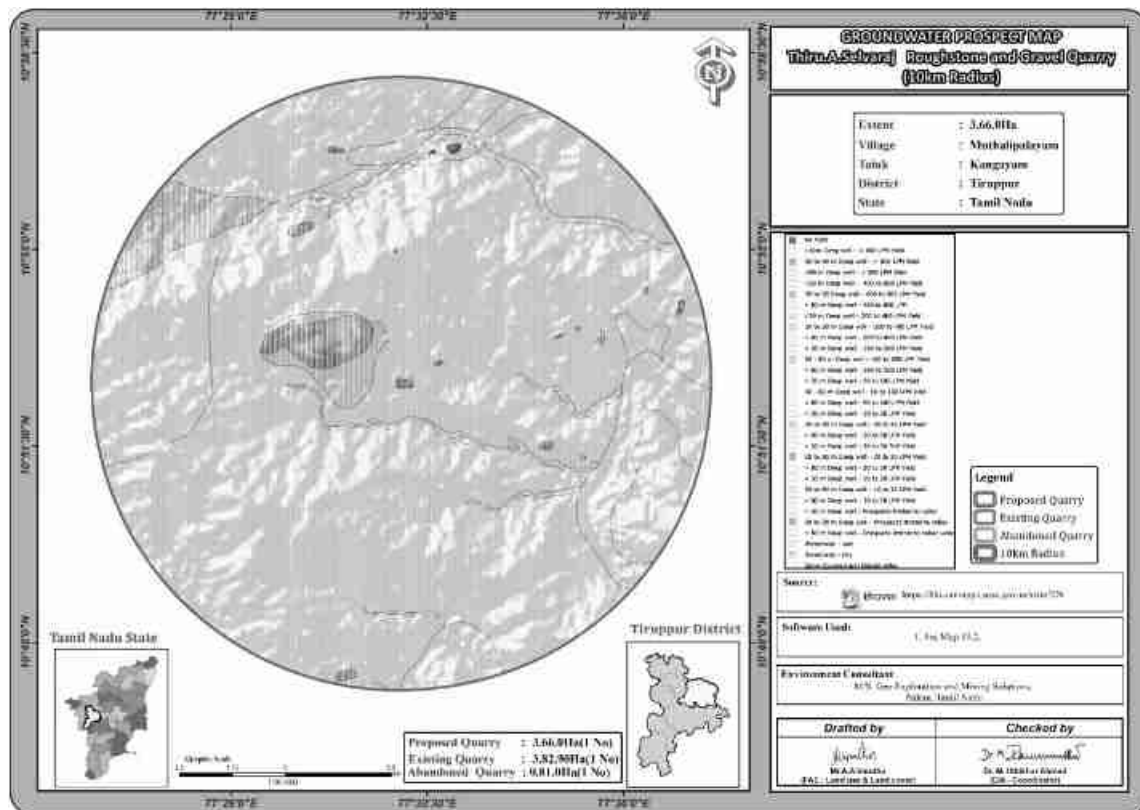


FIGURE 3.11: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE



Remarks: it is inferred that the area is dendritic to sub dendritic pattern

FIGURE 3.12: GROUND WATER PROSPECT MAP



Remarks : Water table in the area is 80m as per the Bhuvan Data

Geophysical Resistivity Survey

3.2.5.1 Methodology and Data Acquisition

The Geophysical Electrical Resistivity survey conducted in the area Schlumberger configuration, Vertical Electrical Sounding (VES) method. Schlumberger electrode set up was employed for making sounding measurements. Since it is least influenced by lateral inhomogeneities and is capable of providing higher depth of investigation. This is four electrodes collinear set up where in the outer electrodes send current into the ground and the inner electrodes measure the potential difference.

The present study utilizes maximum current electrode separation $AB/2$. The data from this survey are commonly arranged and contoured in the form of Pseudo-section that gives an approximate of the subsurface resistivity. This technique is used for the inversion of Schlumberger VES data to predict the layer parameter namely layer resistivity and Geo electric layer thickness. The main goal of the present study is to search the vertical inhomogeneities that is consistent with the measured data.

For a Schlumberger among the Apparent resistivity can be calculated as follows.

$$\rho_a = \frac{G\Delta V}{I}$$

ΔV = potential difference between receiving electrodes

G = Geometric Factor.

Rocks show wide variation in resistivity ranging from 10⁻⁸ more than 10⁺¹⁴ ohmmeter. On a broad classification, one can group the rocks falling in the range of 10⁻⁸ to 1 ohmmeter as good conductors. 1 to 10⁶ ohmmeter as intermediate conductors and 10⁶ to 10¹² ohmmeter as more as poor conductor. The resistivity of rocks and subsurface lithology, which is mostly dependent on its porosity and the pore fluid resistivity is defined by Archie's Law,

$$\rho_r = F\rho_w = a \emptyset^m \rho_w$$

ρ_r = Resistivity of Rocks

ρ_w = Resistivity of water in pores of rock

F = Formation Factor

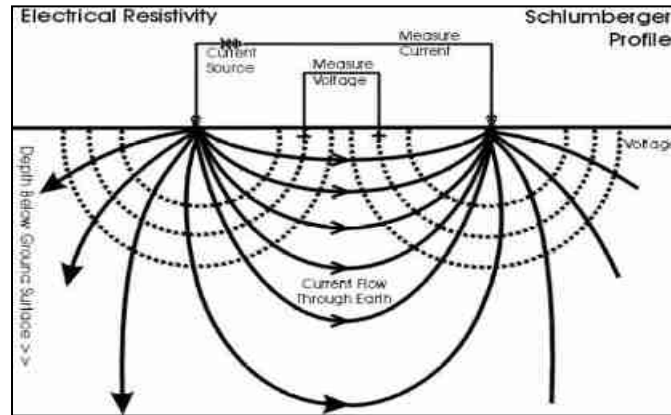
\emptyset = Fractional pore volume

A = Constants with values ranging from 0.5 to 2.5

3.2.5.2 Survey Layout

The field equipment deployed for the study is in a deep resistivity meter with a model of SSR – MP – AT. This Signal stacking Resistivity meter is a high-quality data acquisition system incorporating several innovation features for Earth resistivity. In the presence of random earth Noises the signal to noise ration can be enhanced by \sqrt{N} where N is the number of stacked readings. This SSR meter in which running averages of measurements [1, (1+2)/2, (1+2+3)/3 ... (1+2...+16/16)] up to the chosen stacks are displayed and the final average is stored automatically, in memory utilizing the principles of stacking to achieve the benefit of high signals to noise ratio. Based on these above significations the signal stacking resistivity meter was used for (VES) Vertical Electric Resistivity Sounding.

RESISTIVITY SURVEY PROFILE



Measurements of ground Resistivity is essentially done by sending a current through two electrodes called current electrodes (C_1 & C_2) and measuring the resulting potential by two other electrodes called potential electrode (P_1 & P_2). The amount of current required to be sent into the ground depends on the contact resistance at the current electrode, the ground resistivity and the depth of interest.

3.2.5.3 Data Presentation

It was inferred that the low resistance encountered at the depth 68m. The maximum depth proposed out of proposed projects 40m BGL. Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area.

3.2.5.4 Geophysical Data Interpretation

The geophysical data was obtained to study the lateral variations, vertical in homogeneities in the sub – surface with respect to the availability of groundwater. From the interpreted data, it has inferred that the area has moderate groundwater potential in the investigated area. This small quarrying operation will not have any significant impact on the natural water bodies.

It is inferred that the existing quarries in the surrounding area reaches maximum of 45m and the water table is not intersected, only the seepage water during rainy season encountered from the upper layer and it will be used for the Greenbelt development, Dust suppression and quarrying operation.

3.3 AIR ENVIRONMENT

The existing ambient air quality of the area is important for evaluating the impact of mining activities on the ambient air quality.

The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 10 km radius around the cluster forms the baseline information. The prime objective of the baseline air quality study was to establish the existing ambient air quality of the study area. These will also be useful for assessing the conformity to standards of the ambient air quality during the operation of proposed projects in cluster.

3.3.1 Meteorology & Climate

Meteorology is the key to understand the Air quality. The essential relationship between meteorological condition and atmospheric dispersion involves the wind in the broadest sense. Wind fluctuations over a very wide range of time, accomplish dispersion and strongly influence other processes associated with them.

A temporary meteorological station was installed at project site by covering cluster quarries. The station was installed at a height of 3 m above the ground level in such a way that there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature are recorded on hourly basis.

Climate

- The atmospheric conditions prevailing in this region are of a tropical nature. In Tiruppur, the precipitation during summers is significantly higher in comparison to winters. This location is classified as Aw by Köppen and Geiger. In Tiruppur, the average annual temperature is 26.4 °C | 79.6 °F. Approximately 943 mm | 37.1 inch of rainfall occurs on a yearly basis.
- Due to its proximity to the equator, it is quite challenging to precisely delineate summers in Tiruppur. The period of January, February, March, June, July, August, September, October, November, December is widely regarded as the peak season for visitation.
- The month with the least amount of precipitation is January exhibiting a mere 13 mm | 0.5-inch rainfall. The maximum quantity of rainfall is observed during the month of October, exhibiting an average value of 209 mm | 8.2 inch.
- The month of April boasts the highest average temperature, with a recorded maximum of 30.0 °C | 86.0 °F. During the month of December, there is a notable drop in temperature, with an average low of approximately 23.7 °C | 74.7 °F.

Source: <https://en.climate-data.org/asia/india/tamil-nadu/tiruppur-2789/>

Rainfall

TABLE 3.13: RAINFALL DATA

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
679.8	716.2	488.1	748.8	845.1	606.8

Source: <https://www.twadboard.tn.gov.in/content/tiruppur>

TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE

S.No	Parameters		Oct-2023	Nov-2023	Dec-2023
1	Temperature (°C)	Max	29.57	26.9	26.95
		Min	25.51	24.5	23.11
		Avg	27.54	25.7	25.03
2	Relative Humidity (%)	Avg	72	81.56	81.18
3	Wind Speed (m/s)	Max	5.52	3.89	4.31
		Min	1.26	1.44	1.68
		Avg	3.39	2.66	2.99
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		E, W	ENE, E	ENE, E

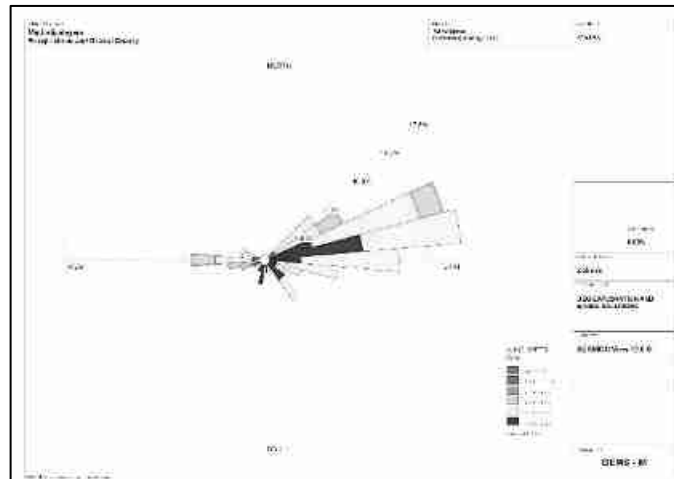
Source: On-site monitoring/sampling by Global Lab and Consultancy in association with GEMS

Correlation between Secondary and Primary Data

The average rain fall over the period of five years is 606.8mm. The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Tiruppur Agro. A comparison of site data generated during the three months with that of IMD, Tiruppur Agro

Wind rose diagram of the study site is depicted in Figure. 3.13. Predominant downwind direction of the area during study season is East-North-East to South East.

FIGURE 3.13: WINDROSE DIAGRAM



In the abstract of collected data wind rose were drawn on presented in figure No.3.14 during the monitoring period in the study area

1. Predominant winds were from E, W, ENE, E
2. Wind velocity readings were recorded between 0.50 to 5.70m/s
3. Calm conditions prevail of about 0 % of the monitoring period
4. Temperature readings ranging from 20.94 to 29.57 °C
5. Relative humidity ranging from 72 to 81.56 %
6. The monitoring was carried out continuously for three months.

3.3.2 Methodology and Objective

The prime objective of the ambient air quality study is to assess the existing air quality of study area and its conformity to NAAQS. The observed sources of air pollution in the study area are industrial, traffic and domestic activities. The baseline status of the ambient air quality has been established 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; etc.,

3.3.3 Sampling and Analytical Techniques

TABLE 3.15: METHODOLOGY AND INSTRUMENT USED FOR AAQ ANALYSIS

Parameter	Method	Instrument
PM2.5	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM10	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO ₂	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NO _x	IS-5182 Part II (Jacob & Hochheiser modified method)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology followed by Global Lab and Consultancy & CPCB Notification

TABLE 3.16: NATIONAL AMBIENT AIR QUALITY STANDARDS

Sl.No.	Pollutant	Time Weighted Average	Concentration in ambient air	
			Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
1	Sulphur Dioxide ($\mu\text{g}/\text{m}^3$)	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	Nitrogen Dioxide ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	Particulate matter (size less than $10\mu\text{m}$) PM10 ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than $2.5\mu\text{m}$) PM2.5 ($\mu\text{g}/\text{m}^3$)	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

*Annual Arithmetic mean of minimum 104 measurements in a year taken twice a Week 24 hourly at uniform interval,

** 24 hourly / 8 hourly or 1 hourly monitored value as applicable shall be complied with 98 % of the time in a year. However, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

3.3.4 Frequency & Parameters for Sampling

Ambient air quality monitoring has been carried out with a frequency of two samples per week at Seven (7) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period Oct to Dec 2023. The baseline data of ambient air has been generated for PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂) & Nitrogen Dioxide (NO₂) Monitoring has been carried out as per the CPCB, MoEF guidelines and notifications.

The equipment was placed preferably at a height of at least $3 \pm 0.5\text{m}$ above the ground level at each monitoring station, for negating the effects of wind-blown ground dust. The equipment was placed at open space free from trees and vegetation which otherwise act as a sink of pollutants resulting in lower levels in monitoring results.

3.3.5 Ambient Air Quality Monitoring Stations

Seven (7) monitoring stations were set up in the study area as depicted in Figure 3.15 for assessment of the existing ambient air quality. Details of the sampling locations are as per given below.

TABLE 3.17: AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ-1	Core Zone	Project Area	10°52'37.37"N 77°31'59.35"E
2	AAQ-2	Near Existing Quarry	220m East	10°52'34.48"N 77°32'12.83"E
3	AAQ-3	Mudhalipalayam	1.5km NE	10°53'6.47"N 77°32'48.04"E
4	AAQ-4	Tammareddipalayam	5.5km SW	10°51'45.53"N 77°29'8.21"E
5	AAQ-5	Punganthurai	5.8km SE	10°52'13.37"N 77°35'15.54"E
6	AAQ-6	Nochipalayam	4km South	10°50'23.40"N 77°31'56.33"E
7	AAQ-7	Sengodampalayam	5km NW	10°55'0.99"N 77°30'59.22"E

Source: On-site monitoring/sampling by Global Lab and Consultancy in association with GEMS.

FIGURE 3.14: AIR QUALITY MONITORING PHOTOGRAPHS



FIGURE 3.15: AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

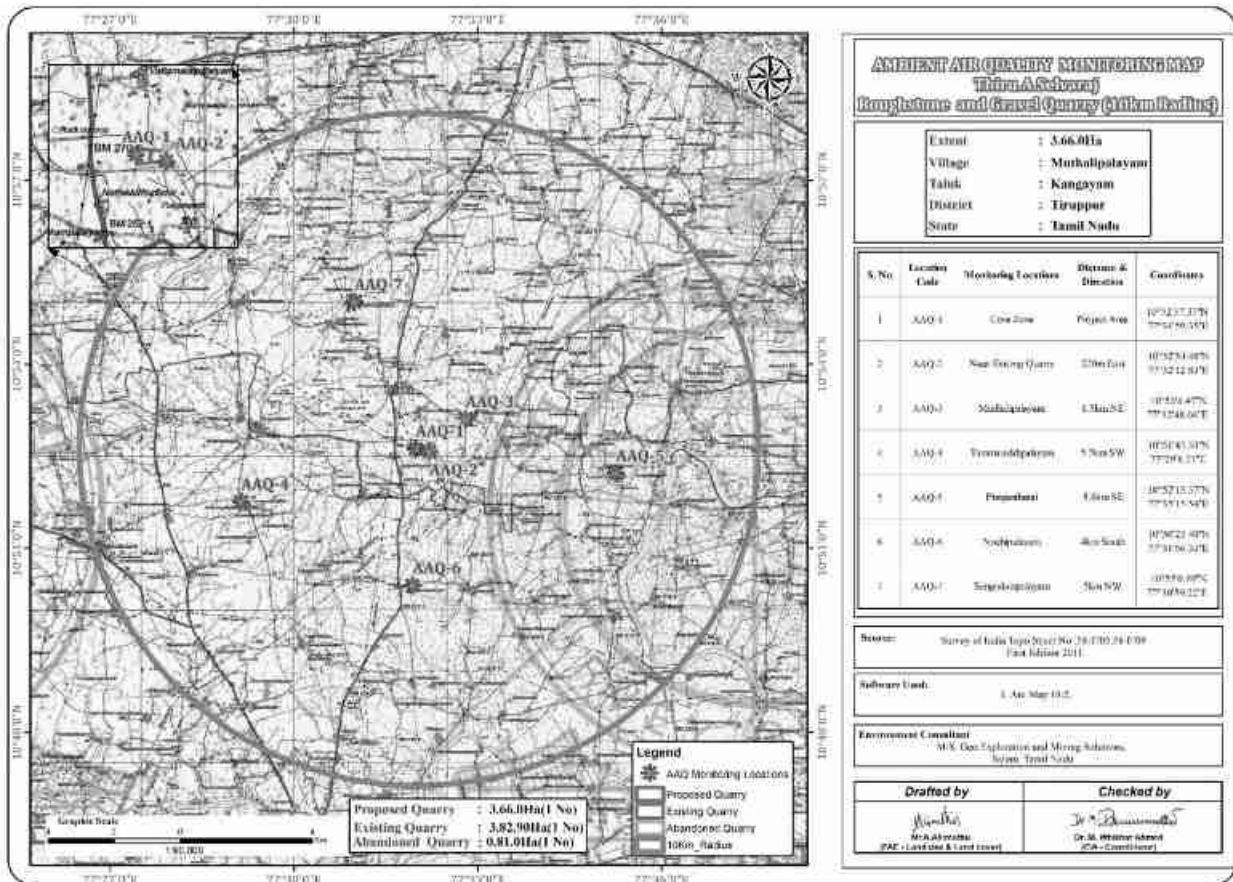


TABLE 3.18: SUMMARY OF AAQ 1 to AAQ 7

PM10	AAQ1 Core zone	AAQ2 Near Existing Quarry	AAQ3 Mudhalipalayam	AAQ4 Tammareddipalayam	AAQ5 Punganthurai	AAQ6 Nochipalayam	AAQ7 Sengodampalayam
Arithmetic Mean	42.3	42.8	42.5	43.2	42.8	43.1	42.7
Minimum	40.1	40.7	41.2	0.0	40.9	40.8	40.8
Maximum	46.0	46.6	44.1	0.0	45.2	46.1	46.2
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	21.8	22.6	22.1	22.7	22.6	22.7	22.4
Minimum	20.0	20.4	20.0	20.8	20.4	20.4	21.2
Maximum	25.8	24.2	24.5	25.4	24.1	25.4	25.8
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0
SO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	4.3	5.4	4.8	4.4	4.9	4.2	4.9
Minimum	1.2	1.3	1.1	1.2	1.4	1.9	1.2
Maximum	7.2	8.8	10.0	7.5	7.8	7.1	9.3
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0
NO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	21.5	21.8	21.3	21.2	21.1	21.5	20.9
Minimum	18.9	19.7	19.3	19.0	19.2	19.1	18.8
Maximum	25.9	26.5	25.6	27.3	24.7	26.5	25.4
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0

TABLE 3.19: ABSTRACT OF AMBIENT AIR QUALITY DATA

S. No	Parameter	PM2.5	PM10	SO ₂	NO ₂
1	No. of Observations	260	260	260	260
2	10th Percentile Value	20.8	41.0	1.5	19.7
3	20th Percentile Value	21.6	41.9	1.9	20.0
4	30th Percentile Value	21.6	42.2	4.1	20.2
5	40th Percentile Value	22.0	42.5	4.6	20.5
6	50th Percentile Value	22.5	42.7	5.2	20.8
7	60th Percentile Value	22.5	43.1	5.6	21.1
8	70th Percentile Value	23.3	43.4	6.0	21.7
9	80th Percentile Value	23.7	43.7	6.7	22.6
10	90th Percentile Value	24.1	44.2	7.3	24.2
11	95th Percentile Value	24.1	45.0	8.2	25.4
12	98th Percentile Value	25.4	46.2	9.1	26.5
13	Arithmetic Mean	22.9	43.3	5.5	22.1
14	Geometric Mean	22.8	43.2	4.8	22.0
15	Standard Deviation	1.4	1.5	2.4	2.3
16	Minimum	20.8	41.0	1.5	19.7
17	Maximum	25.4	46.2	9.1	26.5
	NAAQ Norms*	100.0	60.0	80.0	80.0

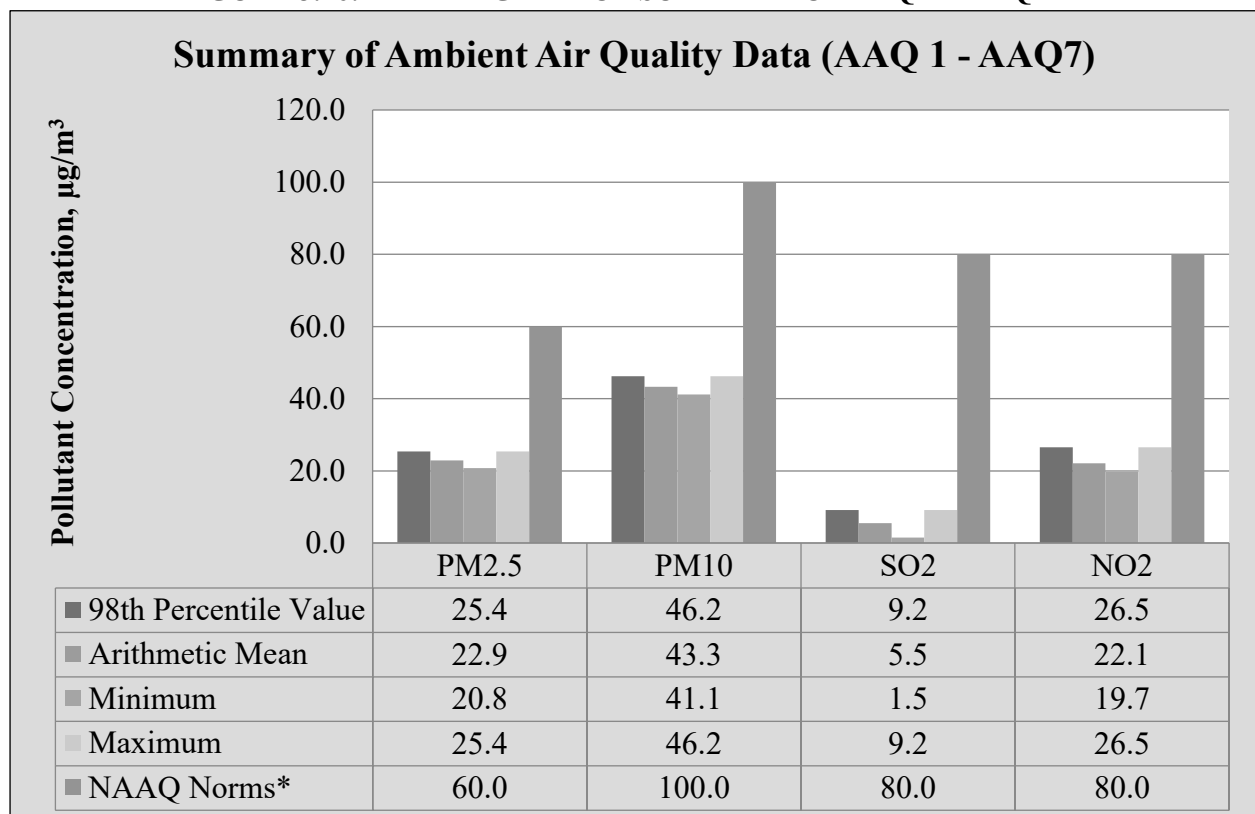
FIGURE 3.16: BAR DIAGRAM OF SUMMARY OF AAQ 1 – AAQ7

FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER PM_{2.5}

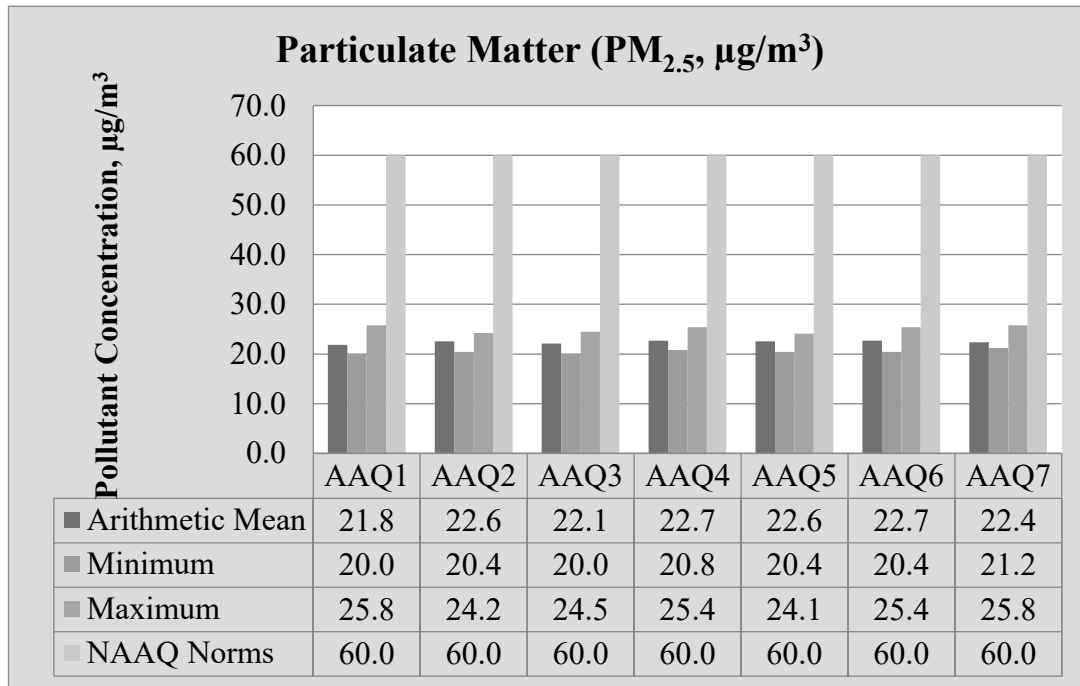


FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER PM₁₀

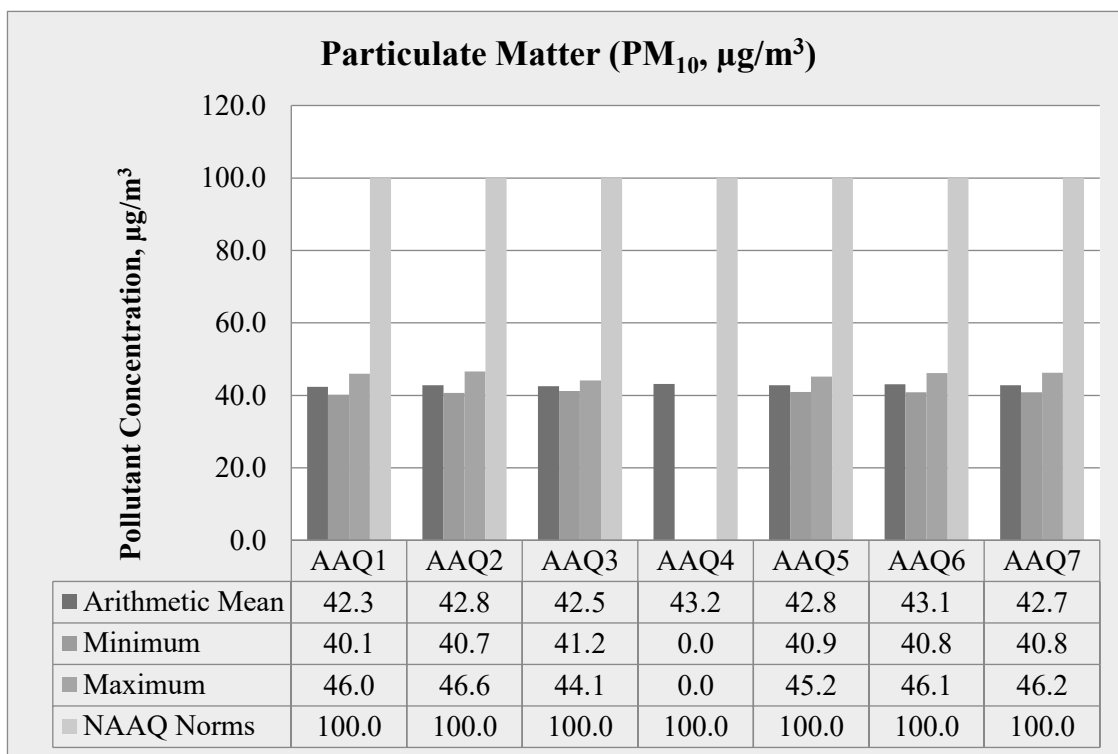


FIGURE 3.19: BAR DIAGRAM OF GASEOUS POLLUTANT SO₂

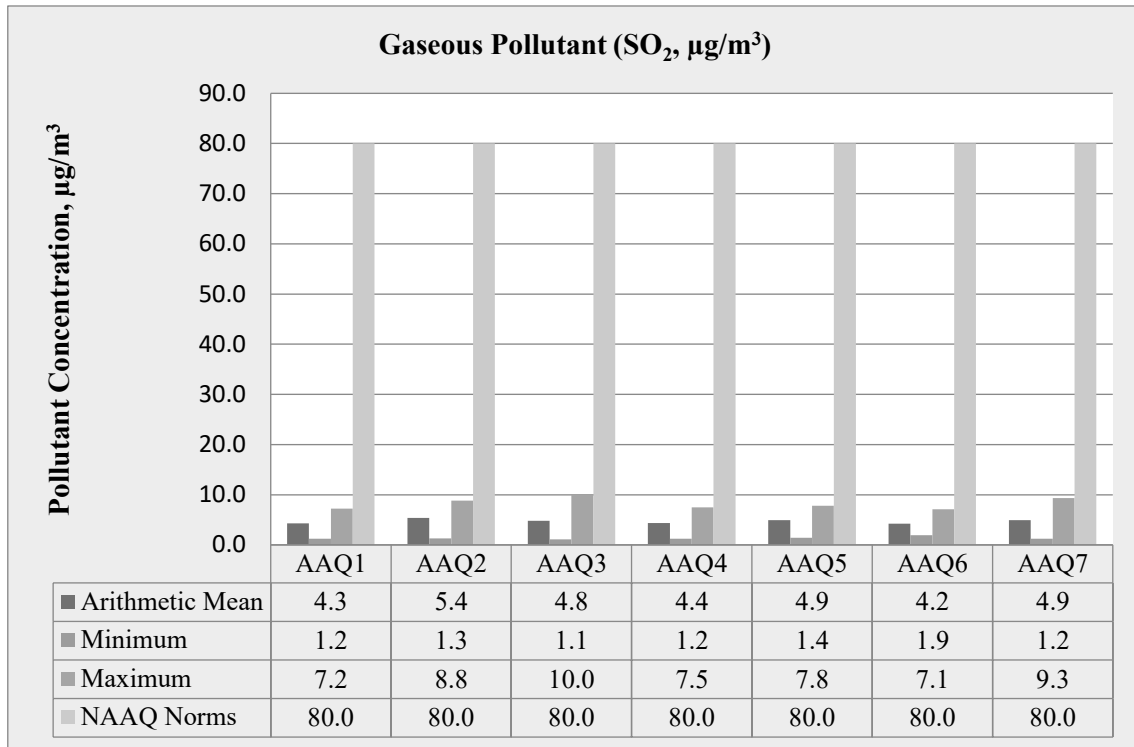
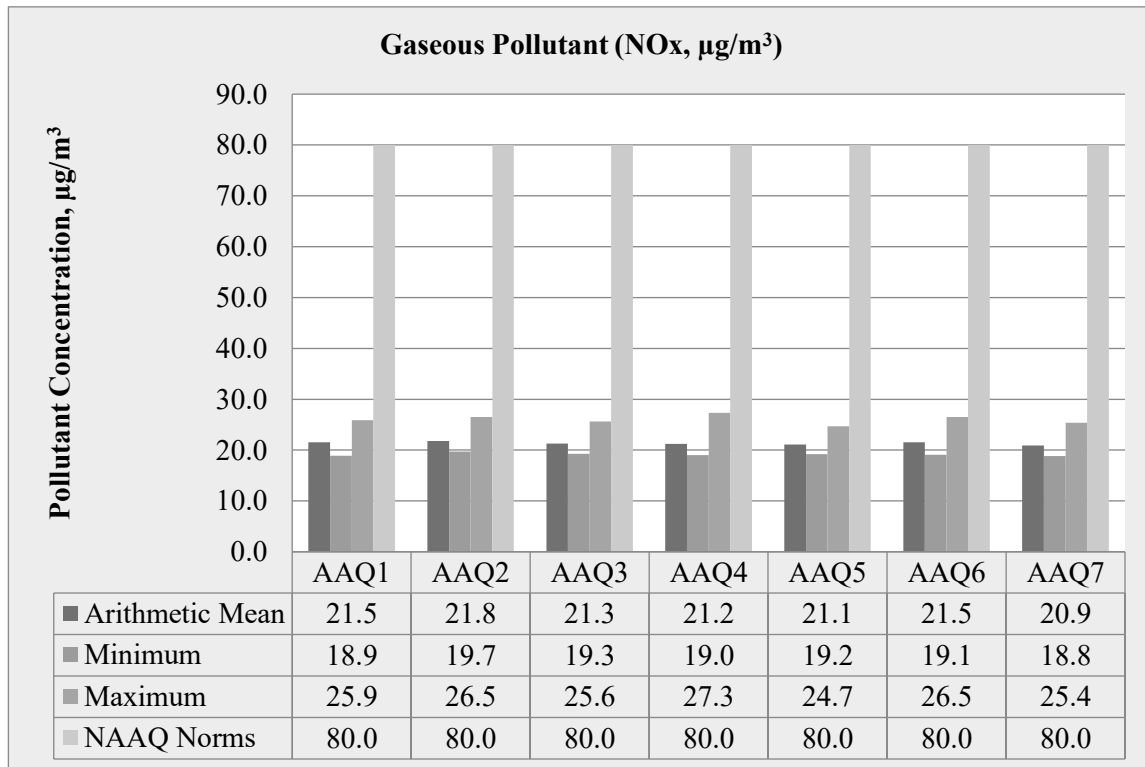


FIGURE 3.20: BAR DIAGRAM OF GASEOUS POLLUTANT NO_x



3.3.6 Interpretations & Conclusion

As per monitoring data, PM₁₀ ranges from 39.9 µg/m³ to 49.2 µg/m³, PM_{2.5} data ranges from 20.1 µg/m³ to 26.3 µg/m³, SO₂ ranges from 5.2µg/m³ to 9.8 µg/m³ and NO₂ data ranges from 17.8 µg/m³ to 27.6 µg/m³. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

3.4 NOISE ENVIRONMENT

The vehicular movement on road and mining activities is the major sources of noise in study area, the environmental assessment of noise from the mining activity and vehicular traffic can be undertaken by taking into consideration various factors like potential damage to hearing, physiological responses, and annoyance and general community responses. The main objective of noise monitoring in the study area is to establish the baseline noise level and assess the impact of the total noise expected to be generated during the project operations around the project site.

3.4.1 Identification of Sampling Locations

In order to assess the ambient noise levels within the study area, noise monitoring was carried out at Eight (8) locations. The noise level measurement was carried out at each ambient air quality station. The main aim of the noise level monitoring is

- To assess the ambient Noise level in the study area
- Type of noise pollution generated in the core zone
- To predict the temporal changes in the ambient noise level in the area

The noise level monitoring locations were carried out by covering commercial, residential, rural areas within the radius of 10km. A noise monitoring methodology was chosen such that it best suited the purpose and objectives of the study.

TABLE 3.21: DETAILS OF SURFACE NOISE MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	N-1	Core Zone	Project Area	10°52'39.36"N 77°32'2.69"E
2	N-2	Near Existing Quarry	220m East	10°52'34.22"N 77°32'13.25"E
3	N-3	Mudhalpalayam	1.5km NE	10°53'6.80"N 77°32'47.82"E
4	N-4	Tammareddipalayam	5.5km SW	10°51'45.24"N 77°29'8.35"E
5	N-5	Punganthurai	5.8km SE	10°52'13.16"N 77°35'15.79"E
6	N-6	Nochipalayam	4km South	10°50'23.60"N 77°31'56.87"E
7	N-7	Sengodampalayam	5km NW	10°55'0.91"N 77°30'60.00"E

Source: On-site monitoring/sampling by Global Lab and Consultancy in association with GEMS.

3.4.2 Method of Monitoring

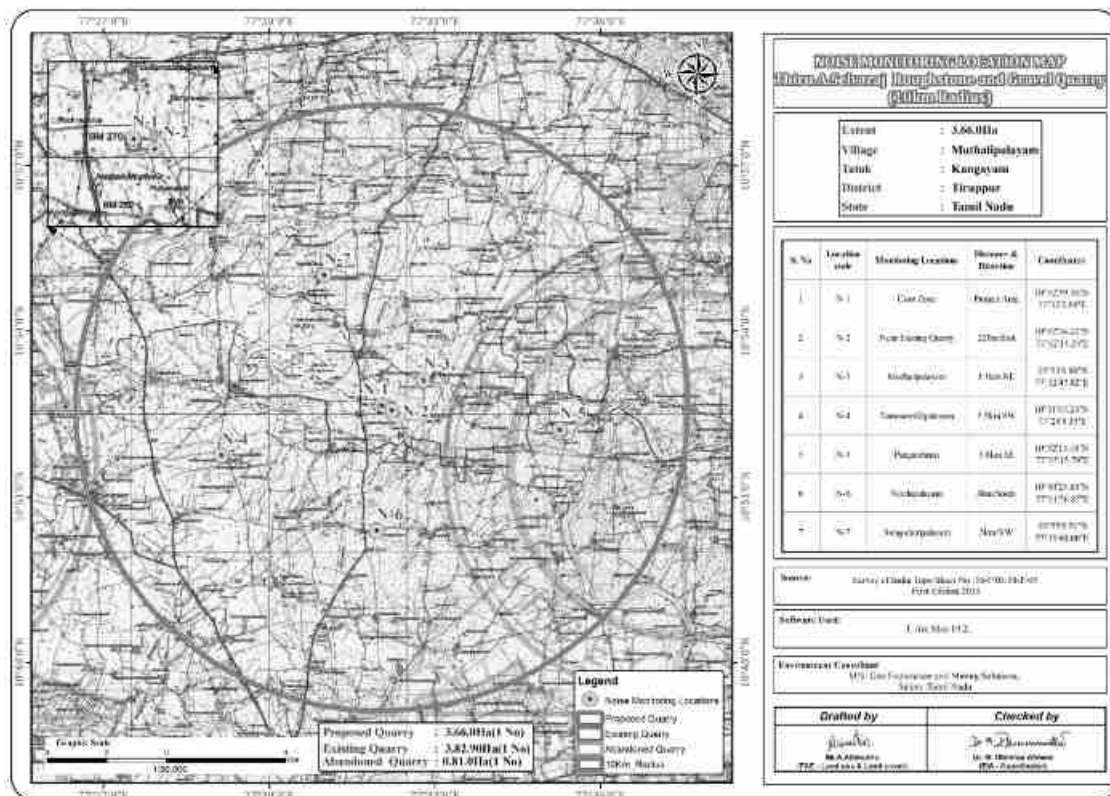
Digital Sound Level Meter was used for the study. All reading was taken on the 'A-Weighting' frequency network, at a height of 1.5 meters from ground level. The sound level meter does not give a steady and consistent reading and it is quite difficult to assess the actual sound level over the entire monitoring period. To mitigate this shortcoming, the Continuous Equivalent Sound level, indicated by Leq , is used. Equivalent sound level, 'Leq', can be obtained from variable sound pressure level, 'L', over a time period by using following equation. The equivalent noise level is defined mathematically as,

$$Leq = 10 \log L / T \sum (10L_n/10)$$

Where L = Sound pressure level at function of time dB (A)

T = Time interval of observation

Measured noise levels, displayed as a function of time, is useful for describing the acoustical climate of the community. Noise levels recorded at each station with a time interval of about 60minutes are computed for equivalent noise levels. Equivalent noise level is a single number descriptor for describing time varying noise levels.

FIGURE 3.23: NOISE MONITORING STATIONS AROUND 10 KM RADIUS

3.4.3 Analysis of Ambient Noise Level in the Study Area

The Digital Sound pressure level has been measured by a sound level meter (Model: HTC SL-1352)

An analysis of the different Leq data obtained during the study period has been made. Variation was noted during the day-time as well as night-time. The results are presented in below Table 3.32.

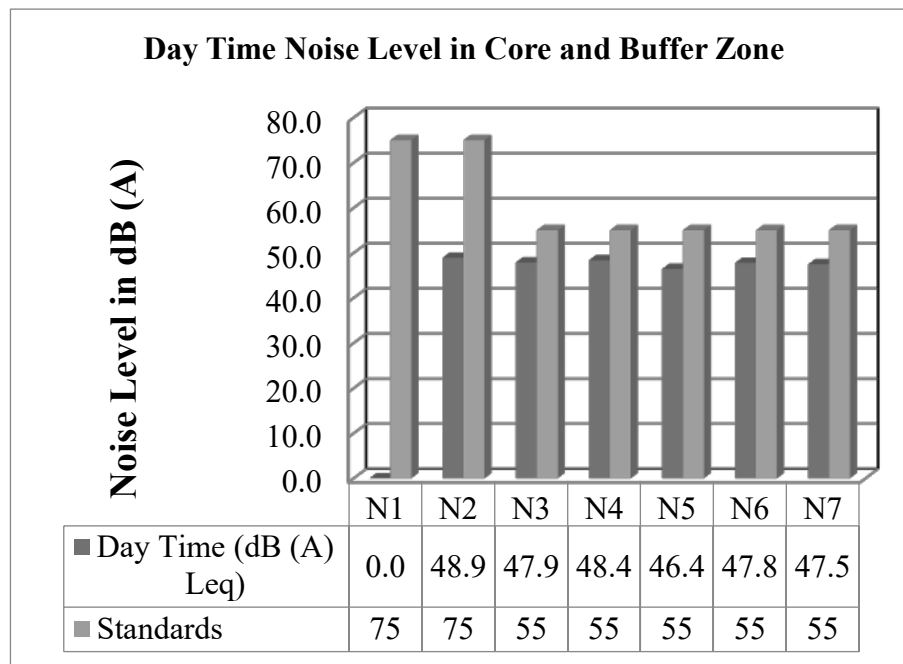
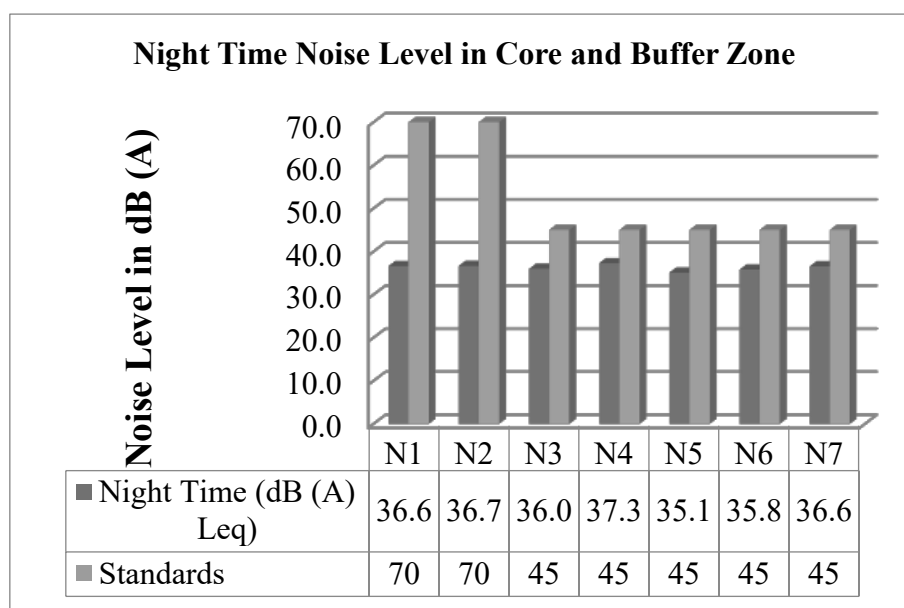
Day time: 6:00 hours to 22.00 hours.

Night time: 22:00 hours to 6.00 hours.

TABLE 3.22: AMBIENT NOISE QUALITY RESULT

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Core Zone	49.1	36.6	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Near Existing Quarry	48.9	36.7	
3	Mudhalipalayam	47.9	36.0	
4	Tammareddipalayam	48.4	37.3	
5	Punganthurai	46.4	35.1	Residential Day Time- 55 dB (A) Night Time- 45 dB (A)
6	Nochipalayam	47.8	35.8	
7	Sengodampalayam	47.5	36.6	

Source: On-site monitoring/sampling by Global Lab and Consultancy in association with GEMS

FIGURE 3.24: DAY TIME NOISE LEVELS IN CORE AND BUFFER ZONE**FIGURE 3.25: NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE****3.4.4 Interpretation & Conclusion:**

Ambient noise levels were measured at 7 (Seven) locations around the proposed project area. Noise levels recorded in core zone during day time were from 49.1 dB (A) Leq and during night time were from 36.6 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 46.4 to 48.9 dB (A) Leq and during night time were from 35.1 to 37.3 dB (A) Leq. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5 ECOLOGICAL ENVIRONMENT

Ecology is a branch of science that dealing the relations and interactions between organisms and their environment. An ecological survey of the study area was conducted, particularly with reference to the listing of

species and assessment of the existing baseline ecological conditions in the study area. The main objective of the biological study is to collect the baseline data regarding flora and fauna in the study area. Data has been collected through extensive surveys of the area with reference to flora and fauna. Information is also collected from different sources i.e., government departments such as the District Forest Office, Government of Tamil Nadu.

The main objective of the present study is to assess the current ecology & and biodiversity scenario during primary field survey carried out within 2 km radius impact zone in and around the Muthalipalayam Rough stone and gravel quarry (ML Area: 3.66.0 ha) to understand the presence and behaviour of the floral and faunal diversity of the study area with respect to terrestrial flora and fauna with special emphasis on Rare, Endangered and Threatened species & carry out Environmental Management Plan. The plan will identify and address the impacts, where these are adverse in nature, and thereafter design mitigation measures to manage such impacts in a manner as to conserve the environment and ecology of the area.

3.5.1. Objectives of Biological Studies

- a) To study the likely impact of the proposed mining project on the local biodiversity and to suggest mitigation measures, if required, for vulnerable biota.
- b) Identification and listing of flora and fauna which are important as per the Wildlife (Protection) Act 1972.
- c) Suggest Wildlife conservation (species specific/habitat specific) and management plan for the threatened (critically endangered & endangered species - schedule I) faunal species if any reported within the study area.
- d) To identify the impacts of mining on agricultural lands and how it affects.
- e) Proper collection of information about wildlife Sanctuaries/ national parks/ biosphere reserves of the project area.
- f) Devise management & conservation measures for biodiversity.

3.5.2. Methodology of Sampling

Identification of vegetation in relation to the natural flora and crops was conducted through reconnaissance field surveys and onsite observations in core and buffer zone. The plant species identification was done based on the reference materials and also by examining the morphological characteristics and reproductive materials i.e., flowers, fruits and seeds. Land use pattern in relation to agriculture crop varieties were identified through physical verification of land and interaction with local villagers.

The faunal elements (animal species) of core and buffer zone were identified by direct sightings or indirect evidences viz. pug marks, skeletal remains, scats and droppings etc. (Jayson and Easa 2004). Standard binocular was used for the observations. The authenticity of faunal elements occurrence was confirmed by interaction with the local people. Avifauna identification was done with pictorial descriptions of published literature. Information pertaining to existence of any migratory corridors and paths were obtained from local inhabitants. The status of each faunal element was determined and wildlife schedule category was ascertained as per the IUCN-Red Data Book and Indian wildlife (Protection) Act, 1972.

Plot method is used in the floral documentation in the core and buffer zone. For trees (10x10-m), shrubs (5x5-m) and herbs (1x1-m) plots were taken. Birds and butterflies were mainly focused during faunal assessment, transect method was employed for birds and butterflies. Transect is a path along which one counts and records the

occurrence of an individual for study. A straight-line walk covering desired distance, within a time span of one hour to 30 minutes was carried out in the proposed region. Bird species were recorded during the hours of peak activity. 07:00 to 11:00 Hrs and 14:30 to 17:30 Hrs (Bibby et al. 2000).

Direct observations and bird calls were used for bird documentation. Same transects were used for counting butterflies. Opportunistic observations were made for Amphibians, reptiles and ordnates. The presence of mammals was recorded by direct and indirect signs. All possible transects were taken for birds and butterflies. Birds and butterflies were classified into species level. Recorded bird species were identified to species level using standard books (Ali & Ripley 1987, Grimmett et al., 2016).

3.5.2.1. Field surveys

The field visit was carried out to understand and assess the impacts of mining activities on flora & fauna and natural habitats and prediction after the enhancement of the production capacity of the mine. We evaluated the distribution and abundance of flora and fauna in the study area through primary and secondary data sources.

3.5.3. Floral Study

- The floral survey of the project area is based on field survey of the area.
- The local flora was identified by their morphological observation, such as the size and shape of the leaf, flowers, fruits, and their bark features of the stem, and also documented their habitat viz. Trees, Shrubs, Herbs, Grasses, Climbers etc.
- After surveying the core and the buffer areas, a detailed floral inventory has been compiled. A list of all plants from the study area was prepared and their habitats were recorded.
- Selection of sampling locations was made with reference to topography, land use, vegetation pattern, wind pattern, etc. The observations were taken on natural vegetation, roadside plantations, and non-forest areas (agricultural fields, in plain areas, village wasteland, etc.) for quantitative representation of different species.
- Comparative analysis of the outcome of the Quadrat Sampling was done to understand the Frequency, Dominance, and Abundance of species observed in the study area.
- Quantitative assessment of tree/herb/shrub species diversity was selected in fifteen locations for quadrate which is given below.

3.5.3.1. Sampling

A stratified simple random sampling procedure was employed to obtain a sample from study area. The study area was further stratified in different land use/ecosystems.

3.5.3.2. Sampling Size

Keeping in mind both random sampling technique and covering all land use patterns for the study following sampling locations were chosen depending up on the area of the proposed site.

3.5.3.3. Timing of Study

The study was carried out during morning and evening hours, to cover the different activity phases for important species such as time resting, feeding, hunting, and daily movements.

3.5.3.4. Observations from Sampling

The various observations relating to flora and fauna species are discussed in detail below, in separate sections.

3.5.3.5. Equipment/ References

- Canon Mark III Camera with 50-500mm lens– Snap shots taken
- Leica Binoculars (8x 20) to spot/identify species
- IUCN Red Data Book – <https://www.iucnredlist.org/species>

Ornithological/Entomological/Herpetological/Mammalian catalogues and pictorial descriptions from various authors and websites are followed for species identification.

3.5.4. Part I Field Sampling Techniques

3.5.4.1. Transect walk – Birds

Six no of transect lines with varying length (100m-300m) and fixed width (2m) were laid which cuts through the core and buffer areas of proposed site. The transect surveys were conducted from 0700 to 1100Hrs and 1430 to 1730Hrs (Bibby et al. 2000). All avifauna found along these transects were recorded for analysing of the data. Counts were conducted while there is no heavy rain, mist or strong wind.

3.5.4.2. Modified Pollard Walk – for Butterflies

The Modified Pollard Walk (Pollard 1977, 1993, Walpole 1999) using fixed width transect walk method were employed to investigate butterfly spatial distribution, diversity, and abundance at the different survey sites.

3.5.4.3. Visual Encounter Survey (VES) - reptiles and amphibians

VES is a time-constrained sampling technique (Campbell and Christman, 1982; Corn and Bury, 1990). It needs a systematic search through an area or habitat for a prescribed time period (Campbell and Christman, 1982). The result of VES is measured against the time spent for search. VES technique is one of the simplest methods and an appropriate technique for both inventory and monitoring Herpetofauna (Heyer et al. 1994).

3.5.4.4. Observational methods- Mammals

For the purpose of recording mammals, we used two different observational techniques: (1) direct observations, and (2) recording of occurrences like holes, markings, scats, hairs, and spines (Menon 2003). For identification confirmations, photographs with a scale reference were used, and locations were recorded using a portable GPS device. Indigenous knowledge particularly that of the locals, was occasionally employed to compile a preliminary list of species and/or aid in the recognition of indicators.

3.5.4.5. Multiple Stage Quadrat – Vegetation

A variety of habitat or vegetation structure variables were measured using the Multiple Stage Quadrat sampling protocol (Sykes and Horrill 1977). All of those areas were sampled, and the major corners were temporarily delineated with colored ribbons. Each site was identified in the field using a compass and clinometer,

and the plot's latitude, longitude, and elevation were recorded using a handheld Global Positioning System (Garmin 12XL).

3.5.5. Flora

The quadrat sampling technique was used for sampling vegetation. Sampling quadrats of the regular shape of dimensions 10 × 10 m, 5 × 5 m, and 1 × 1 m, were nested within each other and were defined as the units for sampling the area and measuring the diversity for trees, Shrubs, and herbs respectively.

3.5.5.1. Flora Composition in the Core Zone

Taxonomically a total of 16 species belonging to 9 families have been recorded from the core mining lease area. It is exhibit flat topography. Based on habitat classification of the enumerated plants the majority of species were Herbs 8 (50%) followed by Trees 4 (25%), Grasses 3 (19%), and Climbers/Creepers 1 (6%). Details of flora with the scientific name were mentioned in Table No. 3.53. The result of the core zone of flora studies shows that Fabaceae and Poaceae and Lamiaceae are the main dominating species in the study area mentioned in Table No.3.53. No species were found as a threatened category (Table No. 3.53).

Table No: 3.53. Flora in the Core zone of Muthalipalayam Village, Rough stone and Gravel quarry, Kangayam Taluk, Tiruppur District.

Sl. No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae
2.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
3.	River tamarind	Savundal	<i>Leucaenaleucocephala</i>	Fabaceae
4.	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	Arecaceae
Herbs				
1.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
2.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae
3.	Indian Catmint Plant	Pei viratti	<i>Anisomeles malabarica</i>	Lamiaceae
4.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae
5.	Fish poison	Kolinchi	<i>Tephrosia purpurea</i>	Fabaceae
6.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
7.	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae
8.	Mountain knotgrass	Thengaipoo kirai	<i>Aerva lanata</i>	Amaranthaceae
Creepers /Climbers				
1	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
Grass				
1.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
2.	Great brome	Thodappam	<i>Bromus diandrus</i>	Poaceae
3.	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae

Sources: Species observation in the field study



a. *Azadirachta indica*



b. *Calotropis gigantea*



c. *Leucas aspera*



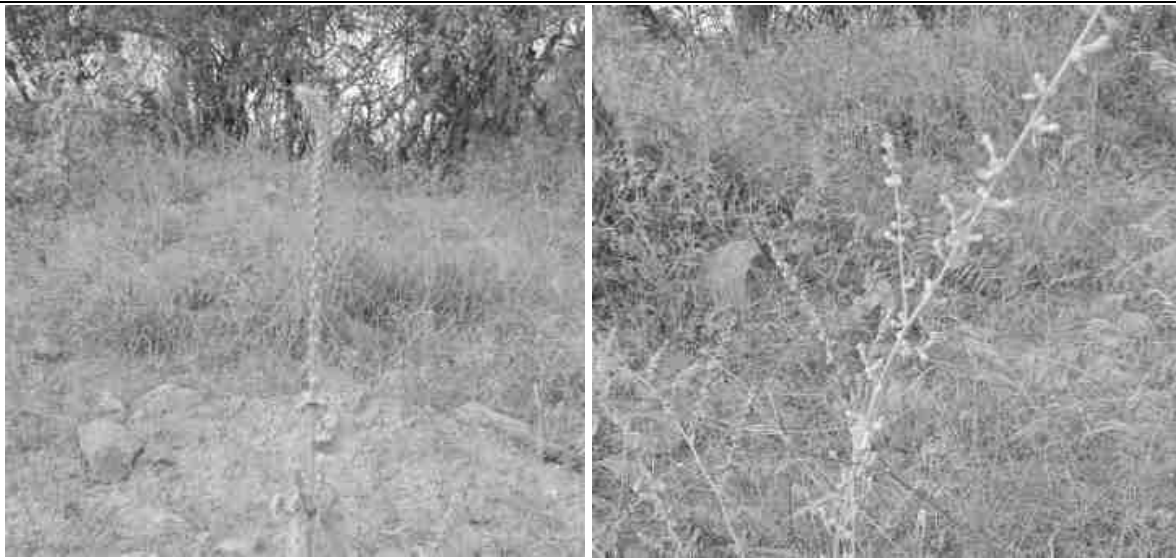
d. *Tephrosia purpurea*



e. *Cissus quadrangularis*



i. *Leucaena leucocephala*



g. *Achyranthes aspera*

h. *Aerva lanata*

Fig No: 3.33. Flora species observation in the Core zone area

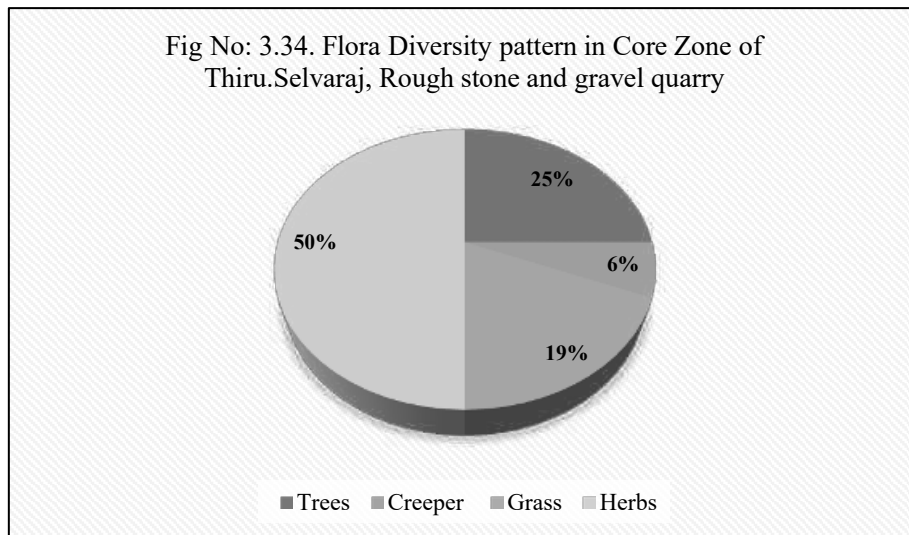


Table No: 3.54. Flora in the Buffer zone of Muthalpalayam Village, Rough stone and Gravel quarry, Kangayam Taluk, Tiruppur District

Sl.No.	English Name	Vernacular Name	Scientific Name	Resource use type *(E, M, EM)
Trees				
1.	Millettia pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	E
2.	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	EM
3.	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	E
4.	Wild Date Palm	Pericham	<i>Phoenix sylvestris</i>	E
5.	Coconut	Thennai maram	<i>Cocos nucifera</i>	EM
6.	River tamarind	Savundal	<i>Leucaenaleucocephala</i>	E
7.	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	EM
8.	Mango	Manga	<i>Mangifera indica</i>	E
9.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	E
10.	Neem or Indian lilac	Vembu	<i>Azadirachta indica</i>	M
11.	Creamy Peacock flower	Vadanarayani	<i>Delonix elata</i>	M
12.	Mesquite	Sema Karuvelam	<i>Prosopis juliflora</i>	E
13.	Madras Thorn	Kodukapuli	<i>Pithecellobium dulce</i>	E
14.	Castor oil plant	Amanakku	<i>Ricinus communis</i>	M
15.	Gum arabic tree	Karuvelam	<i>Acacia nilotica</i>	NE
16.	False ashoka	Asoka maram	<i>Polyalthia longifolia</i>	E
17.	Monkey pod tree	Thungumoonchi	<i>Samanea saman</i>	E
18.	Bitter Albizia	Arappu	<i>Albizia amara</i>	M
19.	Giant thorny bamboo	Perumungil	<i>Bambusa bambos</i>	M
20.	Black plum	Navalmaram	<i>Sygygium cumini</i>	EM
21.	Eucalyptus	Eucalyptus	<i>Eucalyptus globules</i>	EM
22.	Custard apple	Seethapazham	<i>Annona reticulata</i>	E
23.	Acacia Nilotica	Karuvelam maram	<i>Vachellia nilotica</i>	M
24.	Indian gooseberry	Nelli	<i>Emblica officinalis</i>	EM
25.	Henna	Marudaani	<i>Lawsonia inermis</i>	EM
26.	Sacred fig	Arasan	<i>Ficus religiosa</i>	E
27.	Indian mulberry	Nuna	<i>Morinda tinctoria</i>	E
28.	Teak	Thekku	<i>Tectona grandis</i>	E
29.	Papaya	Pappali maram	<i>Carica papaya</i>	EM
30.	Chinese chaste tree	Nochi	<i>Vitex negundo</i>	E
31.	Peepal	Arasanmaram	<i>Ficus religiosa</i>	M
32.	Monoon longifolium	Nettilinkam	<i>Polyalthia longifolia</i>	E
33.	Guava	Koyya	<i>Psidium guajava</i>	EM

34.	Curry tree	Karuveppilai	<i>Murraya koenigii</i>	EM
35.	Drumstick tree	Murunga maram	<i>Moringa oleifera</i>	EM
36.	Mesquite	Velikathan maram	<i>Prosopis juliflora</i>	M
37.	Portia tree	Poovarasam	<i>Thespesia populnea</i>	E
Shrubs				
1.	Avaram	Avarai	<i>Senna auriculata</i>	M
2.	Night shade plan	Sundaika	<i>Solanum torvum</i>	EM
3.	Lantana	Unnichi	<i>Lantana camara</i>	M
4.	Triangular spruce	Chaturakalli	<i>Euphorbia antiquorum</i>	NE
5.	Indian jujube	Elanthai	<i>Ziziphus mauritiana</i>	M
6.	Coffee senna	Kattuttakarai	<i>Senna occidentalis</i>	M
7.	Rosy Periwinkle	Nithyakalyani	<i>Cathranthus roseus</i>	M
8.	Bush Morning Glory	Neyvelik Kattamanakku	<i>Ipomoea carnea</i>	E
9.	Chinese chastetree	Nochi	<i>Vitex negundo</i>	M
10.	Indian Oleander	Arali	<i>Nerium indicum</i>	M
11.	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	EM
12.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	EM
13.	Columnar Cactus	Sappathikalli	<i>Cereus pterogonus</i>	M
14.	Thorn apple	Oomathai	<i>Datura stramonium</i>	E
15.	Jackal jujube	Soorai pazham	<i>Ziziphus oenopolia</i>	M
16.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	M
17.	Peacock Flower	Mayil Kontai	<i>Caesalpinia pulcherrima</i>	M
18.	Datura metel	Uumaththai	<i>Datura metel</i>	NE
19.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	M
20.	Tiger nail	Eli verandi	<i>Martynia annua</i>	M
Herbs				
1.	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	M
2.	Tridax daisy	Veetukaayapoondur	<i>Tridax procumbens</i>	M
3.	Indian Copperleaf	Kuppaimeni	<i>Acalypha indica</i>	M
4.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	E
5.	Copperleaf	Kuppaimeni	<i>Acalypha indica</i>	M
6.	Indian Catmint Plant	Pei viratti	<i>Anisomeles malabarica</i>	M
7.	Cleome viscosa	Nai kadugu	<i>Celome viscosa</i>	M
8.	Common Wireweed	Arivalmanai poondur	<i>Sida acuta</i>	M
9.	Punarnava	Mukkirattai	<i>Boerhaavia diffusa</i>	EM
10.	Mexican prickly poppy	Kudiyotti	<i>Argemone mexicana</i>	M
11.	Common leucas	Thumbai	<i>Leucas aspera</i>	M
12.	Licorice weed	Kallurukki	<i>Scoparia dulcis</i>	M
13.	Yellow-fruit nightshade	Kandakathirika	<i>Solanum surattense</i>	M

14.	Shameplant	Thottachenunki	<i>Mimosa pudica</i>	M
15.	Node Flower	Kumattikkirai	<i>Allmania nodiflora</i>	M
16.	Asthma-plant	Ammanpacharisi	<i>Euphorbia hirta</i>	M
17.	Pignut	Nattapoochedi	<i>Hyptis suaveolens</i>	M
18.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	M
19.	Asian spiderflower	Naaikaduku	<i>Cleome viscosa L</i>	M
20.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	NE
21.	Mountain knotgrass	Thengaipoo kirai	<i>Aerva lanata</i>	M
22.	Bindii	Nerunchi	<i>Tribulus terrestris</i>	M
23.	Fish poison	Kolinchai	<i>Tephrosia purpurea</i>	M
24.	Tomato	Thakkali	<i>Solanum lycopersicum</i>	EM
25.	False daisy	Karisalankanni	<i>Eclipta alba</i>	M
26.	Chilli	Milakai	<i>Capsicum annum</i>	EM
27.	Red Spiderling	Mukirattai	<i>Boerhavia diffusa</i>	M
28.	Aloe	Katrashai	<i>Aloe vera</i>	M
29.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	M
Climber/ Creeper				
1.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	M
2.	Wild bitter	Pavarkai	<i>Momordica charantia</i>	EM
3.	Ivy gourd	Kovai	<i>Coccinia grandis</i>	M
4.	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	EM
5.	Ground Spurge	Sithrapaalavi	<i>Euphorbia prostrata</i>	EM
Grass				
1.	Jungle rice	Kuthirai vaalKattu arusi	<i>Echinochloa colona</i>	NE
2.	Mauritian Grass	Moongil pul	<i>Apluda mutica</i>	NE
3.	Needle Grass	Thodappam	<i>Aristida adscensionis</i>	E
4.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	E
5.	Windmill grass	Chevvarakupul	<i>Chloris barbata</i>	NE

Sources: Species observation in the field study and secondary data

3.5.6. Flora Composition in the Buffer Zone

Similar habitats may be found in the buffer area as well, although there is a wider variety of plants there than in the core zone area. The proposed project site there are 96 species in the buffer zone study area in total, based on records. The floral (96) varieties among them Trees 37, Herbs 29, Shrubs 20, Climbers/ Creepers 5, Grasses 5 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Cucurbitaceous, Euphorbiaceae is the main dominating species in the study area mentioned in Table No.3.54. There are no impacts due to this mining activity. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. Apart from the proposed project area, there is agricultural land. Horticulture and agricultural land are untouched. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. A list of floral species has been prepared based on primary survey (site observations) and discussion with local people. The total number of different plant life forms under trees, shrubs, herbs, and climbers is shown in Table 3.55 and their % distribution is shown in Figure 3.35.

Table 3.55: Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	37
2	Shrubs	20
3	Herbs	29
4	Climber/Creepers	5
6	Grasses	5
Total No. of Species		96

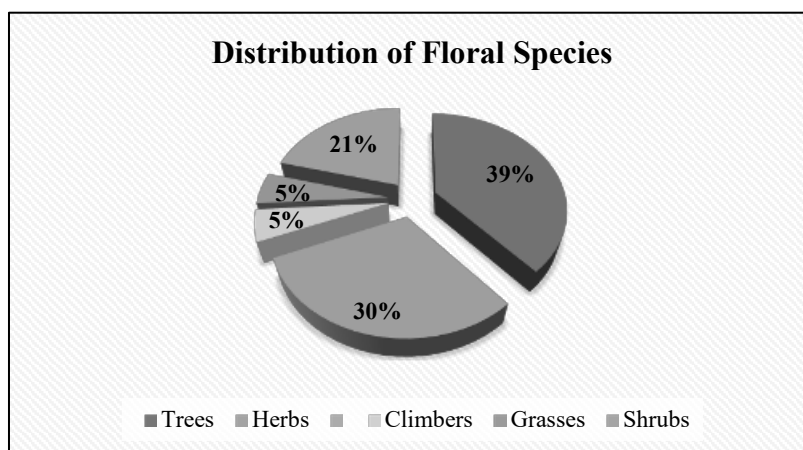


Fig No. 3.35: Diagram showing % distribution of floral life form

3.5.6.1. Major Agricultural Crops

Tiruppur district though an industrial district plays important role in Agriculture also. The food production required to be enhanced to provide food and nutritional security to the growing district population. In Tiruppur more than 80% of the farmers belong to small and marginal category and they play a key role in overall development in Agriculture. The total area of cultivation is around 2,28,556 hectares, mainly food and commercial crops. The chief food crops are paddy, millets and pulses. The non-food or commercial crops in the district are cotton, oil seeds and coconut. Details of the major crops are given in Table No: 3.56.

Table No: 3.56. Major crops in Tiruppur District

S.No	Major crops	Scientific name	Families
1	Paddy	<i>Oryza sativa</i>	Grasses
2	Sorghum	<i>Sorghum bicolor</i>	Grasses
3	Maize	<i>Zea mays</i>	Grasses

(Source: Agriculture Contingency Plan– Tiruppur-2013)

3.5.6.2. Horticulture

Major horticulture crops cultivated in this district are fruits crops like mango, banana, aonla, sapota and papaya, vegetables like bhendi, tomato, brinjal, onion, tapioca, moringa, spices and condiments like chillies and turmeric, plantation crops like cocoa, flower crops like jasmine, tube rose, marigold, cock's comb and medicinal plants like gloriosa and coleus. Details of major field crops and horticulture in Tiruppur district is given in Table No: 3.57.

Table No: 3.57. Major Field crops & horticulture in Tiruppur District.

Sl.No	Common Name	Scientific Name	Family
Major Horticultural Crops			
1	Banana	<i>Musa</i>	Musaceae
2	Mango	<i>Mangifera indica</i>	Anacardiaceae
3	Jack	<i>Artocarpus heterophyllus</i>	Mulberry
4	Guava	<i>Psidium guajava</i>	Myrtle
5	Sapota	<i>Manilkara zapota</i>	Sapotaceae
6	Lemon	<i>Citrus × limon</i>	Rutaceae
Vegetables			
7	Onion	<i>Allium cepa</i>	Amaryllidaceae
8	Tapioca	<i>Manihot esculenta</i>	Spurges
9	Brinjal	<i>Solanum melongena</i>	Nightshade
10	Tomato	<i>Solanum lycopersicum</i>	Nightshade
11	Gourds	<i>Lagenaria siceraria</i>	Cucurbits
12	Bhendi	<i>Abelmoschus esculentus</i>	Mallows
13	Moringa	<i>Moringa oleifera</i>	Moringaceae
Medicinal and Aromatic Plants			
14	Gloriosa superba	<i>Colchicaceae</i>	Colchicaceae
15	Coleus	<i>Plectranthus scutellarioides</i>	Mints
Flowers			
16	Jasmine	<i>Jasminum</i>	Jasminaceae
17	Crossandra	<i>Crossandra infundibuliformis</i>	
18	Crysanthimum	<i>Asteraceae</i>	Asteraceae
19	Rose & Jathi	<i>Rosa</i>	Rosaceae
20	Tuberose	<i>Polianthes tuberosa</i>	Asparagus

Spices and Condiments			
21	Chillies	<i>Capsicum frutescens</i>	Solanaceae
22	Turmeric	<i>Curcuma longa</i>	Zingiberaceae
23	Tamarind	<i>Tamarindus indica</i>	Legumes
24	Curry leaf	<i>Murraya koenigii</i>	Rutaceae
Plantation Crops			
25	Cashew	<i>Anacardium occidentale</i>	Cashews
26	Cocoa	<i>Theobroma cacao</i>	Mallows

(Source: Statistical handbook of Tamil Nadu-2013)

3.5.6.3. of Irrigation

Irrigation is the artificial application of water to the soil for normal growth of plants. Water is an important determinant factor for production of crops in agriculture sector. Intensive and extensive cultivation of land depends mainly on the availability of water. Medium and minor irrigation schemes are implemented in the state for augmenting the water supply for agriculture. The various sources of irrigation are canals, tanks, tube wells, ordinary wells, springs and channels. The Following Table No: 3.58. Shows the area irrigated in Tiruppur District.

Table No: 3.58. Area irrigated in the district

S.No	Irrigation	Area ('000 ha)
1	Net irrigated area	119.3
2	Gross irrigated area	123.1
3	Rain fed area	72.9

(Source: Statistical handbook of Tamil Nadu-2013)

Dug wells are the major source of water for irrigation in Tiruppur district, accounting for about 59.97 percent of the total area irrigated in this district. Tube wells accounting for about 9.48 percent of the total area irrigated in this district. Of the net area irrigated, the canal irrigated area is only 29.45 percent. The area irrigated under tank is 1.10 percent.

(Source: Statistical handbook of Tamil Nadu-2013)

3.5.7. The vegetation in the RF / PF areas, ecologically sensitive areas

There are neither reserved (RF) nor protected (PF) forests either in the mine lease area or in the core zone. A small Uthiyur R.F located about 1.5km on the Northwest side. Thus, no forest land is involved in any manner. Hence, no certificate from the Forest department is required. There are no impacts due to this mining activity.

There are no protected or ecologically sensitive areas such as National parks or Important Bird Areas (IBAs), or Wetlands or migratory routes of fauna or water bodies or human settlements within the proposed mine lease area. There are no Biosphere reserves or wildlife sanctuaries or National parks or Important Bird Areas (IBAs), or migratory routes of fauna. Thus, the area under study (Mine lease area and the 10 Km buffer zone) is not ecologically sensitive. It is away from the proposed project site. There are neither forests nor forest dwellers

nor 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.

3.6. Fauna

The faunal survey has been carried out as per the methodology cited and listed out Mammals, birds, Reptiles, Amphibians, and Butterflies. All the listed species were compared with the Red Data Book and the Indian Wildlife Protection Act, 1972. There are no rare, endangered, threatened (RET), and endemic species present in the core area.

3.6.1. Fauna Composition in the Core Zone

A total of 13 varieties of species were observed in the Core zone of Muthalipalayam Village, Rough stone and gravel quarry (Table No.3.59) among them numbers of Insects 3 (23%), Reptiles 2 (15%), Mammals 1 (8%) and Avian 7 (54%). None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and six species are under schedule IV according to the Indian wild life Act 1972. A total of 7 species of bird 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 No. 3.59.

Table No: 3.59. Fauna in the Core zone of Muthalipalayam Village, Rough stone and Gravel quarry, Kangayam Taluk, Tiruppur District

SI. No	Common name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
Insects			
1.	Mottled emigrant	Catopsilia pyranthe	NL
2.	Common Tiger	Danaus genutia	NL
3.	Red-veined darter	Sympetrum fonscolombii	NL
Reptiles			
1.	Garden lizard	Calotes versicolor	Schedule IV
2.	Common skink	Mabuya carinatus	Schedule IV
Mammals			
1.	Common rat	Rattus rattus	Schedule IV
Aves			
1.	Common myna	Acridotheres tristis	Schedule IV
2.	House crow	Corvus splendens	Schedule IV
3.	Common quail	Coturnix coturnix	Schedule IV
4.	Koel	Eudynamys	Schedule IV
5.	Cattle egret	Bubulcus ibis	Schedule IV
6.	Asian green bee-eater	Merops orientalis	Schedule IV
7.	Black drongo	Dicrurus macrocercus	Schedule IV

(Sources: Species observation in the field study)

3.6.2. Fauna Composition in the Buffer Zone

As animals, especially vertebrates move from place to place in search of food, shelter, mate or other biological needs, separate lists for core and buffer areas are not feasible however, a separate list of fauna pertaining to core and buffer zone are listed separately. Though there is no reserved forests in the buffer zone. As such there are no chances of occurrence of any rare or endangered or endemic or threatened (REET) species within the core or buffer area.

A small Uthiyur R.F located about 1.5km on the Northwest side. There are no Sanctuaries, National Parks, Tiger Reserve or Biosphere reserves or Elephant Corridor or other protected areas within 10 km radius of from the core area. It is evident from the available records, reports, and circumstantial evidence that the entire study area including the core and buffer areas were free from any endangered animals. There were no resident birds other than common bird species such as Asian Koel, House crow, Black drangos, etc.

The list of Mammals (*directly sighted animals & Secondary data) is given in table No.3.60. The list of bird species recorded during the field survey and literature from the study area are given in Table 3.61. The list of reptilian species recorded during the field survey and literature from the study area is given in Table 3.62. The list of insect species recorded during the field survey and literature from the study area are given in Table 3.63. The list of Butterflies species recorded during the field survey and literature from the study area are given in Table 3.64. It is apparent from the list that none of the species either spotted or reported is included in Schedule I of the Wildlife Protection Act. Similarly, none of them comes under the REET category.

Taxonomically a total of 54 species recorded were from the buffer zone area. Based on habitat classification the majority of species were birds 25, followed by Butterflies 10, Reptiles 6, Insects 5, Mammals 4, and Amphibians 4. There are two Schedule II species, two species are under the schedule III and forty three species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 25 species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed. There are no impacts on nearby fauna species.

Dominant species are mostly birds, butterflies, and insects, and four amphibian was observed during the extensive field visit *Sphaerotheca breviceps*, *Euphylyctis hexadactylus*, *Bufo melanostictus*, etc. There is no Schedule I Species in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

**Table 3.60. List of Fauna & Their Conservation Status,
Mammals: (*directly sighted animals & Secondary data)**

SI. No	Common Name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
1.	Indian palm squirrel	<i>Funambulus palmarum</i>	Schedule IV
2.	Indian Field Mouse	<i>Mus booduga</i>	Schedule IV
3.	Asian Small Mongoose	<i>Herpestes javanicus</i>	Schedule (Part II)
4.	Brown rat	<i>Rattus norvegicus</i>	Schedule IV

Table 3.61. Listed birds

SI. No	Common Name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
1.	Jungle babbler	<i>Turdoides striata</i>	Schedule IV
2.	Indian robin	<i>Saxicoloides fulicatus</i>	Schedule IV
3.	Asian Koel	<i>Eudynamys</i>	Schedule IV
4.	Cattle egret	<i>Bubulcus ibis</i>	Schedule IV
5.	Rock pigeon	<i>Columbidae</i>	Schedule IV
6.	Common myna	<i>Acridotheres tristis</i>	Schedule IV
7.	House crow	<i>Corvus splendens</i>	Schedule V
8.	Red Vented Bulbul	<i>Pycnonotus cafer</i>	Schedule IV
9.	Small Bee Eater	<i>Merops orientalis</i>	Schedule IV
10.	Purple sunbird	<i>Cinnyris asiaticus</i>	Schedule IV
11.	House sparrow	<i>Passer domesticus</i>	Schedule IV
12.	Small blue Kingfisher	<i>Alcedo atthis</i>	Schedule IV
13.	Rose-ringed parakeet	<i>Psittacula krameri</i>	Schedule IV
14.	Common quail	<i>Coturnix coturnix</i>	Schedule IV
15.	Pond herons	<i>Ardeola grayii</i>	Schedule IV
16.	Black drongo	<i>Dicrurus macrocercus</i>	Schedule IV
17.	Woodpecker bird	<i>Picidae</i>	Schedule IV
18.	Two-tailed Sparrow	<i>Dicrurus macrocercus</i>	Schedule IV
19.	Grey drongo	<i>Dicrurus longicaudatus</i>	Schedule IV
20.	Grey Francolin	<i>Francolinus pondicerianus</i>	Schedule IV
21.	Wood Sandpiper	<i>Tringa glareola</i>	Schedule IV
22.	Indian Roller	<i>Coracias benghalensis</i>	Schedule IV
23.	Common Swallow	<i>Hirundo rustica</i>	Schedule IV
24.	Purple Rumped Sunbird	<i>Leptocoma zeylonica</i>	Schedule IV
25.	Purple Sunbird	<i>Cinnyris asiaticus</i>	NL

Reference: Ali, S. (2002). The Book of Indian Birds (13th revised edition). Oxford University Press, New Delhi. 326pp.

Table 3.62. List of Reptiles either spotted or reported from the study area.

(*indicates direct observations & Secondary data)

SI. No	Common Name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
1.	Oriental garden lizard	<i>Calotes versicolor</i>	III
2.	House lizards	<i>Hemidactylus flaviviridis</i>	Schedule IV
3.	Indian cobra	<i>Naja naja</i>	Sch II (Part II)

4.	Green vine snake	<i>Ahaetulla nasuta</i>	Schedule IV
5.	Rat snake	<i>Ptyas mucosa</i>	III
6.	Common skink	<i>Mabuya carinatus</i>	NL

Table 3.63. List of insects either spotted or reported from the study area

SI. No	Common Name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
1.	Indian honey bee	<i>Apis cerana</i>	-
2.	Termite	<i>Hamitermes silvestri</i>	NE
3.	Grasshopper	<i>Hieroglyphus sp</i>	NL
4.	Ant	<i>Camponotus Vicinus</i>	NL
5.	Dragonfly	<i>Ceratogomphus pictus</i>	-

Table.3.64. List of Butterflies reported from the study area

SI. No	Common Name/English Name	Scientific Name	Schedule
1.	Common Mormon	<i>Papilio polytes</i>	Schedule IV
2.	Common rose	<i>Pachlioptaaristolochiaee</i>	Schedule IV
3.	Spotless grass yellow	<i>Eurema laeta</i>	Schedule IV
4.	Common Tiger	<i>Danaus genutia</i>	Schedule IV
5.	Common emigrant	<i>Catopsiliapomona</i>	Schedule IV
6.	Crimson tip	<i>Colotisdanae</i>	Schedule IV
7.	Common Indian crow	<i>Euploea core</i>	Schedule IV
8.	Lime Butterfly	<i>Papilio demoleus</i>	Schedule IV
9.	Yellow Pansy	<i>Junonia hierta</i>	Schedule IV
10.	Chocolate Pansy	<i>Junonia iphita</i>	Schedule IV

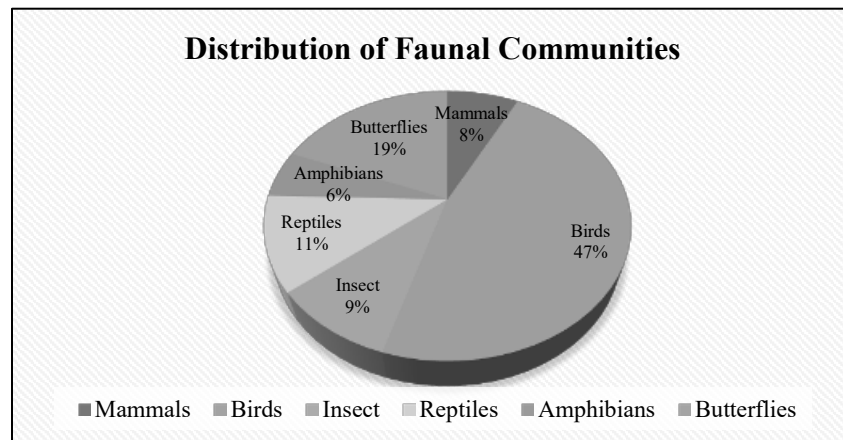


Fig No. 3.36: Diagram showing % distribution of faunal life forms

Livestock like cattle, buffalo, goat, poultry, duck and pig are reared for dairy products, meat, and egg and for agriculture purpose. Majority of cattle and buffalo are of local variety. Backyard poultry farms are mostly common in this area; however, some commercial poultry farms are also recorded in the study area. The study area is marked with moderate population of flora and fauna. With reference to the Wildlife Protection Act 1972 total number of wildlife tabulated in this study can be characterized as given in the Table 3.65.

Table No: 3.65 Characterization of Fauna in the Study Area (As Per W.P Act, 1972)

S.No	Schedule of Wildlife Protection Act 1972	Noof species	Remark
1.	Schedule I	0	-
2.	Schedule II	2	-
3.	Schedule III	2	-
4.	Schedule IV	43	-
5.	Schedule V	1	-
6.	Schedule VI	0	-

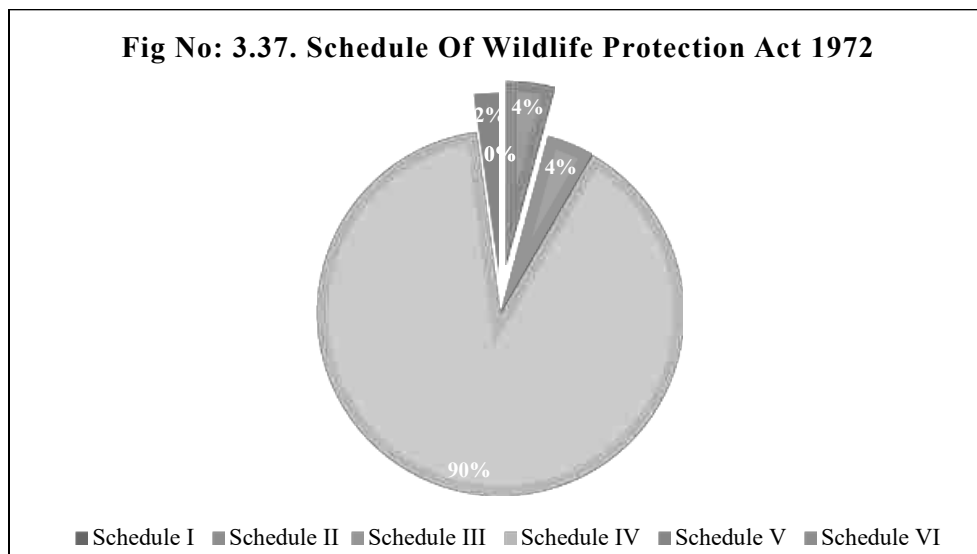


Table 3.66: Description of Flora & Fauna

S.No	Type of Species	Name	Local Name
Flora			
1.	Endangered species	None	None
2.	Threatened species	None	None
3.	Near Threatened species	None	None
4.	Vulnerable species	None	None
Fauna			
5.	Endangered species	None	None
6.	Threatened species	None	None

7.	Near Threatened species	None	None
8.	Vulnerable species	None	None
9.	Migratory Corridors & Flight Paths	No corridors & flight paths	-
10.	Breeding & Spawning grounds	None	-

A comprehensive Central Legislation namely Wild Life (Protection) Act was enforced in 1972 to provide protection to wild animals. Schedule-I of this act contains the list of rare and endangered species, which are completely protected throughout the country. The list of wild animals and their conservation status as per Wild Life Act (1972) presented in Table 3.66 are the species recorded/reported from the study area, out of which 4 species belongs to schedule-II, 2 species belong to schedule-III, 1 species belongs to schedule-V and rest of the species belongs to schedule-IV of Wildlife protection Act, 1972.

3.6.3. Aquatic Ecology

Mining activities will not have an impact on aquatic ecosystems because no effluent discharge from the Rough stone and gravel quarry is planned. There are no natural perennial surface water bodies, such as marshes, rivers, streams, lakes, or agricultural sites, inside the mining lease area. The study region contains a few seasonal bodies of water. There is no aquatic flora and, aquatic fauna. Hence, it does not harbour any significant aquatic life. Therefore, the project is not likely to affect the aquatic ecology. Aquatic weeds are found to be growing everywhere in 10 km radius area, in every water bog, pond, etc. *Typha angustata* can be found growing all along the drains of villages, small water-logged depressions, and agricultural fields lacking water but containing enough moisture to support its growth. And where water is present, *Eichhornia crassipes* has taken its roots and covers the entire water surface by its sprawl and invasion.

3.6.3.1. Objectives of Aquatic Studies

- ✓ Generating data through actual field collection in these locations over the study period.
- ✓ Impacts on aquatic fauna/flora
- ✓ Consulted with locals to obtain knowledge about aquatic flora and animals.

3.6.3.2. Macrophytes

The macrophytes observed within the study area are tabulated in Table 3.64

Table No.3.64 Description of Macrophytes

Sl.No	Scientific name	Common Name	Vernacular Name (Tamil)	IUCN Red List of Threatened Species
1.	<i>Eichornia crassipe</i>	Water hyacinth	Agayatamarai	NA
2.	<i>Aponogeton natans</i>	Floating lace plant	Kottikizhnagu	NA
3.	<i>Nymphaea nouchali</i>	Blue water lily	Nellambal	LC
4.	<i>Typha angustifolia</i>	Sambu	Narrowleaf cattail	LC

5.	<i>Carex cruciata</i>	Cross Grass	Koraipullu	NA
6.	<i>Cyperus exaltatus</i>	Tall Flat Sedge	Koraikizhangu	LC

Sources: Species observation in the field study

3.6.3.3. Aquatic Faunal Diversity

Amphibian species like the common Indian Burrowing frog, and Green pond frog, and etc. were sighted near the water bodies located in the study area.

Table no. 3.68. Amphibians Observed/Recorded from the Study Area

SI. No	Common Name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
1.	Indian Burrowing frog	<i>Sphaerotheca breviceps</i>	Schedule IV
2.	Green pond frog	<i>Euphlyctis hexadactylus</i>	Schedule IV
3.	Skipper	<i>Euphlyctiscynophlyctis</i>	Schedule IV

3.6.3.4. Other Aquatic Fauna

3.6.3.5. Fishes

The study area has low aquatic diversity, with few types of fish living. The species of fish reported during the primary visit are Rohu, Catla, Catfish, etc. Species of fish reported in the study area are given in Table No 3.69.

Table 3.69. Based on Actual Sighting, based on inputs from locals and Perused from Secondary Data

S.No	Common name	Scientific name	Family
1.	Ponthia	Puntius sophore	Cyprinidae
2.	Catla	Catla Catla	Cyprinidae
3.	Silver scabbardfish	Lepidopus caudatus	Trichiuridae
4.	Catfish	Siluriformes	-
5.	Rohu	Labeo rohita	Cyprinidae

3.7. Findings/Results

The assessment was carried out during the post monsoon season. The inspection day was quite alright with respectable weather. The details of the flora and fauna observed are given below.

Records of threatened species in the area

No threatened species were observed

Endangered Species as per Wildlife (Protection) Act

No Endangered fauna was recorded in the project area.

Endemic Species of the Project areas

No endemic species were observed in the project area.

Migratory species of the Project areas

No migratory fauna observed in project area.

Migratory corridors and Flight paths

No migratory corridors and Flight paths were observed in project area.

Breeding and spawning grounds

No breeding and spawning grounds were earmarked for the wildlife fauna in project area.

There are no critically endangered, endangered, vulnerable and endemic species were observed. As the rainfall in the area is scanty and as no toxic wastes are produced or discharged on account of mining, the proposed mining activity is not going to have any additional and adverse impacts on these RET species. There are no ecologically sensitive areas or protected areas within the 10 Km radius. Hence no specific conservation for conservation of any RET species or Wildlife is envisaged.

A small Uthiyur R.F located about 1.5km on the Northwest side. There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar sites, Tiger/Elephant Reserves/ (existing as well as proposed) within 10 km of the mine lease area. There are no protected forests within the project area. Hence submission of clearance from the National Board of Wildlife does not arise.

There is no endangered, endemic and RET Species. There is no Schedule I species in study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] The proposed project is not going to have any direct or indirect adverse impact on the species mentioned above.

3.8. Conclusion

The observations and assessment of the overall ecological scenario involve details such as classification of Biogeographic zone, eco-region, habitat types and land cover, distances from natural habitats, vegetation/forest types, and sensitive ecological habitats such as Wetlands sites, Important Bird areas, migration corridors of important wildlife etc. Such baseline information provides better understanding of the situation and overall ecological importance of the area. This baseline information viewed against proposed project activities help in predicting their impacts on the wildlife and their habitats in the region. Data collected and information gathered from secondary literature on flora, fauna, protected area, natural habitats, and wildlife species etc., and consulted and discussed with local people, from the villages, herders and farmers who inhabit close to the proposed project area.

3.6 SOCIO ECONOMIC ENVIRONMENT

Socio-economic study is an essential part of environmental study. It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project. It is expected that the Socio-Economic Status of the area will substantially improve because of this proposed project. As the proposed project will provide direct and indirect employment and improve the infrastructural facilities in that area and, thus, improve their standard of living.

STRUCTURE STUDY IN 300m RADIUS

There are few structures within the radius of 500m from the project site, the details of the structures are given below:

TABLE 3.31: STRUCTURES IN 500m RADIUS

0-50-100m Radius							
There is No Habitation							
100-200m Radius							
Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building/ Structure	Structure belongs to owner	Structure Not belongs to owner	Remarks
1-130m-W	Crusher	Stone broken	Industry	NIL	NO	Yes	
2.180m-W	Crusher shed	Mine Labourer	Industry	NIL	NO	Yes	
3.200m-NW	shed	Store room	Industry	NIL	NO	Yes	
200-300m Radius							
1.260m-E	Crusher	Stone crushing and broken	Industry	NIL	NO	Yes	
301-500m							
Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building/ Structure	Structure belongs to owner	Structure Not belongs to owner	Remarks
1. 310m-E	Crusher shed	Mine Laborer	industry	NIL	NO	Yes	-
2.310m-E	Labour Shed	Mines	Industry	Nil	No	Yes	-
3.190m-S	Labour Shed	Mines	Industry	Nil	No	Yes	
4.360m-NE	Concrete Bricks	Building purpose	Commercial	Nil	No	Yes	
5.440m-NE	shed	Store room	Industry	NIL	NO	Yes	Labour Shed
6.480m-NE	Concrete House	House	Residential	Building	Yes	Yes	Construction but unfinished House
7.490m-NE	Parking shed	Shed	Residential	NIL	NO	Yes	Bike, car shed etc.,
8.480m	Farm house	House	Residential	Building	Yes	Yes	House occupants 3 people with farms (cattle shed and Poultry)
9.340m-NW	Parking shed	Shed	Residential	NIL	Yes	Yes	Bike, car shed etc.,
10.360m-NW	Security Room	Room	Residential	Building	Yes	Yes	

3.6.3 District Profile

Tirupur is a municipal corporation in the Indian state of Tamil Nadu. It is situated as the capital of the newly declared Tirupur district. The city excels in the ready-made garment industry. Tirupur, the seventh largest city in Tamil Nadu, is a rapidly developing industrial city. Around 20 lakh people live in and around Tirupur. It is one of the major cities in Tamil Nadu. It is also the 7th largest city in Tamil Nadu.

Mudalipalayam Village-Population

Mudalipalayam is a village situated in Kangeyam taluka of Tiruppur district in Tamil Nadu. As per the Population Census 2011, there are a total of 749 families residing in the village Mudalipalayam. The total population of Mudalipalayam is 2,141 out of which 1,100 are males and 1,041 are females thus the Average Sex Ratio of Mudalipalayam is 946.

Sex Ratio of Mudalipalayam Village -Census 2011

In Mudalipalayam village population of children with age 0-6 is 114 which makes up 5.32 % of total population of village. Average Sex Ratio of Mudalipalayam village is 946 which is lower than Tamil Nadu state average of 996. Child Sex Ratio for the Mudalipalayam as per census is 932, lower than Tamil Nadu average of 943.

TABLE 3.32: DEMOGRAPHIC CHARACTERISTICS – MUDALIPALAYAM VILLAGE

Particulars	Total	Male	Female
Total No. of Houses	749	-	-
Population	2,141	1,100	1,041
Child (0-6)	114	59	55
Schedule Caste	516	273	243
Schedule Tribe	0	0	0
Literacy	64.08 %	75.22 %	52.33 %
Total Workers	1,217	732	485
Main Worker	1,145	-	-
Marginal Worker	72	45	27

Source: <https://www.census2011.co.in/data/village/644630-mudalipalayam-tamil-nadu.html>

Literacy of Mudalipalayam Village

Mudalipalayam village has lower literacy rate compared to Tamil Nadu. In 2011, literacy rate of Mudalipalayam village was 64.08 % compared to 80.09 % of Tamil Nadu. In Mudalipalayam Male literacy stands at 75.22 % while female literacy rate was 52.33 %.

Worker's profile of Mudalipalayam Village

In Mudalipalayam village out of total population, 1217 were engaged in work activities. 94.08 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 5.92 % were involved in Marginal activity providing livelihood for less than 6 months. Of 1217 workers engaged in Main Work, 391 were cultivators (owner or co-owner) while 440 were Agricultural labourer.

TABLE 3.34: POPULATION DATA OF STUDY AREA AROUND 10KM RADIUS

Sno	Name	TRU	No House Hold	Total Population	Male Population	Female Population	Child Population	Male Population	Female Population	SC Population	ST Population	Total Literacy	Male Literacy	Female Literacy
1	Thammareddipalayam	Rural	324	1001	479	522	72	37	35	301	0	637	363	274
2	Maravapalayam	Rural	852	2679	1328	1351	219	124	95	830	0	1695	955	740
3	Vadasinnaripalayam	Rural	628	1952	983	969	107	59	48	202	0	1402	774	628
4	Aratholuvu	Rural	382	1063	508	555	70	26	44	287	0	540	303	237
5	Mudalipalayam	Rural	749	2141	1100	1041	114	59	55	516	0	1299	783	516
6	Uthiyur	Rural	976	3160	1575	1585	256	130	126	993	0	1993	1130	863
7	Kurukkapalayam	Rural	400	1216	639	577	82	45	37	346	0	729	440	289
8	Nelali	Rural	2177	7181	3672	3509	556	275	281	1832	24	4339	2504	1835
9	Vattamalai	Rural	572	1804	911	893	85	52	33	130	0	1027	578	449
	Total		7060	22197	11195	11002	1561	807	754	5437	24	13661	7830	5831

Source: www.censusindia.gov.in

TABLE 3.35: WORKERS PROFILE OF STUDY AREA

Sno	Name	Total Workers Population	Male Workers	Female Workers	Total Main Workers	Main Workers Male	Main Workers Female	Main Cultivation Workers	Main Agriculture Workers	Main Household workers	Main Other Workers	Non-Worker Population
1	Thammareddipalayam	481	302	179	476	300	176	141	241	4	90	520
2	Maravapalayam	1665	897	768	1590	856	734	480	707	30	373	1014
3	Vadasinnaripalayam	1382	758	624	1028	589	439	476	376	26	150	570
4	Aratholuvu	634	373	261	522	330	192	97	215	7	203	429
5	Mudalipalayam	1217	732	485	1145	687	458	391	440	27	287	924
6	Uthiyur	1833	1052	781	1791	1031	760	536	606	35	614	1327
7	Kurukkapalayam	804	443	361	492	281	211	212	238	2	40	412
8	Nelali	4321	2449	1872	3386	1929	1457	1330	985	51	1020	2860
9	Vattamalai	1187	649	538	1135	624	511	186	544	14	391	617
	Total	13524	7655	5869	11565	6627	4938	3849	4352	196	3168	8673

Source: www.censusindia.gov.in.

TABLE 3.36: EDUCATIONAL FACILITIES IN THE STUDY AREA

SI	Village Name	PPS		PS		MS		SS		SSS		DC		EC		MC		MI		PT		VTS		SSD	
		G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P
1	Thammareddipalayam	1	2	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	Maravapalayam	1	2	1	2	1	2	1	2	2	2	2	2	2	1	2	1	2	2	2	2	2	2	2	2
3	Vadasinnaripalayam	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	Aratholuvu	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	Mudalipalayam	1	2	2	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6	Uthiyur	1	2	1	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7	Kurukkapalayam	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	Nelali	1	2	1	1	1	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2
9	Vattamalai	1	1	1	2	1	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Abbreviations: PPS-Pre-Primary School; SSS-Senior Secondary School; DC-Degree School; PT-Polytechnic; PS-Primary School; G-Government; EC-Engineering College; VTS-Vocational School /ITI; MS-Middle School; P-Private; MC-Medical College; SSD-Special School for Disabled; SS-Secondary School; MI-Management College/Institute;

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

TABLE 3.37: MEDICAL FACILITIES IN THE STUDY AREA

SI. No.	Village Name	CHC	PHC	PHSC	MCW	TBC	HA	HAM	D	VH	MHC	FWC	NGM-I/O
1	Thammareddipalayam	0	1	1	0	0	0	0	0	0	0	0	b
2	Maravapalayam	0	1	1	0	0	0	0	0	0	0	0	b
3	Vadasinnaripalayam	0	0	1	0	1	0	0	0	0	0	1	b
4	Aratholuvu	0	1	0	0	0	0	0	0	0	0	0	c
5	Mudalipalayam	0	1	1	0	0	0	0	0	0	0	0	a
6	Uthiyur	0	0	1	0	0	0	0	0	0	0	0	a
7	Kurukkapalayam	0	1	1	0	0	0	0	0	0	0	0	c
8	Nelali	0	0	1	0	0	0	0	0	0	0	0	b
9	Vattamalai	0	1	0	0	0	0	0	0	0	0	0	b

Abbreviations: CHC-Community Health Centre; TBC-TB Clinic; VH- Vetrernity Hospital; PHC-Primary Health Centre; HA-Allopathic Hospital; FWC-Family Welfare Centre; PHSC-Primary Health Sub Centre; HAM-Alternative Medicine Hospital; MH-Mobile Health Clinic; MCW-Maternity and Child Welfare Centre; D-Dispensary; NGM-I/O-Non-Government Medical Facilities In & Out Patient
Note – 1 - Available within the village; 2 - Not available a-facility available at <5kms b-facility available at>10kms

Source: www.censusindia.gov.in – Tamil Nadu Census of India – 2011

3.6.6 Recommendation and Suggestion

- The main activities in the area are agriculture, quarry operation and Crushing units there are 2Numbers of quarries operated in the region Hence starting up of new mine in this region is necessary at current scenario
- 2 number of Crushers operating within 1km and the demand of rough stone and gravel is high to the crushing units 100 Nos of peoples depending upon the crushing units in the area and crushers are meeting scarcity due to supply demand in the region.
- Due to the project about 32Nos of people will benefitted directly due to employment and more than 50Nos of peoples and Crushers will benefitted through this project.
- As part of CER activities proponent intends to spend Rs 5 Lakhs for the improvement of School sanitation facilities, Greenbelt development and other needs.
- At the end of the life of the mine the mined-out pit will act as temporary reservoir, the collected rain water in the mine pit may utilized for the nearby agriculture lands.

Apart from the following general activities will be conducted

- Awareness program to be conducted to make the population aware to get education and a better livelihood.
- Vocational training programme can 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 can be generated.
- 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.

3.6.7 Summary & Conclusion

The socio-economic study of surveyed villages gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It is also found that a part of population is suffering from lack of permanent job to run their day-to-day life. Their expectation is to earn some income for their sustainability on a long-term basis. The proposed project will aim to provide preferential employment to the local people there by improving the employment opportunity in the area and in turn the social standards will improve in the study area.

4. 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 (Impacts) are identified, quantified and assessed.

4.1 LAND ENVIRONMENT:

4.1.2 Anticipated Impact

- 3.07.0 Ha of the land will be under mining since the Permanent or temporary change on land use and land cover will occur
- Movement of heavy vehicles sometimes cause problems to agricultural land, human habitations due to dust, noise and it also causes traffic hazards.
- Due to degradation of land by pitting the aesthetic environment of the core zone may be affected.
- Earthworks during the rainy season increase the potential for soil erosion and sediment laden water entering the water ways.

If no due care is taken wash off from the exposed working area may choke the water course & can also causes the siltation of water course

4.1.2 Mitigation Measures

- The 3.07.0 Ha of the land will be converted into temporary reservoir which will full fill the water scarcity in the drought season and the nearby agriculture land will benefitted by the supply of water
- About 1,850 Nos of trees will be planted in the lease area and approach road will retain the eco system
- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development in the production
- Construction of garland drains all around the quarry pits and construction of silt trap 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.,
- Fencing will be constructed before starting the mining operation and it will be maintained in the conceptual stage Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.1.3 Soil Environment

4.1.4 Impact on Soil Environment

- Removal of vegetation cover
- Soil Erosion in the project site during rainy season due to quarry operation

4.1.5 Mitigation Measures

- Garland drains will be constructed all around the project boundary to prevent surface flows from entering the quarry. 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 (Silt Pond). 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.

4.1.6 Waste Dump Management

There is no waste anticipated in this Rough Stone and gravel quarrying operation. The entire quarried out materials will be utilized (100%).

4.2 WATER ENVIRONMENT

4.2.1 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
- Abstraction of water may lead to depletion of water table
- 2.5 KLD water will be utilized for the quarrying operation

4.2.2 Mitigation Measures

- Water for the quarrying operation such as sprinkling on haul roads, Greenbelt development will be sourced from the lower part of the mine pit which is specifically allotted to collect the rain water.
- Garland drain, settling tank will be constructed along the proposed mining lease area. The Garland drain will be connected to settling tank and sediments will be trapped in the settling traps and only clear water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression 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.
- Periodic (every 6 month once) analysis of quarry pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits.
- 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.

4.3 AIR ENVIRONMENT

4.3.1. Anticipated Impact

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

4.3.1.1. Modelling of Incremental Concentration from all Proposed Projects

Wind erosion of the exposed areas and the air borne particulate matter generated by quarrying operation, and transportation are mainly PM₁₀ & PM_{2.5} and emissions of Sulphur dioxide (SO₂) & Oxides of Nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

Similarly, loading - unloading and transportation of Rough Stone, wind erosion of the exposed area and movement of light vehicles causes of pollution. This leads to an impact on the ambient air environment around the project area.

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

AERMOD Software.

Prediction of impacts on air environment has been carried out taking into consideration cumulative production all the quarries fall in the Cluster. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software AERMOD 9.61.

4.3.2.1 Emission Estimation

An emissions factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant.

The general equation for emissions estimation is:

$$E = A \times EF \times (1-ER/100)$$

Where:

E = emissions;

A = activity rate;

EF = emission factor, and

ER =overall emission reduction efficiency, %

The proposed mining activity includes various activities like ground preparation, excavation, handling and transport of Rough Stone. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 4-2.

4.3.2 Frame work of Computation & Model details

Suspended Particulate Matter (SPM) is the major pollutant occurred during quarrying activities. The prediction included the impact of Excavation, Drilling, Blasting (Occasionally), loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

Impact was predicted over the distance of 10 km around the source to assess the impact at each receptor separately at the various locations and maximum incremental GLC value at the project site. Maximum impact of PM₁₀ was observed close to the source due to low to moderate wind speeds. Incremental value of PM₁₀ was superimposed on the base line data monitored at the proposed site to predict total GLC of PM₁₀ due to combined impacts

TABLE 4.1: ESTIMATED EMISSION RATE

PM₁₀			
Activity	Source type	Value	Unit
Drilling	Point Source	0.093040262	g/s
Blasting	Point Source	0.001686433	g/s
Mineral Loading	Point Source	0.045249360	g/s
Haul Road	Line Source	0.00250098	g/s/m
Overall Mine	Area Source	0.068353940	g/s
SO₂			
Activity	Source type	Value	Unit
Overall Mine	Area Source	0.001252685	g/s
NO_x			
Overall Mine	Area Source	0.000100111	g/s

FIGURE 4.1: AERMOD TERRAIN MAP

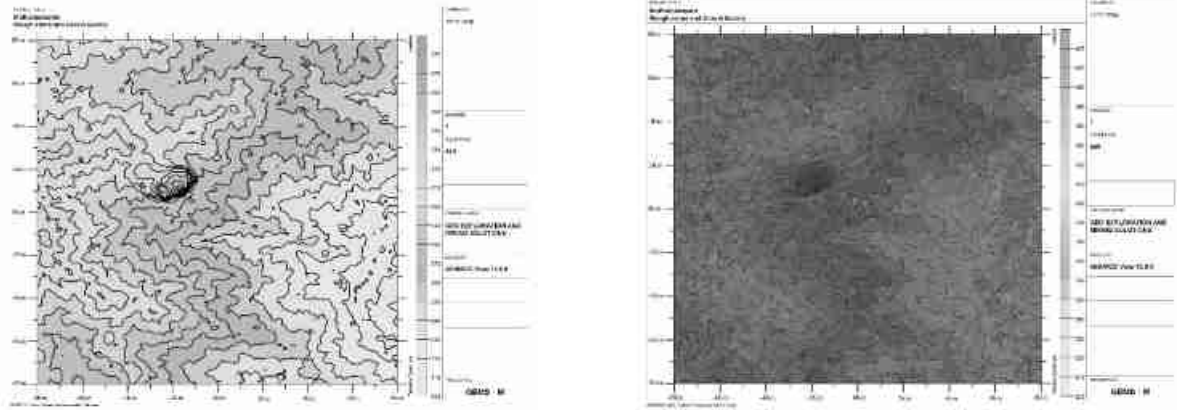


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀

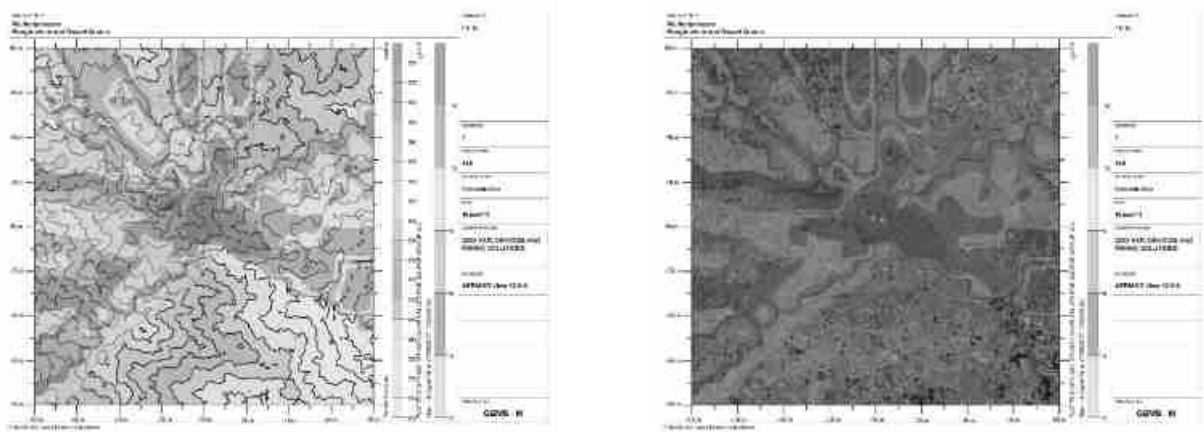


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM₂₅

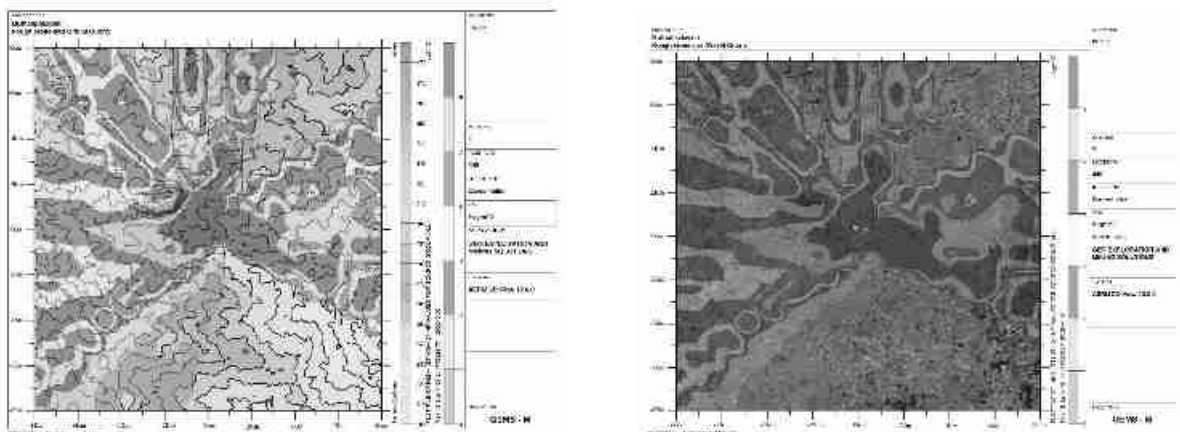


FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO_x

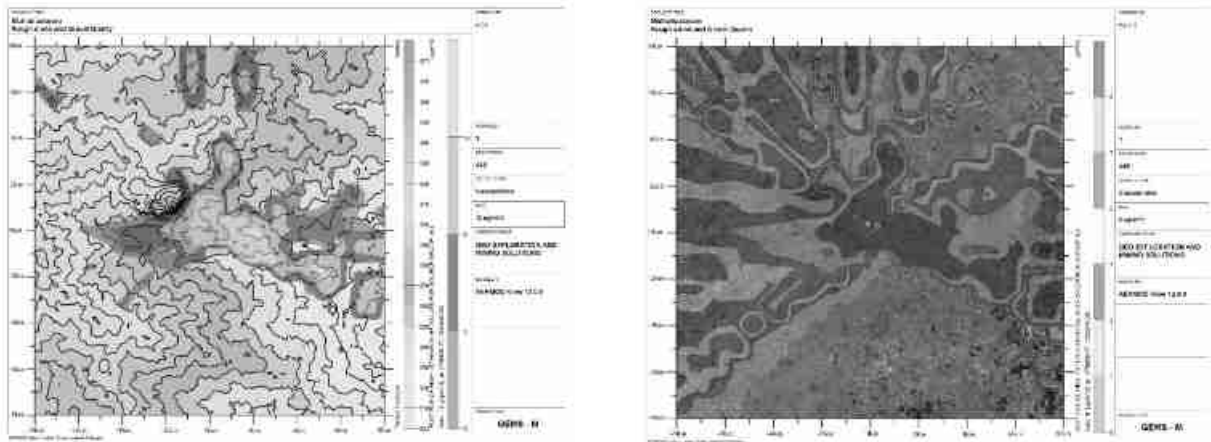


FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF SO₂

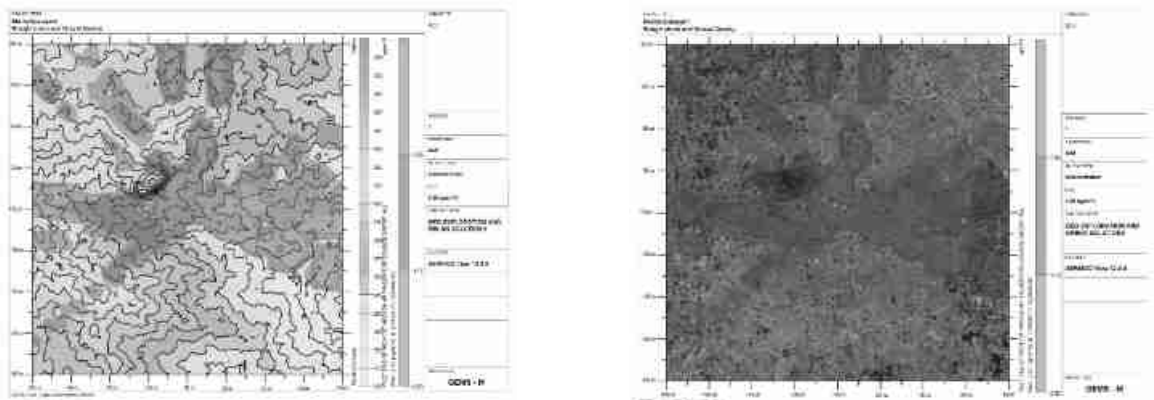
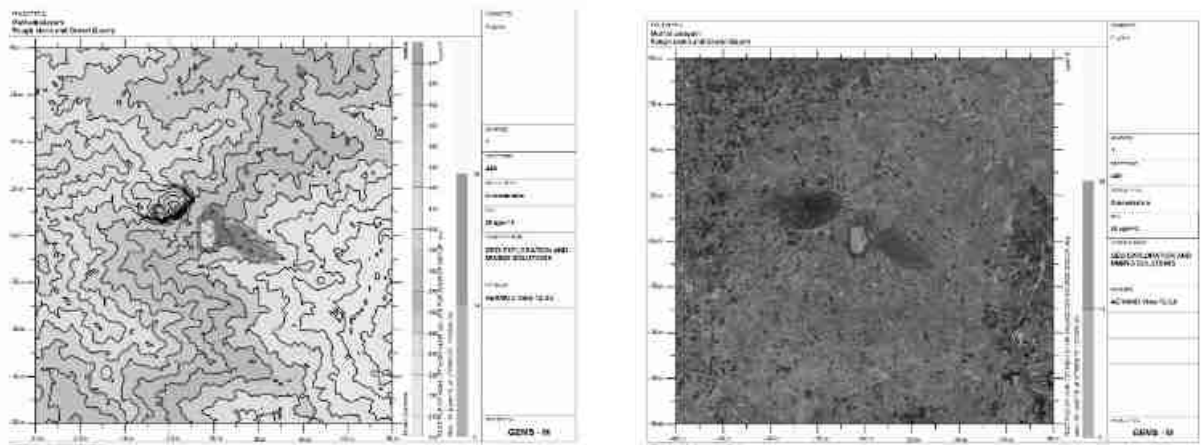


FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST



4.3.2.1 Model Results

The post project Resultant Concentrations of PM₁₀, PM_{2.5}, SO₂ & NO_x (GLC) is given in Table below:

TABLE 4.2: INCREMENTAL & RESULTANT GLC OF PM₁₀

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM ₁₀ (µg/m ³)	Incremental value of PM ₁₀ due to mining (µg/m ³)	Total PM ₁₀ (µg/m ³)
AAQ1	10°52'37.37"N 77°31'59.35"E	-99	21	42.3	16.90	59.2
AAQ2	10°52'34.48"N 77°32'12.83"E	312	-70	42.8	16.23	59.03
AAQ3	10°53'6.47"N 77°32'48.04"E	1389	920	42.5	11.60	54.1
AAQ4	10°51'45.53"N 77°29'8.21"E	-5338	-1588	43.2	7.00	50.2
AAQ5	10°52'13.37"N 77°35'15.54"E	5908	-720	42.8	15.10	57.9
AAQ6	10°50'23.40"N 77°31'56.33"E	-192	-4126	43.1	0	43.1
AAQ7	10°54'51.98"N 77°30'50.82"E	-2198	4189	42.7	10.71	53.41

TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM_{2.5}

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM _{2.5} (µg/m ³)	Incremental value of PM _{2.5} due to mining (µg/m ³)	Total PM _{2.5} (µg/m ³)
AAQ1	10°52'37.37"N77°31'59.35"E	-99	21	21.8	9.95	31.75
AAQ2	10°52'34.48"N77°32'12.83"E	312	-70	22.6	9.42	32.02
AAQ3	10°53'6.47"N 77°32'48.04"E	1389	920	22.1	8.77	30.87
AAQ4	10°51'45.53"N 77°29'8.21"E	-5338	-1588	22.7	4.00	26.7
AAQ5	10°52'13.37"N77°35'15.54"E	5908	-720	22.6	9.12	31.72
AAQ6	10°50'23.40"N77°31'56.33"E	-192	-4126	22.7	0.21	22.91
AAQ7	10°54'51.98"N77°30'50.82"E	-2198	4189	22.4	6.45	28.85

TABLE 4.4: INCREMENTAL & RESULTANT GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO ₂ (µg/m ³)	Incremental value due to mining (µg/m ³)	Total SO ₂ (µg/m ³)
AAQ1	10°52'37.37"N77°31'59.35"E	-99	21	4.3	2.39	6.69
AAQ2	10°52'34.48"N77°32'12.83"E	312	-70	5.4	2.34	7.74
AAQ3	10°53'6.47"N 77°32'48.04"E	1389	920	4.8	2.00	6.8
AAQ4	10°51'45.53"N 77°29'8.21"E	-5338	-1588	4.4	0	4.4
AAQ5	10°52'13.37"N77°35'15.54"E	5908	-720	4.9	2.30	7.2
AAQ6	10°50'23.40"N77°31'56.33"E	-192	-4126	4.2	0	4.2
AAQ7	10°54'51.98"N77°30'50.82"E	-2198	4189	4.9	1.00	5.9

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF NOX

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline NO _x (µg/m ³)	Incremental value due to mining (µg/m ³)	Total NO _x (µg/m ³)
AAQ1	10°52'37.37"N 77°31'59.35"E	-99	21	21.5	12.80	34.3
AAQ2	10°52'34.48"N 77°32'12.83"E	312	-70	21.8	12.19	33.99
AAQ3	10°53'6.47"N 77°32'48.04"E	1389	920	21.3	6.00	27.3
AAQ4	10°51'45.53"N 77°29'8.21"E	-5338	-1588	21.2	0	21.2
AAQ5	10°52'13.37"N 77°35'15.54"E	5908	-720	21.1	10.38	31.48
AAQ6	10°50'23.40"N 77°31'56.33"E	-192	-4126	21.5	0	21.5
AAQ7	10°54'51.98"N 77°30'50.82"E	-2198	4189	20.9	0	20.9

From the resultant of cumulative concentration i.e., Background + Incremental Concentration of pollutant in all the receptor locations without effective mitigation measures are still within the prescribed NAAQ limits of 100, 80 & 80 µg/m³ for PM₁₀, SO₂ & NO_x respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

4.3.4. Mitigation Measures

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

Advantages of Wet Drilling: -

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

Blasting –

- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas
- 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
- 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 & 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 below 20 km/hr to avoid generation of dust.
- Water sprinkling on haul roads & loading points will be carried out twice a day
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.

- The un-metaled haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.
- It will be ensured that all transportation vehicles carry a valid PUC certificate
- Grading of haul roads and service roads to clear accumulation of loose materials

Green Belt –

- 1850 Nos of trees will be planted through this project in the lease area and village roads to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project areas

Occupational Health –

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

4.4 NOISE ENVIRONMENT

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. These activities will not cause any problem to the inhabitants of this area because there is no human settlement within 300m radius from the project site. 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 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 model based on first principle.

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

Where:

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

$Ae_{1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

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

4.4.1 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 4-8.

TABLE 4.7: ACTIVITY AND NOISE LEVEL PRODUCED BY MACHINERY

Sl.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 Noise Produced			95.8

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

The total noise to be produced by mining machineries 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

Location ID	N1	N2	N3	N4	N5	N6	N7
Maximum Monitored Value (Day) dB(A)	54.8	57.1	55.2	54.9	56.7	55.5	55.7
Incremental Value dB(A)	60.1	53.3	36.6	25.3	24.8	28.1	26.1
Total Predicted Noise level dB(A)	61.2	58.6	55.3	54.9	56.7	55.5	55.7

The incremental noise level is found within the range of 47.3dB (A) in Core Zone and 25.29 – 42.6 dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations are within permissible limits of Industrial area (core zone) & 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.).

4.4.2 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;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Silencers / mufflers will be installed in all machineries;
- Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise;
- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects

4.4.3 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 kuchha 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:

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

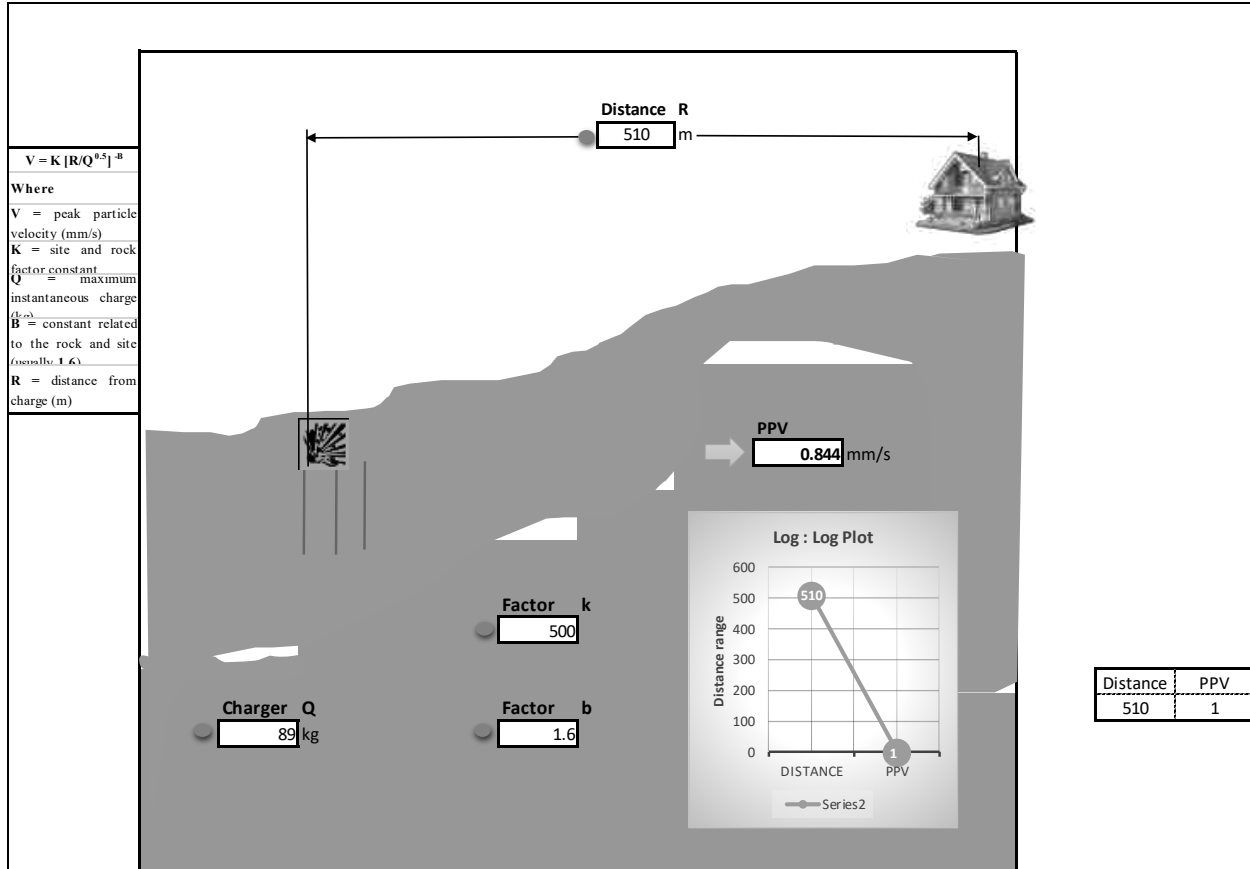
B = constant related to the rock and site (usually 1.6)

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 m/ms
P1	89	510- SW	0.844

FIGURE 4.6: GROUND VIBRATION PREDICTION



From the above graph, the charge per blast of 89 kg 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. But the all the project proponents ensure that the charge per blast shall be less than 20 kg and carry out blasting twice or thrice a day based on the onsite conditions under the supervision of competent person employed. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.4.3.1 Mitigation Measures

- It is proposed to carry out blasting operation 20kg per round so that the vibration will be minimal
- The mining operation will be carried out without deep hole drilling, 25mm small dia cartridge will be utilized for the blasting

- The blasting operations in the project site without deep hole drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, 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.
- 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 such that the predicted peak particle velocity shall not exceed 8 mm/s.
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices

4.5 BIOLOGICAL ENVIRONMENT

There is a requirement to establish a stable ecosystem with both ecological and economic returns. Minimization of soil erosion and dust pollution enhances the beauty of the core and the buffer zone. To achieve this, it is planned to increase plantation activities. The basic objectives of plantations are as follows: -

- Improvement of Soil quality
- Quick vegetative cover to check soil erosion
- Improvement in mining site stability
- Conservation of biological diversity
- As dust receptor which likely to produce during mining.

4.5.1 Impact on Flora

The proposed mine lease area is flat terrain and it is not fit for cultivation. It is mostly devoid of any considerable vegetation. The proposed mine lease area (core zone) does not encompass any designated forest land within it. The vegetation is very sparse and scanty. So, there will be no impact on flora from the mining operation.

There will not be much contamination of soil or any other materials from the mining operation. No threatened plant species were reported in the core and buffer study area during the field survey.

4.5.1.1. Anticipated Impact on agricultural land associated with flora

1. There are no impacts on the nearby agricultural land due to this mining activity.
2. None of the plants will be cut during the operational phase of the mine.
3. There shall be negligible air emissions or effluents from the project site. During the loading of 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 croplands, grass patches, and small shrubs. Hence, there will be no effect on the flora of the region.

4.5.2 Mitigation Measures

4.5.2.1. General Guidelines for Green Belt Development

Drone survey was covered the green belt and fencing as per the terms of references. The green belt and plantation purposes in and around the proposed mine lease area native species, fruit-bearing trees, medicinal plants, and dense canopy trees should be selected. These species should be tolerant to pollution levels as per Bio- Geography zones of India.

4.5.2.2. Proposed Green Belt

Extensive green belt development will be started during the construction phase, which will continue till the operation of the plant. About 1500-2000 trees will be planted per hectare all around the plant, approach roads, and township premises. Locally available types of trees that are resistant to pollutants will be planted. 5 m wide greenbelt will be developed along the plant premises, as per land available.

4.5.2.3. Guidelines & Techniques for Green Belt Development

An extensive survey of the project area was undertaken to observe the structure and composition of vegetation. Hence a combination of plants is selected depending upon the topographical suitability and species selected as per the SPCB Guideline and ToR. The soil characteristics were kept in mind. Based on this survey and environmental conditions suitable native plant species have been proposed for the green belt development plan.

4.5.2.4. Development of Green Belt

It is also recommended that the plantation has to be taken up randomly and the landscaping aspects could be taken into consideration. Multi-layered plantations comprising of medium height trees (7 m to 10 m) and shrubs (5 m height) are proposed for the green belt. Green belt is plantation of trees for reducing the air pollution as they absorb both gaseous and particulate pollutant, thus removing them from atmosphere. Green plants form a surface capable of absorbing air pollutants and forming sinks for pollutants. It improves the aesthetic value of local environment. Under present project, green belts have been planned with emphasis on creating biodiversity; enhance natural surroundings and mitigating pollution. Regional tree saplings in eco-friendly bags like *Pterocarpus marsupium*, *Pongamia pinnata*,

Limonia acidissima, and *Cassia roxburghii* will be planted along the Lease boundary and avenues as well as over non-active dumps with intervals 3m in between with the GPS Coordinates. The greenbelt development plan aims to overall improvement in the environmental conditions of the region.

- Plants that grow fast will be preferred.
- Preference for high canopy covers plants with local varieties.
- Perennial and evergreen plants will be preferred.
- The development of the Green Belt is an important aspect for any plant because:
 - a. It improves the ambient air quality by controlling Suspended Particulate Matter (SPM) in the air.
 - b. It helps in noise abatement for the surrounding area.
 - c. It helps in the settlement of new birds and insects within itself.
 - d. It maintains the ecological balance.
 - e. It increases the aesthetic value of the site.

4.5.2.5. Species Recommendation for Plantation granted in the ToR.

Following points have been considered while recommending the species for plantation

- The natural growth of existing species and the survival rate of various species.
- Suitability of a particular plant species for a particular type of area.
- Creating biodiversity.
- Fast-growing, thick canopy copy, perennial, and evergreen large leaf area.
- Efficient in absorbing pollutants without major effects on natural growth.
- The following species may be considered primary for plantations best suited for the prevailing climate condition in the area.

Table No 4.1. List of plant species proposed for Greenbelt development

S. No	Name of the plant (Botanical)	Family Name	Common Name	Habit
1.	<i>Cassia roxburghii</i>	Fabaceae	Sengondrai	T
2.	<i>Syrygium cumini</i>	Myrtaceae	Naval	T
3.	<i>Morinda pubescens</i>	Rubiaceae	Nuna	T
4.	<i>Thespesia Populnea</i>	Malvaceae	Puvarasu	T
5.	<i>Borassus flabellifer</i>	Arecaceae	Panai	T
6.	<i>Saraca asoca</i>	Fabaceae	Asoca	T
7.	<i>Limonia acidissima</i>	Rutaceae	Odham	T
8.	<i>Lannea coromandelica</i>	Anacardiaceae	Vila maram	T
9.	<i>Pongamia pinnata</i>	Fabaceae	Pungam	T
10.	<i>Pterocarpus marsupium</i>	Fabaceae	Vengai	T

4.5.3. Anticipated Impact on Fauna

- No rare, endemic & endangered species are reported in the buffer zone. However, during the course of mining, the management will practice the scientific method of mining with a proper Environmental Management Plan including pollution control measures especially for air and noise, to avoid any adverse impact on the surrounding wildlife.
- Fencing around the mine lease area 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.

4.5.3.1. Measures for protection and conservation of wildlife species

- Topsoil has a large number of seeds of native plant species in the mining area. Topsoil will be used for restoration and suitable surfaces for planted seedlings.
- Checks and controls the movement of vehicles in and out of the mine.
- Undertaking mitigative measures for a conducive environment for the flora and fauna in consultation with Forest Department.
- A dust suppression system will be installed within the mine and periphery of the mine.
- Plantation around the mine area will help in creating habitats for small faunal species and create a better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

4.5.3.2. Mitigation Measures

- A suitable plan for the conservation of Schedule-I Species have been prepared and the necessary fund for implementation for the same will be made.
- All the preventive measures will be taken for the growth & development of fauna.
- Creating and developing awareness for nature and wildlife in the adjoining 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.

4.5.4. Impact on Aquatic Biodiversity

Mining activities will not disturb the 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, like wetlands, rivers streams, lakes, and farmer sites. Amaravathi river is located about 7km on the east side. There is no impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. Kindly refer the Chapter 3, clause No 3.6.3. Aquatic biodiversity is observed in the study area.

4.5.5. Impacts on Bird Fauna:

The project does not involve any tree felling or removal of vegetation. Therefore, there may not be loss of nesting and roosting habitat of avian fauna.

4.5.6. Impacts on wildlife

There is no National Park, Biosphere Reserve, Wildlife corridors, and Tiger/Elephant Reserve found within 10 km radius of the project site.

Table No. 4.3. Overall Ecological impact assessments of Muthalipalayam Village, Rough stone and gravel quarry, Kangayam Taluk, Tirupur District.

S.No	Attributes	Assessment
1.	Impact of mining activity on agricultural land nearby the proposed project site.	Agricultural land is located away from the proposed project site. There are no impacts on the agricultural land & Horticulture and livestock. Kindly refer to the conclusion.
2.	Impact on soil flora & vegetation around the project site.	'No '
3.	Activities of the project affect the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in the mining lease site. The fauna sighted mostly migrated from the buffer area.
4.	Located near an area populated by rare or endangered species	No Endangered, Critically Endangered, or vulnerable species were sighted in the core mining lease area.
5.	Proximity to national park/wildlife sanctuary/reserve forest /mangroves/ coastline/estuary/sea	A small Uthiyur R.F located about 1.5km on the Northwest side.
6.	The proposed project restricts access to waterholes for wildlife	'No '
7.	Proposed mining project impact surface water quality that also provides water to wildlife	'No 'scheduled or threatened wildlife animals are sighted regularly core in the core area.
8.	Proposed mining project increase siltation that would affect nearby biodiversity areas.	Surface runoff management such as drains is constructed properly so there will be no siltation effect in the nearby mining area.
9.	Risk of fall/slip or cause death to wild animals due to project activities.	'No '
10.	The project release effluents into a water body that also supplies water to a wildlife.	No water body near to core zone so the chances of water becoming polluted is low.

11.	Mining projects affect the forest-based livelihood/ any specific forest product on which local livelihood depended.	'No '
12.	The project likely to affect migration routes.	'No 'migration route observed during the monitoring period.
13.	The project is likely to affect the flora of an area, which have medicinal value	'No '
14.	Forestland is to be diverted, has carbon high sequestration.	'No 'There was no forest land diverted.
15.	The project is likely to affect wetlands, Fish breeding grounds, and marine ecology.	'No '. Wetland was not present in the near core Mining lease area. No breeding and nesting ground is present in the core mining area.

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

TABLE 4.4: RECOMMENDED SPECIES FOR GREENBELT DEVELOPMENT PLAN

SLNo	Name of the plant (Botanical)	Family Name	Common Name	Habit
1	<i>Aegle marmelos</i>	Rutaceae	Vilvam	Tree
2	<i>Borassus flabellifer</i>	Arecaceae	Panai-maram	Tree
3	<i>Thespesia populnea</i>	Malvaceae	Puvarasu	Tree
4	<i>Pongamia pinnat</i>	Fabaceae	Pungam	Tree

The 7.5m Safety distance along the boundary has been identified to be utilized for subsequent Afforestation. However, the afforestation should always be carried out in a systematic and scientific manner. Regional trees like Neem, Pongamia, Pinnata will be planted along the Lease boundary and avenue plantation will be carried out in the project site. The rate of survival expected to be 80% in this area. Greenbelt development Plan is given in

TABLE 4.5: GREENBELT DEVELOPMENT PLAN

Year	No. of tress proposed to be planted	Area to be covered in m ²	Name of the species
1	1850	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development.	Vilvam, Panai-maram, Puvarasu, Pungam etc.,

4.6 SOCIO ECONOMIC

4.6.1 Anticipated Impact

- ♣ No. of people will get employment during the construction stage resulting in the ancillary development and growth. Nearby Local people will be given preference for employment on the basis of their skill and experience.
- ♣ Further due to proposed project, influx of working community will also generate an indirect employment through development of nearby market/ shops, trade centres, activities, transportation etc.
- ♣ Population influx during the construction phase can introduce various water and vector borne diseases which can lead to various unhygienic health problems in the area by disturbing the existing sanitation infrastructure.
- ♣ Rapid diverse population influx at the project site can create unusual behavioural activity such as worker-community conflicts, increase violence such as theft/stabbing and increased consumption of drugs/alcohol within the area.
- ♣ Impacts on the health of nearby villagers can be envisaged due to the transportation activities leading to short term exposure of fugitive dust, resulting in various acute diseases such as increased eye irritation, nausea, headache etc.

Mitigation measures:

- ♣ Deploying of mobile toilets or the construction of temporary toilets will be done near to the construction site with the adequate water supply.
- ♣ Awareness programme will be conducted before the monsoon season regarding the spread of water borne/ vector diseases.
- ♣ Mosquito repellents will be provided in the nearby villages and at construction site to avoid the spread of diseases.
- ♣ To overcome behavioural impact, proper site in charge with timely supervision will be done. In advance, facilities with equipped medical and safety services will be provided to take a control over the incident/violence if any caused.
- ♣ To overcome behavioural impact, supervision will be done by site in charge. In advance, emergency cell will be formed with fully equipped communication system, medical and safety services to take control over the incident/violence caused.

4.6.2 Operation Phase:

Anticipated Impacts:

- ♣ Long term exposure to the pollutants such as PM, SO₂ and NO₂ Cement dust have a potential to create health impacts such as risk of cardiovascular and respiratory disease, eye irritation, bronchitis, lung damage, increased heart ailments, etc.
- ♣ Other impacts, associated with the applied for rough stone and gravel quarry Project will create a positive impact as it will result in the overall development of the area in respect to the infrastructure development, educational growth, health facilities etc., as a part of the CSR activity.

Mitigation Measures:

- ♣ In order to mitigate the long-term health impacts, efficient Air Pollution Control Equipment (APCE) like Bag House / Bag Filter / ESP will be installed at all major stacks to keep the emissions within the permissible limits. To reduce the gaseous emission, Pyro-process itself acts as a long SO₂ scrubber and De - NO_x system will be installed for fuel
-

burning along with calciner for low NOx formation. To reduce fugitive emission from vehicles and machineries will be regularly monitored and maintained.

♣ For emergency, proposed to develop an occupational health centre for its employees and nearby villagers.

4.6.3 Impact Evaluation:

Table 4.6.3.1 Impact Evaluation Impact evaluation is given in table below.

Impact Evaluation Element	Impact on socio economics due to the applied for A. Selvaraj rough stone and gravel Cluster quarry over an extent of 3.66.0 ha of Patta land of Muthalipalayam Village, Kangeyam Taluk, Tiruppur District.			
Potential Effect/ Concern	Proposed project will provide direct & indirect employment opportunities to the local residents, which will help to increase their earning and better living standard as well as further up-liftmen of socio-economic status of the area.			
Characteristics of Impacts				
Nature	Positive		Negative	Neutral
	✓			
Type	Direct	Indirect	Cumulative	
			✓	
Extent	Project area	Local	Zonal	Regional
		✓		✓
Duration	Short time		Long term	
			✓	
Intensity	Low		Medium	High
			✓	
Frequency	Remote (R)	Occasional (O)	Periodic (P)	Continuous (C)
			✓	
Significance of Impact				
Significance	Insignificant	Minor	Moderate	Major
			✓	

4.7 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

4.7.1 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

4.7.2 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

4.7.3 Physical Hazards

The following measures are proposed for control of physical hazards

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

4.7.4 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.

4.8 MINE WASTE MANAGEMENT

No waste is anticipated, the entire mined out material will be sold to needy crushers and customers.

4.9 MINE CLOSURE

The ultimate depth of the mine is 40m bgl and the life of the mine is 10 years, after completion of mining operation the following action will be taken in the project site as a part of Mine closure plan

- The total Mined out land would be around 3.07.0 Ha this land will be converted into temporary water reservoir which will facilitate to collect the rain water
- The stagnant water will be supplied to the nearby agriculture land during drought seasons
- Fencing will be re constructed around the pit after closure, the warning/ danger display board will be placed on all the sides of the project site
- The un utilized area and haul roads will be converted as plantation area, fruit bearing trees will be planted to retain the eco system of the area
- Final Mine closure plan will be prepared and submitted to the concerned authority

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.

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.

4.9.1 Mine Closure Criteria

The criteria involved in mine closure are discussed below:

4.9.1.1 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.,

4.9.1.2 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.

4.9.1.3 Biological Stability

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

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

- Where the nutrient level of spread topsoil is lower than material in-situ e.g., for development of social forestry
- Where it is intended to grow plants with a higher nutrient requirement than those occurring naturally e.g., planning for agriculture
- Where it is desirable to get a quick growth response from the native flora during those times when moisture is not a limiting factor e.g., development of green barriers

The Mine closure plan should be as per the approved mine 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.

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 INTRODUCTION

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

5.1 FACTORS BEHIND THE SELECTION OF PROJECT SITE

The surrounding areas already undergone quarrying operation, there are 4-5 Crushers within the radius of 1km. Most of the quarries in the regions are abandoned and lease expired quarries. Hence this quarry will feed the Rough stone material to the crushing units.

The Rough Stone and Gravel Quarry Project for excavation of Rough Stone, which is site specific. The proposed mining lease areas have 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 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 well connected and accessible.
- The mining operations will not intersect the ground water level. Hence, no impact on ground water environment.
- Study 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 all the mine sites are mineral specific

5.3 FACTORS BEHIND SELECTION OF PROPOSED TECHNOLOGY

The existing quarries in the area operated by Opencast Mechanised Mining operation with drilling and blasting method will be used to extract Rough Stone in the area. All the applied mining lease areas have following advantages –

- As the mineral deposition is homogeneous and batholith formation, therefore opencast method of working is preferred over underground method
- The material will be loaded with the help of excavators into dumpers / trippers and transported to the needy customers.
- Blasting and availability of drills along with controlled blasting technology gives desired fragmentation so that the mineral is handled safely and used without secondary blasting.
- 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 these projects. 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.

6. ENVIRONMENTAL MONITORING PROGRAMME

6.0 GENERAL

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 as well as the conditions set forth under the order issued by Tamil Nadu Pollution Control Board while granting CTO.

6.1 METHODOLOGY OF MONITORING MECHANISM

Implementation of EMP and periodic monitoring will be carried out by the project proponent. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to this 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 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 all the proposed quarries.

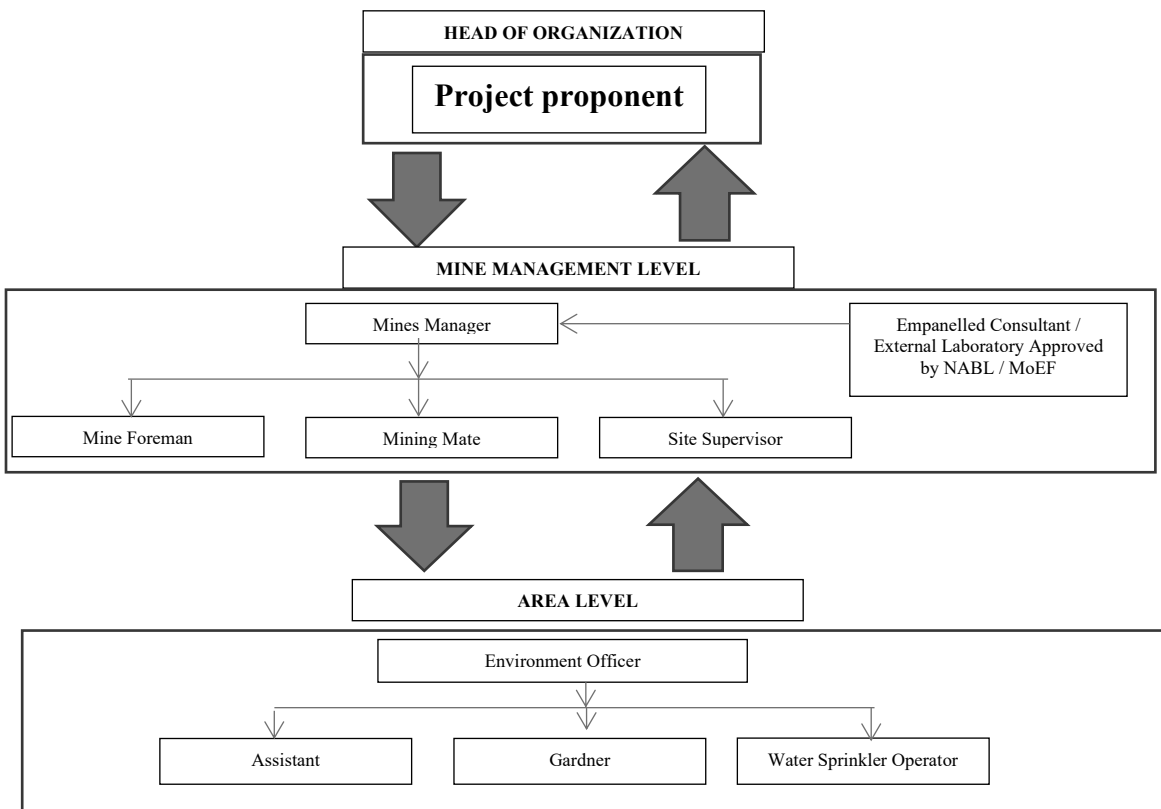
The responsibilities of this cell will be:

- 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 each proposed project proponent. The half-yearly reports are submitted to Ministry of Environment and Forest, Regional Office and SEIAA 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).

FIGURE 6.1: PROPOSED ENVIRONMENTAL MONITORING CELL P1



6.2 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

The mitigation measures proposed in Chapter-4 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

SI 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

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 monitoring are detailed in Table 6.2

TABLE 6.2: PROPOSED MONITORING SCHEDULE POST EC FOR P1

S.No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	7 Locations (1 Core & 6 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	6 Locations (1SW & 5GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	7 Locations (1 Core & 6 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	6 Locations (1 Core & 5 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 EMP

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 capital cost for Environmental Monitoring Programme is Rs 76,000/- and the recurring cost is Rs 3,80,000/- per annum for each Proposed Project.

TABLE 6.3 ENVIRONMENT MONITORING PROGRAM BUDGET

PROPOSAL – P1			
Sl.No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	Rs. 76,000/-	Rs. 76,000/-
2	Meteorology		
3	Water Quality		

4	Hydrology		
5	Soil Quality		
6	Noise Quality		
7	Vibration Study		
Total		Rs 76,000/-	Rs 76,000/-

Source: Approved Mining Plan

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.

7. ADDITIONAL STUDIES

7.0 GENERAL

The following Additional Studies were done as per items identified by project proponent and items identified by regulatory authority. And items identified by public and other stakeholders will be incorporated after Public Hearing.

- Public Consultation
- Risk Assessment
- Disaster Management Plan
- Cumulative Impact Study
- Plastic Waste Management

7.1. 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.

7.2 RISK ASSESSMENT

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

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

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 below Table 7.1.

TABLE 7.1 RISK ASSESSMENT& CONTROL MEASURES

S. No	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries	Improper handling and unsafe working practice	All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations; Workers will be sent to the Training in the nearby Group Vocational Training Centre Entry of unauthorized persons will be prohibited; Fire-fighting and first-aid provisions in the mine office complex and mining area; Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use

			<p>Working of quarry, as per approved plans and regularly updating the mine plans;</p> <p>Cleaning of mine faces on daily basis shall be daily done in order to avoid any overhang or undercut;</p> <p>Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager;</p> <p>Maintenance and testing of all mining equipment as per manufacturer 's guidelines.</p>
2	Drilling	<p>Improper and unsafe practices</p> <p>Due to high pressure of compressed air, hoses may burst</p> <p>Drill Rod may break</p>	<p>Safe operating procedure established for drilling (SOP) will be strictly followed.</p> <p>Only trained operators will be deployed.</p> <p>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,</p> <p>Drilling shall not be carried on simultaneously on the benches at places directly one above the other.</p> <p>Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual.</p> <p>All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition.</p> <p>Operator shall regularly use all the personal protective equipment.</p>
4	Blasting	<p>Fly rock, ground vibration, Noise and dust.</p> <p>Improper charging, stemming & Blasting/fining of blast holes</p> <p>Vibration due to movement of vehicles</p>	<p>Restrict maximum charge per delay as per regulations and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blasting can be conducted safely.</p> <p>SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation</p> <p>Shots are fired during daytime only.</p> <p>All holes charged on any one day shall be fired on the same day.</p> <p>The danger zone will be distinctly demarcated (by means of red flags)</p>
5	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>Before commencing work, drivers personally check the dumper/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.</p> <p>Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle.</p> <p>Concave mirrors should be kept at all corners</p> <p>All vehicles should be fitted with reverse horn with one spotter at every tipping point</p> <p>Loading according to the vehicle capacity</p> <p>Periodical maintenance of vehicles as per operator manual</p>

		Operator of truck leaving his cabin when it is loaded.	
6	Natural calamities	Unexpected happenings	Escape Routes will be provided to prevent inundation of storm water Fire Extinguishers & Sand Buckets
7	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

Source: Analysed and Proposed by FAE & EC

7.3 DISASTER MANAGEMENT PLAN

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

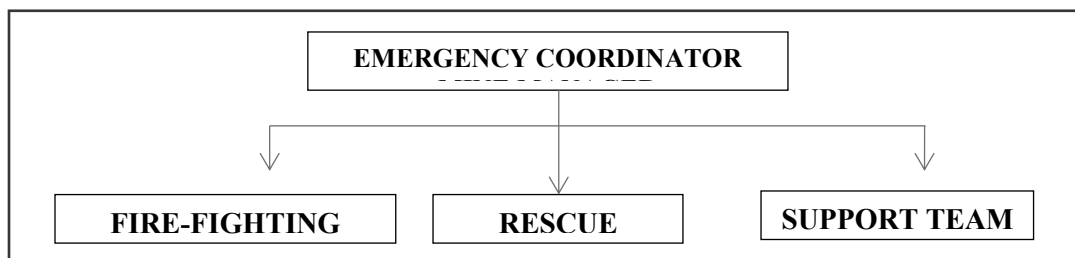
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

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 and the coordination among key personnel and their team has been shown in Fig 7.1.

FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT



The emergency organization shall be headed by emergency coordinator who will be qualified competent mine manager. In his absence senior most people available at the mine shall be emergency coordinator till arrival of mine 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 TO DEAL WITH 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. 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.

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 carryout 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.,

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

Proposed fire extinguishers at different locations –

The following type of fire extinguishers has been proposed at strategic locations within the mine.

TABLE 7.3: PROPOSED FIRE EXTINGUISHERS AT DIFFERENT LOCATIONS

LOCATION	TYPE OF FIRE EXTINGUISHERS
Electrical Equipment's	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

Alarm system to be followed during disaster –

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.

7.4 CUMULATIVE IMPACT STUDY

For easy representation of Proposed and Existing Quarries in the Cluster are given unique codes and identifies and studied in this EIA/EMP Report.

TABLE 7.4: LIST OF QUARRIES WITHIN 500 METER RADIUS

PROPOSED QUARRY					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	Thiru. A. Selvaraj	Muthalipalayam	860/1, 860/2A(Part), 861/1 and 861/2	3.66.0	Lr.No. SEIAA- TN/F.No.9835/ToR-1437/2023 Dated:24.04.2023
TOTAL EXTENT				3.66.0	
EXISTING QUARRY					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
E-1	Thiru. K. Vijaykumar	Muthalipalayam	857/2, 860/2A(P),86 0/2B	3.82.90	18.02.2020 to 17.02.2025
TOTAL EXTENT				3.82.90	
ABANDONED / EXPIRED QUARRY					
Ex-1	Thiru.D.Mohanrasu	Muthalipalayam	857/1(P)	0.81.0	27.03.2017 to 26.03.2022
TOTAL EXTENT				0.81.0	
TOTAL CLUSTER EXTENT				7.48.90 Ha	

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

TABLE 7.5: SALIENT FEATURES OF PROPOSAL "P1"

Name of the Project	Thiru. A. Selvaraj Rough stone and Gravel quarry		
Land type	Patta land		
Land owner details	It is a Patta land, registered in the name of Thiru. T. Jegadheeshwaran, S/o. Thangamuthu. The applicant has registered lease deed from the Pattadars for a period of Ten years from the date of execution of lease deed.		
Previous lease details	It is a fresh lease application.		
Toposheet No	58 - F/09		
Latitude between	10°52'33.16"N to 10°52'40.05"N		
Longitude between	77°31'58.95"E to 77°32'05.92"E		
Highest Elevation	265m AMSL		
Mining Plan period	10 Years		
Proposed Depth of Mining	40m (2m Gravel + 3m Weathered rock +35m Rough Stone)		
Geological Resources	Rough Stone in m ³	Weathered Rock m ³	Gravel m ³
	12,81,000	1,09,800	73,200
Mineable Reserves	Rough Stone in m ³	Weathered Rock m ³	Gravel m ³
	6,14,600	83,664	59,508
Year wise Production (Ten Years)	Rough Stone in m ³	Weathered Rock m ³	Gravel m ³
	6,14,600	83,664	59,508
Ultimate Pit Dimension	176m (L) x 173m (W) x 40m(D) bgl		
Water Level in the surrounding areas	68m bgl		
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives		
Topography	The lease applied area is flat terrain. The gradient is gentle towards Southeast side and altitude of the area is 265m above from Mean Sea level. The area is covered by 2m thickness of Gravel, 3m Weathered rock and followed by Massive Charnockite which is clearly inferred from the surface outcrops.		
Machinery proposed	Jack Hammer	7 Nos	
	Compressor	2 Nos	
	Excavator with Bucket and Rock Breaker	2 Nos	
	Tippers	4 Nos	
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.		
Proposed Manpower Deployment	32 Nos		
Project Cost	Rs. 2,82,87,000/-		
EMP Cost	Rs. 7,60,000/-		
Total Project cost	Rs. 2,90,47,000/-		
CER Cost	Rs. 5,00,000/-		
Nearby Water Bodies	Canal	1.0km-South	
	Nellai karai Odai	6.0km – North West	
	Amaravathi River	7.0km-South East	
Greenbelt Development Plan	Proposed to plant 1,850Nos of trees considering 500 Nos of trees/ Ha criteria		

	The plantation will be developed around the project site and nearby village roads
Proposed Water Requirement	2.5 KLD
Nearest Habitation	510m – South West

Source: Approved Mining Plan

TABLE 7.6: SALIENT FEATURES OF PROPOSAL “E1”

Name of the Quarry	Thiru.K.Vijayakumar Rough Stone and Gravel Quarry	
Toposheet No	58 - F/09	
Latitude between	10°52'33.20"N to 10°52'39.61"N	
Longitude between	77°32'05.33"E to 77°32'13.56"E	
Geological Resources	Rough Stone in m ³	Gravel m ³
	15,25,000	1,52,500
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	3,33,900	55,872
Yearwise production	Rough Stone in m ³	Gravel m ³
	2,55,590	55,872
Ultimate Pit Dimension	215m (L)*148m (W)*42m bgl (D)	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Machinery proposed	Jack Hammer	8 Nos
	Compressor	2 Nos
	Hydraulic Excavator	2 Nos
	Tippers	3 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	30 Nos	

Source: Approved Mining Plan

The Cumulative Impact is mainly anticipated due to drilling & blasting and excavation and transportation activities in all the quarries (proposed and existing) within the cluster and major impact anticipated is on Air & Noise Environment and Ground Vibrations due to blasting.

Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.11 - 7.13.

TABLE 7.11: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE

Quarry	Production year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1 -Ten years	6,14,600	61,460	205	17
Total	6,14,600	61,460	205	17
E1 – Five years	2,55,590	51,118	170	14
Total	2,55,590	51,118	170	14
Grand Total	8,70,190	1,12,578	375	31

TABLE 7.12: CUMULATIVE PRODUCTION LOAD OF GRAVEL

Quarry	Production year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1 -Three years	59,508	19,836	66	6
Total	59,508	19,836	66	6
E1 – Two years	55,872	27,936	93	8
Total	55,872	27,936	93	8
Grand Total	1,15,380	47,772	159	14

TABLE 7.13: CUMULATIVE PRODUCTION LOAD OF WEATHERED ROCK

Quarry	Production year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1 – Three Years	83,664	27,888	93	8
Total	83,664	27,888	93	8

On a cumulative basis considering the proposed quarries, it can be seen that the overall production of Rough Stone is 375m³ per day with a capacity of 31trips and overall production of Gravel is 93 m³ per day with a capacity of 8trips and overall production of weathered rock is 93m³ per day with a capacity of 8trips from the cluster.

Note: Per day production of Rough Stone is calculated for 10 Years Lease Period and for Gravel and Weathered rock production with 3 years. And the load of existing quarries is covered under existing environment of the cluster.

Based on the above production quantities the emissions due to various activities in all the 2 mines includes various activities like ground preparation, excavation, handling and transport of ore. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 7.18.

TABLE 7.14: EMISSION ESTIMATION FROM QUARRIES WITHIN 500 METER RADIUS

EMISSION ESTIMATION FOR QUARRY “P1”				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.093040262	g/s
	Blasting	Point Source	0.001686433	g/s
	Mineral Loading	Point Source	0.045249360	g/s
	Haul Road	Line Source	0.00250098	g/s/m
	Overall Mine	Area Source	0.068353940	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.001252685	g/s

Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000100111	g/s
EMISSION ESTIMATION FOR QUARRY "E1"				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.095040236	g/s
	Blasting	Point Source	0.000986445	g/s
	Mineral Loading	Point Source	0.050249360	g/s
	Haul Road	Line Source	0.00150098	g/s/m
	Overall Mine	Area Source	0.063353940	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.001152685	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000100111	g/s

TABLE 7.15: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM₁₀ in µg/m³	
Background	42.3
Incremental	16.90
Resultant	59.2
NAAQ Norms	100 µg/m³
PM_{2.5} in µg/m³	
Background	21.8
Incremental	9.95
Resultant	31.75
NAAQ Norms	60 µg/ m³
So₂ in µg/m³	
Background	4.3
Incremental	2.39
Resultant	6.69
NAAQ Norms	80 µg/ m³
No₂ in µg/m³	
Background	21.5
Incremental	12.80
Resultant	34.3
NAAQ Norms	80 µg/ m³

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.

For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using model based on first principle.

$$L_{p2} = L_{p1} - 20 \log (r_2/r_1) - Ae_{1,2}$$

Where:

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

$Ae_{1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

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

Attenuation due to Green Belt has been taken to be 4.9 dB (A). The inputs required for the model are:

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

TABLE 7.16: PREDICTED NOISE INCREMENTAL VALUES FROM CLUSTER

Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near P1	47.4	46.2	46.8	55
Habitation Near E1	38.6	49.4	44	

Source: Lab Monitoring Data

The incremental noise level is found within the range of 45.3 – 50.0 dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 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).

Ground Vibrations

Ground vibrations due to mining activities in the all the 6 Mines within cluster 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 all the 6 mines 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 kuchha 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 nearby the mining areas and may cause injury to persons or damage to the structures. Nearest Habitations from 6 mines respectively are as in below Table 7.21.

TABLE 7.17: NEAREST HABITATION FROM EACH MINE

Location ID	Distance & Direction
Habitation Near P1	510m – South West
Habitation Near E1	2.0km - East

The ground vibrations due to the blasting in all the mines are calculated using the empirical equation for assessment of peak particle velocity (PPV) is:

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

TABLE 7.18: GROUND VIBRATIONS AT 2 MINES

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	89	510m – South West	0.844
E1	74	700m - South West	0.439

Source: Blasting Calculations

From the above table, the charge per blast is considered as maximum in each mine and the resultant PPV 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.

Socio Economic Environment –

The 6 mines shall contribute towards CER and the community shall develop.

TABLE 7.19: SOCIO ECONOMIC BENEFITS FROM 1 MINE

Location ID	Project Cost	CER
P1	Rs. 2,90,47,000/-	Rs.5,00,000
Total	Rs. 2,90,47,000/-	Rs.5,00,000

As per para 6 (II) of the office memorandum, all the mines being a green field project & Capital Investment is ≤ 100 crores, they shall contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC.

- Proposed Projects shall fund towards CER – **Rs 5,00,000/-**

TABLE 7.20: EMPLOYMENT BENEFITS FROM 2MINES

Description	Employment
P1	32
Total	32
E1	30
Total	30
Grand Total	62

A total of 32 people will get employment due to 1 proposed mine in cluster and 30 people are already employed at existing mines.

TABLE 7.21: GREENBELT DEVELOPMENT BENEFITS FROM 2 MINES

CODE	No of Trees proposed to be planted	Area Covered Sq.m	Name of the Species
P1	1850	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development	Vilvam, Panai-maram, Puvarasu, Pungam etc.,
Total	1850		
E1	1800		
Total	1800		
G.Total	3650		

Based on the Proposed Mining Plans it's anticipated that there shall growth of native species of Neem, Pinnata et., in the Cluster at a rate of 3,650 Trees Planted over a period of 5 Years with Survival Rate of 80%.

7.5 PLASTIC WASTE MANAGEMENT PLAN

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.

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.

TABLE 7.22: ACTION PLAN TO MANAGE PLASTIC WASTE

Sl.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 FAE's and EC

8.PROJECT BENEFITS

8.0 GENERAL

The Proposed Project for Quarrying Rough Stone and gravel at Muthalipalayam Village aims to produce 6,14,600m³ Rough Stone over a period of 10 Years, Weathered Rock 83,664m³ and Gravel 59,508m³ for period of 3 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 32 persons for carrying out mining operations and give preference to the local people in providing employment in the three proposed quarries in the cluster. In addition, there will be opportunity for indirect employment to many people in the form of contractual jobs, business opportunities, service facilities etc. the economic status of the local people will be enhanced due to mining project.

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 quarries are located in Muthalipalayam Village, Kangayam Taluk, Tiruppur District, Tamil Nadu and the area have communications, roads and other facilities already well established. The following physical infrastructure facilities will further improve due to proposed mine.

- 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.,

CORPORATE SOCIAL RESPONSIBILITY

The Project Proponent 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.

CSR Cost Estimation

- CSR activities will be taken up in the Muthalipayam village mainly contributing to education, health, training of women self-help groups and contribution to infrastructure etc., CSR budget is allocated as 2.5% of the profit.

CORPORATE ENVIRONMENT RESPONSIBILITY

For the existing quarries 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.

Proponent intends to spent Rs 5,00,000/- towards CER for the Government School near the project site the details are given below:

TABLE 8.1 CER – ACTION PLAN

Activity	CER
<ul style="list-style-type: none"> • Renovation/ Construction of Existing Toilet • Providing Environmental Related books to the school Library • Carrying out plantation and maintenance in the school Ground • Any other requirements in consultation with the school Head master 	Rs 5,00,000/-

9. ENVIRONMENTAL COST BENEFIT ANALYSIS

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

10. 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 of ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

10.1. ENVIRONMENTAL POLICY

The Project Proponent is committed to conduct all its operations and activities in an environmentally responsible manner and to continually improve environmental performance.

The Proponent Thiru. A. Selvaraj 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 programmes 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.

Description of the Administration and Technical Setup –

The Environment Monitoring Cell discussed under Chapter 6 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 programme

- Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10.2. 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 (un utilized areas, infrastructure, haul Roads) will be utilized for greenbelt development. 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 programme.

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 & 100 m 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 FAE's & EIA Coordinator

10.3. SOIL MANAGEMENT

There overburden in the form of Weathered rock and Gravel which will directly loaded into tippers for the filling and levelling of low-lying areas.

TABLE 10.2. PROPOSED CONTROLS FOR SOIL MANAGEMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.4. WATER MANAGEMENT

In the proposed quarrying project, no process is involved for the effluent generation, only oil & grease from the machinery wash is anticipated and domestic sewage from mines office. The quarrying operation is proposed up to a depth of 40 m BGL, the water table in the area is 68 m below ground level, hence the proposed projects will not intersect the Ground water table during entire quarry period.

TABLE 10.3. PROPOSED CONTROLS FOR WATER ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.5. AIR QUALITY MANAGEMENT

The proposed quarrying activity would result in the increase of particulate matter concentrations due to fugitive dust. Daily water sprinkling on the haul roads, approach roads in the vicinity would 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

TABLE 10.4. 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 access 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 FAE's & 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.

TABLE 10.5.: 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 are 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 FAE's & 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.

TABLE 10.6.: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK – P1

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 FAE's & 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 programme 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
 - 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

About 1850nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

TABLE 10.7: PROPOSED GREENBELT ACTIVITIES

Year	No. of trees proposed to be planted	Area to be covered in m ²	Name of the species
I	1850	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development.	Vilvam, Panai-maram, Puvarasu, Pungam etc.,

Source: Approved Mining plan

The objectives of the greenbelt development plan are –

- Provide a green belt around the periphery of the quarry area to combat the dispersal of dust in the adjoining areas,
- Protect the erosion of the soil, Conserve moisture for increasing ground water recharging,
- 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.

A well-planned Green Belt with multi rows (three tiers) preferably with long canopy leaves shall be developed with dense plantations around the boundary and haul roads to prevent air, dust noise propagation to undesired places and efforts will be taken for the enhancement of survival rate.

10.8.2. Species Recommended for Plantation

Following points have been considered while recommending the species for plantation:

- Creating of bio-diversity.
- Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- Efficient in absorbing pollutants without major effects on natural growth

TABLE 10.8. RECOMMENDED SPECIES FOR THE PLANTAITON

S.No	Botanical Name	Local Name	Importance
1	<i>Aegle marmelos</i>	Vilvam	Vilvam leaves are anti-diabetic, antibacterial, antifungal and antimicrobial.
2	<i>Borassus flabellifer</i>	Panai-maram	Edible & Medicinal and other Uses
3	<i>Thespesia populnea</i>	Puvarasu	Medicinal and other Uses
4	<i>Pongamia pinnat</i>	Pungam	Medicinal & Commercial Uses

Source: Proposed by FAE's & EIA Coordinator

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 –

The health status of workers in the mine will be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detailed 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
- 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 keep upgrading the database of medical history of the employees.

TABLE 10.9. MEDICAL EXAMINATION SCHEDULE

Sl.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)					

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 colours 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.
- 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.
- 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 centres. 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 Programme

The Proponent 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 Centres 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 per Metalliferous Mines Regulation, 1961.

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

TABLE 10.10: EMP BUDGET FOR PROPOSED PROJECT

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	36600	36600
	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
	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 -7 Units	175000	17500
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	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 -4 Units	20000	1000
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	73200
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, 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 implements 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 / Compentent 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 Tonnes of Blasted Material	0	798980
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	36600	5000
	2. Progressive Closure Activity 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	732000	10000

	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 1850 Trees - (710 Inside Lease Area & 1140 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)	142000	21300
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	342000	34200
	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	93000	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budget and not necessarily implemented in the Project Site	5531400	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 mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 32 Employees	128000	32000

	Health check-up for workers will be provisioned	IME & PME Health check-up @ Rs. 1000/- per employee	0	32000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	7320
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	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	183000	10000
	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
CER	As per MoEF &CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	0
TOTAL			3255200	2036100

*Marked cost is already discussed in the mining plan hence that is not included in the total Environmental Management plan cost Total Cost for the ten years. The EMP has been prepared for the entire **lease period of 10 years** for the peak production capacity of **70,500m³ of Rough stone**.

Year	Total Cost
1st	₹ 52,91,300
2 nd	₹ 21,37,905
3 rd	₹ 22,44,800
4 th	₹ 23,57,040
5th	₹ 24,74,892
6 th	₹ 42,26,237
7 th	₹ 28,09,949
8 th	₹ 29,50,446
9 th	₹ 30,97,968
10th	₹ 33,45,867
Total	309 Lakhs

Cost inflation 5% per annum

Note: This Environmental Management plan cost will vary according to the public consultation comments

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.

11. SUMMARY AND CONCLUSION

This EIA & EMP report prepared for the Thiru A.Selvaraj Rough stone and Gravel quarry project located in S.F.Nos. 860/1, 860/2A(Part), 861/1 and 861/2 of Muthalipalayam Village, Kangayam Taluk, Tiruppur District belongs to Thiru. A. Selvaraj the Project falls in the Cluster category consist of 1 Proposed, 1 Existing Quarry falls under “B” category as per MoEF & CC Notification S.O. 3977 (E).

Now, as per 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 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B-1 and appraised by SEAC/ SEIAA as well as for cluster situation.

The proposed project is categorized under category “B1” Activity 1(a) (mining lease area in cluster situation) and will be considered at SEIAA – TN after conducting Public Hearing and Submission of EIA/EMP Report for Grant of Environmental Clearance. “Draft EIA report prepared on the basis of ToR issued for carrying out public hearing for the grant of Environmental Clearance from SEIAA, Tamil Nadu”.

Environmental monitoring and audit mechanism have been recommended before and after commencement of the project, where necessary, to verify the accuracy of the EIA predictions and the effectiveness of recommended mitigation measures.

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. 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, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the months October to December 2023 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

The project proponent ensures to obtain necessary clearances and quarrying will be carried out as per rules and regulations. The Mining Activity will be carried out in a phased manner as per the approved mining plan after obtaining EC, CTO from TNPCB, execution of lease deed and obtaining DGMS Permission and working will be carried out under the supervision of Competent Persons employed. Overall, the EIA report has predicted that the project will comply with all environment standards and legislation after commencement of the project and operational stage mitigation measures are implemented.

Mining operations has positive impact on environment and socio economy such as landscape improvement, water as by-product, economy development and better public services, providing and supply of Rough Stone as per market demand. Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 32 people directly in the proposed projects and indirectly around 50 people.

As discussed, it is safe to say that the proposed quarries are not likely to cause any significant impact to the ecology of the area, as adequate preventive measures will be adopted to keep the various pollutants within the permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigate technique, as well as to serve as biological indicators for the pollutants released from the Muthalipalayam Rough Stone and Gravel Cluster Quarry (Extent – 7.48.90 ha).

12. DISCLOSURE OF CONSULTANT

M/s Geo Exploration and Mining Solutions, an Accredited Organization under Quality Council of India – National Accreditation Board for Education & Training, New Delhi, for carrying out the EIA Study as per the ToR Issued for the proposed project.

Name and address of the consultancy:

GEO EXPLORATION AND MINING SOLUTIONS

No 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004

Tamil Nadu, India

Email: infogeoexploration@gmail.com

Web: www.gemssalem.com

Phone: 0427 2431989.

The Accredited Experts and associated members who were engaged for this EIA study as given below –

Sl.No.	Name of the expert	In house/ Empanelled	EIA Coordinator		FAE	
			Sector	Category	Sector	Category
1	Dr. M. Ifthikhar Ahmed	In-house	1	A	WP GEO SC	B A A
2	Dr. P. Thangaraju	In-house	-	-	HG GEO	A A
3	Mr. A. Jagannathan	In-house	-	-	AP NV SHW	B A B
4	Mr. N. Senthilkumar	Empanelled	38 28	B B	AQ WP RH	B B A
5	Mrs. Jisha parameswaran	In-house	-	-	SW	B
6	Mr. Govindasamy	In-house	-	-	WP	B
7	Mrs. K. Anitha	In-house	-	-	SE	A
8	Mrs. Amirtham	In-house	-	-	EB	B
9	Mr. Alagappa Moses	Empanelled	-	-	EB	A
10	Mr. A. Allimuthu	In-house	-	-	LU	B
11	Mr. S. Pavel	Empanelled	-	-	RH	B
12	Mr. J. R. Vikram Krishna	Empanelled	-	-	SHW RH	A A

Abbreviations			
EC	EIA Coordinator	EB	Ecology and bio-diversity
AEC	Associate 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 modeling, and prediction	HW	Hazardous Wastes

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

This EIA/EMP for Thiru. A. Selvaraj Rough Stone & Gravel Quarry over an Extent of 3.66.0ha in Muthalipalayam Village, Kangayam Taluk, Tiruppur District of Tamil Nadu is prepared as per the Generic Structure of EIA Guidelines manual. It is also certified that information furnished in the above EIA study are true and correct to the best of our knowledge.

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

Name: **Dr. M. Ifthikhar Ahmed**

Designation: **EIA Coordinator**

Date & Signature:




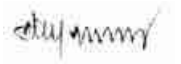

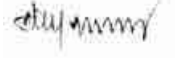








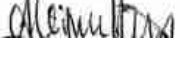

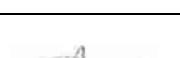



Period of Involvement: **January 2019 to till date**

Associated Team Member with EIA Coordinator:


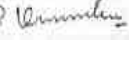

1. Mr. S. Nagamani
2. Mr.P. Viswanathan
3. Mr. M. Santhoshkumar
4. Mr. S. Ilavarasan

FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

Sl. No	Functional Area	Involvement	Name of the Expert/s	Signature
1	AP	<ul style="list-style-type: none"> ▪ Identification of different sources of air pollution due to the proposed mine activity ▪ Prediction of air pollution and propose mitigation measures / control measures 	Mr. A. Jagannathan	
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. M. Ifthikhar Ahmed	
			Mr. N. Senthilkumar	
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. P. Thangaraju	
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. 	Dr. M. Ifthikhar Ahmed	
			Dr. P. Thangaraju	
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. 	Mrs. K. Anitha	

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. 	Mrs. Amirtham	
			Mr. Alagappa Moses	
7	RH	<ul style="list-style-type: none"> ▪ Identification of hazards and hazardous substances ▪ Risks and consequences analysis ▪ Vulnerability assessment ▪ Preparation of Emergency Preparedness Plan ▪ Management plan for safety. 	Mr. N. Senthilkumar	
			Mr. S. Pavel	
			Mr. J. R. Vikram Krishna	
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. 	Mr. A. Allimuthu	
9	NV	<ul style="list-style-type: none"> ▪ Identify impacts due to noise and vibrations ▪ Suggesting appropriate mitigation measures for EMP. 	Mr. A. Jagannathan	
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 	Mr. N. Senthilkumar	
11	SC	<ul style="list-style-type: none"> ▪ Assessing the impact on soil environment and proposed mitigation measures for soil conservation 	Dr. M. Iftikhar Ahmed	
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. 	Mr. A. Jagannathan	
			Mr. J. R. Vikram Krishna	

LIST OF TEAM MEMBERS ENGAGED IN THIS PROJECT

Sl.No.	Name	Functional Area	Involvement	Signature
1	Mr. S. Nagamani	AP; GEO; AQ	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures ▪ Provide inputs on Geological Aspects ▪ Analyse & provide inputs and assist FAE with meteorological data, emission estimation, AERMOD modelling and suggesting control measures 	
2	Mr. Viswathanan	AP; WP; LU	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures ▪ Assisting FAE on sources of water pollution, its impacts and suggest control measures ▪ Assisting FAE in preparation of land use maps 	
3	Mr. Santhoshkumar	GEO; SC	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs on Geological Aspects ▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan ▪ Provide inputs & Assisting FAE with soil conservation methods and identifying impacts 	

4	Mr. Umamahesvaran	GEO	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs on Geological Aspects ▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan 	<i>S. Umamahesvaran</i>
5	Mr. A. Allimuthu	SE	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of data's ▪ Provide inputs by analysing primary and secondary data 	<i>A. Allimuthu</i>
6	Mr. S. Ilavarasan	LU; SC	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assisting FAE in preparation of land use maps ▪ Provide inputs & Assisting FAE with soil conservation methods and identifying impacts 	<i>S. Ilavarasan</i>
7	Mr. E. Vadivel	HG	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE & provide inputs on aquifer characteristics, ground water level/table ▪ Assist with methods of ground water recharge and conduct pump test, flow rate 	<i>E. Vadivel</i>
8	Mr. D. Dinesh	NV	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE and provide inputs on impacts due to proposed mine activity and suggest mitigation measures ▪ Assist FAE with prediction modelling 	<i>D. Dinesh</i>
9	Mr. Panneer Selvam	EB	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna 	<i>P. Panneer Selvam</i>
10	Mrs. Nathiya	EB	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna 	<i>T. Annapurna</i>

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, Dr. M. Ifthikhar Ahmed, Managing Partner, Geo Exploration and Mining Solutions, hereby, confirm that the above-mentioned Functional Area Experts and Team Members prepared the Cluster EIA/EMP for Thiru. A. Selvaraj Rough Stone & Gravel Quarry over an Extent of 3.66.0ha in Muthalipalayam Village, Kangayam Taluk, Tiruppur District of Tamil Nadu. It is also certified that information furnished in the EIA study are true and correct to the best of our knowledge.

Signature& Date:



Name:

Dr. M. Ifthikhar Ahmed

Designation:

Managing Partner

Name of the EIA Consultant Organization:

M/s. Geo Exploration and Mining Solutions

NABET Certificate No & Issue Date:

NABET/EIA/2225/RA 0276 Dated: 20-2-2023

Validity:

Valid till 06.08.2025

ANNEXURE

THIRU. A. SELVARAJ ROUGH STONE AND GRAVEL QUARRY

S.F.No. 860/1, 860/2A(P), 861/1 & 861/2

Muthalipalayam Village,

Kangayam Taluk,

Tiruppur District

Extent – 3.66.0 Ha

ToR obtained

Lr No. SEIAA-TN/F.No.9835/ToR-1437/2023 Dated:24.04.2023

Project Proponent

Thiru. A. Selvaraj,

S/o. Arumugam,

No. 2/147, Saralai Thottam,

Mookkanangkottai,

Uthiyur Village,

Kangayam Taluk,

Tiruppur District - 638 703.

LIST OF ANNEXURES

ANNEXURES	DESCRIPTION	PAGE NOS
P1- THIRU. A. SELVARAJ,	COPY OF TERMS OF REFERENCE	1A-22A
	COPY OF 500M RADIUS QUARRIES DETAILS & MINING PLAN APPROVED LETTER	23A – 26A
	COPY OF PRECISE AREA COMMUNICATION LETTER	27A – 28A
	COPY OF 300m & VAO ATTESTATION LETTER	29A – 30A
	COPY OF APPROVED MINING PLAN WITH PLATES	31A-97A
	COPY OF HYDROGEOLOGICAL REPORT	98A-107A
	COPY OF INSPECTION REPORT	108A-115A
	COPY OF EXPLOSIVE LETTER	116A-121A
E1 THIRU. K, VIJAYAKUMAR	COPY OF PRECISE AREA COMMUNICATION LETTER	122A-123A
	COPY OF BASE LINE MONITORING DATA	124A-193A
	COPY OF CONSULTANT ACCREDITATION CERTIFICATE	194A



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.9835/ToR-1437/2023 Dated:24.04.2023.

To

Thiru. Selvaraj,
S/o. Arumugam,
No.2/147, Saralai Thottam,
Mookkanangkottai, Uthiyur Village,
Kangayam Taluk,
Tiruppur District – 638 703.3

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with public Hearing (ToR) for the Proposed Rough stone & Gravel quarry lease over an extent of 3.66.0 Ha at S.F.No. 860/1, 860/2A (Part), 861/1 & 861/2 in Muthalipalayam Village, Kangayam Taluk, Tiruppur District, Tamil Nadu by Thiru.A.Selvaraj - under project category – “B1” and Schedule S.No.I(a) – ToR issued along with Public Hearing- preparation of EIA report – Regarding.

- Ref:**
1. Online proposal No. SIA/TN/MIN/417547/2023, Dated: 09.02.2023.
 2. Your application submitted for Terms of Reference dated: 20.02.2023.
 3. Minutes of the 367th SEAC meeting held on 31.03.2023.
 4. Minutes of the 614th SEIAA meeting held on 24.03.2023.


MEMBER SECRETARY
SEIAA-TN

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

The proponent, Thiru.Selvaraj has submitted application for Terms of Reference (ToR) on 20.02.2023, in Form-I, Pre- Feasibility report for the Proposed Rough stone & Gravel quarry lease over an extent of 3.66.0 Ha at S.F.No. 860/1, 860/2A (Part), 861/1 & 861/2 in Muthalipalayam Village, Kangayam Taluk, Tiruppur District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

The proposal is placed in this 367th meeting of SEAC held on 31.03.2023. 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.A.Selvaraj** has applied for Terms of Reference for the Proposed Rough stone & Gravel quarry lease over an extent of 3.66.0 Ha at S.F.No. 860/1, 860/2A (Part), 861/1 & 861/2 in Muthalipalayam Village, Kangayam Taluk, Tiruppur 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. As per the mining plan, the lease period is for 10 years. The mining plan is for 10 years. The production for 10 years not to exceed **6,14,600m³ of rough stone, 83,664m³ of weathered rock & 59,508m³ of gravel.**

Based on the presentation made by the proponent, **SEAC decided to recommend the proposal for Terms of Reference (TOR) with Public Hearing subject to the following additional TORs**, in addition to 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. 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.
2. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.


MEMBER SECRETARY
SEIAA-TN

3. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
4. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.


MEMBER SECRETARY
SEIAA-TN

10. 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).
11. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
12. 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.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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.


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18. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
19. 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.
20. 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.
21. 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.
22. 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.
23. Impact on local transport infrastructure due to the Project should be indicated.
24. 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.
25. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
26. 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.
27. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
28. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.


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29. 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.
30. 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.
31. 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
32. 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.
33. 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.
34. 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.
35. 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.
36. 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.
37. Details of litigation pending against the project, if any, with direction /order passed by any


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Court of Law against the Project should be given.

38. 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.
39. 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.
40. The PP shall prepare the EMP for the entire life/lease of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
41. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix - I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Acacia marmelos</i>	Vilvam	விவம்
2	<i>Adenanthora preonina</i>	Marjadi	மாடிமரம், ஆனந்தகுன்றமரம்
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usai	உசை
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தரை
6	<i>Bauhinia racemosa</i>	Aathu	ஆது
7	<i>Bauhinia tonkinensis</i>	Iruvathi	இருவாதி
8	<i>Buchanania axillaris</i>	Kattuma	கட்டமா
9	<i>Borassus flabellifer</i>	Pani	பனை
10	<i>Butea monosperma</i>	Murukkamarai	முருக்கமரம்
11	<i>Bobax coiba</i>	Ilaya, Sevvilavu	இலயா
12	<i>Calophyllum inophyllum</i>	Punnai	புனை
13	<i>Cassia fistula</i>	Sarakonidrai	சர்க்கண்டிரை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கண்டிரை
15	<i>Chloroxylon sweetenia</i>	Purasamaram	புரசாமரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Marjallavu	கொங்கு, மார்ஜல்லா
17	<i>Cordia dichotoma</i>	Naruvuli	நரவூலி
18	<i>Creteva adansonii</i>	Mavalingum	மாவலிங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உவா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitrazha	சீறு உவா
21	<i>Diospyros ebenum</i>	Karungali	கருங்காலை
22	<i>Diospyros schloroxylon</i>	Vaganai	வாகை
23	<i>Ficus amplissima</i>	Kallachi	கல் இச்சி
24	<i>Hibiscus tiliaceus</i>	Aatrupoovarasu	ஆற்றிப்பொடி
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelea integrifolia</i>	Aayili	ஆயிலி மரம், ஆயிலி
27	<i>Lantana coromandelica</i>	Odhiam	ஒடியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மரத்தி
29	<i>Lepisanthus tetraphylla</i>	Neskottamaram	நெடு தெட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	வில்லா மரம்
31	<i>Litsea glutinosa</i>	Pisipattai	பிசிபட்டை
32	<i>Madhuca longifolia</i>	Iluppa	இலுப்பா
33	<i>Mauilaka hexandra</i>	UlaikaiPaalai	உலகை பாலை
34	<i>Minusops deniei</i>	Magizhamaram	மாகிழாமரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுனா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுனா
38	<i>Phoenix sylvestris</i>	Eachai	ஏச்சை
39	<i>Pongamia pinnata</i>	Puugam	பூங்கம்


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40	<i>Premna mollissima</i>	Muvvu	முள்ளை
41	<i>Premna serratifolia</i>	Narumunai	நறு முள்ளை
42	<i>Premna tomentosa</i>	Malaiipoovarasu	மலை பூவரசு
43	<i>Prosopis cinerea</i>	Vanni maram	வள்ளி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Verunangu, Tada	வேண்ணாங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	பூவு
47	<i>Putranjiva roxburghii</i>	Karipala	கறிபுரல்
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Marupungan, Soapukai	மண்பூக்காய் சோபுகாய்
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Strobilus asper</i>	Piray maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yeti	யேதி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தாள் கொட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தாண்டரி
56	<i>Terminalia arjuna</i>	Ven marudhu	வேண் மருது
57	<i>Toona ciliata</i>	Santhana vembu	சந்தான வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsurtrifoliata</i>	valbura	வால்சுரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பலாலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்காப்புளி

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 614th Authority meeting held on 24.04.2023. The Authority noted that this proposal was placed for appraisal in the 367th meeting of SEAC held on 31.03.2023. 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 mentioned in 'Annexure B' of this minutes.

Annexure 'B'

Cluster Management Committee

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


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

Impact study of mining

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


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h) Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

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

Forests

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

Water Environment

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.


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

Energy

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

Climate Change

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

Mine Closure Plan

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

EMP

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.
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.


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Risk Assessment

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

Disaster Management Plan

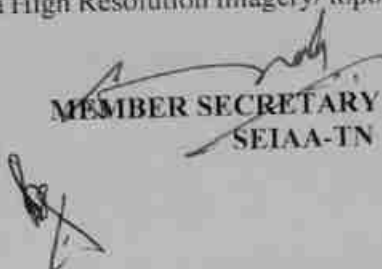
38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering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

Others

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

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


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sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).

- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.


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- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.


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- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling


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- should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
 - 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
 - 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 - 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
 - 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
 - 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
 - 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
 - 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.


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- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.


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- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
- 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


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the adjoining area.

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

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

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


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information may not be necessary)

18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.


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- 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 OM No.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. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC,Paryavaran Bhavan, CGO Complex, New Delhi 110003
5. The District Collector, Tiruppur, District.
6. Stock File.

From

Dr. K.L.K. Vallal,
Assistant Director,
Dept. of Geology and Mining,
Tiruppur.

To

Thiru. A. Selvaraj,
S/o. Arumugam,
No. 2/147, Saralai thottam,
Mokkanangkottai,
Uthiyur Village,
Kangeyam Taluk,
Tiruppur District.

R.c. No. 122/Mines/2022, Dated : 14.10.2022.

Sub: Mines and Minerals – Minor Mineral – Rough Stone
– Tiruppur District – Kangeyam Taluk –
Mudhalipalayam village – S.F. Nos. 860/1 (0.63.0),
860/2A (P) (0.40.0), 861/1 (1.74.5) and 861/2
(0.88.5) – over an extent of 3.66.0 Hectares –
Quarry lease application preferred by Thiru. A.
Selvaraj, S/o. Arumugam, - Precise area
communicated - Draft mining plan submitted –
Approval of mining plan – Regarding

- Ref: 1. Thiru. A. Selvaraj, S/o. Arumugam, No. 2/147,
Saralai thottam, Mokkanangkottai, Uthiyur
Village, Kangeyam Taluk, Tiruppur District
quarry lease application dated: 31.01.2022.
2. The Assistant Director, Geology and Mining,
Tiruppur letter R.C. No. 122/Mines/2022,
dated 26.09.2022.
3. Mining Plan submitted by Thiru. A. Selvaraj,
S/o. Arumugam letter dated 12.10.2022.

Thiru. A. Selvaraj, S/o. Arumugam has preferred an application for the grant of Rough Stone and Gravel quarry lease in Patta land, over an extent of 3.66.0 Hect. in S.F.No. 860/1 (0.63.0), 860/2A (P) (0.40.0), 861/1 (1.74.5) and 861/2 (0.88.5) in Mudhalipalayam Village, Kangeyam Taluk, Tiruppur District.

2. Based on recommendations of the Tahsildar, Kangeyam, Revenue Divisional Officer, Tiruppur and the Assistant Director, Geology and Mining, Tiruppur and records available, precise area has been communicated to the applicant with a direction to submit mining plan and

also to submit environmental clearance as stipulated under rule 41 and 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 vide memo dated 26.09.2022.

3. Accordingly, Thiru. A. Selvaraj, S/o. Arumugam submitted the Draft Mining Plan and the same has been examined in detail and it is found correct. Therefore, in exercise of the powers delegated under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959, and as per the guidelines / instructions issued by the Commissioner of Geology and Mining, Chennai vide letter Roc.No.3868/LC/2012 dated 19.11.2012, the mining plan submitted by Thiru. A. Selvaraj, S/o. Arumugam in respect of the subject area is hereby approved subject to the following conditions:

- (i). That the mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.
- (ii). This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884(Central Act IV of 1884) and the rules made there under the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii). That the mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv). 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.
- (v). 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.
- (vi). Safety distances mentioned in the precise area has to be maintained for the entire duration of the lease period.

- (vii). Waste material should be dumped within the lease granted area as earmarked in the Mining Plan.
- (viii). Necessary Environmental Clearance has to be obtained by the applicant from the competent authority before the grant of quarry lease as per the rules.
- (ix). Quarrying operations and production shall be carried out as per the approved Mining Plan and the applicant shall be liable to pay the cost of mineral if there is any deviation in the quantum indicated in the approved year wise quantum of production and any such cases as on date are to be dealt with as per Court direction.
- (x). If any violation is found during quarrying operation, the penal provisions of Tamil Nadu Minor Mineral Concession Rules shall attract.
- (xi). The applicant should strictly adhere to the statutory and safety requirements.

The details of quarry leases located within 500 meter radius from the proposed Rough Stone and Gravel is given as follows.

a. Existing quarries

S. No	Name of the lessee	Village	S.F. No	Extent Hect.	Collector's proceedings No. & Date	Lease period
1	K. Vijaya kumar	Mudhali palayam	857/2, 860/2A (P), 860/2B	3.82.90 HECT	R.C. 882 / Mines / 2018 DATED 18.02.2020	18.02.2020 - 17.02.2025


b. Abandoned / expired quarries

S. No	Name of the lessee	Village	S.F. No	Extent Hect.	Collector's proceedings No. & Date	Lease period
1.	D. Mohan rasu	Mudhali palayam	857/1 (P)	0.81.0 HECT	R.C. 338 /Mines / 2016 dated 27.3.2017	27.3.2017 TO 26.3.2022


c. Present proposed quarries

S. No	Name of the lessee	Village	S.F. No	Extent Hect.	Collector's proceedings No. & Date	Lease period
1	A. Selvaraj	Mudhali palayam	860/1, 860/2A (P), 861/1, 861/2	3.66.0	--	Nearby applied quarry

Encl: Approved Mining Plan.


Assistant Director,
Geology and Mining,
Tiruppur.

Copy to

1. The Commissioner,
Department of Geology and Mining,
Guindy, Chennai - 600 032. 
2. The Chairman ,
State Level Environment Impact Assessment Authority,
Panagal park Building, Saidapet, Chennai -600 015.
3. Dr. P. Thangaraju, RQP
17, Advaita Ashram road,
Alagapuram, Salem - 4.



കമ്മീ പ്രിമിയം എസ്റ്റിമേറ്റ്
പ്രിമിയം എസ്റ്റിമേറ്റ് ഓഫീസർ,
മിസ്രിപ്പി.

പ.ക. 172/ബി/2022

തീയതി: 26.08.2022

സൂചിപ്പിക്കൽ

മുദ്ര: ഓഫീസറുടെ ഓഫീസിലെ - മിസ്രിപ്പി - ഓഫീസർ
എന്ന മിസ്രിപ്പി - മിസ്രിപ്പി ഓഫീസർ - ഓഫീസർ ഓഫീസർ -
പ്രൊഫഷണൽ മിസ്രിപ്പി - പ.ക. 172/ബി/2022, 360/7
(063.0), 100/24 (എച്ച്) (0400), 951/7 (1,74.8) എസ്റ്റി
951/7 (085.5) പ്രൊഫഷണൽ മിസ്രിപ്പി 3,650 രൂപകൾ
പ.ക. 172/ബി/2022 ഓഫീസർ എസ്റ്റിമേറ്റ് മിസ്രിപ്പി
മിസ്രിപ്പി/മിസ്രിപ്പി 10 രൂപകൾ/മിസ്രിപ്പി മിസ്രിപ്പി
കമ്മീ പ്രിമിയം എസ്റ്റിമേറ്റ് മിസ്രിപ്പി മിസ്രിപ്പി
കമ്മീ പ്രിമിയം എസ്റ്റിമേറ്റ് മിസ്രിപ്പി മിസ്രിപ്പി
കമ്മീ പ്രിമിയം എസ്റ്റിമേറ്റ് മിസ്രിപ്പി മിസ്രിപ്പി
കമ്മീ പ്രിമിയം എസ്റ്റിമേറ്റ് മിസ്രിപ്പി മിസ്രിപ്പി

- പ്രകാരം:
1. മിസ്രിപ്പി, മിസ്രിപ്പി, മിസ്രിപ്പി, 2/147, ഓഫീസർ
മിസ്രിപ്പി, മിസ്രിപ്പി/മിസ്രിപ്പി, മിസ്രിപ്പി മിസ്രിപ്പി
കമ്മീ പ്രിമിയം എസ്റ്റിമേറ്റ് മിസ്രിപ്പി മിസ്രിപ്പി
31.01.2022.
 2. ഓഫീസർ ഓഫീസർ മിസ്രിപ്പി മിസ്രിപ്പി 758/2022/മിസ്രിപ്പി
തീയതി: 20.04.2022.
 3. ഓഫീസർ മിസ്രിപ്പി മിസ്രിപ്പി മിസ്രിപ്പി മിസ്രിപ്പി
104/2022/മിസ്രിപ്പി തീയതി: 10.06.2022.
 4. മിസ്രിപ്പി, മിസ്രിപ്പി എസ്റ്റിമേറ്റ് ഓഫീസർ, കമ്മീ
പ്രിമിയം എസ്റ്റിമേറ്റ് ഓഫീസർ മിസ്രിപ്പി മിസ്രിപ്പി തീയതി:
23.09.2022.
 5. മിസ്രിപ്പി, മിസ്രിപ്പി എസ്റ്റിമേറ്റ് ഓഫീസർ, മിസ്രിപ്പി
മിസ്രിപ്പി 180/ബി/2022 തീയതി: 10.06.2022
മിസ്രിപ്പി മിസ്രിപ്പി (മിസ്രിപ്പി) തീയതി: 100,
മിസ്രിപ്പി (മിസ്രിപ്പി-1) തീയതി: 04.08.2022
മിസ്രിപ്പി മിസ്രിപ്പി/മിസ്രിപ്പി
 6. മിസ്രിപ്പി (മിസ്രിപ്പി) തീയതി: 200, മിസ്രിപ്പി
(മിസ്രിപ്പി-1) തീയതി: 21.08.2022
 7. മിസ്രിപ്പി കമ്മീ പ്രിമിയം എസ്റ്റിമേറ്റ്.

മിസ്രിപ്പി ഓഫീസർ ഓഫീസർ പ്രൊഫഷണൽ മിസ്രിപ്പി, 100 രൂപകൾ - 360/7
(063.0), 100/24 (എച്ച്) (0400), 951/7 (1,74.8) എസ്റ്റി 951/7 (085.5) പ്രൊഫഷണൽ
മിസ്രിപ്പി 3,650 രൂപകൾ മിസ്രിപ്പി മിസ്രിപ്പി / മിസ്രിപ്പി മിസ്രിപ്പി മിസ്രിപ്പി കമ്മീ
എസ്റ്റിമേറ്റ് മിസ്രിപ്പി മിസ്രിപ്പി മിസ്രിപ്പി മിസ്രിപ്പി മിസ്രിപ്പി 10 രൂപകൾ/മിസ്രിപ്പി
കമ്മീ പ്രിമിയം എസ്റ്റിമേറ്റ് മിസ്രിപ്പി മിസ്രിപ്പി

சீரணி

செய்துள்ள லாபக்கூலி, கார்ப்புள்ளி உள்ள,

44. சீரணிப்பணிகளை மேற்கொள்ளும் 400 மீட்டர் 860/1,

999 0.63.00, லாபக்கூலி 4747, 400 மீட்டர் 860/2A

999 2.21.00, லாபக்கூலி 4747, கார்ப்புள்ளி 400 மீட்டர்

861/2, 999 0.88.50, லாபக்கூலி 942 கார்ப்புள்ளி

கார்ப்புள்ளி மீட்டர் கார்ப்புள்ளி உள்ள 2 மீட்டர்.

கார்ப்புள்ளி 400 மீட்டர் 860/1, 860/2A, கார்ப்புள்ளி 861/2

கார்ப்புள்ளி கார்ப்புள்ளி 300 மீட்டர் கார்ப்புள்ளி கார்ப்புள்ளி,

கார்ப்புள்ளி, கார்ப்புள்ளி கார்ப்புள்ளி கார்ப்புள்ளி

கார்ப்புள்ளி கார்ப்புள்ளி கார்ப்புள்ளி


(3/10/2012)
44, சீரணிப்பணிகளை மேற்கொள்ளும்
கார்ப்புள்ளி உள்ள

MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR MUTHALIPALAYAM ROUGH STONE AND GRAVEL QUARRY



(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED UNDER TAMIL NADU MINOR MINERAL
CONCESSION RULES, 1959)

Patta Land/ Lease period = Ten years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 3.66.0Ha
S.F.Nos. : 860/1, 860/2A(Part), 861/1 and 861/2
VILLAGE : MUTHALIPALAYAM
TALUK : KANGAYAM
DISTRICT : TIRUPPUR
STATE : TAMIL NADU

FOR

APPLICANT

THIRU. A. SELVARAJ,

S/o. Arumugam,

No. 2/147, Saralai Thottam, Mookkanangkottai,
Uthiyur Village, Kangayam Taluk,
Tiruppur District, Tamil Nadu State – 638 703.

PREPARED BY

Dr. P. THANGARAJU, M.Sc., Ph.D.,

Qualified Person

(As per Rule 15(1)(a) and (b) of MCR, 2016)

No.17, Advaita Ashram Road,

Alagapuram, Salem – 636 004.

Cell: +91 94422 78601 & 94433 56539.

E-Mail: infogeoexploration@gmail.com



A. SELVARAJ,
S/o. Arumugam,
No. 2/147, Saralai Thottam, Mookkanangkottai,
Uthiyur Village, Kangayam Taluk,
Tiruppur District, Tamil Nadu State – 638 703.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in respect of Muthalipalayam Rough stone and Gravel Quarry lease over an extent of 3.66.0 Ha of Patta Lands in S.F.Nos. 860/1, 860/2A(Part), 861/1 and 861/2 of Muthalipalayam Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared by

Dr. P. THANGARAJU, M.Sc., Ph.D.,

Qualified Person

I request the Assistant Director, Department of Geology and Mining, Tiruppur District to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

Dr. P. THANGARAJU, M.Sc., Ph.D.,

No.17, Advaita Ashram Road,

Alagapuram, Salem-636 004.

Cell: +91 94422 78601 & 94433 56539.

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

Signature of the Applicant

(A. Selvaraj)

Proprietor

Place: Tiruppur

Date: 28.09.2022



A. SELVARAJ,
S/o. Arumugam,
No. 2/147, Saralai Thottam, Mookkanangkottai,
Uthiyur Village, Kangayam Taluk,
Tiruppur District, Tamil Nadu State – 638 703.

DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in respect of Muthalipalayam Rough stone and Gravel Quarry lease over an extent of 3.66.0 Ha of Patta Lands in S.F.Nos. 860/1, 860/2A(Part), 861/1 and 861/2 of Muthalipalayam Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared in full consultation with me.

I have understood its contents and agree to implement the same in accordance with Laws, Rules and Act applicable to Quarry.

Signature of the Applicant

(A. Selvaraj)

Proprietor

Place: Tiruppur

Date: 07.10.2022



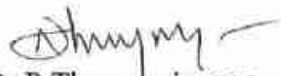
CERTIFICATE

Certified that I, **Dr. P. THANGARAJU**, M.Sc., Ph.D., having an office at Regd. Off. No. 17, Advaita Ashram Road, Alagapuram, Salem – 636 004, holding a Post Graduate in Geology (M.Sc. Geology) from Madras University, Chennai and I worked in the field of Geology in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 stipulates the eligibility for preparing Mining plans as “(I)(a) a post graduate degree in Geology granted by a university established” and (I)(b) “Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree”. Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

Accordingly, I am prepare this Mining Plan and Progressive Quarry Closure Plan in Respect of Muthalipalayam Rough stone and Gravel Quarry lease applied area over an extent of 3.66.0 Ha of Patta Lands in S.F.Nos. 860/1, 860/2A(Part), 861/1 and 861/2 of Muthalipalayam Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State for **Thiru. A. Selvaraj**, S/o. Arumugam, No. 2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State – 638 703. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person


Dr.P.Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 07.10.2022



Dr. P. THANGARAJU, M.Sc., Ph.D.,

No.17, Advaita Ashram Road,

Alagapuram, Salem – 636 004.

Cell: +91 94422 78601 & 94433 56539.

CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Muthalipalayam Rough stone and Gravel Quarry lease over an extent of 3.66.0 Ha of Patta Lands in S.F.Nos. 860/1, 860/2A(Part), 861/1 and 861/2 of Muthalipalayam Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared for

Thiru. A. Selvaraj,

S/o. Arumugam,

No. 2/147, Saralai Thottam, Mookkanangkottai,

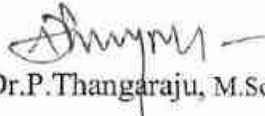
Uthiyur Village, Kangayam Taluk,

Tiruppur District, Tamil Nadu State – 638 703.

Whenever specific permissions / exemptions / relaxations and approvals are required, the Applicant will approach the concerned authorities of the Assistant Director, Department of Geology and Mining, Tiruppur District, Tamil Nadu for such permissions/ exemptions / relaxations and approvals.

It is also certified that information furnished in the above Mining plan are true and correct to the best of my knowledge.

Signature of the Qualified Person


Dr.P.Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 07.10.2022



Dr. P. THANGARAJU, M.Sc., Ph.D.,

No.17, Advaita Ashram Road,

Alagapuram, Salem-636 004.

Cell: +91 94422 78601 & 94433 56539.

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations and Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Muthalipalayam Rough stone and Gravel Quarry over an extent of 3.66.0 Ha of Patta Lands in S.F.Nos. 860/1, 860/2A(Part), 861/1 and 861/2 of Muthalipalayam Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared for

Thiru. A. Selvaraj,

S/o. Arumugam,

No. 2/147, Saralai Thottam, Mookkanangkottai,

Uthiyur Village, Kangayam Taluk,

Tiruppur District, Tamil Nadu State – 638 703.

Whenever specific permissions / exemptions / relaxations and approvals are required, the Applicant will approach the concerned authorities of Director of Mines Safety (DMS), No. 5, IInd Street, Block – AA, Anna Nagar, Chennai-40, Tamil Nadu for such permissions/exemptions/relaxations and approvals.

It is also certified that information furnished in the mining plan are true and correct to the best of my knowledge.

Signature of the Qualified Person

Dr.P.Thangaraju, M.Sc., Ph.D.,

Place: Salem

Date: 07.10.2022



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MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR MUTHALIPALAYAM ROUGH STONE AND GRAVEL QUARRY



(PREPARED UNDER RULES 41 & 42 AS PER THE AMENDED UNDER TAMIL NADU MINOR MINERAL
CONCESSION RULES, 1959)

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

The Mining Plan and Environmental Management plan is prepared for **Thiru. A. Selvaraj**, S/o. Arumugam residing at No. 2/147, Saralai thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State – 638 703.

The applicant applied to quarry Rough stone and Gravel for over an extent of 3.66.0 Ha of Patta Lands in S.F.Nos. 860/1, 860/2A(Part), 861/1 and 861/2 of Muthalipalayam Village, Kangayam Taluk, Tiruppur District for a period of Ten years under Rule 19 and 20 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the Assistant Director, Department of Geology and Mining, Tiruppur District and passed a Precise Area Communication letter vide **Rc.No. 122/Mines/2022, Dated: 26.09.2022** to submit Mining Plan for obtain approval from Department of Geology and Mining, Tiruppur District and obtain Environmental Clearance from the State Level Environment Impact Assessment Authority, Tamil Nadu for **over an extent of 3.66.0 Hectares of Patta Lands in S.F.Nos. 860/1, 860/2A(Part), 861/1 and 861/2 of Muthalipalayam Village, Kangayam Taluk, Tiruppur District for the period of Ten years** under Amended rules 19 and 20 of Tamil Nadu Minor Mineral Concession Rules, 1959 with the following conditions to provide (Refer Annexure No. I):

- A safety distance of 7.5 meters should be provided to the adjoining patta lands.
- A safety distance of 10 meters should be provided to the patta quarry situated on the Eastern side of the applied area while quarrying operation.

All the conditions stipulated in the precise area communication have been followed while preparing this Mining Plan.

In order to ensure compliance of the order of the Honourable Supreme Court Dated: 27.02.2012 in I.A.No.12.13.2011 in Special Leave Petition SLP (C) No 19628-19629/2009, it has been now decided that all mining projects of minor minerals including their renewal irrespective of sizes of the lease would hence forth require prior environmental clearance mining project within the lease applied area up to less than 100Ha including projects or minor mineral with lease applied area less then 5Ha would be treated as category B as defined in the EIA notification 2006 and will be considered by the state Competent Authority notified by MoEF & CC as prescribed procedure under EIA notification 2006

This Mining Plan is approved subject to the Conditions Indicated in the Mining Plan approved Letter No. 122/Mines/2022

Dated 14.10.2022

This Mining Plan is approved as per the Powers conferred under rule 41(2) of Tamil Nadu Minor Mineral Concession Rules, 1959

Assistant Director

Geology and Mining
TIRUPPUR

Muthalipalayam

Selvaraj

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In the above circumstances the applicant through his consultant is hereby preparing the Mining Plan along with Progressive Quarry Closure Plan for approval and subsequent submission of Form-I, Form-IM and Pre-feasibility report to obtain environmental clearance from the SEIAA, Tamil Nadu, Rough stone and Gravel quarry. This mining plan is prepared by considering the Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and its subsequent Amendment and judgments till 2022.

Short Notes of Mining plan:

- a. Village Panchayat - Muthalipalayam
- b. Panchayat Union - Kundadam
- c. The Total Geological Resources are **12,81,000m³** of Rough stone, **1,09,800m³** Weathered rock and **73,200m³** of Gravel in the entire area.
- d. The Total Mineable Reserves are **6,14,600m³** of Rough stone, **83,664m³** Weathered rock and **59,508m³** of Gravel in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are **6,14,600m³** of Rough stone, **83,664m³** Weathered rock and **59,508m³** of Gravel in the entire area for the period of **Ten years** (**2,69,600m³** of Rough stone for the period of first five years, **83,664m³** Weathered rock and **59,508m³** of Gravel for first three years in the entire area and **3,45,000m³** of Rough stone for the remaining five years period).
- f. Total extent of the lease applied area is about 3.66.0Ha.
- g. Topography of the area = The area is exhibits flat terrain
- h. Proposed Depth of mining = 40m (2m Gravel + 3m Weathered rock +35m Rough Stone) below ground level (upto 40m in a portion for first five years and 40m for Ten years in the remaining area).
- i. Lease Period = Ten years
- j. Mining Plan Period = Ten years
- k. It is a fresh lease applied area. At present the area is virgin hence, no existing pit.
- l. Method of mining / level of mechanization.
Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.
- m. Type of machineries proposed in the quarrying operation is given below.
Excavators attached with rock breaker (Rental Basis).
Jack hammer, Compressor (Diesel drive) (4 Jack Hammer capacity) (Rental Basis).
- n. No trees will be uprooted due to this quarry operation.
- o. The approach road from the main road to quarry will be constructed and the same will be maintained in a good condition for the haulage of quarry materials and machineries.
- p. There is No Export of this Rough stone, Weathered rock and Gravel.



- q. Topo sketch covering 10Km and 1Km radius around the proposed area with markings of habitations, water bodies including streams, rivers, roads, major structure like bridges, wells, archeological importance, and place of worship is marked and enclosed as Plate No. IA and IB.
- r. The lease applied area is about 3.66.0 Ha bounded by ten corners; the corners are designated as 1-10 clock-wise from the Southwest corner and the Co-ordinates for all the corners are clearly marked in the Quarry Lease and Surface Plan enclosed as Plate No-II.
- s. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are marked in the Topography, Geological Plan and Year wise Development and production Plan and sections enclosed as Plate Nos. III-A, III-B and V.
- t. The General conditions will not applicable for the proposed area. Based on the EIA Notification 2006 the general condition shall apply except mining of minor minerals category B2 (>5Ha of mining lease applied area) The area applied for quarry lease is 10Km away from the,
- i) Interstate Boundary,
 - ii) Protected area under wild life protection ACT, 1972,
 - iii) Critically polluted areas as identified by CPCB,
 - iv) Notified Eco sensitive areas.
- u. There is no waste anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- v. Around 32 employees are deploying in the quarrying operation.
- w. Total Cost of the project is about **Rs.2,96,28,000/-**.
- x. Infrastructures around the quarry lease applied area are given table below:

Table - 1

Particulars	Location	Approximate aerial distance from lease applied area.
Nearest Post Office	Muthalipalayam	1.6km – NE
Nearest School	Nochipalayam	4km – South
Nearest Dispensary	Thayampalayam	5km – West
Nearest Town	Kangayam	14km – NE
Nearest Police Station	Uthiyur	2km – NW
Nearest Govt. Hospital	Kangayam	14km – NE
Nearest D.S.P. Office	Kangayam	14km – NE
Nearest Railway Station	Tiruppur	33km – NW
Nearest Airport	Coimbatore	56km – NW
Nearest Seaport	Kochi	174km – SW
District Head quarters	Tiruppur	33km – NW

2.0 GENERAL INFORMATION

2.1 a) Name of the Applicant : **Thiru. A. Selvaraj,**
: S/o. Arumugam

b) Address of the Applicant (With Phone No and Aadhaar No.)

Address : No. 2/147, Saralai Thottam,
Mookkanangkottai, Uthiyur Village,
Kangayam Taluk
Tiruppur District.

Pin Code : 638 703

Mobile No : +91 98656 68228

Aadhaar No : 8412 6780 0199 (Refer Annexure No. VIII)

Email ID : sonybluemetal@gmail.com

c) Status of the Applicant (Individual / Company / Firm):

The applicant is an individual.

2.2 a) Mineral which the Applicant intends to mine:

The Applicant intends to quarry Rough stone, Weathered rock and Gravel.

b) Precise area communication letter details received from the Competent Authority of the Government:

The precise area communication letter was received from the Assistant Director, Department of Geology and Mining, Tiruppur District vide **Rc.No. 122/Mines/2022, Dated: 26.09.2022** (Refer Annexure No. I).

c) Period of permission / lease to be granted:

Ten years.

d) Name and address of the Qualified Person preparing the mining plan:

Name : Dr. P. Thangaraju, M.Sc., Ph.D.,
Qualified Person (As per Rule 15(I)(a) and (b) of MCR, 2016)

Address : No.17, Advaita Ashram Road,
Alagapuram,
Salem - 636 004.

Mobile : +91 94422 78601 & 94433 56539

Telephone No. : 0427- 2431989

Email : infogeoexploration@gmail.com

(Refer Annexure No. IX and X).





3.0 LOCATION

a) Details of the area with location map:

The lease applied area is located about 33km Southeast side of Tiruppur town, 14km Southwest side of Kangayam town and 1.6km Southwest side of Muthalipalayam Village.



Location Map of the Lease Applied area

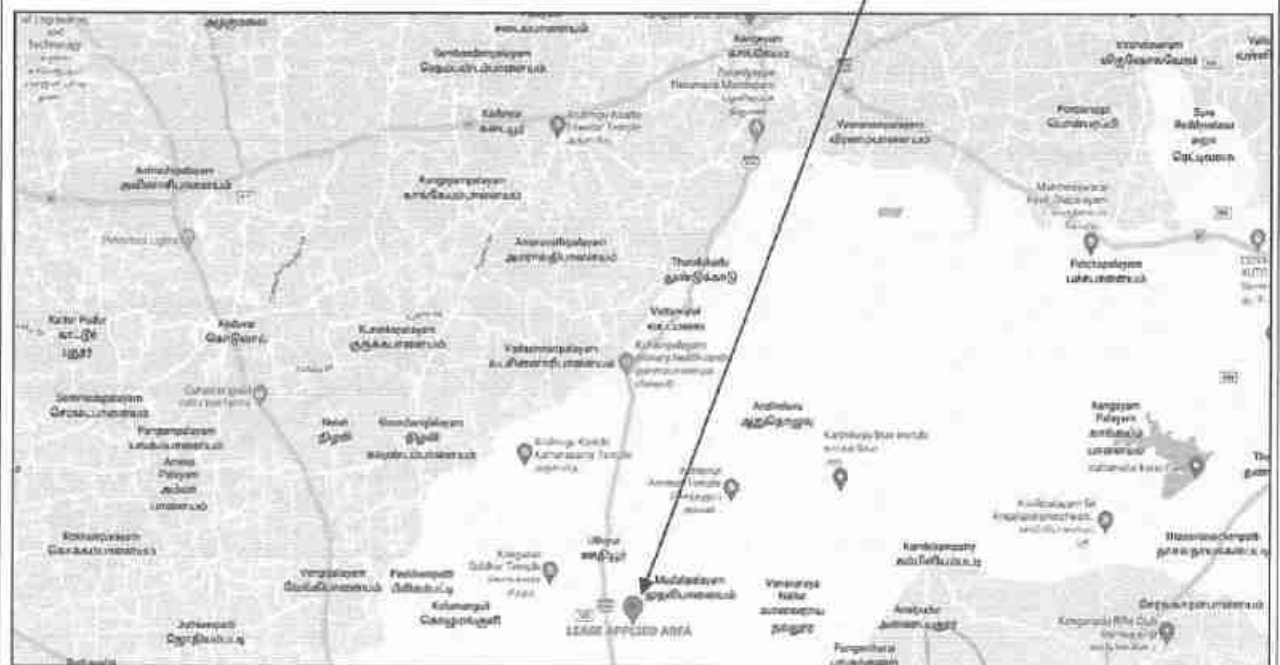
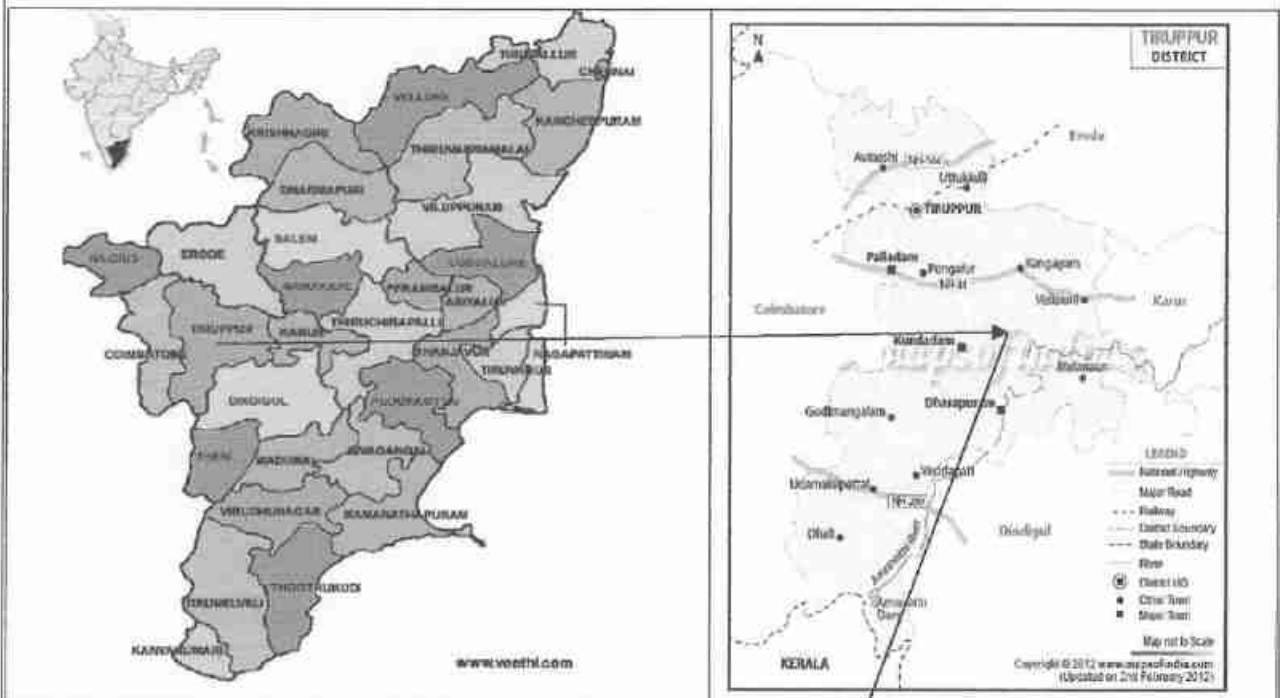


Table - 2

District	Taluk	Village	S.F. No.	Area in Ha.	Patta No.	Classification
Tiruppur	Kangayam	Muthalipalayam	860/1	0.63.0	4747	Patta lands (Refer Annexure No. IV to VI)
			860/2A(P)	0.40.0		
			861/1	1.74.5	942	
			861/2	0.88.5		
Total Extent				3.66.0		

b) Classification of the area (Ryotwari/ Poramboke / others):

It is a Patta land, classified as punjai (Ryotwari).

c) Ownership / Occupancy of the applied area (surface right):

It is a Patta land, registered in the name of Thiru. T. Jegadheeshwaran, S/o. Thangamuthu, (Refer Annexure No. IV to VI). The applicant has obtained consent from the pattadars for a period of Ten years from the date of execution of lease deed (Refer Annexure No. VII).

d) Toposheet No. with latitude and longitude:

The lease applied area falls in the Toposheet No. 58 F/09 Latitude between: 10°52'33.16"N to 10°52'40.05"N and Longitude between: 77°31'58.95"E to 77°32'05.92"E on WGS datum-1984 (Please refer the Plate Nos. I to II).

e) Existence of public road / Railway line, if any nearby and approximate distance:

The approach road is situated on the Eastern side of the applied area which is connects to the Kangayam - Dharapuram State Highway road situated at 600m on the Western side of the area.

Multiple road access is available from the quarry to state highways and National Highway, no towns are enrooted hence the traffic density is not much more due to the transportation of Rough stone and Gravel. The approach road from the quarry to main road is already existence and the same will be maintained and utilized for haulage, besides trees will be planted on the either side of the road to prevent dust and noise propagation to the nearby areas.

The Nearest Railway line is Tiruppur - Erode which is located at 33km on the Northwest side of the area.

PART - A**4.0 GEOLOGY AND MINERAL RESERVES****4.1 Brief description of the Topography and general Geology of the area (with plans):**

The lease applied area is flat terrain. The gradient is gentle towards Southeast side and altitude of the area is 265m above from Mean Sea level. The area is covered by 2m thickness of Gravel, 3m Weathered rock and followed by Massive Charnockite which is clearly inferred from the surface outcrops. The Water level in the surrounding area is 68m below general ground profile which is observed from the nearby bore wells and Average annual rainfall is about 618mm.

Topographical view of Muthalipalayam
Rough Stone and Gravel Quarry lease applied area





Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite body N45°E – S45°W with dipping towards SE60°.

The general geological sequences of the rocks in this area are given below:

↑	AGE	FORMATION
	Recent	- Quaternary formation (Gravel)
	-----Unconformity-----	
	Archaean	- Charnockite
		Peninsular Gneiss complex

4.2 Details of exploration already carried out if any:

State Geology and Mining Department, Govt. of Tamil Nadu, has carried out the Regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping in Tiruppur District. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area. The Rough stone formation is clearly inferred from the outcrops.

4.3 Estimation of Reserves:

a) Geological reserves with geological sections on a scale of 1:1000 / 1:2000

As far as Rough stone (Charnockite) is concerned, the only practical method is the systematic geological mapping and delineation of Rough stone within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.,

Totally two sections have been drawn, one section drawn vertically as (X-Y) length wise and another cross section horizontally as (A-B) width wise to cover the maximum area considered for lease up to 40m depth.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone (Charnockite) deposit has been prepared in the scale of Plan and Sections 1:1000 (please refer the Geological plan and sections Plate No. - III-A). As the sale of Rough stone are in terms of cubic meters (Volume) only and not in terms of tonnage.

**Geological Resources (Plate No. III-A):**

The Geological Resources of Rough Stone and Gravel Quarry are calculated to a maximum depth of 40m (2m Gravel + 3m Weathered rock + 35m Rough Stone) below from the existing ground profile. The total **Geological resources are calculated by area method**. The total geological resources are given below.

Total Extent of the area	:	3.66.0 Hectares
Area in square meter (3.66.0 x 10,000)	:	36,600m ²

Table – 3

GEOLOGICAL RESOURCES				
Area (m ²)	Depth (m)	Geological Resources of Rough stone in (m ³)100%	Weathered rock (m ³)	Gravel (m ³)
36600	2	-	-	73200
36600	3	-	109800	-
36600	35	1281000	-	-

Total Geological Resources of Gravel	:	73,200m ³
Total Geological Resources of Weathered rock	:	1,09,800m ³
Total Geological Resources of Rough Stone	:	12,81,000m ³

Mineable Reserves:

The mineable reserves are calculated after leaving the safety distance and Bench loss.

Table – 4

MINEABLE RESERVES							
Section	Bench	Length (m)	Width (m)	Depth (m)	Mineable Reserves of Rough stone @ 100% (m ³)	Weathered rock (m ³)	Gravel (m ³)
XY-AB	I	174	171	2	-	-	59508
	II	168	166	3	-	83664	-
	III	162	160	5	129600	-	-
	IV	152	150	5	114000	-	-
	V	142	140	5	99400	-	-
	VI	132	130	5	85800	-	-
	VII	122	120	5	73200	-	-
	VIII	112	110	5	61600	-	-
	IX	102	100	5	51000	-	-
Total					614600	83664	59508

Total Mineable Recoverable Reserves of Gravel	:	59,508m ³
Total Mineable Recoverable Reserves of Weathered rock	:	83,664m ³
Total Mineable Recoverable Reserves of Rough Stone	:	6,14,600m ³

The mineable reserves have been computed as 6,14,600m³ of Rough stone, 83,664m³ of Weathered rock and 59,508m³ of Gravel at the rate of 100% recovery upto a depth of 40m (2m Gravel + 3m Weathered rock + 35m Rough Stone) below from the general ground level for a period of Ten years.



5.0 MINING

5.1. Method of mining (opencast / underground):

Open cast Mechanized Mining is being carried out with 5.0 meter vertical bench with a bench width is not less than the bench height.

However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act - 1952.

5.2. Mode of working (mechanized, manual):

The Rough Stone is proposed to quarry at 5m bench height & width with conventional Opencast Mechanized Method.

The quarry operation involves shallow jack hammer drilling, slurry explosives in blasting, excavation, Loading and transportation of Rough stone to the needy crusher.

The production of Rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast mechanized method of mining.

5.3. Proposed Bench Height and Width:

The bench height is proposed maximum 5.0 meter vertical bench in Rough stone and width of the bench is not less than the Height.

5.4. Indicate the overburden / mineral production expected pit wise as detailed below (composite plan and section showing pit layout, dumps, disposal of waste if any etc.):

The overburden is in the form of Gravel and Weathered formation. The quarried out Gravel and Weathered material will be directly loaded into Truck for the filling and levelling of low lying areas, this will be done only after obtaining permission and paying necessary seigniorage fee to the Government. The excavated Rough stone will be directly loaded into Truck to the needy customers. The Composite year wise Development and production plan and sections indicating the Pit lay out, Green belt development are shown in Plate No. – III-A and III-B.



Year wise Development and Production Table

Table - 5

YEARWISE PROPOSAL FOR FIRST FIVE YEARS								
Section	Year	Bench	Length (m)	Width (m)	Depth (m)	Recoverable Reserve of Rough stone in(m ³)100%	Weathered rock (m ³)	Gravel (m ³)
XY-AB	I	I	64	171	2	-	-	21888
		II	58	166	3	-	28884	-
		III	52	160	5	41600	-	-
		Total				41600	28884	21888
	II	I	55	171	2	-	-	18810
		II	55	166	3	-	27390	-
		III	55	160	5	44000	-	-
		Total				44000	27390	18810
	III	I	55	171	2	-	-	18810
		II	55	166	3	-	27390	-
		III	55	160	5	44000	-	-
		Total				44000	27390	18810
	IV	IV	60	150	5	45000	-	-
		V	35	140	5	24500	-	-
		Total				69500	-	-
	V	V	15	140	5	10500	-	-
		VI	40	130	5	26000	-	-
		VII	30	120	5	18000	-	-
		VIII	20	110	5	11000	-	-
		IX	10	100	5	5000	-	-
Total				70500	-	-		
Grand Total for First Five years						269600	83664	59508

YEARWISE PROPOSAL FOR SECOND FIVE YEARS									
Section	Year	Bench	Length (m)	Width (m)	Depth (m)	Recoverable Reserve of Rough stone in(m ³)100%	Weathered rock (m ³)	Gravel (m ³)	
XY-AB	VI	IV	33	150	5	24750	-	-	
		V	33	140	5	23100	-	-	
		VI	33	130	5	21450	-	-	
		Total				69300	-	-	
	VII	IV	59	150	5	44250	-	-	
		V	35	140	5	24500	-	-	
		Total				68750	-	-	
	VIII	V	24	140	5	16800	-	-	
		VI	59	130	5	38350	-	-	
		VII	22	120	5	13200	-	-	
		Total				68350	-	-	
	IX	VII	70	120	5	42000	-	-	
		VIII	50	110	5	27500	-	-	
		Total				69500	-	-	
	X	VIII	42	110	5	23100	-	-	
		IX	92	100	5	46000	-	-	
		Total				69100	-	-	
	Grand Total for Second five years						345000	-	-
	Total Proposal For Ten Years						614600	83664	59508

Total Proposed Reserves of Gravel : 59,508m³
 Total Proposed Recoverable Reserves of Weathered rock : 83,664m³
 Total Proposed Recoverable Reserves of Rough Stone (10 years) : 6,14,600m³

The Recoverable reserves have been computed as **6,14,600m³** of Rough stone, **83,664m³** of Weathered rock and **59,508m³** of Gravel for at the rate of 100% recovery upto a depth of 40m (2m Gravel + 3m Weathered rock + 35m Rough Stone) below ground level for a period of Ten years for Rough stone and first three years for Gravel and weathered rock.

The applicant ensures the total quantity proposed in the benches will not exceed during the quarrying operation. Besides the rough stone locked up in benches will be exploited after obtaining necessary permission from the office of Director General of Mine Safety, Chennai region by submitting relevant documents, appropriate safety plans and its Mitigation measures.

One lorry load	=	12m ³ (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed in this Ten years plan period	=	6,14,600m ³
Hence total Lorry loads per day	=	6,14,600m ³ /12m ³
	=	51,217 Lorry loads
	=	51,217/10 years
	=	5,122/300
Rough Stone	=	17 Lorry loads per day
Lorry loads per day (Weathered rock)	=	83,664m ³ /12m ³
	=	6,972 Lorry loads
	=	6,972/3 years
	=	2,324/300
Weathered rock	=	8 Lorry loads per day
Lorry loads per day (Gravel)	=	59,508m ³ /12m ³
	=	4,959 Lorry loads
	=	4,959/3 years
	=	1,653/300
Gravel	=	6 Lorry loads per day
Working hours = 8.00 am to 5.00 pm (with 12.00-1.00 P.M. lunch break)		

5.5. Machineries to be used:

For Mining:

The following machineries are utilized for the development and production work at this quarry.

I. DRILLING MACHINE:

Table - 6

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack hammer	7	30-35	1.2m to 2.0m	Compressed air
2	Compressor	2	-	400 psi	Diesel Drive

**II. EXCAVATION & LOADING EQUIPMENT:**

S.No.	Type	Nos	Capacity	Motive Power
1	Excavator with Bucket and Rock Breaker	2	300	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

S.No.	Type	Nos	Capacity	Motive Power
1	Truck	4	35 tonnes	Diesel Drive

5.6. Disposal of Overburden/Waste:

The overburden is in the form of Gravel and Weathered formation. The quarried out Gravel and Weathered formation will be directly loaded into Truck for the filling and levelling of low lying areas. The excavated rough stone will be directly loaded into Truck to the needy customers. Hence, there is no Waste anticipated and disposal of waste does not arise.

5.7. Brief note on conceptual mining plan for the entire lease period base on the geological, mining and environmental considerations:

Conceptual mining plan is prepared with an object of long term systematic development of benches, layouts, selection of permanent structures, depth of quarrying and ultimate pit dimensions, selection of sites for construction of infrastructure, etc.,

The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.,

As the applicant has applied quarry lease for Ten years, the ultimate pit limit (dimension) at the end of this mining plan period is given below:

Table - 7

Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)
176	173	40 (Below Ground Level)

All the base line information studies like Air quality monitoring, Noise and vibration monitoring, Water analysis studies will be carried out every year as per the MoEF & CC Norms. Please refer Plate No. III-A and III-B.

It is proposed to engage any local institution to monitor the EIA and EMP during the course of quarrying operation after the grant of quarry lease.

There is no waste anticipated during the entire life of quarry. Hence, backfilling is not possible in this quarry. The quarry pit will be allowed to collect the seepage and rain water and the water storage will be kept as reservoir to charging the nearby wells and will be utilized for greenbelt development.

When the quarry reaches its ultimate pit limit or at the end of life of quarry, suitable soil type will be brought from outside and preserved over the quarried out top benches to facilitate the greenbelt development.

The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle (Refer plate no. IV and V).



6.0 BLASTING

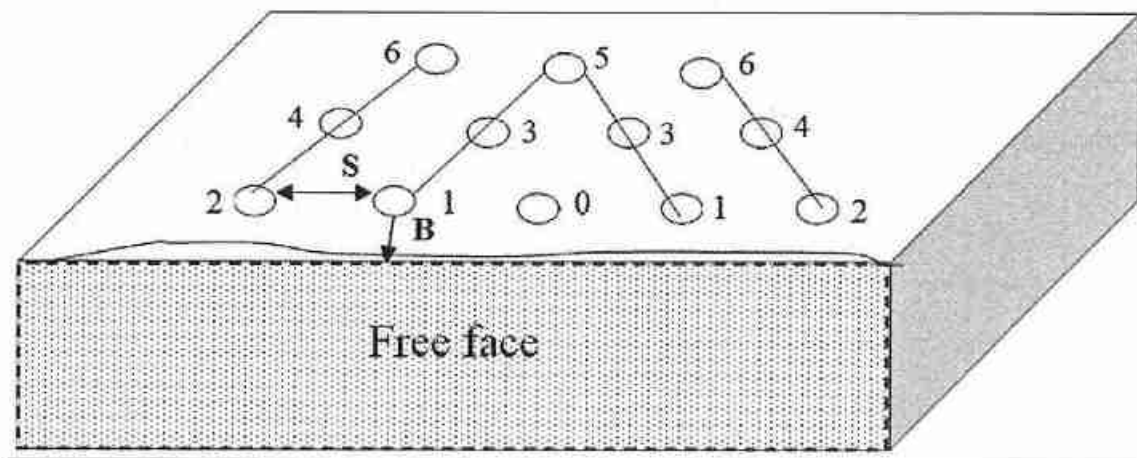
6.1 Blasting pattern:

The quarrying operation is proposed to be carried out by Mechanized Opencast Method in conjunction with conventional method of mining using Jack hammer drilling and blasting of shattering effect for loosen the Rough stone.

Drilling and blasting parameters are as follows:

Depth of Each hole	:	1.5m
Diameter of hole	:	30-32mm
Spacing between holes	:	1.2m
Burden for hole	:	1.0m
Pattern of hole	:	Zigzag – Multi-rows
Inclination of holes	:	80° from horizontal
Use of delay detonators	:	25millisecond relays
Detonating fuse	:	“Detonating” Cord

BLASTING PATTERN DRAWING



Staggered “V” Pattern of Blasting Design

Spacing	=	1.2m
Burden	=	1.0m
Depth of the hole	=	1.5m
No of holes proposed per day	=	178 Holes

6.2 Type of explosives to be used:

Small Dia. 25mm Slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of Rough stone. No deep hole drilling or secondary blasting is proposed.

6.3 Measures proposed to minimize ground vibration due to blasting:

The quarry is situated more than 300m away from the nearby villages, Controlled blasting measures is being adopt for minimizing ground vibration and fly rock.

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

Delay detonators:

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

The major advantages of delay blasting are:

- Reduction of ground vibration.
- Reduction in air blast.
- Reduction in over break.
- Improved fragmentation.
- Better control of fly-rock.

Blasting program for the production per day:

No of Holes	= 178 Holes
Yield	= 534 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 89 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.00 P.M – 1.00P.M.(whenever required)

6.4 Storage and safety measures to be taken while blasting:

The applicant will engage authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory foreman/Permit Mines Manager. The explosives agencies should be have the valid Blaster certificate. He will blast holes in the quarry site. After the completion of Blasting the explosives Agencies will take it out back the remaining quantity of Explosives.

7.0 MINE DRAINAGE**7.1 Depth of water table (based on nearby wells and water bodies):**

The water table in the area is about 68m which is observed from the nearby wells and the data obtained from existing private boreholes. The lease area is fully covered by Massive Charnockite formation and it is revealed from the outcrops. The quarry operation confined to well above the water table hence, the Ground Water problem will not arise. If water is encountered at due to rain water and seepage, the same will be drained out by 5HP motor pumps and the drained out water will be utilized for afforestation.

Table – 8

Type	Distance & Direction	Location
Bore Well	310m Northeast side	10°52'41.22"N 77°32'16.02"E



7.2 Arrangements and places where the mine water is finally proposed to be discharged:

The quarry operations are confined to well above the water table during the entire lease period. If water is encountered at quarry due to rain water and seepage, the same will be pumped out by 5HP water pump and discharge to the Green belt development areas. Besides, the water will also be used for dust suppression on haul roads during Haulage of machineries.

8.0 OTHER PERMANENT STRUCTURES (also shown in the map)

8.1 Habitations/ Villages natham:

There is no approved habitation situated within 300m radius from the lease applied area.

8.2 Power Lines (HT/LT):

There is no EB(LT/HT) line or Housing area situated within 50m radius of the area.

8.3 Water bodies (river, pond, lake, odai, canal, etc.):

There is no major water body like River, Pond, Canal, Lake, Reservoir located within 50m radius of the area.

8.4 Archaeological / historical monuments:

There is no Archaeological / historical monuments within 500m radius of the area.

8.5 Road (NH, SH others):

The Nearest National Highway (NH - 81) Trichy – Coimbatore Road is situated about 12km on the Northern side of the lease applied area.

The State Highway Kangayam – Dharapuram (SH-83A) Road is located about 600m on the Western side of the lease applied area.

8.6 Places of worships:

There is no place of worship within the radius of 300m from the lease applied area.

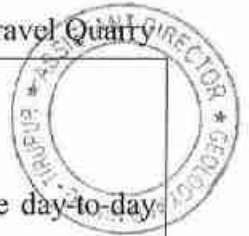
8.7 Reserved forest / forest / social forest / wild life sanctuary etc.:

There is no reserved forest / forest / social forest / wild life sanctuary etc., situated within 1km radius of the lease applied area.

SALIENT FEATURES

Table - 9

S. No.	Salient Futures Present around site	Prescribed safety distance	If any present within Prescribed distance - Actual Distance from the site			
			Direction	S.F.No.	Classification	Safety Distance
1.	Railways, Highways, Reservoirs or Canal	50m	There is no above features situated within 50m radius of the area.			
2.	Village Road	10m	There is no village road located within 10m radius.			
3.	Habitation / Village	300m	There is no approved habitation located within 300m radius of the lease applied area (Refer Plate No I-B). (Refer plate no. II).			
4.	Adjacent Patta/Govt. Land	7.5m/10m	North	858 and 859	Patta land	7.5m
			East	860/2A(P)	Patta land	10m to the quarry
			South	848 and 863	Patta land	7.5m
			West	862, 865 and 866	Patta land	7.5m
			(Refer Plate No. II).			
5.	Power House, EB line (HT & LT Line)	50m	There is no EB (LT/HT) line or Housing area situated within 50m radius of the area.			
6.	Boundaries of the permitted area	7.5m	The boundaries of the permitted areas as follows: North - S.F.Nos. 858 and 859 East - S.F.No. 860/2A(Part) South - S.F.Nos. 848 and 863 West - S.F.Nos. 862, 865 and 866 (Refer Plate No. II).			
7.	Reserve forest	1km	There is no reserved forest located within 1km radius of the lease applied area. Uthiyur R.F. - 1.5km - NW (Refer Plate No. IA).			
8.	Protected area / ECO sensitive area/ Wild Life Sanctuary/ Interstate Border	10km	There is no Wildlife Sanctuary/ ECO sensitive Zone/ Interstate Border/ Critically Polluted Area/ CRZ located within 10km radius of the area.			



9.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES

9.1 Employment potential (skilled, semi-skilled, un skilled):

The following manpower's are proposed in the mining plan to carry out the day-to-day quarrying activities, the same employment is maintaining aimed at the proposed production target and also to comply with the statutory provisions of the Metalliferous mines regulations, 1961.

a. Skilled labour:

Mine Foreman	:	1
Blaster/mate	:	1
Excavator – Operator & Driver	:	6
Jack hammer operator	:	14

b. Semi-skilled:

Security	:	1
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c. Unskilled:

Labour & Helper	:	3
Co-operator and Cleaner	:	6
Total	:	32

The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations. It is been ensured that the labour will not be employed less than 18 years, **No child labour** will engaged or entertained for any kind of quarrying operations. All the labours engaged for quarrying operations will be insured during the quarry lease period.

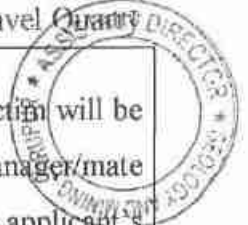
9.2 Welfare Measures:

a) **Drinking Water:**

Packaged drinking water is available from the nearby water vendors in Uthiyur which is situated at 2km on the Northwest side of the lease applied area.

b) **Sanitary Facilities:**

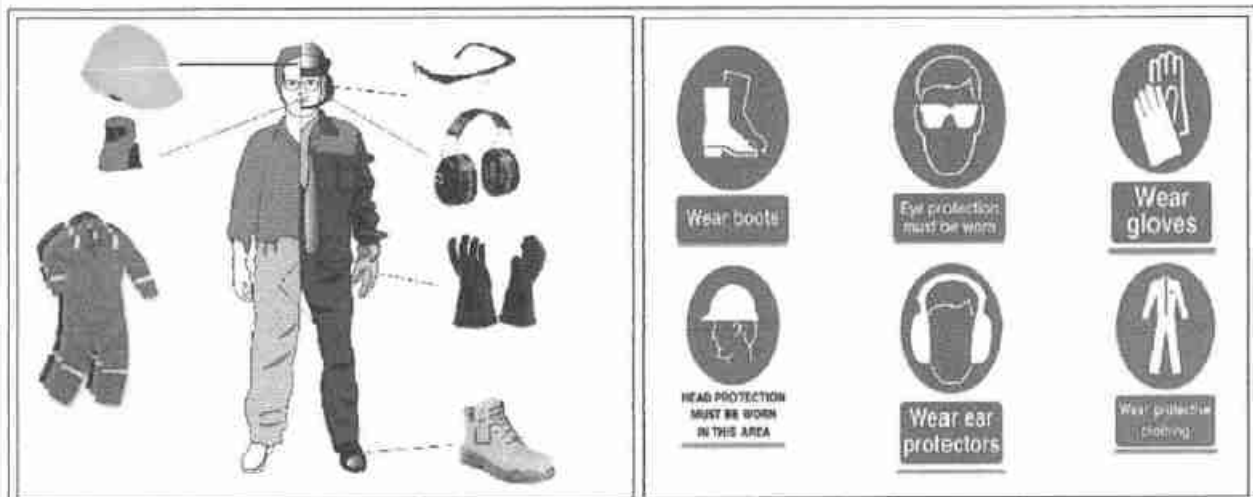
Hygienic modern Sanitary Facilities will be constructed with in the lease applied area as semi permanent structure and it will be maintained periodically.

**c) First aid facility:**

First aid kits are kept in Mines office room, in case of such eventuality is the victim will be given first aid immediately at the site by the competent and statutory foreman/permit manager/mate will be in charge of first aid and injured person will be taken to the hospital by the applicant's vehicle. Hospital is available in Kangayam located at a distance of 14km on the Northeast side.

d) Labour Health:

Periodically medical check-up related to occupational health safety will be conducted to all the workers in applicant own cost.

e) Precautionary safety measures to the labourers:

- Helmets,
- Mine Goggles,
- Ear plugs,
- Ear muffs,
- Dust mask,
- Reflector jackets
- Safety Shoes

All personnel protective devices will be provided as per the specification approved by Director of mines safety. Periodically medical check-up will be conducted for all workers for any mine health related problems. Proper training and vocational education will be given by qualified and experienced safety officer to all the employees about the safety and systematic Rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically, to carry out the quarrying operations scientifically and to safe guard the men and machinery and to create awareness about conventional opencast quarrying operations.

**PART – B****10.0 ENVIRONMENT MANAGEMENT PLAN****10.1 Existing Land use pattern:**

The quarry lease applied area is flat terrain. The area is a dry barren land devoid of Agriculture and Habitations. The land is previously did not used any specific purpose.

Land Use PatternTable – 10

Description	Present area in (ha)	Area utilized (%)
Area under quarry	Nil	-
Infrastructure	Nil	-
Roads	Nil	-
Green Belt	Nil	-
Unutilized	3.66.0	100
Grand Total	3.66.0	100


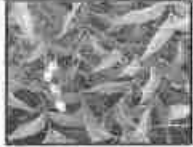



10.2 Water Regime:

It is a simple opencast quarry operation. The quality of water will not be affected due to this quarrying operation. However, mitigation measures will be carried out like Garland drains constructed on all sides of quarry pit to avoid surface run-off rain water entering into the pit.







The waste water discharged to water bodies will be met the standard prescribed under the Environment (Protection) Act – 1986 by The Ministry of Environment, Forest and Climate change.

10.3 Flora and Fauna:

Table - 11

S.No	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Cocos nucifera</i>	Arecaceae	Coconut, Thennai	Tree	
2.	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree	
3.	<i>Calotropis gigantea</i>	Apocynaceae	Erukku	Shrub	
4.	<i>Borassus flabellifer</i>	Arecaceae	Palm tree	Tree	
5.	<i>Senna auriculata</i>	Fabaceae	Avaram	Shrub	

List of Fauna

S.No.	Scientific Name	Common Name	Picture
1.	<i>Capra aegagrus hircus</i>	Goat	
2.	<i>Funambulus palmarum</i>	Squirrel	
3.	<i>Bos taurus</i>	Cow	
4.	<i>Danaus plexippus</i>	Striped tiger	
5.	<i>Corvus leuillanti</i>	Crow	
6.	<i>Gallus gallus domesticus</i>	Hen	

**10.4 Climatic Conditions:**

The area receives rainfall of about 618mm/annum and the rainy season is mainly from Oct - Dec during monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 21°C.

10.5 Human settlement:

There are few villages located within 5km radius of the area; the approximate distance, direction and populations are given below:

Table – 12

S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Muthalipalayam	1.6km – NE	2,200
2.	Uthiyur	2km – NW	3,200
3.	Thayampalayam	5km – West	4,300
4.	Nochipalayam	4Km – South	2,300

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc are available at Kangayam located at a distance of 14km on the Northeast side of the area.

10.6 Plan for air, dust suppression:

The air quality will be affected by the Suspended Particulate Matter (SPM) generated by the blasting, jack hammer drilling, Loading and unloading during the Rough stone quarry operation.

The following Mitigations measures will be carried out:

- Mist Water spraying will be carried out by means of water sprinklers to suppress the dust emission in the Haul roads.
- Vegetations will be formed on the non quarrying area.
- Avoiding spillages during the transportation.

Air quality will be monitored periodically as per Norms and Mitigate measures carried out to prevent dust and Air propagation in to air. The estimated budget for dust suppression would be around **Rs.52,000/year**.

10.7 Plan for Noise level control:

The noise level increased due to the Excavation, Drilling, Blasting and Transportation.

Engineering Noise control:

Noise will be created due to the usage of Machineries and Vehicles. The Noise will be controlled in the following manner.

- Selection of new low – noise equipments for the Rough stone quarry operation.
- Modifications of older equipments.
- Implementation of effective preventive maintenance which reduces noise more than 50%.
- Developing Green belts which act as Acoustic barrier, pollution absorbent and noise controller.
- The drivers will be strictly instructed to move the vehicle during the transportation not exceed 40km per hour.
- Sentries with flags & whistle will posted in village road junction and populated area to control and regulate traffic.

Shallow holes of 32mm diameter and maximum depth of 1.5m will be drilled and conventional low power explosives such as Slurry Explosives, ordinary safety fuse will be used for rough stone. Hence, ground vibration and noise pollution i.e., minimal and restricted within the quarry working area.

Noise level monitoring and other Mitigation measures will be carried out to reduce Noise and Vibration. The estimated budget for Noise level monitoring would be around **Rs. 2,000/Year**.

10.8 Environmental impact assessment statement describing impact of mining on the next Ten years:

In the mining plan proposed for a production of Rough stone does not involve deep hole drilling and blasting. Such limited mining activity is not likely to cause any impact adversely on the environment. As far as pollution of air, water and noise concerned, the environmental impact studies will be conducted as per EIA notification issued by MoEF& CC. It is B2 Category mine. The estimated budget would be around **Rs. 7,60,000/-**.

10.9 Proposal for waste management:

There is no waste anticipated in this Rough stone and Gravel quarrying operation. The entire quarried out materials will be utilized (100%). Hence, Waste management does not arise.

10.10 Proposal for reclamation of land affected during mining activities and at the end of mining (refilling / fencing etc.):

In the mining plan only to a maximum depth of 40m [2m Gravel + 3m Weathered +35m Rough stone] has been envisaged as workable depth for safe & economic quarry operation during entire lease applied area. When the quarry reaches its ultimate pit limit or at the end of life of quarry, suitable soil type will be brought from outside the same will be spread out over the quarried out top bench to facilitate the greenbelt development. There is no proposal for backfilling. However, the quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. The fencing cost would be **Rs. 2,40,000/-**.

10.11 Programme of Greenbelt development (indicate extend, number, name of species to be afforested):

The safety zone all along the boundary barrier has been utilized for Greenbelt development. Appropriate species of Neem, Pongamia pinnata, Casuarina, Thespesia populnea, etc., trees will be planted in a phased manner as described below.

Table – 13

Year	No. of trees proposed to be planted	Survival %	Area to be covered sq.m.	Name of the species	No. of trees expected to be grown
I	50	80%	310	Neem, Pongamia pinnata, Casuarina, Thespesia populnea, etc.,	40
II	50	80%	310		40
III	50	80%	310		40
IV	50	80%	310		40
V	50	80%	310		40
VI	50	80%	310		40
VII	50	80%	310		40
VIII	50	80%	310		40
IX	50	80%	310		40
X	50	80%	310		40

Nearly 3,100m² area is proposed to use under Greenbelt by planting 500 Numbers of trees during the lease period with an anticipated survival rate of 80% (Please refer Plate No. III-A and III-B). The estimated budget for plantation and maintenance of Green belt development would be around **Rs. 1,00,000/-** for the period of Ten years.

The Greenbelt will be carried out over all along the quarried out top benches and approach road. The cost would be around **Rs. 1,00,000/-** (Please refer Plate No. IV).

10.12 Proposed financial estimate / budget for (EMP) environment management:

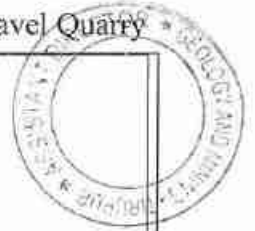
Budget Provision for the entire quarrying period:

Table – 14

S. No	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year
1	Ambient air quality monitoring	6500	4	26000	52000
2	Noise level monitoring	250	4	1000	2000
3	Ground vibration monitoring	1000	2	2000	4000
4	Water sampling and analysis	9000	1	9000	18000
Total EMP Cost/ year					76,000

The EMP cost would be around **Rs. 7,60,000/-** for the period of Ten years.

A. Project cost / investment		
i) Land cost	The Land value as per the Government Guideline land cost is calculated as follows, Total Extent = 3.66.0Ha Cost per Hectare = Rs. 4,14,500/- 3.66.0Ha x 4,14,500 = Rs. 15,17,070/- (source : https://tnreginet.gov.in/portal/)	Rs.15,17,000/-
ii) Machinery to be used	The following machineries are proposed to meet out the productions. 1. Excavator (2 Nos.) - 1,12,00,000 2. Truck (4 Nos.) - 1,20,00,000 3. Compressor (2 Nos.) - 18,00,000 4. Jack Hammer and loose tools. - 4,00,000	Rs.2,54,00,000/-
iii) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattle cost would be around	Rs.2,40,000/-
iv) Labourers shed	Labour sheds will be constructed as semi-permanent structure. The cost would be around	Rs. 3,00,000/-
v) Sanitary facility	Adequate latrine and urinal accommodation shall be provided at conveniently accessible places the cost would be around	Rs. 1,00,000/-
vi) Others items	First aid room & accessories	Rs. 50,000/-
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labors. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around	Rs.1,00,000/-
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	Rs.50,000/-
ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around	Rs.50,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	Rs.1,00,000/-
xi) Garland drain	Construction of Garland drain with check dam to prevent surface run-off rain water in to the quarry pit, the construction cost is around	Rs. 1,80,000/-
xii) Greenbelt etc.	Greenbelt development and maintenance will be carried out in the safety zone, the cost would be around	Rs.1,00,000/-
	Greenbelt program will be carried out in the quarried out top benches, approach road and Panchayat road.	Rs.1,00,000/-
Total Project Cost		Rs.2,82,87,000/-

**B. EMP Cost :- (Per year)**

Air Quality monitoring = Rs. 52,000/-

Water Quality Sampling = Rs. 18,000/-

Noise Monitoring = Rs. 2,000/-

Ground vibration test = Rs. 4,000/-

Total Cost = Rs. 76,000/-Total EMP Cost for the Ten years period is **Rs. 7,60,000/-****A+B =**

A. Project cost = Rs.2,82,87,000/-

B. EMP Cost = Rs. 7,60,000/-

Total Project Cost (A+B) = Rs.2,90,47,000/-

C. The applicant indents to involve corporate Environment responsibilities (CER) activity like Plantation, providing Water Purifier, Sanitary facilities to the Muthalpalayam Govt. School @ 2.0% from the total project cost, the cost would be around **Rs.5,81,000/-**.

Total Project cost = Rs. 2,90,47,000/-

CER Cost (2%) = Rs. 5,81,000/-

Total cost (A+B+C) = Rs. 2,96,28,000/-

(The Total cost of the project including EMP Cost is Rupees two crore ninety six Lakhs and twenty eight thousand only).



11.0 PROGRESSIVE QUARRY CLOSURE PLAN

11.1 Introduction:

The Progressive Quarry Closure Plan for Rough stone and Gravel quarry lease applied area over an extent of 3.66.0 Ha of Patta Lands in S.F.Nos. 860/1, 860/2A(Part), 861/1 and 861/2 of Muthalipalayam Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared for **Thiru. A. Selvaraj**, S/o. Arumugam residing at No. 2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State – 638 703.

11.2 Present Land use pattern:

Land Use Table – 15

Description	Present area (Ha)
Quarry Pit	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Unutilized Area	3.66.0
Grand Total	3.66.0

11.3 Method of Mining:

Open cast Mechanized Mining is being carried out with 5.0 meter vertical bench with a bench width is not less than the bench height for Rough stone.

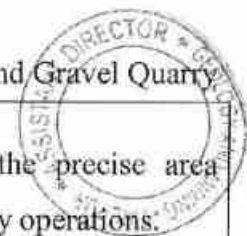
However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act – 1952.

11.4 Mineral Processing Operations:

The quarried out Rough stone will be transported by the 35 tonnes capacity Truck to the needy crushers. Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

11.5 Reasons for closure:

As the mineral is not going to be exhausted during the proposed plan period no immediate closure is planned due to sufficient reserves are available to carry on the activities. Hence, the reason for closure will be discussed in the ensuing mining plan or in final mine closure plan.

**11.6 Statutory obligations:**

The applicant ensures to comply all the conditions stipulated in the precise area communication letter before grant of quarry lease and during the course of quarry operations.

11.7 Progressive quarry closure plan preparation:

Name and address of the Qualified Person who prepared the progressive closure plan and name and address of the executing agency who is involved in the Preparation of progressive quarry closure plan.

Dr. P. THANGARAJU, M.Sc., Ph.D.,

Qualified Person

No.17, Advaita Ashram Road,

Alagapuram, Salem – 636 004.

Cell: 94433 56539, 94422 78601

The applicant will himself implement the closure plan; no outside agency will be involved.

11.8 Review of Implementation of Mining Plan including Progressive Closure Plan upto the Final Closure Plan:

Mining Plan and Progressive quarry closure plan are being submitted for the first time. It will be reviewed after Ten years and review of implementation will be given in the next mining plan or in Final Mine Closure Plan.

11.9 Closure Plan:**(i) Mined Out Land:**

At the end of mining plan period, about 3.07.0Ha of area will be mined out. Land use at various stages is given in the table below.

Land Use Table – 16

Description	Present area in (Ha)	Area required during the First Five years of the Plan period (Ha)	Area at the end of Lease period (Ha)
Area under quarry	Nil	3.07.0	3.07.0
Infrastructure	Nil	0.01.0	0.01.0
Roads	Nil	0.02.0	0.02.0
Green Belt	Nil	0.15.0	0.31.0
Unutilized Area	3.66.0	0.41.0	0.25.0
Grand Total	3.66.0	3.66.0	3.66.0

**(ii) Water quality management:**

Following control measures will be adopted for controlling water pollution:-

- Garland drain will be constructed around the quarry area to prevent surface runoff rainwater entering in to the pit.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- The quarried out pit will be allowed to collect rain and seepage water which will act as a reservoir for storage. This water storage will enhance the static level and ground water recharge of nearby wells and it will be used for agriculture purpose to the nearby agriculture lands.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

(iii) Air Quality Management:

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. Workers will be provided with personnel protective equipment like face-mask, earplug/ muffs.

For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

(iv) Top Soil and Waste Management:

There is no topsoil or Waste will be generated during the entire lease period, hence waste management does not arise.

(v) Disposal of mining machinery:

All the Machineries will be purchased by fresh condition and the same has been maintained in good condition during entire life of quarry. After completion of quarry operation, all the machineries will be utilized another quarry or sold out to second hand. Hence, disposal or decommissioning of mining machinery does not arise.

(vi) Safety & Security:

Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0 m for ease of operations and provide sufficient room for the movement of equipment.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipment shall be provided for use by the work persons.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations also proper signal by siren alarm will be provide to the public before blasting to prevent accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

(vii) Disaster Management and Risk Assessment:

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse, flying stones due to blasting etc.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.
- The quarried out benches, Greenbelt Development will be formed in all around the benches and safety barrier of the lease applied area.

(viii) Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:
 - Quarry roads and approach roads,
 - Fencing on approach roads,
 - Checking and maintenance of machines and equipment,
 - Drinking water arrangements,
 - Quarry office, first aid stations etc.
- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:

The quarry lease is granted for a period of Ten years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

(x) Time Scheduling For Abandonment:

The lease applied area has enormous potential for continuance of operations even after the expiry of the lease period. The details of time schedule of all abandonment will be given at the time of final closure plan.

(xi) Abandonment Cost:

As at present mining is not going to be closed so abandonment cost could not be assessed. However, based on the progressive quarry closure activities during the plan period, the cost is assessed as given below:

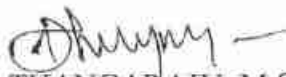
Table – 17

ACTIVITY		YEAR										RATE	COST (Rs.)
		I	II	III	IV	V	VI	VII	VIII	IX	X		
Plantation under safety zone	No. of sapling	50	50	50	50	50	50	50	50	50	50	@ Rs.200 Per sapling	1,00,000
	Cost	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000		
Plantation in quarried out top benches and approach road	No. of sapling	50	50	50	50	50	50	50	50	50	50	@ Rs.200 Per sapling	1,00,000
	Cost	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000		
Wire Fencing for 800 Mtrs length		240000	-	-	-	-	-	-	-	-	-	@300 Rs Per Meter	2,40,000
Garland Drain with settling traps for 600 Mtrs length		180000	-	-	-	-	-	-	-	-	-	@300 Rs Per Meter	1,80,000
Total												6,20,000	

12 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

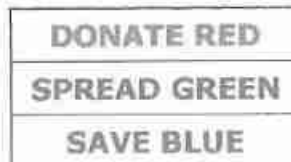
This Mining plan for Rough stone (Charnockite) and Gravel is under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied within the quarrying operation, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Concerned Department.

Prepared by


Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified person


Place: Salem

Date: 07.10.2022



This Mining Plan is approved subject to the Conditions Indicated in the Mining Plan approved Letter No. 122/Mines/2022 Dated 14.10.2022.

This Mining Plan is approved as per the Powers conferred under rule 41(2) of Tamil Nadu Minor Mineral Concession Rules, 1959


ASSISTANT DIRECTOR
Geology and Mining
TIRUPPUR


14.10.22



உதவி இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருப்பூர்.

ந.க. 122/கனிமம்/2022

நாள்: 26.09.2022.

குறிப்பாணை

பொருள்: கனிமங்களும் சுரங்கங்களும் - சிறுகனிமம் - சாதாரண கற்கள் கிராவல் - திருப்பூர் மாவட்டம் - காங்கயம் வட்டம் - முதலிபாளையம் கிராமம் - பட்டா புல எண்கள். 860/1 (0.63.0), 860/2ஏ (பகுதி) (0.40.0), 861/1 (1.74.5) மற்றும் 861/2 (0.88.5) ஆகியவற்றில் மொத்தம் 3.66.0 ஹெக்டார் பட்டா நிலப்பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் வெட்டியெடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம் கோரி திரு. ஏ. செல்வராஜ், த/பெ. ஆறுமுகம் என்பவர் விண்ணப்பம் அளித்தது - அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் சுற்றுச் சூழல் ஒப்புதல் பெற்று அளிக்க கோருதல் - தொடர்பாக.

- பார்வை:
1. திரு. ஏ. செல்வராஜ், த/பெ. ஆறுமுகம், 2/147, சரணைத் தோட்டம், மூக்கனங்கோட்டை, ஊதியூர் கிராமம், காங்கயம் வட்டம் என்பவரின் விண்ணப்பம் நாள்: 31.01.2022.
 2. காங்கயம் வட்டாட்சியர் கடிதம் ந.க. 798/2022/அ2, நாள்: 20.04.2022.
 3. தாராபுரம் வருவாய் கோட்டாட்சியர் கடிதம் ந.க. 604/2022/இ, நாள்: 10.06.2022.
 4. திருப்பூர், புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் அவர்களின் தணிக்கை குறிப்பு நாள்: 23.09.2022.
 5. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை ந.க. 1870/எம்.எம்.1/2020 நாள்: 10.08.2020 கடிதத்துடன் அரசாணை (பல்வகை) எண். 169, தொழில் (எம்.எம்.சி-1) துறை நாள்: 04.08.2020 இணைத்து வரப்பெற்றுள்ளது.
 6. அரசாணை (பல்வகை) எண். 208, தொழில் (எம்.எம்.சி-1) துறை நாள்: 21.09.2020
 7. மற்றும் உரிய ஆவணங்கள்.

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், முதலிபாளையம் கிராமம், புல எண்கள். 860/1 (0.63.0), 860/2ஏ (பகுதி) (0.40.0), 861/1 (1.74.5) மற்றும் 861/2 (0.88.5) ஆகியவற்றில் மொத்தம் 3.66.0 ஹெக்டார் பரப்பில் சாதாரண கற்கள் / கிராவல் குவாரி செய்ய உரிம வழங்கக் கோரி திரு. ஏ. செல்வராஜ், த/பெ. ஆறுமுகம் என்பவர் பார்வை 1-ல் கண்டுள்ளபடி உரிய ஆவணங்களுடன் விண்ணப்பம் அளித்துள்ளார்.



2. மேற்படி விண்ணப்பம் தொடர்பாக, காங்கயம் வட்டாட்சியர், தாராபுரம் வருவாய் கோட்டாட்சியர் மற்றும் திருப்பூர், புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு காங்கயம் வட்டம், முதலிபாளையம் கிராமம், புல எண்கள். 860/1 (0.63.0), 860/2ஏ (பகுதி) (0.40.0), 861/1 (1.74.5) மற்றும் 861/2 (0.88.5) ஆகியவற்றில் மொத்தம் 3.66.0 ஹெக்டர் பரப்பில் திரு. ஏ. செல்வராஜ், த/பெ. ஆறுமுகம் என்பவருக்கு சாதாரண கற்கள் / கிராவல் குவாரி உரிமம் வழங்க கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

- புலத்தை சுற்றி அமைந்துள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரி பணிபுரிய வேண்டும்.
- விண்ணப்பப் புலத்தின் கிழக்குப் பகுதியில் அமைந்துள்ள பட்டா குவாரிக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி அளித்து குவாரிப்பணி புரிய வேண்டும்.

எனவே, காங்கயம் வட்டாட்சியர், தாராபுரம் வருவாய் கோட்டாட்சியர் மற்றும் திருப்பூர், புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் ஆகியோர்களின் பரிந்துரைகளின் அடிப்படையில் திரு. ஏ. செல்வராஜ், த/பெ. ஆறுமுகம் என்பவருக்கு காங்கயம் வட்டம், முதலிபாளையம் கிராமம், புல எண்கள். 860/1 (0.63.0), 860/2ஏ (பகுதி) (0.40.0), 861/1 (1.74.5) மற்றும் 861/2 (0.88.5) ஆகியவற்றில் மொத்தம் 3.66.0 ஹெக்டர் பரப்பில் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959-இன் விதி எண். 19 (1) (b), 20 மற்றும் 33-ன்படி குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றப்பட்ட நாளிலிருந்து 10 ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக மேற்காணும் நிபந்தனைகளுக்கு உட்பட்டு திருப்பூர் உதவி இயக்குநரால் ஏற்பளிக்கப்பட்ட சுரங்கத் திட்டம் மற்றும் மாநில சுற்றுச் சூழல் அமைப்பிடம் இருந்து பெறப்பட்ட சுற்றுச்சூழல் ஒப்புதல் ஆகியன உரிய காலத்திற்குள் விண்ணப்பதாரால் பெற்றளிக்கப்பட வேண்டும் என தெரிவிக்கப்படுகிறது.

U. Selvaraj 26/9/22
உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருப்பூர்.

பெறுநர்

திரு. ஏ. செல்வராஜ், த/பெ. ஆறுமுகம்,
2/147, சரளைத் தோட்டம்,
மூக்கனங்கோட்டை, ஊதியூர் கிராமம்,
காங்கயம் வட்டம்.

26/9/22

ഉപപേര് : മു. ബാലമണി

ഹാൻഡ് : 861

ANNEXURE

പാർട്ട് : (32)

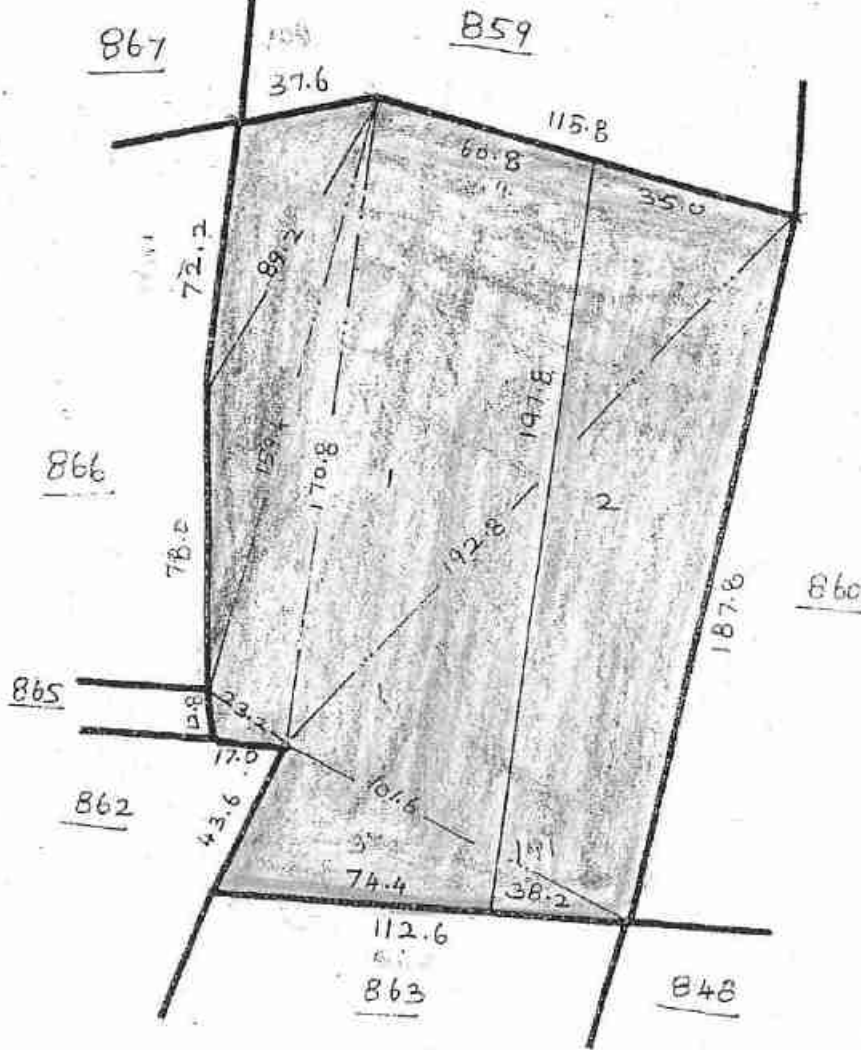
കിരാനി.

പ്രധാന

പട്ടിക : മു. ബാലമണി



മാതൃ
ബുക്ക്



മു. ബാലമണി
 2/01/2022

LEASE APPLIED AREA

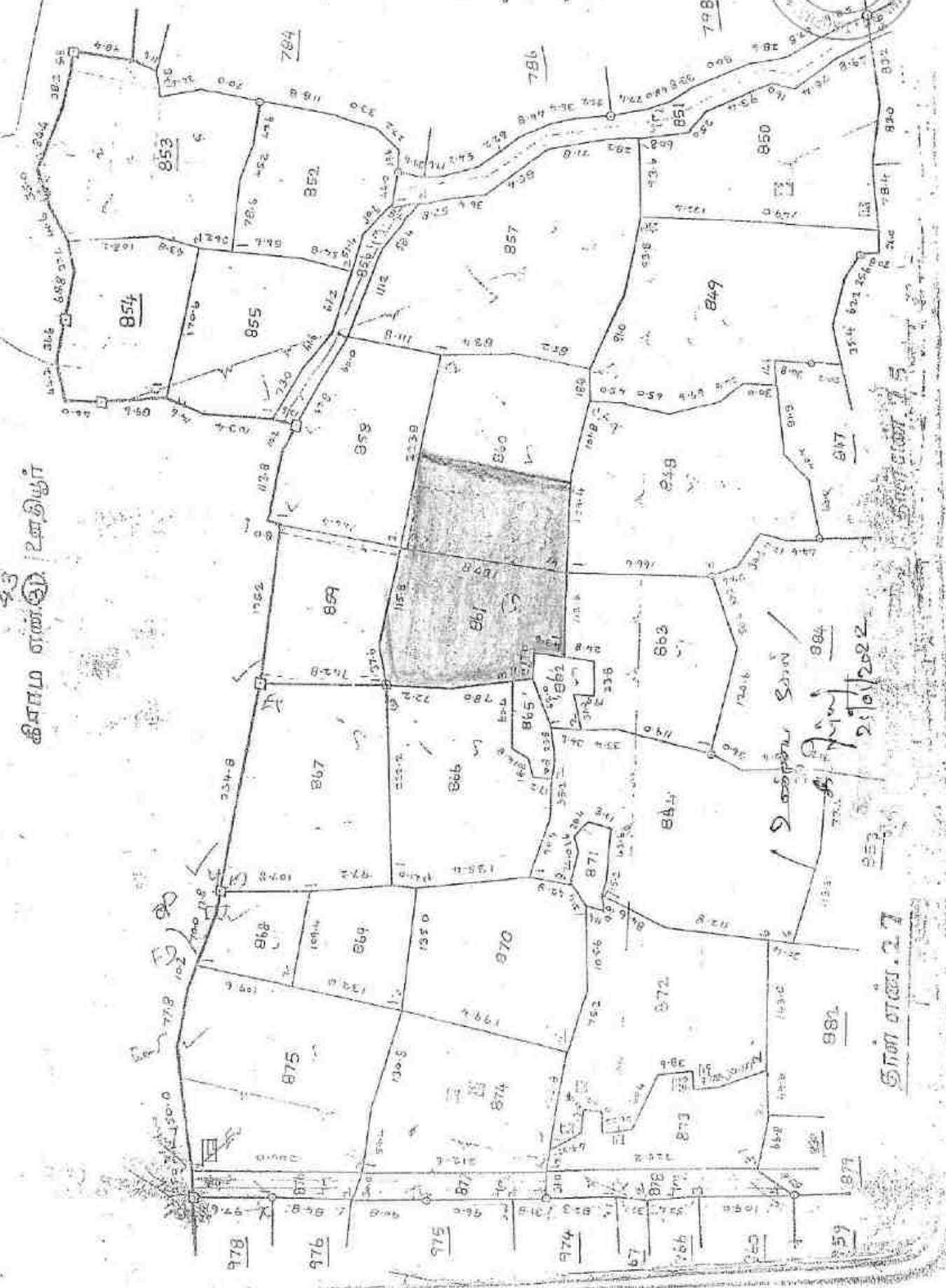
മു. ബാലമണി
 M. Balamani
 20/3/84.

അളവ് : 1MM : 2000MM.

മു. ബാലമണി
 123

Sheet of Nos. 24

கிளாம என்.இ. பிளாட்டர்



சென்னை சாலை
 25/10/2022

Sheet of Nos. 27

LEASE APPLIED AREA



தமிழக அரசு

வருவாய்த் துறை

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



மாவட்டம் : திருப்பூர்

வட்டம் : காங்கயம்

வருவாய் கிராமம் : முதலிபாளையம்

பட்டா எண் : 4747

உரிமையாளர்கள் பெயர்

1. தங்கமுத்து மகன் ஜெகதீஸ்வரன்

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	
860	1	0 - 63.00	0.87	--	--	--	--	2018/0103/32/120020- -- -- 12-06-2018
860	2A	2 - 21.00	3.10	--	--	--	--	2018/0103/32/120020- -8A/65/1415 -- 12-06- 2018
		2 - 84.00	3.97					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 32/05/044/04747/60422 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 19-01-2022 அன்று 02:29:08 PM 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

மாவட்டம் : திருப்பூர்

வட்டம் : காங்கயம்

வருவாய் கிராமம் : முதலிபாளையம்

பட்டா எண் : 942

உரிமையாளர்கள் பெயர்

1. தங்கமுத்து

மகன்

ஜெகதீஸ்வரன்

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	
861	2	0 - 88.50	1.22	--	--	--	--	2019/0103/32/180475- -- -- 28-05-2019
861	1	1 - 74.50	2.41	--	--	--	--	2019/0103/32/193842- -- -- 05-08-2019
		2 - 63.00	3.63					

குறிப்பு2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 32/05/044/00942/110475 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 19-01-2022 அன்று 02:31:05 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : திருப்பூர்

வட்டம் : காங்கயம்

கிராமம் : முதலிபாளையம்

1. புல எண்	860	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	1	10. மண் தரம்	6
3. பழைய புல உட்பிரிவு எண்	860	11. தீர்வை (ரூ - தொ)	1.38
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 63.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.87
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	4747
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.ஜெகதீஸ்வரன்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 100422 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

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அ-பதிவேடு விவரங்கள்



மாவட்டம் : திருப்பூர்

வட்டம் : காங்கயம்

கிராமம் : முதலிபாளையம்

1. புல எண்	860	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	2A	10. மண் தரம்	6
3. பழைய புல உட்பிரிவு எண்	860	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	2 - 21.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	3.10
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	4747
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1. ஜெகதீஸ்வரன்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 100422 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : திருப்பூர்

வட்டம் : காங்கயம்

கிராமம் : முதலிபாளையம்

1. புல எண்	861	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	1	10. மண் தரம்	6
3. பழைய புல உட்பிரிவு எண்	861	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 74.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.41
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	942
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.ஜெகதீஸ்வரன்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 100475 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : திருப்பூர்

வட்டம் : காங்கயம்

கிராமம் : முதலிபாளையம்

1. புல எண்	861	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	2	10. மண் தரம்	6
3. பழைய புல உட்பிரிவு எண்	861	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 88.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.22
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	942
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.ஜெகதீஸ்வரன்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 100475 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

1430 - ஆம் பசலியில்

சீர்திருத்தம்

மாவட்டம்

கோயம்புதூர்

வட்டம்



நில வரித் திட்டத்தின்படி புலன்களின் விபரம்.					கைப்பற்று தாரகுடைய பெயரும் என்னும் அல்லது ஆண்போக தாரகுடைய பெயர்.	சாகுபடி யாளரின் பெயர்.	முதல் போகம்.					
(1)	(2)	(3)	(4)	(5)			(7)	(8)	(9)	(10)	(11)	(12)
861	1	1.74.50	2.41	942	சீர்திருத்தம்		7		7		1	
861	2	0.82.50	1.22	942	சீர்திருத்தம்		7		7		1	
860	1	0.630	0.84	4744	சீர்திருத்தம்		7		7		1	
860	2A	2.210	3.10	4744	சீர்திருத்தம்		7		7		1	
<p>சீர்திருத்தம்</p> <p>31/01/2022</p> <p>44, சீர்திருத்தம்</p>												



தமிழ்நாடு தமிழ்நாடு TAMIL NADU

28 JAN 2022

94AB 209967

T.M. செந்தில்நாதன்
உரிமம் எண் - 13/2000
முத்திரைத்தான் விற்பனையாளர்
திருப்பூர்.

சம்மதக் கடிதம்

திருப்பூர் மாவட்டம், தாராபுரம் வட்டம், ஊதியூர் வழி, தாயம்பாளையம் அஞ்சல், கொழுமுங்குழி கிராமம், ஓரம்பப்பதூர், கதவு எண். 4/28, என்ற முகவரியில் வசிக்கும் தங்கமுத்து மகன் டி. ஜெகதீஸ்வரன் (1) ஆகிய நான் திருப்பூர் மாவட்டம், காங்கயம் வட்டம், ஊதியூர் கிராமம், மூக்கனங்கோட்டை, 2/147, சரளைத் தோட்டம் என்ற முகவரியில் வசிக்கும் ஆறுமுகம் மகன் செல்வராஜ் (2) ஆகிய உங்களுக்கு எழுதிக் கொடுக்கும் சம்மதக் கடிதம் என்னவென்றால்.

S. TANHSELVAM a.c.s. sl.
ADVOCATE & NOTARY PUBLIC
Enroll No. : Ms 1778/2005
Gharapuram Road, VANNAVAYAM - 638 701.
Tirupur Dt. TN. Call : 84436 21727



திருப்பூர் மாவட்டம், காங்கயம் வட்டம், முதலிபாளையம் கிராமம், புல எண். 860/1 (0.63.0), 860/2ஏ (2.21.0), 861/1 (1.74.5) மற்றும் 861/2 (0.88.5) ஆகிய பட்டா பூமிகள் பட்டா எண். 4747 மற்றும் 942-ன்படி நம்மில் (1) இலக்கமிட்டவர் பெயரில் தனிப்பட்டவாக தாக்கலாகியுள்ளது.

மேற்படி பூமியில் நம்மில் (2) இலக்கமிட்ட செல்வராஜ் என்பவர் சாதாரண கற்கள் / கிராவல் மண் வெட்டியெடுக்க விண்ணப்பம் செய்துள்ளார். மேற்படி புலத்தில் துணை இயக்குநர் (கனிமம்) அவர்களால் அனுமதி வழங்கும் நாளிலிருந்து பத்து வருட காலத்திற்கு குவாரிக் குத்தகை உரிமம் வழங்க (1) இலக்கமிட்ட எனக்கு எவ்விதமான ஆட்சேபணையும் இல்லை. பின்னிட்டு எவ்வித பிரச்சனையும் செய்யமாட்டேன். முழுமனதுடன் சம்மதம் அளிக்கிறேன் என உறுதி கூறுகிறேன்.



[Handwritten signature]



A - ரஜ்வேந்த்



G. TAMILSELVAM
G. TAMILSELVAM Esq., B.L.
ASSOCIATE & NOTARY PUBLIC
Enrollment No. : No. 12289/2005
Thiruvannamalai Road, KARAIKAL - 605 001
Tiruppur St., TN. Cell : 94420 27777



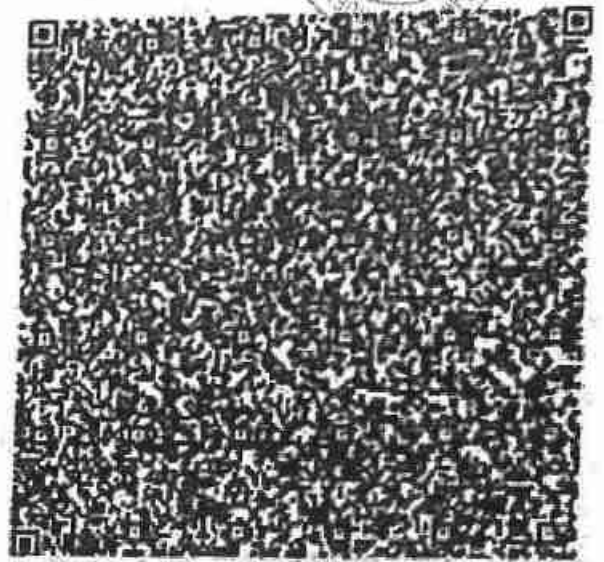
உத்திய தனியுரிமை அமைப்பு
Unique Identification Authority of India



Download Date: 28/03/2022

முகவரி:
ஆறுமுகம், 2/147, முக்கணங்கோட்டை,
ஊதியூர், ஊதியூர், திருப்பூர்,
தமிழ்நாடு - 638703

Address:
Arumugam, 2/147, Mookanangottal, Uthiyur,
Uthiyur, Tiruppur,
Tamil Nadu - 638703



8412 6780 0199

VID : 9142 4571 2347 3611

☎ 1847



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www.uidai.gov.in



உத்திய தனியுரிமை அமைப்பு
Government of India



15/04/2016



செல்வராஜ் ஆ
Selvaraj A
பிறந்த நாள்/DOB: 05/04/1991
ஆண்/ MALE

8412 6780 0199

VID : 9142 4571 2347 3611

எனது ஆதார். எனது அடையாளம்

197



GOVERNMENT OF INDIA
MINISTRY OF LABOUR AND EMPLOYMENT
OFFICE OF THE DIRECTOR GENERAL OF EMPLOYMENT

Certificate of Practical experience granted by the Manager to candidate for a Manager's
Surveyor's / Foreman's / Overman's / Suda's / Mine / Shaft / Fire's Blower's Certificate of
competency (Restricted) examination under the Metalliferous Mines Regulations 1961.

I, T.VENKATARAJAGOPALAN being the Mines Agent of M/S. LIMENAPH
CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Thamali
Limestone Mine) do hereby certify that Thiru P.THANGARAJU, son of
S.PERIASAMY (whose signature is appended) worked as a Geologist in the above mine
from 02.05.1994 to 30.12.1999. During his term of work aforesaid, he has obtained practical
experience as detailed overleaf. The duties connected with his work have involved continuous
attendance at the mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper candidate to be examined for
Certificate of Competency.

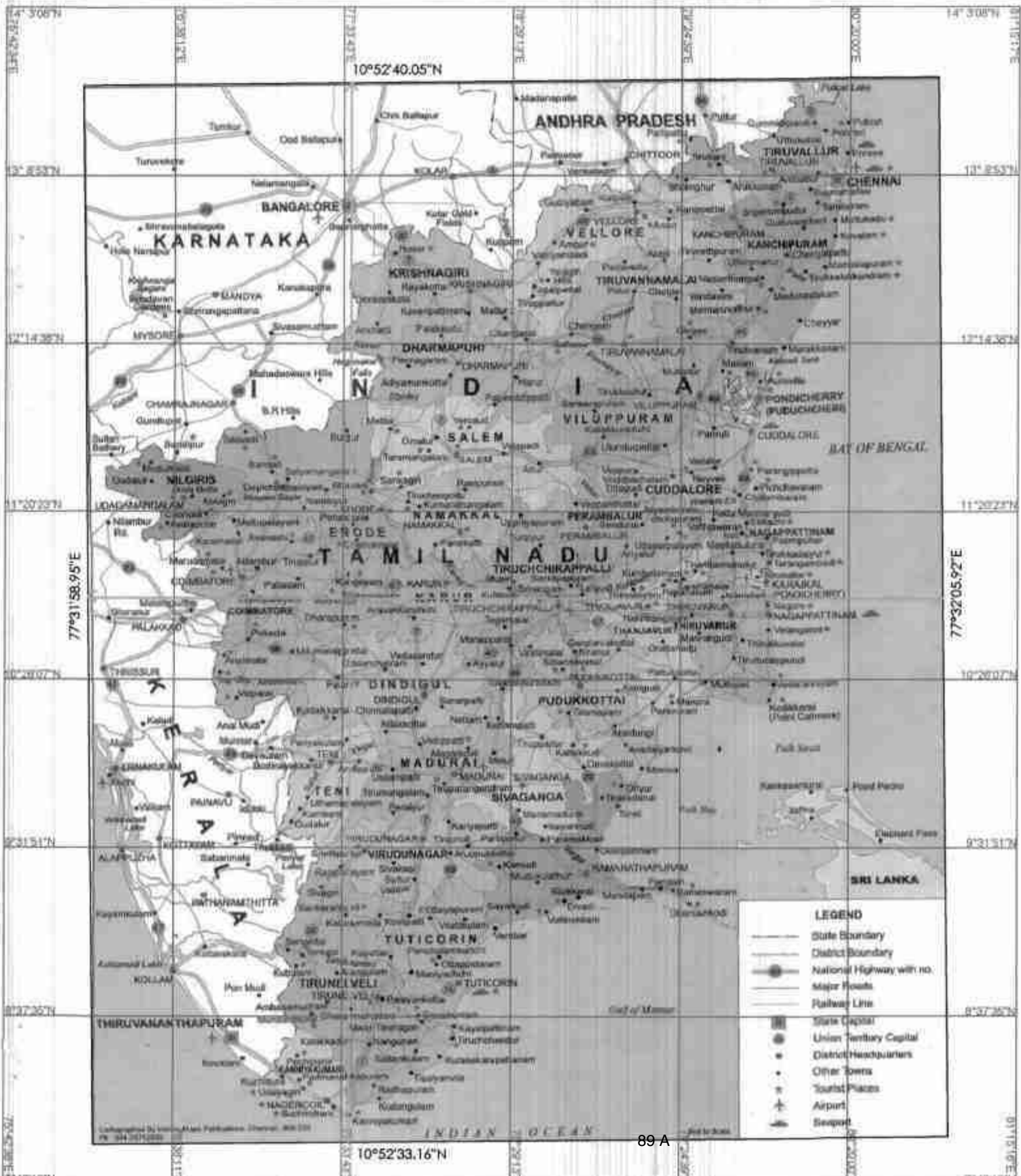
[Signature]
18/10/01
Agent for
(Signature with date and official Seal)
T.VENKATARAJAGOPALAN

Mines Agent:

P.O. : ARUKANGULAM
District : TIRUNELVELI
State : TAMIL NADU

[Signature]
(Signature of Candidate)

(State name of Mineral) : LIMESTONE



INDEX

Q.L.APPLIED AREA: ●
 TOPO SHEET NO. : 58 F/09

LATITUDE : 10°52'33.16"N to 10°52'40.05"N
 LONGITUDE : 77°31'58.95"E to 77°32'05.92"E

APPLICANT :

Thiru. A. SELVARAJ,
 S/o. ARUMUGAM,
 No. 2/147, SARALAI THOTTAM,
 MOOKANANGKOTTAI,
 UTHIYUR VILLAGE, KANGAYAM TALUK,
 TIRUPPUR DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.Nos : 860/1, 2A(P), 861/1 & 861/2,
 EXTENT : 3.66.0 Ha.
 VILLAGE : MUTHALPALAYAM,
 TALUK : KANGAYAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMIL NADU.

PLATE NO - I

DATE OF SURVEY : 30.09.2022

LOCATION PLAN

SCALE: 1:24,00,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLATE IS TRUE AND CORRECT TO THE BEST OF MY
 KNOWLEDGE BASED UPON THE LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT.

(Signature)
 Dr. P. THANGARAJU, M.Sc.P.H.D.,
 QUALIFIED PERSON

LEGEND

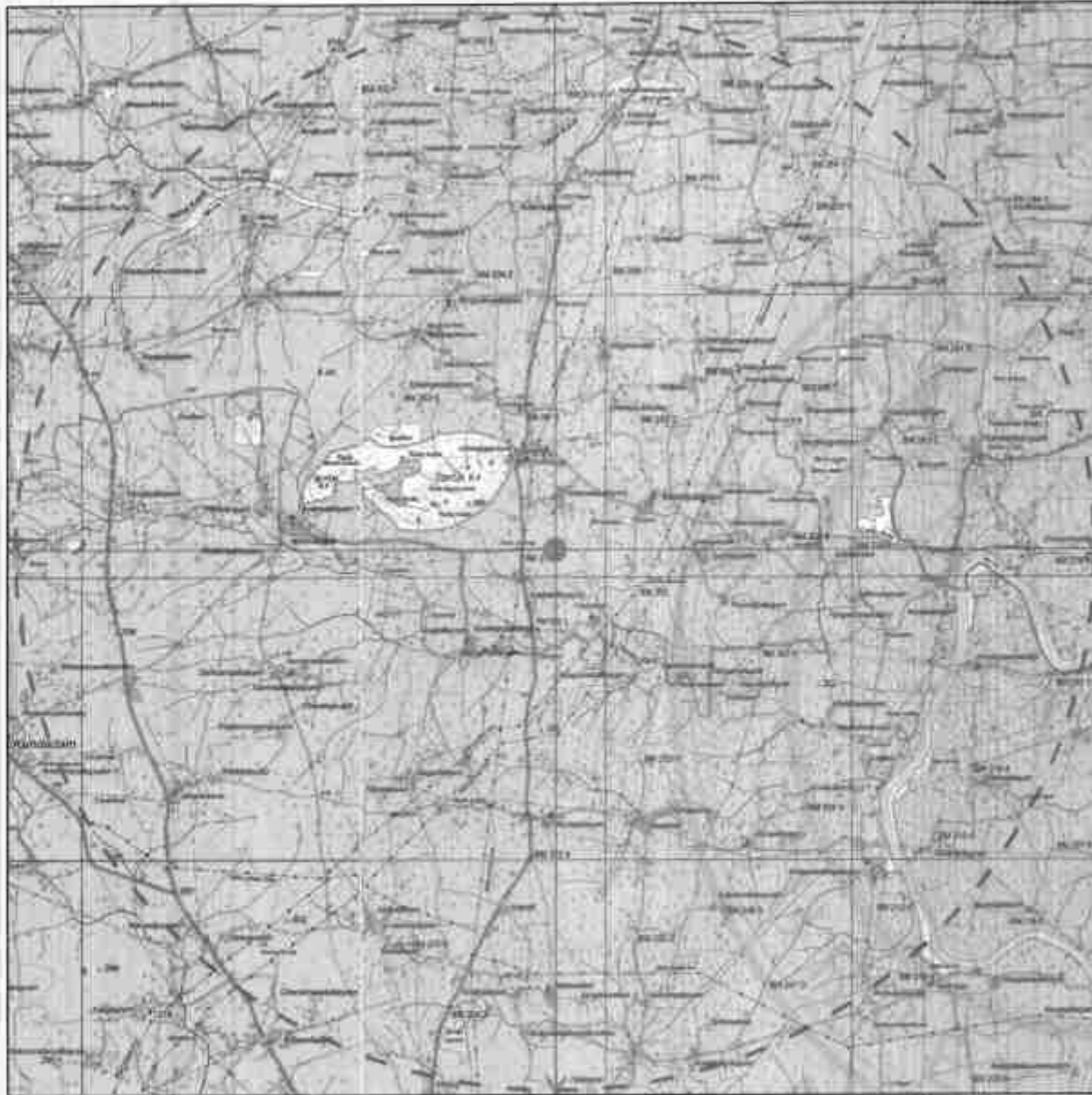
	State Boundary
	District Boundary
	National Highway with no.
	Major Roads
	Railway Line
	State Capital
	Union Territory Capital
	District Headquarters
	Other towns
	Tourist Places
	Airport
	Seaport

137



10° 58' 05.31"N

77° 26' 29.86"E



10° 47' 07.89"N

77° 37' 34.99"E

Express highway; with toll; with bridge; with distance stone.....	
Roads metalled; according to importance.....	
Roads, double carriageway; according to importance.....	
Unmetalled road. Cart-track. Pack-track with pass. Foot-path.....	
Streams: with track in bed; undefined. Canal.....	
Dams: masonry or rock-filled; earthwork. Weir.....	
River; dry with water channel; with island & rocks. Tidal river.....	
Submerged rocks. Shoal. Swamp. Reeds.....	
Wells: lined; unlined. Tubewell. Spring. Tanks; perennial; dry.....	
Embankments: road or rail; tank. Broken ground.....	
Railways, broad gauge: double: single with station; under constm.....	
Railways, other gauges: double; single with distance stone; do.....	
Mineral line or tramway. Kin. Cutting with tunnel.....	
Contours with sub-features. Rocky slopes. Cliffs.....	
Sand features: (1) flat. (2) sand-hills(permanent). (3) dunes(shifting).....	
Towns or Villages: inhabited; deserted. Fort.....	
Huts: permanent; temporary. Tower. Antiquities.....	
Temple. Chhatra. Church. Mosque. Idgah. Tomb. Graves.....	
Lighthouse. Lightship. Buoys: lighted; unlighted. Anchorage.....	
Mine. Vias on trails. Grass. Scrub.....	
Palms: palmyra; other. Plantain. Conifer. Bamboo. Other trees.....	
Areas: cultivated; Wooded. Surveyed trees.....	
Boundary, international.....	
Boundary, state: demarcated; undemarcated.....	
Boundary, district; subdivision; taluk or taluk; forest.....	
Boundary pillars: surveyed; unlocated.....	
Heights, triangulated: station; point; approximate.....	
Bench-mark: geodetic; tertiary; canal.....	
Post office. Telegraph office. Overhead tank.....	
Rest house or inspection bungalow. Circuit house. Police station.....	
Camping Ground. Forest: reserved; protected.....	
Spaces names: administrative; locality or tribal.....	
Hospital. Dispensary. Veterinary; Hospital/Dispensary.....	
Aerodrome. Helipad. Tourist site.....	
Powerline: with pylons surveyed; with poles unsurveyed.....	



1:200	1:500	1:1000	1:2000	1:5000	1:10000	1:25000	1:50000	1:100000	1:250000	1:500000	1:1000000
BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5
BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5
BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5
BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5	BM 63.5

APPLICANT :

Thiru. A. SELVARAJ,
S/o. ARUMUGAM,
No. 2/147, SARALAI THOTTAM,
MOOKANANGKOTTAI, UTHIYUR VILLAGE,
KANGAYAM TALUK, TIRUPPUR DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.No. : 860/1, 2A(P), 861/1 & 861/2
EXTENT : 3.66.0 Ha,
VILLAGE : MUTHALIPALAYAM,
TALUK : KANGAYAM,
DISTRICT : TIRUPPUR,
STATE : TAMIL NADU.

PLATE NO - I-A

DATE OF SURVEY : 30.09.2022

**TOPO SKETCH OF QUARRY LEASE
APPLIED AREA FOR 10Km RADIUS**

SCALE: 1:1,00,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

(Signature)

Dr. P. THANGARAJU, M.Sc, Ph.D.,
QUALIFIED PERSON

TOPO SHEET NO. : 58 F/09

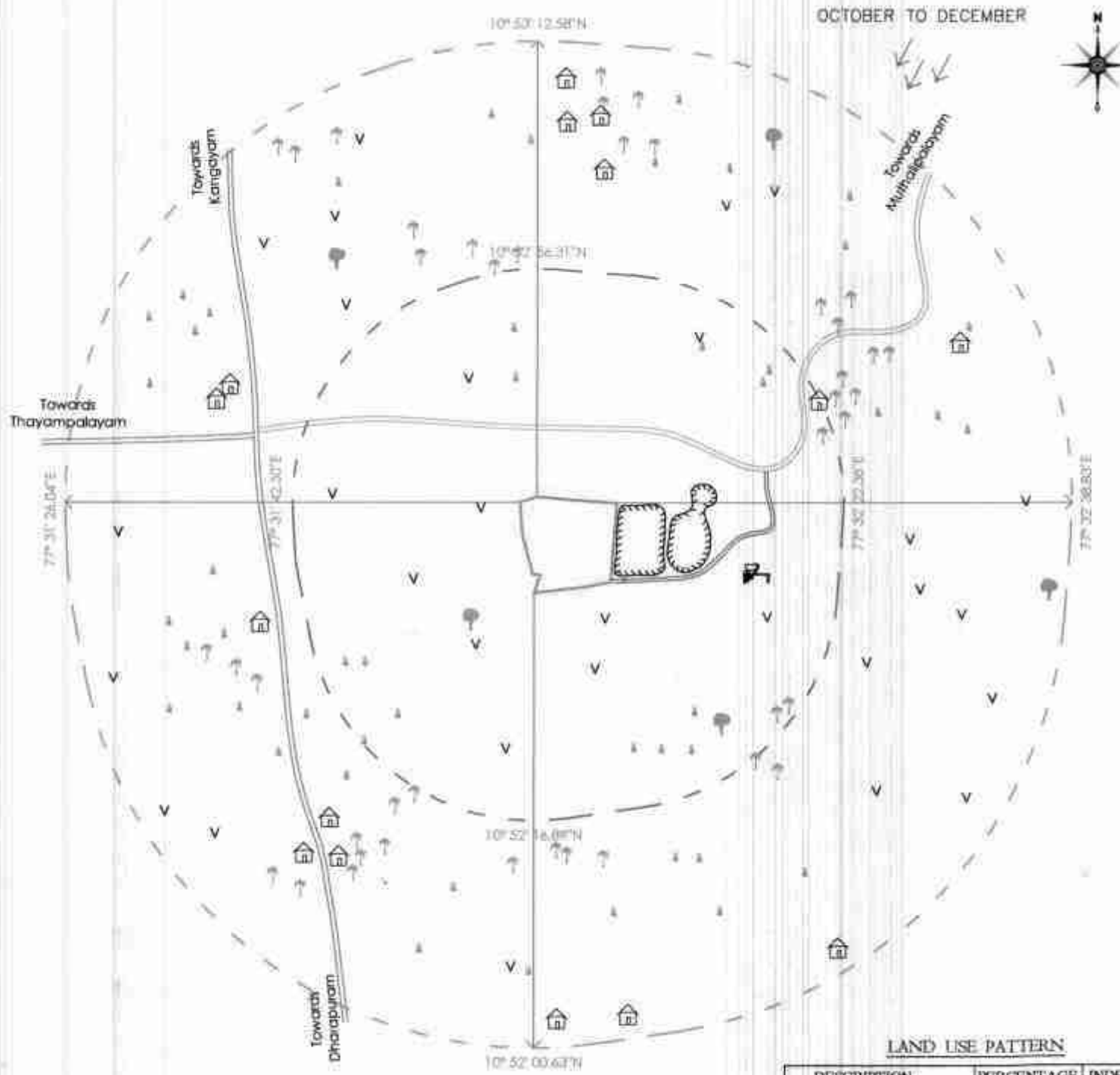
LATITUDE : 10°52'33.16"N to 10°52'40.05"N
LONGITUDE : 77°31'58.95"E to 77°32'05.92"E

10km RADIUS :

Q.L. APPLIED AREA :

90 A

130



OCTOBER TO DECEMBER



JULY TO SEPTEMBER

TOPO SHEET NO. : 58 F/09
 LATITUDE : 10°52'33.16\"/>

91 A

LAND USE PATTERN

DESCRIPTION	PERCENTAGE	INDEX
QUARRY PIT&CRUSHER	(03%)	
TREES	(07%)	
SEASONAL AGRILAND	(29%)	
ROADS	(07%)	
HABITATION	(06%)	
BARREN LAND	(48%)	
TOTAL	100%	

INDEX

- Q.L. APPLIED AREA
- 1 Km RADIUS
- 500m RADIUS
- SEASONAL AGRICULTURE LAND
- TREES
- HABITATION
- QUARRY PIT & CRUSHER
- WIND DIRECTION
- PANCHAYAT ROAD
- APPROACH ROAD
- SH ROAD
- MAJOR DISTRICT ROAD
- BARREN LAND



APPLICANT :

Thiru. A. SELVARAJ,
 S/o. ARUMUGAM,
 No. 2/147,SARALAI THOTTAM,
 MOOKANANGKOTTAL,
 UTHIYUR VILLAGE, KANGAYAM TALUK,
 TIRUPPUR DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.Nos : 860/1, 2A(P), 861/1 & 861/2.
 EXTENT : 3.66.0 Ha.
 VILLAGE : MUTHALIPALAYAM,
 TALUK : KANGAYAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMIL NADU.

PLATE NO - I-B

DATE OF SURVEY : 30.09.2022

ENVIRONMENTAL & LAND USE PLAN

SCALE: 1:10,000

PREPARED BY :

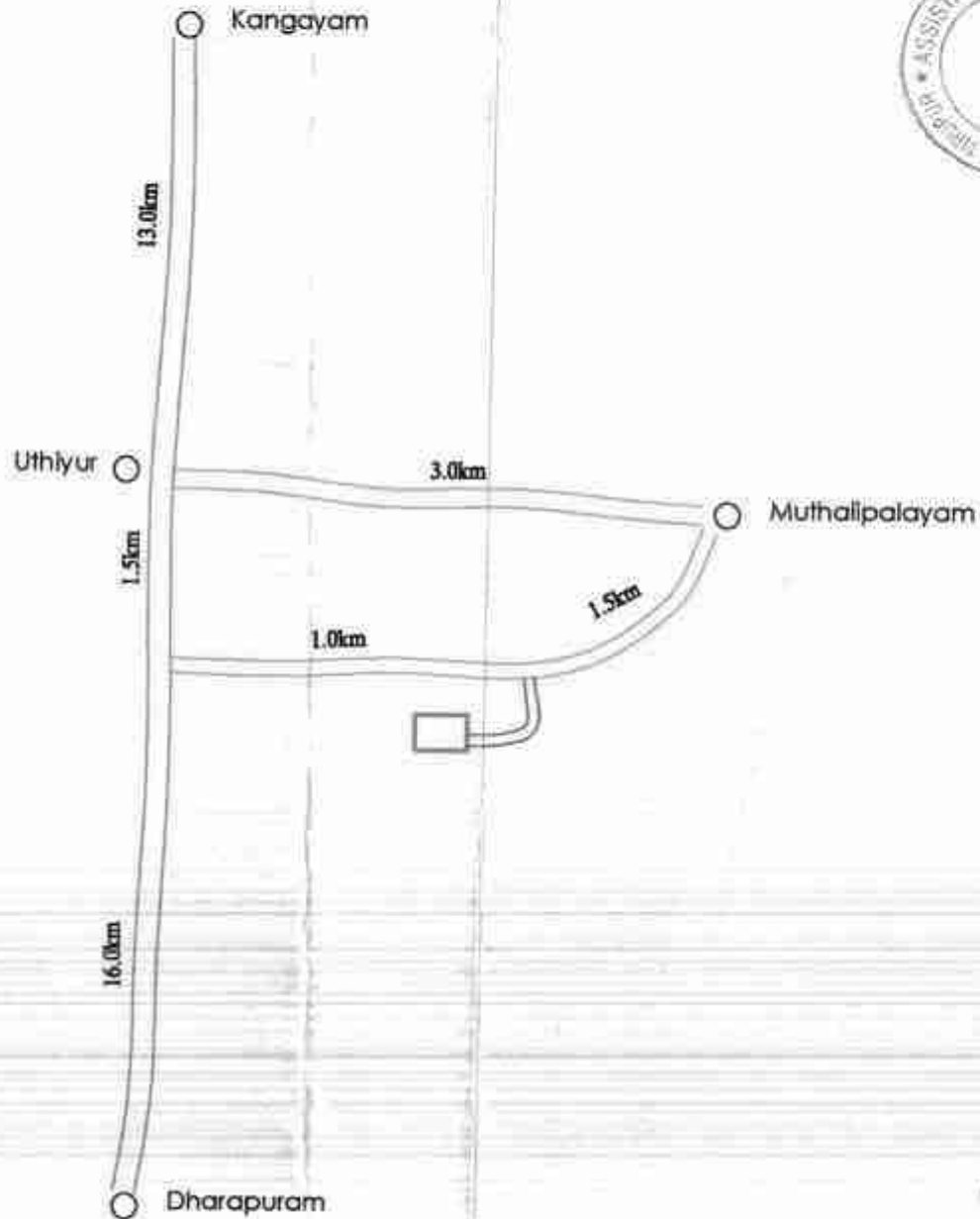
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE, BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

(Signature)
 Dr.P.TRANDARAJU,M.Sc,Ph.D.,
 QUALIFIED PERSON





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PLATE NO : I-C

ROUTE MAP



INDEX

- LEASE APPLIED AREA 
- SHROAD 
- PANCHAYAT ROAD 
- APPROACH ROAD 

APPLICANT :

Thiru. A. SELVARAJ,
S/o, ARUMUGAM,
No. 2/147, SARALAI THOTTAM,
MOOKANANGKOTTAL,
UTHIYUR VILLAGE,
KANGAYAM TALUK,
TIRUPPUR DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.Nos : 860/1,2A(P),
861/1&861/2.
EXTENT : 3.66.0 Ha,
VILLAGE : MUTHALIPALAYAM,
TALUK : KANGAYAM,
DISTRICT : TIRUPPUR,
STATE : TAMILNADU.

SCALE :

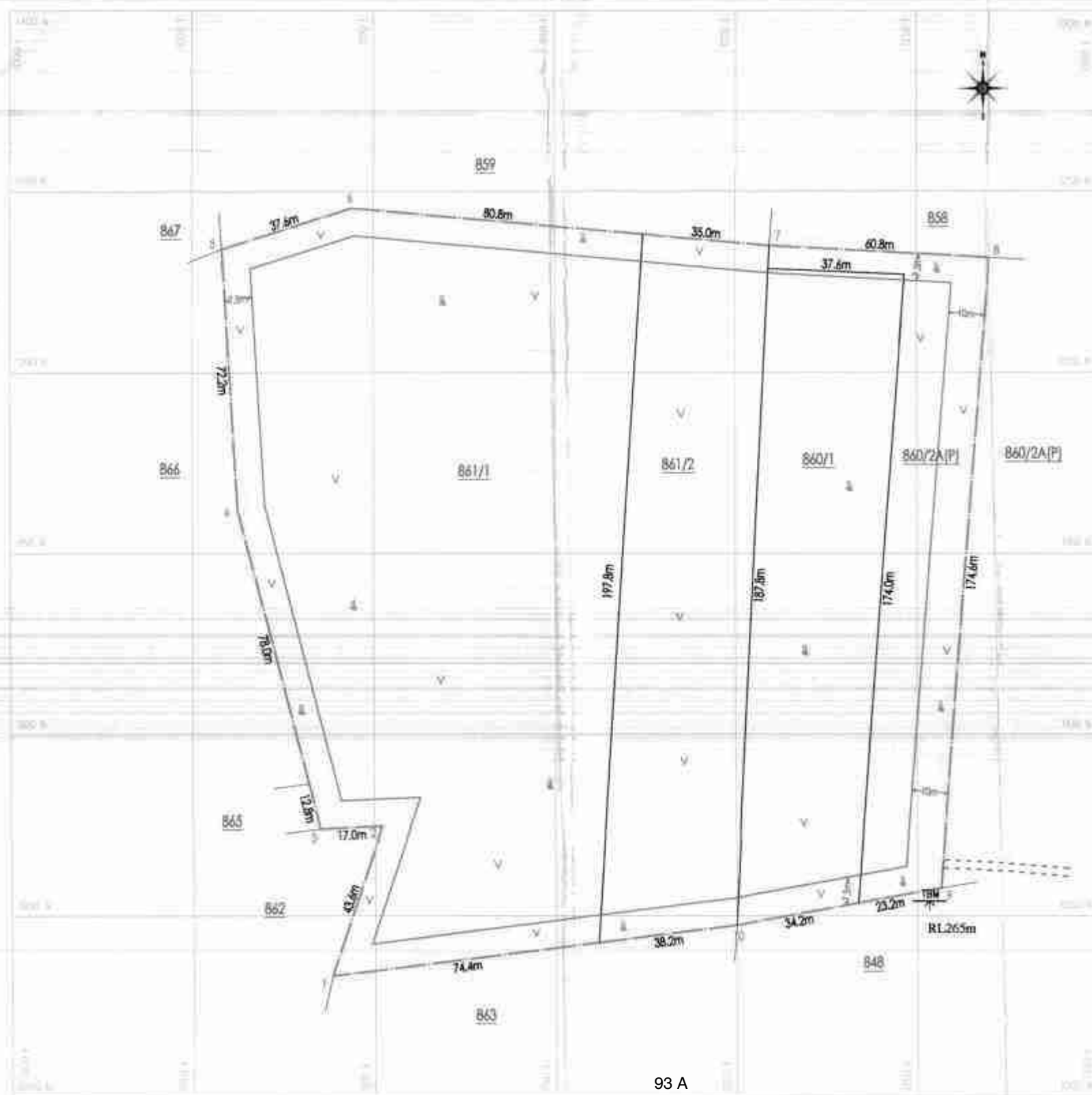
NOT TO SCALE

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT


Dr. P. THANGARAJU, N. Sc., Ph.D.,
QUALIFIED PERSON

140



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 52' 20.16"N	77° 31' 59.80"E
2	10° 52' 34.50"N	77° 32' 00.30"E
3	10° 52' 34.62"N	77° 31' 59.80"E
4	10° 52' 37.34"N	77° 31' 59.07"E
5	10° 52' 35.67"N	77° 31' 58.95"E
6	10° 52' 40.02"N	77° 32' 00.13"E
7	10° 52' 39.68"N	77° 32' 03.85"E
8	10° 52' 39.56"N	77° 32' 03.95"E
9	10° 52' 33.97"N	77° 32' 05.43"E
10	10° 52' 33.58"N	77° 32' 05.57"E

DATUM : UTM-WGS84, ZONE 43 NORTH

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 10m & 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- SHRUBS
- APPROACH ROAD



APPLICANT :

Thru. A. SELVARAJ,
S/o. ARUMUGAM,
No. 2/147, SARALATHOTTAM,
MOOKANANGKOTTAI,
UTHIYUR VILLAGE KANGAYAM TALUK,
TIRUPPUR DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.Nos : 860/1, 2A(P), 861/1 & 861/2
EXTENT : 3.66.0 Ha.
VILLAGE : MUTHALIPALAYAM,
TALUK : KANGAYAM,
DISTRICT : TIRUPPUR,
STATE : TAMIL NADU.

PLATE NO - II

DATE OF SURVEY : 30.09.2022

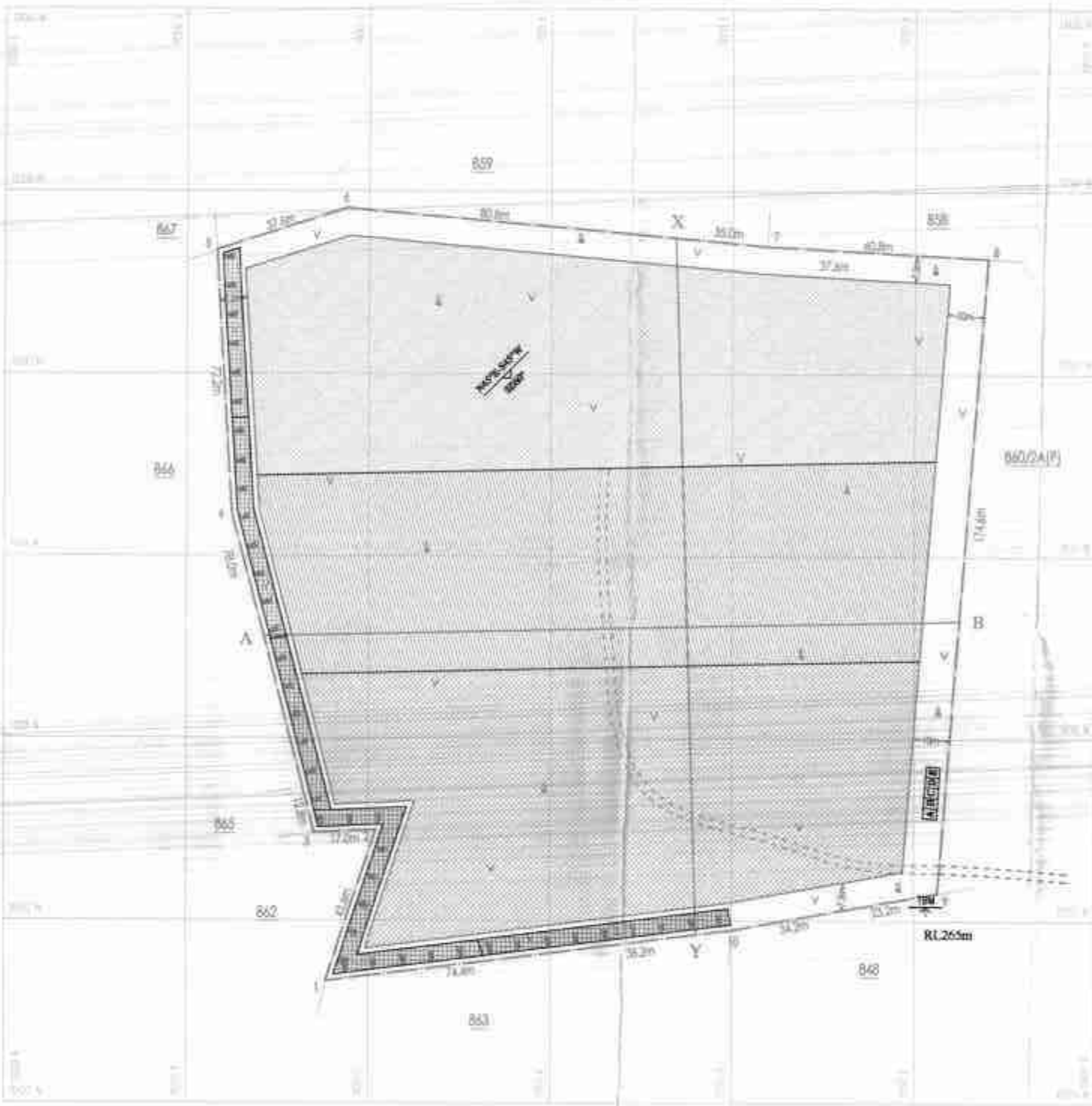
QUARRY LEASE PLAN & SURFACE PLAN

SCALE : 1:1000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT.

D.P. THANGARAJAM, S.P.H.D.,
QUALIFIED PERSON



BOUNDARY COORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 32' 33.167N	77° 31' 58.875E
2	10° 32' 34.507N	77° 32' 03.331E
3	10° 32' 34.487N	77° 31' 39.820E
4	10° 32' 37.347N	77° 31' 56.079E
5	10° 32' 39.671N	77° 31' 58.532E
6	10° 32' 40.071N	77° 32' 00.132E
7	10° 32' 39.887N	77° 32' 03.839E
8	10° 32' 39.587N	77° 32' 06.921E
9	10° 32' 33.987N	77° 32' 08.479E
10	10° 32' 33.387N	77° 32' 03.270E

DATUM : UTM WGS84, ZONE 43 NORTH

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 10m & 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- WEATHERED ROCK
- ROUGHSTONE
- STRIKE & DIP
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- D.O.E DEPTH OF ESTIMATION

APPLICANT :
 TNJU. A. SELVARAJ,
 S/o. ARUMUGAM,
 No. 2/147, SARALAI THOTTAM,
 MOOKANANGKOTTAI,
 UTHIYUR VILLAGE, KANGAYAM TALUK,
 TIRUPPUR DISTRICT.



LOCATION OF Q.L.A. AREA:
 S.F.No: : 860/1, 2A(P), 861/1 & 861/2.
 EXTENT : 3.66.0 Ha,
 VILLAGE : MUTHALIPALAYAM,
 TALUK : KANGAYAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMIL NADU.

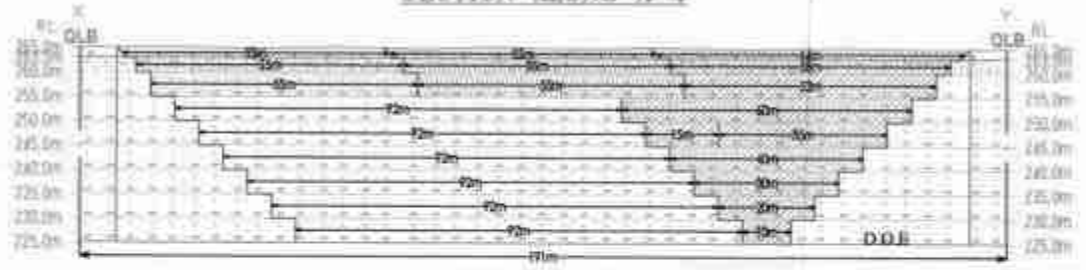
PLATE NO - III-A
 DATE OF SURVEY : 30.09.2022

**TOPOGRAPHY, GEOLOGICAL PLAN,
 FIRST FIVE YEARWISE
 DEVELOPMENT & PRODUCTION
 PLAN & SECTIONS**
 SCALE : 1:1000

PREPARED BY :
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLATE IS TRUE AND CORRECT TO THE BEST OF MY
 KNOWLEDGE BASED UPON THE LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT

D. P. THANGARAJU
 D. P. THANGARAJU, P.E.,
 QUALIFIED PERSON

SECTION ALONG X-Y



I - yr Proposed area to be Quarried

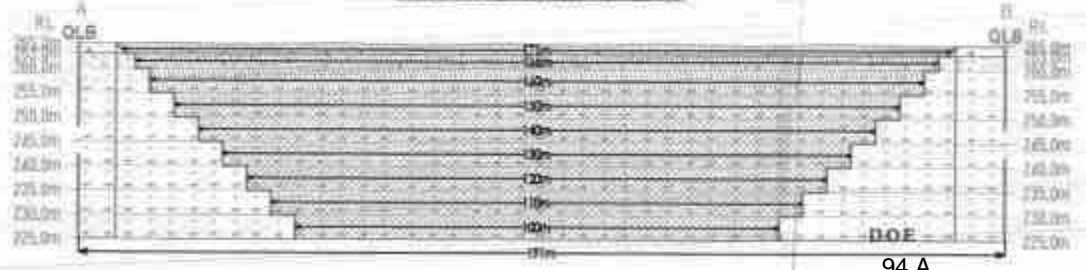
II - yr Proposed area to be Quarried

III - yr Proposed area to be Quarried

IV - yr Proposed area to be Quarried

V - yr Proposed area to be Quarried

SECTION ALONG A-B



I - yr Proposed area to be Placed

II - yr Proposed area to be Placed

III - yr Proposed area to be Placed

IV - yr Proposed area to be Placed

V - yr Proposed area to be Placed

SUB SERVICES (Proposed)

- A - OFFICE
- B - STORE ROOM
- C - FIRST AID ROOM
- D - REST HOUSE
- E - TOILET



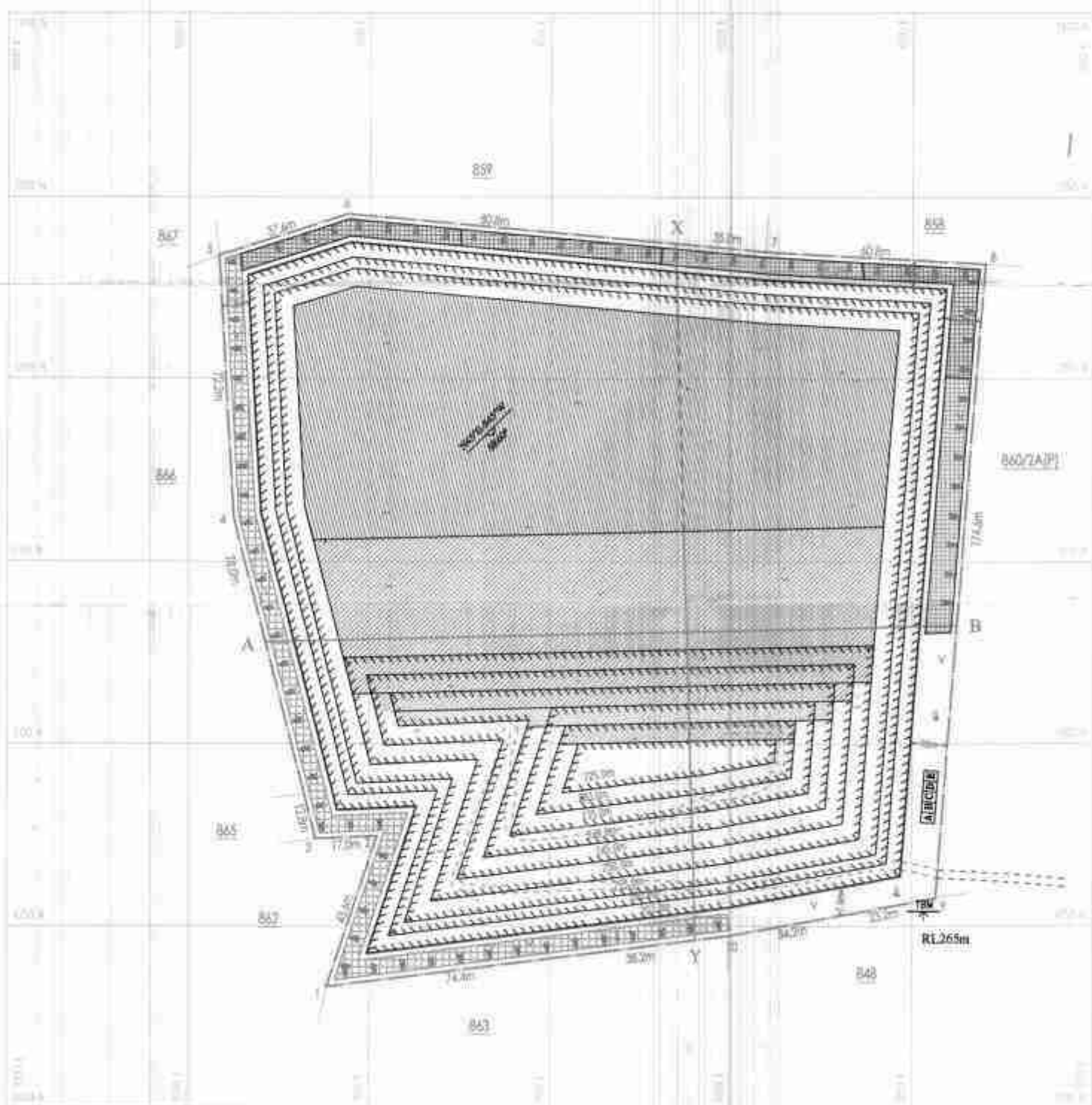
SITE SERVICES

- A - FENCE
- B - STORAGE ROOM
- C - TRUCK AND BLANK
- D - WASTE COLLECTION
- E - PLANT

BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	07° 52' 55.347"	077° 52' 59.897"
2	07° 52' 54.874"	077° 52' 59.373"
3	07° 52' 54.401"	077° 52' 58.849"
4	07° 52' 53.928"	077° 52' 58.325"
5	07° 52' 53.455"	077° 52' 57.801"
6	07° 52' 42.982"	077° 52' 57.277"
7	07° 52' 32.509"	077° 52' 56.753"
8	07° 52' 22.036"	077° 52' 56.229"
9	07° 52' 11.563"	077° 52' 55.705"
10	07° 52' 01.090"	077° 52' 55.181"

DATUM : UTM-WGS84, ZONE 43 NORTH



INDEX

- Q.L. APPLIED AREA BOUNDARY
- 10m & 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- WEATHERED ROCK
- ROUGHSTONE
- STRIKE & DIP
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- IV YR PLANTATION

APPLICANT :
 Thiru. A. SELVARAJ,
 S/o. ARUMUGAM,
 No. 2/147, SARALATHOTTAM,
 MOOKANANGOTTAL,
 UTHYUR VILLAGE, KANGAYAM TALUK,
 TIRUPPUR DISTRICT.

LOCATION OF Q.L.A. AREA:
 S.F.No. : 860/1, 2A(P), 861/1 & 861/2
 EXTENT : 3.66 D Ha,
 VILLAGE - MUTHALIPALAYAM,
 TALUK : KANGAYAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMIL NADU.

PLATE NO - III-B

DATE OF SURVEY : 30.09.2022

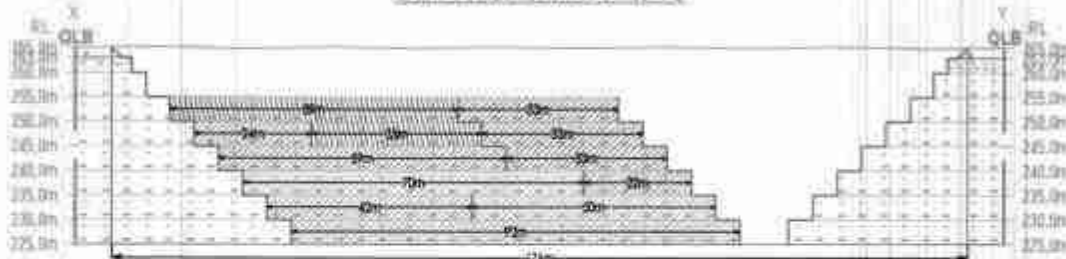
**TOPOGRAPHY, GEOLOGICAL PLAN,
 SECOND FIVE YEARWISE
 DEVELOPMENT & PRODUCTION
 PLAN & SECTIONS**

SCALE, 1:1000

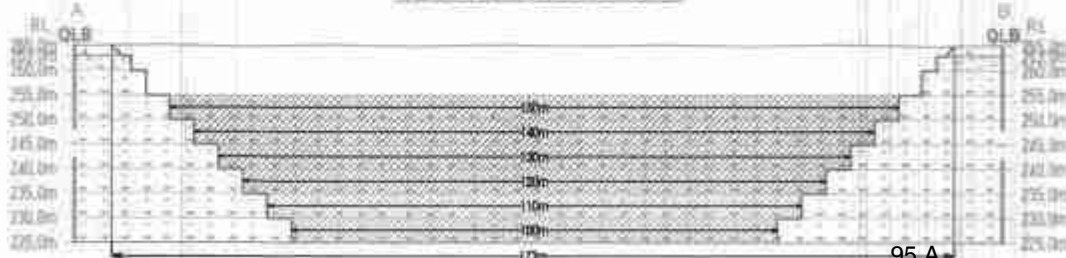
PREPARED BY :
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLATE IS TRUE AND CORRECT TO THE BEST OF MY
 KNOWLEDGE BASED UPON THE LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT

(Signature)
 D.P. THANGARAJU S.P.O.
 QUALIFIED PERSON

SECTION ALONG X-Y



SECTION ALONG A-B



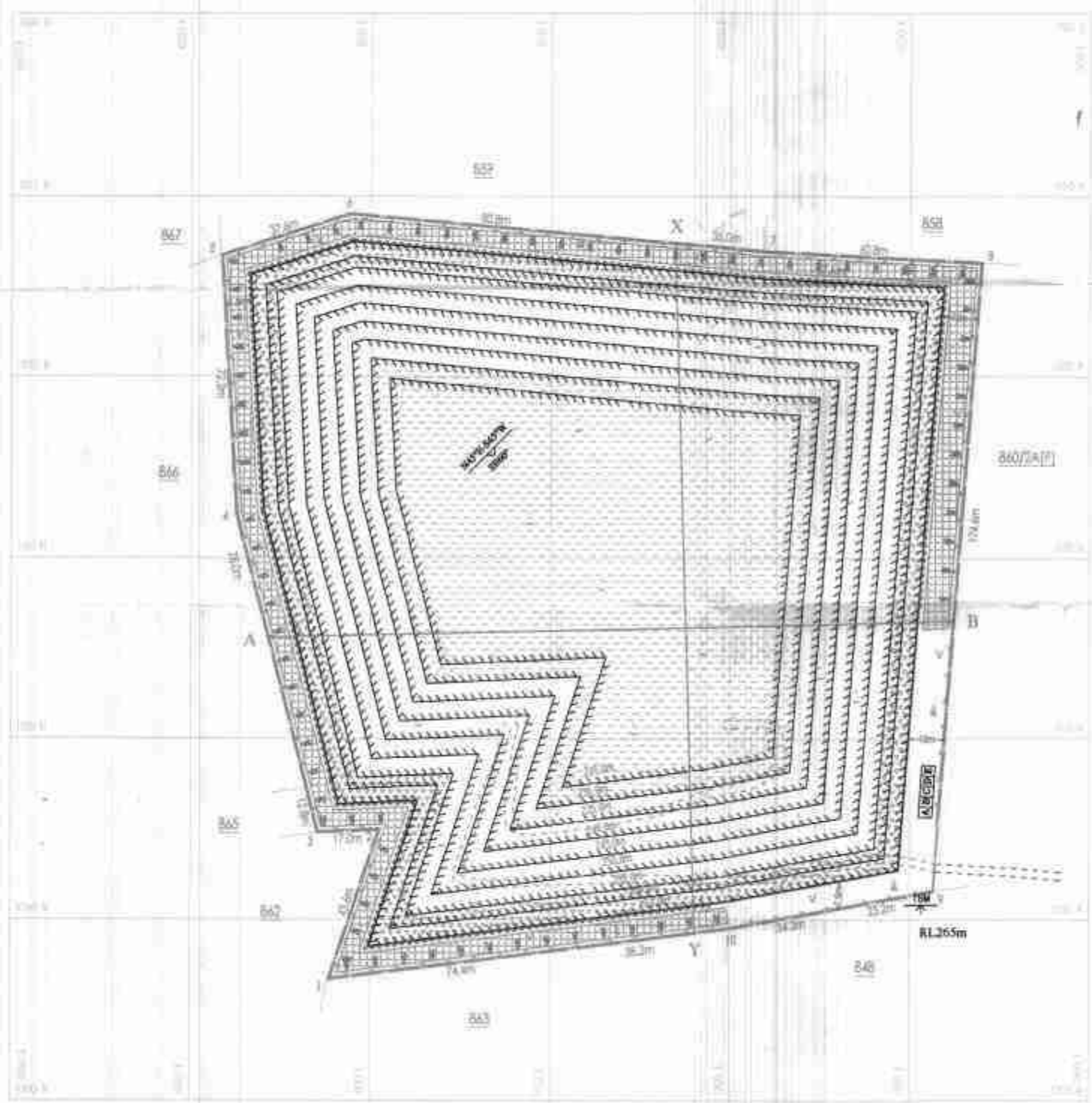
- VI - yr Proposed area to be Quarried
- VII - yr Proposed area to be Quarried
- VIII - yr Proposed area to be Quarried
- IX - yr Proposed area to be Quarried
- X - yr Proposed area to be Quarried

- VI - yr Proposed area to be Planted
- VII - yr Proposed area to be Planted
- VIII - yr Proposed area to be Planted
- IX - yr Proposed area to be Planted
- X - yr Proposed area to be Planted

Propose Pit Dimension (max)
 = 175mX175mX40m(d)
 (For 1st V-yr)



SITE SERVICES
 A - SURVEY
 B - STATION WORK
 C - FIRST ADJUSTMENT
 D - BEST RESULTS
 E - VALUE



INDEX

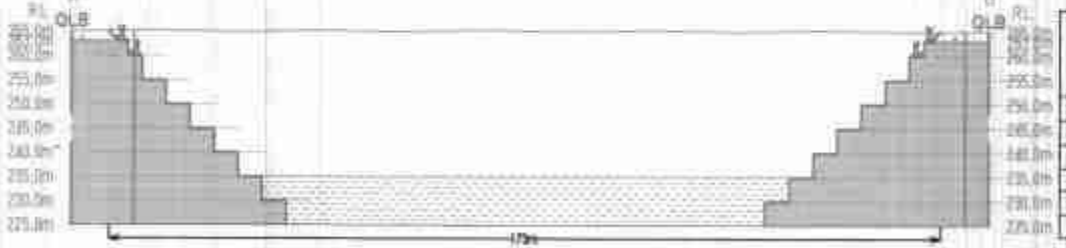
- Q.L. APPLIED AREA BOUNDARY
- 10m & 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- WEATHERED ROCK
- ROUGHSTONE
- STRIKE & DIP
- QUARRY PIT
- SHRUBS
- QUARRY HAIL ROAD
- APPROACH ROAD
- V-V PLANTATION
- V-X PLANTATION
- BARBED WIRE FENCING
- EXISTING LAND FORM
- SOIL LAYER
- REHABILITATED LAND FORM
- PROPOSED GARLAND DRAIN
- OLD SURFACE LEVEL
- FINISHED SURFACE LEVEL
- RAIN WATER STORAGE

SECTION ALONG X-Y



Proposed Pit Dimension (max)
 = 175mX173mX40m(d)

SECTION ALONG A-B



LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA REQUIRED DURING THE FIRST FIVE YEARS OF PLAN PERIOD (Ha)	AREA AT THE END OF LEASE PERIOD (Ha)
QUARRYING PIT	Nil	3.070	3.070
INFRASTRUCTURE	Nil	0.010	0.010
ROADS	Nil	0.020	0.020
GREEN BELT	Nil	0.150	0.150
UN-UTILIZED AREA	3.660	0.410	0.220
TOTAL	3.660	3.660	3.660

APPLICANT:
 Thiru. A. SELVARAJ,
 S/o. ARUMUGAM,
 No. 2/147 SARALAI THOTTAM,
 MOOKANANGKOTTAI,
 UTHIYUR VILLAGE, KANGAYAM TALUK,
 TIRUPPUR DISTRICT.

LOCATION OF Q.L.A. AREA:
 S.F.No. : 860/1, 2A(P), 861/1 & 861/2
 EXTENT : 3.66.0 Ha,
 VILLAGE : MUTHALPALAYAM,
 TALUK : KANGAYAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMIL NADU.

PLATE NO - IV
 DATE OF SURVEY : 30.09.2022

PROGRESSIVE QUARRY CLOSURE PLAN & SECTIONS

SCALE : 1:1000

PREPARED BY:
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

(Signature)
 D.P. THIRUPARAKALAN,
 QUALIFIED PERSON

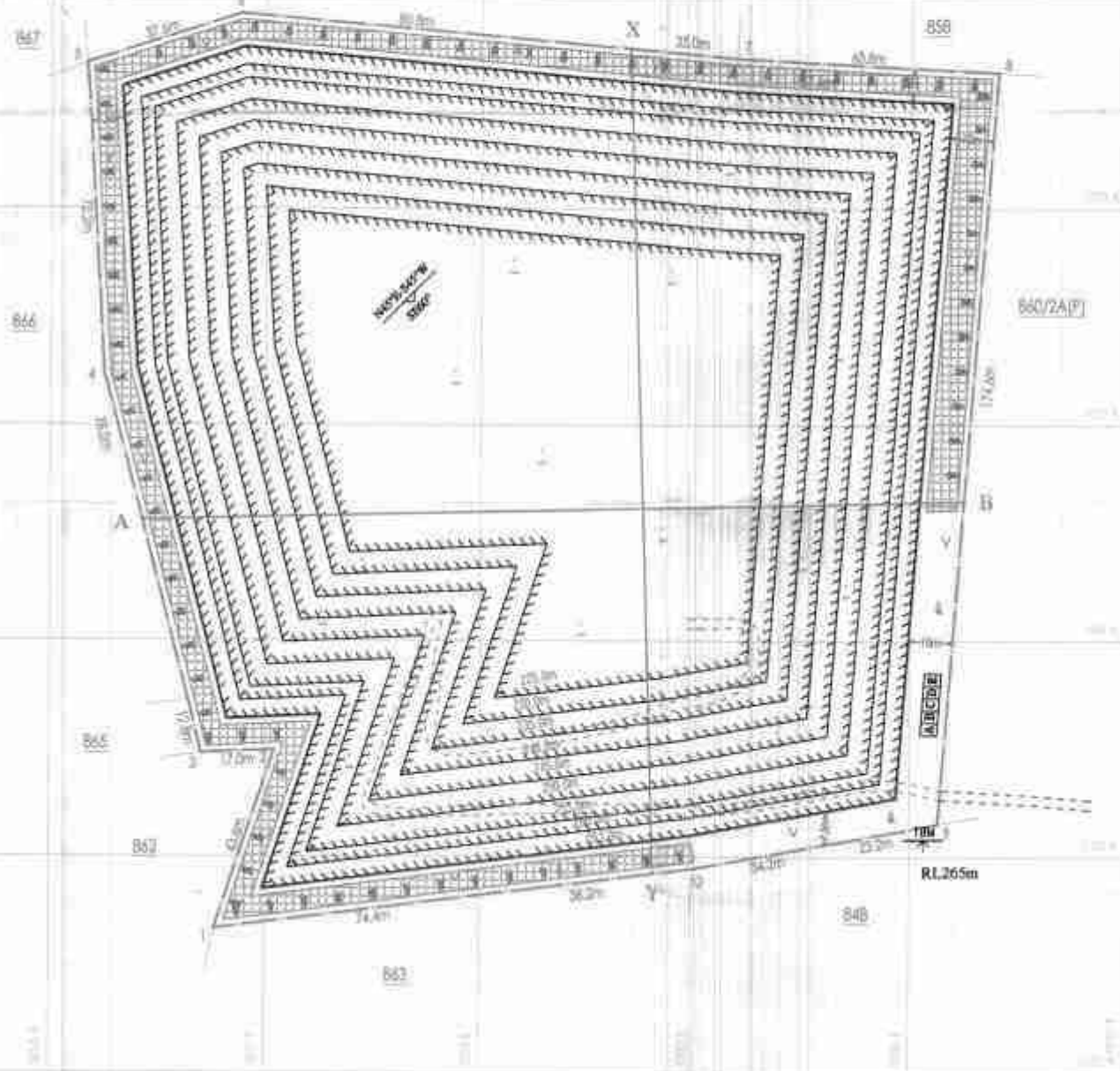


SITE SURVEYER
 A. OFFICE
 B. FIELD WORK
 C. DRAWING ROOM
 D. REVISIONS
 E. CHECKS

BOUNDARY COORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 52' 26.147N	77° 57' 28.287E
2	10° 52' 24.574N	77° 57' 28.271E
3	10° 52' 24.487N	77° 57' 28.265E
4	10° 52' 25.247N	77° 57' 28.279E
5	10° 52' 26.474N	77° 57' 28.303E
6	10° 52' 28.027N	77° 57' 28.337E
7	10° 52' 28.474N	77° 57' 28.353E
8	10° 52' 29.247N	77° 57' 28.377E
9	10° 52' 30.474N	77° 57' 28.401E
10	10° 52' 32.027N	77° 57' 28.435E

DATUM : UTM-WG84, ZONE 43 NORTH



INDEX

- Q.L. APPLIED AREA BOUNDARY
- 10m & 7.5m SAFETY DISTANCE
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- GRAVEL
- WEATHERED ROCK
- ROUGHSTONE
- STRIKE & DIP
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- H.V. Yr PLANTATION
- V-X Yr PLANTATION

APPLICANT :
 THIRU. A. SELVARAJ,
 S/O. ARUMUGAM,
 No. 2/147, SARALAI THOTIAM,
 MOOKANANGKOTTAI,
 LITHYUR VILLAGE, KANGAYAM TALUK,
 TIRUPPUR DISTRICT.

LOCATION OF Q.L.A. AREA:
 S.F.No : 860/1, 2A(P), 861/1 & 861/2.
 EXTENT : 3.66.0 Ha.
 VILLAGE : MUTHALPALAYAM,
 TALUK : KANGAYAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMIL NADU.

PLATE NO - V
 DATE OF SURVEY : 30.09.2022

CONCEPTUAL PLAN & SECTIONS
 SCALE: 1:1000

PREPARED BY :
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

(Signature)
 D. P. THANGARAJAN S.P.H.D.
 QUALIFIED PERSON

SECTION ALONG X-Y



SECTION ALONG A-B



Ultimate Pit Dimension (max)
 = 17m X 173m X 40m (d)

Hydrogeological Report For

**Rough Stone and Gravel Quarry Project- 3.66.0ha
S.F.Nos. 860/1, 860/2A (P), 861/1 & 861/2,
Muthalipalayam Village, Kangayam Taluk,
Tiruppur District, Tamil Nadu State,**

HYDROGEOLOGICAL REPORT FOR MUTHALIPALAYAM
ROUGH STONE AND GRAVEL QUARRY.

1. INTRODUCTION

NAME OF THE APPLICANT WITH ADDRESS-

Name of the applicant : **Thiru. A. Selvaraj**
Address : S/o. Arumugam,
No. 2/147, Saralai thottam,
Mookkanangkottai.
Uthiyur Village, Kangayam Taluk, Tiruppur.
State : Tamil Nadu.
Mobile : +91 98422 32112

DETAILS OF THE AREA-

Land Classification : Patta land
Survey No : 860/1, 860/2A(Part), 861/1 and 861/2
Extent : 3.66.0 Ha
Village : Muthalipalayam
Taluk : Kangayam,
District : Coimbatore

The Client requires detailed information on ground water occurrences at proposed project site of Muthalipalayam rough stone and gravel quarry. The objective of the present study is to assess the availability of groundwater and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and water quality. For this purpose all available hydrogeological information of the areas has been analyzed, and a geophysical survey was done.

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Client's requirements.

The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data
- b) State & District Geological and Hydrogeological Reports and Maps.
- c) Technical reports of the area by various organizations.

2. SCOPE OF THE WORKS –

The scope of works includes:

- ❖ Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to proposed mining activities.
- ❖ To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- ❖ To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- ❖ To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

3. BACKGROUND INFORMATION

Geographical information of the study area-

The investigated site falls in the Toposheet No: 58 F/09 Latitude between 10°52'33.16"N to 10°52'40.05"N and Longitude between 77°31'58.95"E to 77°32'05.92"E on WGS datum-1984.

GEOMORPHOLOGY

Coimbatore district forms part of the upland plateau region of Tamil Nadu with manyhill ranges, hillocks and undulating topography with a gentle slope towards east except for the hilly terrain in the west. The undulating topography with innumerable depressions, are used as tanks for storage of rainwater for agriculture.

The prominent geomorphic units in the district are 1) Structural hills, 2) Ridges, 3) Inselbergs, 4) Bazada, 5) Valley fill, 6) Pediment, 7) Shallow Pediments and 8) Deep Pediments.

The Nilgiris on the northwest and Anamalai on the south are the important ranges, which attain a heights of over 2513m above mean sea level (MSL) and the highest elevation in the valleys adjoining the hills is 600 M above MSL. The 'PalghatGap', which is an east-west trending mountain pass, is an important physiographic feature is located in the western part of the district.

Soils

The soils of Coimbatore district can be broadly classified into 6 major soils types viz, Red calcareous Soil, Black Soil, Red non-calcareous, Alluvial and Colluvial Soil, Brown Soil, and Forest Soil. About sixty per cent of the district is covered by red soils, of which red calcareous soil is predominant. They occupy most parts of Palladam, Coimbatore, Mettupalayam and Udumalpettaluks. Medium to deep red calcareous soils are found mainly in Pollachi and Udumalpettaluks. Parts of Palladam, Avinashi and Udumalpettaluks are occupied by red non-calcareous soils.

The highlands in Coimbatore, Palladam and Avinashitaluks are mostly occupied by the black soils, which are dark gray to grayish brown in colour.

The Alluvial soils are found in small patches along the Noyil river mainly in the upper reaches. The Colluvial soils are found mainly in Chinnathadagam and Chitrachavadi sub-basins and as scattered patches at the foothills of the Anaimalai. The Forest soils are confined to the reserve forest area and have a surface layer of organic matter.

Rainfall and Climate

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 and summer rains are negligible.

Rainfall data from six stations over the period 1901-2000 were utilized and a perusal of the analysis shows that the normal annual rainfall over the district varies from about 550mm to 900mm. It is the minimum around Sulur (550 mm) in the eastern part of the district. It gradually increases towards south and attains a maximum around Anaimalai hills.

The district enjoys a tropical climate. The weather is pleasant during the period from November to January. Mornings in general are more humid than the afternoons, with the humidity exceeding 78% on an average. In the period June to November the afternoon humidity exceeds 66% on an average. In the rest of the year the afternoons are drier, the summer afternoons being the driest. The period from April to June is generally hot and dry. The temperature recorded varies from 11.7°C to 42.6°C.

GEOLOGY

Regional Geology of Coimbatore District-

The district is occupied by Charnockite Group of rocks consisting of Charnockite, pyroxene granulites and associated magnetite quartzite, the Knodalite Group comprising gametiferous – sillimanite gneiss, calc-granulite, crystalline limestone, sillimanite quartzites and associated migmatitic gneisses. The fissile hornblende gneisses (Peninsular gneiss –

younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsite – kyanite quartzites, ferruginous quartzite (Satyamangalam Group) intruded by a number of ultramafic and basic rocks and granites are seen in the Northern portions of the district especially around Mettupalayam, Avinashi and Northern areas of Coimbatore. The granites are Proterozoic age and occupy the Western end and Eastern Part of the District as separate bodies and are recognized as Maruthamalai Granite and Punjapuliampatti Granites respectively. The quaternary alluvium is seen in the West and Northwestern areas of Udumalaipettai and Western areas of Coimbatore town. The alluvium is more than 30m thick in the Chinnathadagam valley northwest of Coimbatore and in the Siruvani valley west of Coimbatore. In the Udumalaipettaitaluk area, it overlies the kankar deposit.

It is revealed the Coimbatore district is occupied by the rocks of Sathiyamangalam, Peninsular gneissic complex-I and Charnockite group of Archaean age, Peninsular Gneissic Complex-II of Archaean to Palaeoproterozoic age, Basic intrusive of Mesoproterozoic age, Younger intrusive of Neoproterozoic age and recent alluvium.

The Peninsular gneissic complex-I comprising hornblende biotite gneiss and granite area the major rock types exposed. Hornblende biotite granite is medium to coarse grained and mesocratic and considered to be retrograded product of product of Charnockite – Pyroxene granulite. It is medium grained, White to pale pink colored with disseminations of limonitised magnetite. The white colored granite appears to be older and the pink colored cuts across the white colored granite. The younger phase of coarse grained granite occur as thin stringers and lesser in the southern part. The peripheral part of granite close to the gneiss is granitic in nature.

STRATIGRAPHY SUCCESSION

Lithology	Group	Super Group	Age
Gypseous clay			Holocene
Granite	Acid intrusives		Neoproterozoic
Dolerite /basic dyke	Basic intrusives		Mesoproterozoic
Quartzofeldspathic Gneiss Garnet.		Peninsular Gneissic complex- II	Archaean to Palaeoproterozoic
Hornblende biotite gneiss			
Charnockite		Southern Granulite Complex	

Grey HornblendBiotite gneiss		Peninsular Gneissic complex-I	Archaean
Gabbro	Sitampundi		
Amphibolite	Mettupalayam Complex		
Magnetite Quartzite			
Talc – Termolite – Actinolite Schist	Sathiyamanagalam Group		

4. GEOPHYSICAL INVESTIGATION METHODS

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

Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A, expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

$$R = dV/I \text{ (Ohm)}$$

Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

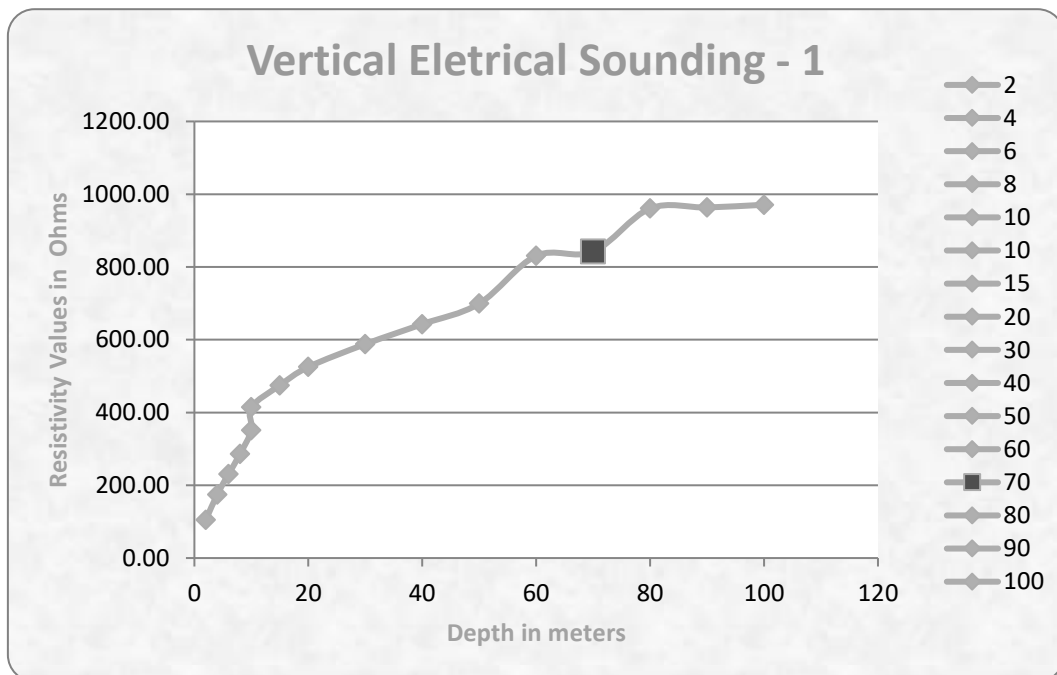
$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

Vertical Electrical Sounding (VES)

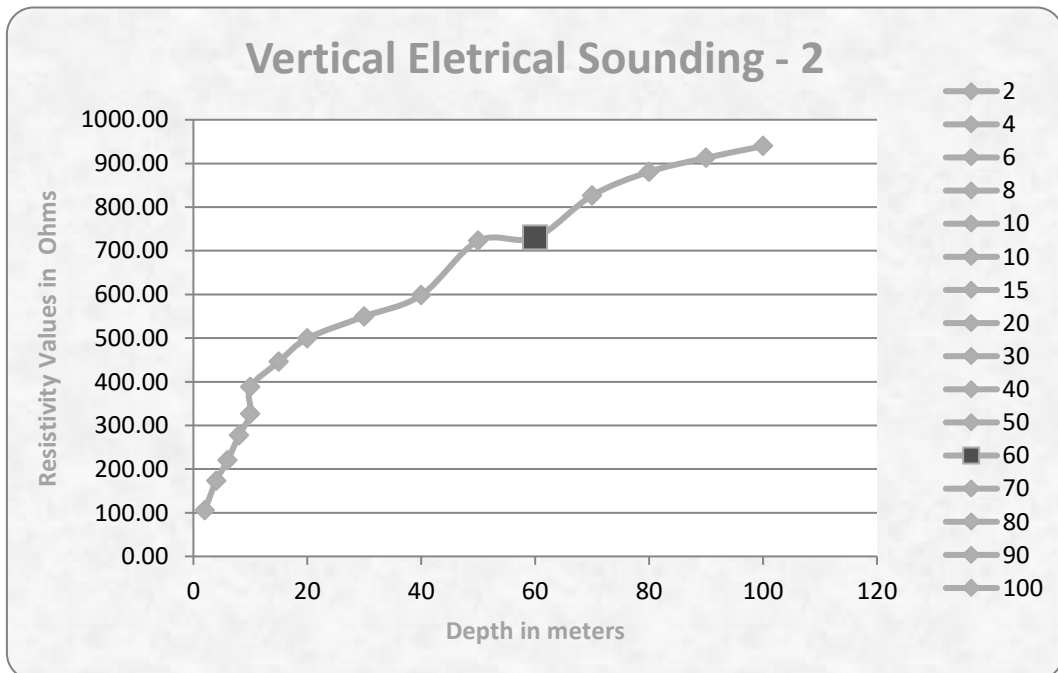
When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

Vertical Electrical Sounding Data's and Graphs

STATION-1					
GPS Coordinates - 10°52'18.45"N 77° 2'24.50"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	22.26	104.84
2	4	1	23.55	7.40	174.27
3	6	1	54.95	4.20	230.79
4	8	1	98.91	2.89	285.85
5	10	1	155.45	2.26	351.32
6	10	5	23.55	17.60	414.48
7	15	5	62.80	7.56	474.77
8	20	5	117.75	4.46	525.17
9	30	5	274.75	2.14	587.97
10	40	5	494.55	1.30	642.92
11	50	5	777.15	0.90	699.44
12	60	5	1122.55	0.74	830.69
13	70	5	1530.75	0.55	841.91
14	80	5	2001.75	0.48	960.84
15	90	5	2535.55	0.38	963.51
16	100	5	3132.15	0.31	970.97

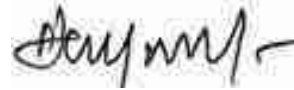


STATION-2					
GPS Coordinates - 10°52'18.97"N 77° 2'30.51"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	22.46	105.79
2	4	1	23.55	7.36	173.33
3	6	1	54.95	4.00	219.80
4	8	1	98.91	2.80	276.95
5	10	1	155.45	2.10	326.45
6	10	5	23.55	16.46	387.63
7	15	5	62.80	7.10	445.88
8	20	5	117.75	4.24	499.26
9	30	5	274.75	2.00	549.50
10	40	5	494.55	1.21	598.41
11	50	5	777.15	0.93	722.75
12	60	5	1122.55	0.65	729.66
13	70	5	1530.75	0.54	826.61
14	80	5	2001.75	0.44	880.77
15	90	5	2535.55	0.36	912.80
16	100	5	3132.15	0.30	939.65



5. Conclusion –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium groundwater potential. Productive aquifers are expected at depth of 80m to 85m where minor fractures are observed and shallow aquifers are expected above 65m-70m BGL. The ultimate pit limit as per the approved mining plan depth is 40m (2m Gravel + 3m Weathered rock +35m Rough Stone) below ground level (upto 40m in a portion for first five years and 40m for Ten years in the remaining area), which will have no impact on the Ground Water.



Dr. P. Thangaraju, M.Sc., Ph.D.,

Govt. Approved Hydro Geologist

M/s. Geo Exploration and Mining Solutions,

Regd. Office: No. 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004, Tamil Nadu

Mobile: +91 - 94433 56539

E-Mail: infogeoexploration@gmail.com



542

122/22

அனுப்பதல்
இரா.குமரேசன்,எம்.ஏ,எம்.எட்.,எம்.பில்,
வருவாய் கோட்டாட்சியர்,
தாராபுரம்.

பெறுதல்
மாவட்ட ஆட்சித்தலைவர்,
திருப்பூர்.

ந.க.எண்/60/2022/இ

நாள்: .05.2022

அப்பா,

பொருள் :

கனிமங்களும் சுரங்கங்களும் - கனிமம் மற்றும் சுரங்கம் -
திருப்பூர் மாவட்டம் - காங்கயம் வட்டம் - முதலிபாளையம் கிராமம்
- பட்டா புல எண்.860/1(0.63.0),860/2ஏ(0.40.0),861/1(1.74.5)
மற்றும் 861/2(0.88.5)-ல் ஆகியவற்றில் மொத்தம் 3.65.86
பு.ஹெக்டர் பரப்பில் சாதாரண கற்கள் எடுக்க 10
ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி
திரு.ஆ.செல்வராஜ் த/பெ.ஆறுமுகம் என்பவர் மனு செய்தது -
அறிக்கை அனுப்பதல் - தொடர்பாக.

பார்வை :

1. திருப்பூர் மாவட்ட ஆட்சியர் அலுவலக
ந.க.122/கனிமம்/2022 நாள்:31..01.2022
2. தாராபுரம் வருவாய் கோட்டாட்சியர் அலுவலக
ந.க.604/2022/இ நாள்:04.02.2022
3. காங்கயம் வட்டாட்சியர் அலுவலக ந.க.604/2022/இ நாள்:
04.02.2022



திருப்பூர் மாவட்டம், காங்கயம் வட்டம், ஊதியூர் உள்வட்டம் மற்றும் கிராமம்,
மூக்கனங்கோட்டை, 2/147 சரளைத் தோட்டம் என்ற முகவரியில் வசித்து வரும்
திரு.ஆ.செல்வராஜ், த/பெ. ஆறுமுகம் என்பவர் காங்கயம் வட்டம், முதலிபாளையம் கிராமத்தில்
புல எண்களான ரீ.ச.860/1- ல் பு.ஹெக்ட.0.63.00 பரப்பளவிற்கும், ரீ.ச.860/2A(P)-ல் மொத்த
பரப்பளவு பு.ஹெக்ட.2.21.00-ல், பு.ஹெக்ட. 0.40.00 பரப்பளவிற்கும், 861/1-ல் பு.ஹெக்ட.1.74.50
பரப்பளவிற்கும் மற்றும் 861/2-ல் பு.ஹெக்ட. 0.88.36 ஆக மொத்தம் பு.ஹெக்ட. 3.65.86 பரப்பளவு
கொண்ட பூமியில் சாதாரண கற்கள் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குத்தகை உரிமம்
வழங்கக் கோரிய மனு மீது காங்கயம் வட்டாட்சியர் அறிக்கையின் பேரில் புலத்தணிக்கை மற்றும்
விசாரணை செய்து எனது மேலறிக்கையினை பின்வருமாறு சமர்ப்பித்துக்கொள்கிறேன்.

காங்கயம் வட்டம், ஊதியூர் உள்வட்டம், முதலிபாளையம் கிராமத்தில், தங்கமுத்து மகன்
ஜெகதீஸ்வரன் என்பவருக்கு கீழ்க்கண்டவாறு பூமிகள் பாத்தியப்பட்டு, அனுபவத்தில் உள்ளது.
மேலும் அவரது பெயரில் தனிப்பட்டவாக கிராமக் கணக்குகளில் தாக்கலாகியுள்ளது.

வ. எண்.	புல எண்.	பரப்பு (ஹெக்ட.ஏர்ஸ்)	பட்டா எண்.	ஆவண எண்.
1.	860/1	0.63.00	4747	காங்கயம் சார்பதிவாளர் அலுவலக கிரையப் பத்திர எண்.2208/2018 நாள். 17.05.2018.
2.	860/2A(P)	2.21.00	4747	
3.	861/1	1.74.50	942	காங்கயம் சார்பதிவாளர் அலுவலக கிரையப் பத்திர எண்.3636/2019 நாள். 19.07.2019.

4.	861/2	0.88.50	942	காங்கயம் சார்பதிவாளர் அலுவலக கிரையப் பத்திர எண்.361/2019 நாள். 25.01.2019.
5	861/2	0.65.69	942	காங்கயம் சார்பதிவாளர் அலுவலக கிரையபத்திர எண்.2208/18 நாள்: 17.08.2018

காங்கயம் வட்டம், முதலிபாளையம் கிராமம், புல எண்களான ரீ.ச.860/1- ல் ப.ஹெக்.0.63.00 பரப்பளவு பூமியிலும், ரீ.ச.860/2A(P)-ல் ப.ஹெக்.2.21.00 மொத்த பரப்பளவு பூமியில் 0.40.0 பரப்பும் 861/1-ல் ப.ஹெக்.1.74.50 பரப்பளவு பூமியிலும் மற்றும் 861/2-ல் ப.ஹெக்.0.88.36 பரப்பளவு பூமியிலும் ஆக மொத்தம் ப.ஹெக். 3.65.86 பரப்பளவு கொண்ட பூமியில் மனுதாரரான திரு. செல்வராஜ் 10 ஆண்டுகளுக்கு சாதாரண கற்கள் வெட்டியெடுக்க மற்றும் குவாரிப்பணி செய்து கொள்ள தனக்கு எவ்வித ஆட்சேபணையுமில்லை என நில உரிமையாளர் திரு. ஜெகதீஸ்வரன் என்பவர் அளித்த உறுதிமொழிப் பத்திரம் மனுதாரரால் சமர்ப்பிக்கப்பட்டுள்ளது.

மனுதாரர் மேற்படி புல எண்களான 860/1-ல் ப.ஹெக்.0.63.00 விஸ்தீரணமுள்ள முழு பரப்பளவு பூமியும், 860/2A(P)-ல் மொத்த பரப்பளவு ப.ஹெக்.2.21.00 பரப்பளவு பூமியில் ப.ஹெக். 0.40.00 பரப்பளவு பூமியில் மட்டும், 861/1-ல் ப.ஹெக்.1.74.50 முழு பரப்பளவு பூமியும் மற்றும் 861/2-ல் ப.ஹெக்.0.88.36 முழு பரப்பளவு பூமியும் ஆக மொத்தம் ப.ஹெக்.3.65.86 விஸ்தீரண பரப்பளவு பூமியில் குவாரிப்பணி செய்ய மனு செய்துள்ளார்.

மேற்படி குத்தகை கோரும் புலத்தைச் சுற்றி எல்லைகள் வரையறுக்கப்பட்டு, கற்கள் நடப்பட்டுள்ளன. மேற்படி புலங்களின் வழியாக உயர் மற்றும் தாழ்வழுத்த மின் கம்பித் தொடர் ஏதும் செல்லவில்லை. மேற்படி புலத்தில் விலையுயர்ந்த மரங்கள் ஏதும் இல்லை. புல விசாரணையின் போது பொதுமக்கள் எவரும் ஆட்சேபணை செய்யவில்லை. மேலும் அரசு நடவடிக்கைகளான நில ஆர்ஜிதம், பூமிதானம், நில உச்சவரம்பு, நிலமெடுப்பு ஆகிய நடவடிக்கைகள் ஏதும் மேற்படி புலங்களின் மீது இல்லை. மேலும் அனுமதி வழங்கவுள்ள புலங்களிலிருந்து 300 மீ சுற்றளவில் நடத்தம், அங்கீகரிக்கப்பட்ட குடியிருப்புகள், மயானம், கோவில், புராதான சின்னங்கள் மற்றும் வனக்காடுகள் ஏதுமில்லை என்பது புலத்தணிக்கையில் தெரியவருகிறது.

மேற்படி பூமிகளில் சாதாரண கற்கள் / கிராவல் மண் வெட்டியெடுக்க அனுமதி கோரியதன் பொருட்டு சீனியரேஜ் தொகை ரூ.1500/- என பாரத ஸ்டேட் வங்கி சலான் எண். 20220131011938 நாள்.31.01.2022-ன்படி செலுத்தியுள்ளனர். மனுதாரர் திரு.செல்வராஜ் என்பவருக்கு சாதாரண கற்கள் / கிராவல் மண் வெட்டியெடுக்க அனுமதி வழங்குவது தொடர்பாக "அ1" விளம்பரம் முதலிபாளையம் கிராமத்தில் 18.02.2022 அன்று செய்யப்பட்டுள்ளது. நாளது வரை ஆட்சேபணை ஏதும் வரப்பெறவில்லை. மனுதாரர் மேற்படி பூமிகளில் சாதாரண கற்கள் வெட்டியெடுக்க தங்களுக்கு எவ்வித ஆட்சேபணையும் இல்லை என்று பொதுமக்கள் அளித்த வாக்குமூலம் பெறப்பட்டு இணைக்கப்பட்டுள்ளது. மனுதாரர் திரு.செல்வராஜ் என்பவர் அரசுக்கு செலுத்து வேண்டிய வருமானவரி, கனிம வரி மற்றும் இதர வரியினங்கள் எதுவும் நிலுவை இல்லை என தெரிவித்து நோட்டரி அபிடவிட் வாக்குமூலம் அளித்துள்ளனர். மேலும் மனுதாரருக்கு மேற்படி குத்தகை உரிமம் வழங்கும் பட்சத்தில் தமிழ்நாடு

பிறுவகை கனிமச்சலுகை விதிகள் 1959-ல் 19(1)-ன்படி கட்டுப்பட்டு நடப்பதாக வாக்குமூலம் அளித்துள்ளார்.

எனவே, திருப்பூர் மாவட்டம், காங்கயம் வட்டம், முதலிபாளையம் கிராமம், புல் எண்களான ரீ.ச.860/1- ல் பு.ஹெக்.0.63.00 பரப்பளவிற்கும், ரீ.ச.860/2A(P)-ல் மொத்த பரப்பளவு பு.ஹெக்.2.21.00-ல் பு.ஹெக்.0.40.00 பரப்பளவிற்கும், 861/1-ல் பு.ஹெக்.1.74.50 பரப்பளவிற்கும் மற்றும் 861/2-ல் பு.ஹெக்.0.88.36 பரப்பளவிற்கும் ஆக மொத்தம் பு.ஹெக். 3.65.86 பரப்பளவு கொண்ட பூமியில் சாதாரண கற்கள் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குத்தகை உரிமம் பெறும் திரு.செல்வராஜ், த/பெ.ஆறுமுகம் மற்றும் நில உரிமையாளர்கள் திரு.ஜெகதீஸ்வரன், த/பெ.தங்கமுத்து ஆகியோரிடையேயான குத்தகை ஆவணம் பதிவும் செய்யப்பட்டபின் மேல் நடவடிக்கை மேற்கொள்ளலாம் என்பதைப் பணிவுடன் தெரிவித்துக்கொள்கிறேன். மேலும், இத்துடன் கிராம நிர்வாக அலுவலர் வாக்குமூலம், அ1 விளம்பரம், பொதுமக்கள் வாக்குமூலம் மற்றும் தொடர்புடைய கிராம ஆவணங்களை இணைத்து அனுப்பியுள்ளேன் என்பதையும் என்பதையும் பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு: மேற்கண்டவாறு

தங்கள் உண்மைள்ள,
வருவாய் கோட்டாட்சியர்,
தாராபுரம்.

6/6/22

அனுப்புதல்
திரு.ரா.ஜெகதீஸ்குமார்,
வட்டாட்சியர்,
காங்கயம்.

பெறுதல்
வருவாய் கோட்டாட்சியர்,
தாராபுரம்.

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ந.க.எண்.798/2022/அ2

நாள் :20.04.2022

அய்யா,

பொருள் :

கனிமங்களும் சுரங்கங்களும் - கனிமம் மற்றும் சுரங்கம் -
திருப்பூர் மாவட்டம் - காங்கயம் வட்டம் - முதலிபாளையம் கிராமம் -
பட்டா புல எண்.860/1(0.63.0),860/2ஏ(0.40.0),861/1(1.74.5)
மற்றும் 861/2(0.88.5)-ல் ஆகியவற்றில் மொத்தம் 3.65.86
பு.ஹெக்டர் பரப்பில் சாதாரண கற்கள் எடுக்க 10
ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி
திரு.ஆ.செல்வராஜ் த/பெ.ஆறுமுகம் என்பவர் மனு செய்தது -
அறிக்கை அனுப்புதல் - தொடர்பாக.

பார்வை :

1. திருப்பூர் மாவட்ட ஆட்சியர் அலுவலக
ந.க.122/கனிமம்/2022 நாள்:31.01.2022
2. தாராபுரம் வருவாய் கோட்டாட்சியர் அலுவலக
ந.க.604/2022/இ நாள்:04.02.2022
3. ஊதியூர் நில வருவாய் ஆய்வாளர் அறிக்கை உ.மு.205/2022
நாள்: 11.02.2022(இவ்வலுவலகத்திற்கு கிடைக்கப்பெற்ற நாள்:
23.03.2022



திருப்பூர் மாவட்டம், காங்கயம் வட்டம், ஊதியூர் உள்வட்டம் மற்றும் கிராமம், மூக்கனங்கோட்டை,
2/147 சுரளைத் தோட்டம் என்ற முகவரியில் வசித்து வரும் திரு.ஆ.செல்வராஜ், த/பெ. ஆறுமுகம்
என்பவர் காங்கயம் வட்டம், முதலிபாளையம் கிராமத்தில் புல எண்களான ரீ.ச.860/1- ல்
பு.ஹெக்டர்.0.63.00 பரப்பளவிற்கும், ரீ.ச.860/2A(P)-ல் மொத்த பரப்பளவு பு.ஹெக்டர்.2.21.00-ல்,
பு.ஹெக்டர். 0.40.00 பரப்பளவிற்கும், 861/1-ல் பு.ஹெக்டர்.1.74.50 பரப்பளவிற்கும் மற்றும் 861/2-ல்
பு.ஹெக்டர். 0.88.36 ஆக மொத்தம் பு.ஹெக்டர். 3.65.86 பரப்பளவு கொண்ட பூமியில் சாதாரண
கற்கள் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்கக் கோரிய மனு மீது
புலத்தணிக்கை மற்றும் விசாரணை செய்து எனத்தறிக்கையினை பின்வருமாறு
சமர்ப்பித்துக்கொள்கிறேன்.

காங்கயம் வட்டம், ஊதியூர் உள்வட்டம், முதலிபாளையம் கிராமத்தில், தங்கமுத்து மகன்
ஜெகதீஸ்வரன் என்பவருக்கு கீழ்க்கண்டவாறு பூமிகள் பாத்தியப்பட்டு, அனுபவத்தில் உள்ளது.
மேலும் அவரது பெயரில் தனிப்பட்டவாக கிராமக் கணக்குகளில் தாக்கலாகியுள்ளது.

வ. எண்.	புல எண்.	பரப்பு (ஹெக்டர்.ஏர்ஸ்)	பட்டா எண்.	ஆவண எண்.
1.	860/1	0.63.00	4747	காங்கயம் சார்பதிவாளர் அலுவலக கிரையப் பத்திர எண்.2208/2018 நாள். 17.05.2018.
2.	860/2A(P)	2.21.00	4747	
3.	861/1	1.74.50	942	காங்கயம் சார்பதிவாளர் அலுவலக கிரையப் பத்திர எண்.3636/2019 நாள். 19.07.2019.
4.	861/2	0.88.50	942	காங்கயம் சார்பதிவாளர் அலுவலக கிரையப் பத்திர எண்.361/2019 நாள். 25.01.2019.

5	861/2	0.65.69	942	காங்கயம் சார்பதிவாளர் அலுவலகம் கிரையபத்திர எண்.2208/18 நா 17.08.2018
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காங்கயம் வட்டம், முதலிபாளையம் கிராமம், புல எண்களான ரீ.ச.860/1-ல் பரப்பளவு பூமியிலும், ரீ.ச.860/2A(P)-ல் பரப்பளவு பூமியில் 0.40.0 பரப்பும் 861/1-ல் பரப்பளவு பூமியிலும் மற்றும் 861/2-ல் பரப்பளவு பூமியிலும் ஆக மொத்தம் பரப்பளவு 3.65.86 பரப்பளவு கொண்ட பூமியில் மனுதாரரான திரு. செல்வராஜ் 10 ஆண்டுகளுக்கு சாதாரண கற்கள் வெட்டியெடுக்க மற்றும் குவாரிப்பணி செய்து கொள்ள தனக்கு எவ்வித ஆட்சேபணையுமில்லை என நில உரிமையாளர் திரு. ஜெகதீஸ்வரன் என்பவர் அளித்த உறுதிமொழிப் பத்திரம் மனுதாரரால் சமர்ப்பிக்கப்பட்டுள்ளது.

மனுதாரர் மேற்படி புல எண்களான 860/1-ல் பரப்பளவு பூமியில் 0.63.00 பரப்பளவு பூமியும், 860/2A(P)-ல் மொத்த பரப்பளவு பூமியில் பரப்பளவு பூமியில் 0.40.00 பரப்பளவு பூமியில் மட்டும், 861/1-ல் பரப்பளவு பூமியும் மற்றும் 861/2-ல் பரப்பளவு பூமியும் ஆக மொத்தம் பரப்பளவு 3.65.86 பரப்பளவு பூமியில் குவாரிப்பணி செய்ய மனு செய்துள்ளார்.

மேற்படி குத்தகை கோரும் புலத்தைச் சுற்றி எல்லைகள் வரையறுக்கப்பட்டு, கற்கள் நடப்பட்டுள்ளன. மேற்படி புலங்களின் வழியாக உயர் மற்றும் தாழ்வழுத்த மின் கம்பித் தொடர் ஏதும் செல்லவில்லை. மேற்படி புலத்தில் விலையுயர்ந்த மரங்கள் ஏதும் இல்லை. புல விசாரணையின் போது பொதுமக்கள் எவரும் ஆட்சேபணை செய்யவில்லை. மேலும் அரசு நடவடிக்கைகளான நில ஆர்ஜிதம், பூமிதானம், நில உச்சவரம்பு, நிலமெடுப்பு ஆகிய நடவடிக்கைகள் ஏதும் மேற்படி புலங்களின் மீது இல்லை. மேலும் அனுமதி வழங்கவுள்ள புலங்களிலிருந்து 300 மீ சுற்றளவில் நத்தம், அங்கீகரிக்கப்பட்ட குடியிருப்புகள், மயானம், கோவில், புராதான சின்னங்கள் மற்றும் வனக்காடுகள் ஏதுமில்லை என்பது புலத்தணிக்கையில் தெரியவருகிறது.

மேற்படி பூமிகளில் சாதாரண கற்கள் / கிராவல் மண் வெட்டியெடுக்க அனுமதி கோரியதன் பொருட்டு சீனியரேஜ் தொகை ரூ.1500/- என பாரத ஸ்டேட் வங்கி சலான் எண். 20220131011938 நாள்.31.01.2022-ன்படி செலுத்தியுள்ளனர். மனுதாரர் திரு.செல்வராஜ் என்பவருக்கு சாதாரண கற்கள் / கிராவல் மண் வெட்டியெடுக்க அனுமதி வழங்குவது தொடர்பாக "அ1" விளம்பரம் முதலிபாளையம் கிராமத்தில் 18.02.2022 அன்று செய்யப்பட்டுள்ளது. நாளது வரை ஆட்சேபணை ஏதும் வரப்பெறவில்லை. மனுதாரர் மேற்படி பூமிகளில் சாதாரண கற்கள் வெட்டியெடுக்க தங்களுக்கு எவ்வித ஆட்சேபணையும் இல்லை என்று பொதுமக்கள் அளித்த வாக்குமூலம் பெறப்பட்டு இணைக்கப்பட்டுள்ளது. மனுதாரர் திரு.செல்வராஜ் என்பவர் அரசுக்கு செலுத்து வேண்டிய வருமானவரி, கனிம வரி மற்றும் இதர வரியினங்கள் எதுவும் நிலுவை இல்லை என தெரிவித்து நோட்டரி அபிடவிட் வாக்குமூலம் அளித்துள்ளனர். மேலும் மனுதாரருக்கு மேற்படி குத்தகை உரிமம் வழங்கும் பட்சத்தில் தமிழ்நாடு சிறுவகை கனிமச்சலுகை விதிகள் 1959-ல் 19(1)-ன்படி கட்டுப்பட்டு நடப்பதாக வாக்குமூலம் அளித்துள்ளார்.

அலுவலர் அலுவல்
ண்.2208/18 நாள்

ரீ.ச.860/1-
ரத்த பரப்பள
861/2-ல்
கொண்ட
யடுக்க
நில
ல்

எனவே, திருப்பூர் மாவட்டம், காங்கயம் வட்டம், முதலிபாளையம் கிராமம், புல
எண்களான ரீ.ச.860/1- ல் பு.ஹெக்.0.63.00 பரப்பளவிற்கும், ரீ.ச.860/2A(P)-ல் மொத்த பரப்பள
பு.ஹெக்.2.21.00-ல் பு.ஹெக்.0.40.00 பரப்பளவிற்கும், 861/1-ல் பு.ஹெக்.1.74.50 பரப்பளவிற்கும்
மற்றும் 861/2-ல் பு.ஹெக்.0.88.36 பரப்பளவிற்கும் ஆக மொத்தம் பு.ஹெக். 3.65.86 பரப்பளவு
கொண்ட பூமியில் சாதாரண கற்கள் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குத்தகை உரிமம்
பெறும் திரு.செல்வராஜ், த/பெ.ஆறுமுகம் மற்றும் நில உரிமையாளர்கள் திரு.ஜெகதீஸ்வரன்,
த/பெ.தங்கமுத்து ஆகியோரிடையேயான குத்தகை ஆவணம் பதிவும் செய்யப்பட்டபின் மேல்
நடவடிக்கை மேற்கொள்ளலாம் என்பதைப் பணிவுடன் தெரிவித்துக்கொள்கிறேன். மேலும்,
இத்துடன் கிராம நிர்வாக அலுவலர் வாக்குமூலம், அ1 விளம்பரம், பொதுமக்கள் வாக்குமூலம்
மற்றும் தொடர்புடைய கிராம ஆவணங்களை இணைத்து அனுப்பியுள்ளேன் என்பதையும்
என்பதையும் பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு: மேற்கண்டவாறு

தங்கள் உண்மையுள்ள,
ஓம்/-ரா.ஜெகதீஸ்குமார்,
வட்டாட்சியர்,
காங்கயம்.

// உண்மை நகல் // உத்தரவுப்படி //

• 
வட்டாட்சியருக்காக.


நிலவருவாய் ஆய்வாளர் அலுவலகம்
ஊதியூர்.

உ.மு.177 /2021

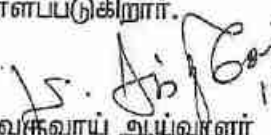
நாள்: 18.02.2022.

அ1 விளம்பரம்

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், முதலிபாளையம் கிராமம், புல எண்களான ரீ.ச.860/1-ல்
பு.ஹெக்.0.63.00 பரப்பளவிற்கும், ரீ.ச.860/2A(P)-ல் பு.ஹெக்.0.40.00 பரப்பளவிற்கும், 861/1-ல்
பு.ஹெக்.1.74.50 பரப்பளவிற்கும் மற்றும் 861/2-ல் பு.ஹெக்.0.88.50 ஆக மொத்தம் பு.ஹெக். 3.66.00
பரப்பளவு கொண்ட பூமியில் திரு.செல்வராஜ், த/பெ. ஆறுமுகம் என்பவர் சாதாரண கற்கள்
வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்குவது தொடர்பாக ஆட்சேபனை
ஏதுமிருப்பின் 15 தினங்களுக்குள் ஆட்சேபனையை ஊதியூர் நிலவருவாய் ஆய்வாளருக்கோ,
காங்கயம் வட்டாட்சியர் அவர்களுக்கோ நேரிலோ, எழுத்துப்பூர்வமாகவோ தெரிவிக்குமாறும், தவறும்
பட்சத்தில் ஆட்சேபனை ஏதுமில்லை எனக்கருதி குத்தகை உரிமம் வழங்கிட நடவடிக்கை
மேற்கொள்ளப்படும் என இதன் மூலம் தெரிவித்துக் கொள்ளப்படுகிறது.


நில வருவாய் ஆய்வாளர்
ஊதியூர் உள்வட்டம்
காங்கயம் வட்டம்
18.2.2022

முதலிபாளையம் கிராமத்தில் அ1 விளம்பரம் செய்து பொதுமக்கள் கையொப்பம் பெற்ற மீள
சமர்ப்பிக்குமாறு முதலிபாளையம் கிராம நிர்வாக அலுவலர் கேட்டுக் கொள்ளப்படுகிறார்.


நில வருவாய் ஆய்வாளர்
ஊதியூர் உள்வட்டம்
காங்கயம் வட்டம்
18.2.2022

பெறுநர்
கிராம நிர்வாக அலுவலர்,
முதலிபாளையம்.

G. R. Srinivasan

R. Srinivasan

Y. Srinivasan

S. Srinivasan

* ராஜகோஷ் கையாண்டி

* E. Srinivasan

[Handwritten signature]

[Handwritten signature]

* V. Narivel

* K. Vignesh

* K. Sivalan

* R. [Signature]

* P. D. [Signature]

* P. Shanmugam

* K. Senthil

[Handwritten signature]

[Handwritten signature]

* P. Narayanasami

* V. Adams

* K. Sivalan

* M. Muthu

ந.க. 798/2022/அ2

சுற்று

ப. அ.

மேற்படி 'அ' அளம்முடம் அருமமானாய் கிராமத்தில் அளம்முடம் செய்வதற்கு மொதுமக்கள் ஊரையையம் மெற் அலுவலகத்தில் மீள சமம்முடம் படுகிறதே எனப் பணிமுடன் தொடர்ந்துக் கொள்கிறேன்.

[Handwritten signature]
11.03.2022
நில வருவாய் ஆய்வாளர்
ஊதியூர் உள்வட்டம்
காங்கயம் வட்டம்

[Handwritten signature]
11/03/2022
சிராம நிலை அலுவலர்
44, முதுபிபாசலம் சிராமம்
காங்கயம் வட்டம்

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:

A.Selvaraj s/o Arumugam,
No.2/147,SaralaiThottam,
Mookkanangkottai,
Uthiyur Village,
Kangayam(TK),
Tiruppur(DT),
Tamil Nadu State-638 703

REF : your letter dated.

SUB : regarding blasting work using explosives in your proposed quarry.

Sir,

We have having explosives licence I form 22 holding No:E/SC/TN/22/733 (E97791) situated in survey SF NO.898,899,905 Chinnamaruthur, Pichaikalpattyvillage,Dharapuram(Tk),Tiruppur(Dt).Our office functions at address No.278/J2,First floor,Karur main road,Mulanur,Dharapuram(TK),Tiruppur(DT),TamilNadu.

We are enacting 2 explosives vans for transporting detonators and class 2 separately for our magazine to our work site and well experienced and licenced blasters and shot firer for safe blasting without untoward incident.

We are willing to undertake work on contract basis at your SF NO.860/1,860/2A(part), 861/1,861/2, Area:3.66.0 Hain Muthalipalayam Village, Kangayam(TK), Tiruppur(DT).

Thanking you

ENCLOSURE

L.LICENCE COPY

FOR HANUMAN EXPLOSIVES

For M/s HANUMAN EXPLOSIVES PVT. LTD.



AUTHORISED SIGNATORY

No.278/J2,Firstfloor,Karur main road,Mulanur,Dharapuram(TK),Tiruppur(DT),Tamil Nadu.PIN-638106



Government of India
Ministry of Commerce & Industry
Petroleum & Explosives Safety Organisation (PESO)
Formerly- Department of Explosives
A & D - Wing, Block 1-8, IInd Floor, Shastri Bhavan
26 Haddous Road, Nungambakkam Chennai 600006
(Phone):- 28281023 | (Fax):- 28284848

(No.):E/SC/TN/22/733(E97791)

(Date): 03/11/2021

To,

M/s.HANUMAN EXPLOSIVES PVT.LTD.,
NO.278/J2,FIRST FLOOR,KARUR MAIN
ROAD,MULANUR,DHARAPURAM,TIRUPPUR,TAMIL NADU-638106,
Town/Village - MULANUR

District-TIRUPUR, State-Tamil Nadu, Pincode - 638106

विषय : Survey No.898 (Magazine-4), ग्राम CHINNAMARUTHUR, Dharapuram Taluk, जिला TIRUPUR, राज्य Tamil Nadu में मेसर्स M/s.HANUMAN EXPLOSIVES PVT.LTD.द्वारा विस्फोटक के मैगजीन में उपयोग के लिए कब्जा हेतु विस्फोटक नियम, 2008 के अंतर्गत LE-3 में जारी अनुज्ञप्ति सं E/SC/TN/22/733(E97791) के संशोधन संदर्भ में।

(विस्फोटक की मात्रा / मासिक खरीद सीमा में परिवर्तन डाक पते में परिवर्तन)

Subject: Possession for Use of of Explosives from magazine situated at Survey No.:898 (Magazine-4), CHINNAMARUTHUR, Dharapuram Taluk, Dist. TIRUPUR, Tamil Nadu -Licence No.: E/SC/TN/22/733(E97791) granted in Form LE-3 of Explosives Rules, 2008 - (Amendment of Quantity of Explosives/Monthly Purchase Limit Change in Postal Address).

Sir,

Please refer to your letter no. 51739 dated 31/10/2021.

The Licence No.: E/SC/TN/22/733(E97791) is forwarded herewith duly amended in respect of followings ;

Quantity of Explosives/Monthly Purchase Limit Change in Postal Address as above

The licence capacity at any one time shall not exceed the kinds and quantities mentioned below ;

No Explosive(s)	Sub			Capacity	Unit
	Class	Div	Div		
1 Nitrate Mixture	2	0	0	4500	Kg.
2 Detonating Fuse	6	2	0	15000	Mtrs
3 Safety Fuse	6	1	0	5000	Mtrs
4 Electric and/or Ordinary Detonators	6	3	0	30000	Nos.

Quantity of explosives to be purchased in a calendar month[applicable for licence under article 3(b) and (c)] : **15 times as above.**

This Licence shall remain valid till **31st day of March 2023.**

For further revalidation(if required), please follow the procedure under Rule 112 of Explosives Rules, 2008. Receipt of this letter may please be acknowledged.

Your's faithfully

Dr. T. L. THANULINGAM)
Deputy Chief Controller of Explosives
For Joint Chief Controller of Explosives
South Circle, Chennai

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.

For Joint Chief Controller of Explosives
South Circle, Chennai

(For more information regarding status, fees and other details please visit our website
<http://peso.gov.in>)

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 only. For documentry purposes, only the original documents issued under the seal and signature of the respective offices of Petroleum & Explosives Safety Organization, shall be valid. All efforts have been made to secure this information. However, PESO will not be responsible for any misuse of the information by unauthorised persons including the hackers.

Cert No. MR/SZ/289



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
जिनकी जन्म तिथि

सुपुत्र

आयु, चरम्यता, सहाचार, स्वास्थ्य और धात्विकीय खानों में काम करने के विहित अनुभव का सन्तोषजनक प्रमाण प्रस्तुत करने एवं दिनांक को केन्द्र पर आयोजित विहित परीक्षा में उत्तीर्ण होने पर एतेद्वारा केवल ओपेनकास्ट खानों तक सीमित मेट सक्षमता प्रमाण-पत्र प्रदान किया जाता है।

Shri **G. DHANABALLAN** son of **V. GOVINDARAJAN** born on **06.03.1970 (SEVENTY)** 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, TRICHY** centre on **29.10.2012** is hereby granted **MINING MATE'S CERTIFICATE OF COMPETENCY** restricted to mines having opencast workings only.

बाई हाथ क अंगूठ का निशान
Left hand thumb impression

अंचल सचिव
खनन परीक्षा बोर्ड
Zonal Secretary
Board of Mining
Examinations

अंचल सचिव
खनन परीक्षा बोर्ड
दक्षिणी अंचल, बेंगलूर
Zonal Secretary
Board of Mining Examinations
Southern Zone, Bengaluru

अध्यक्ष
खनन परीक्षा बोर्ड
Chairman
Board of Mining
Examinations

Signed and Sealed
Date **25/04/13**



भारत सरकार

Government of India

श्रम एवं रोजगार मंत्रालय

Ministry of Labour & Employment

खान सुरक्षा महानिदेशालय

Directorate General of Mines Safety

चेन्नई क्षेत्र / Chennai Region

SPEED POST

SR: 044-26206771
26206772



Chennai, Dated the

10th April, 2018.

Shri G. Mahalingam,
S/o Shri C. Kanagarajan,
D.No. 4/15-D1, Perumalkovil Street,
Orattukuppai, Chettipalayam - Post,
Marudakottai Taluk,
Distt. Coimbatore (TN) - 641 201

MEMORANDUM

With reference to the application dated 21.02.2018 received in this office on 21.02.2018 requesting for endorsement as per Regulation 30(1) of the Metalliferous Mines Regulations, 1961 your Mining Mate's Certificate No. MR/SZ/289, dated 25.04.2013 is returned herewith duly endorsed in respect of Medical Examination done on 17th February, 2018.

Encl: Mining Mate's Cert. No. MR/SZ/289,
Dated: 25.04.2013

(Bhushan Prasad Singh)
Director of Mines Safety,
Chennai Region

MR

To

G. DHANABALLAN

S/o. V. GOVINDARAJAN

Home Address

Village VIRUDASAMPATTI
PO VIRUDASAMPATTI
Police Station NANGAVALLI
District SALEM
State TAMILNADU - 636453

जसागत कियल जलल है कल उनकल सक्षम तलकलसल अलकलरल दुरल स्वलसुथु डरलकुषल कर
खलन डल कलरु कलन कल ललए सुवलसुथु डुडुडत कललल जललल है ।

Certified that he has been examined by qualified medical
officer and declared fit for employment in mines.

1 _____ को 2 _____ को
On _____ को On _____ को

3 _____ को 4 _____ को
On _____ को On _____ को

5 _____ को 6 _____ को
On _____ को On _____ को

7 _____ को 8 _____ को
On _____ को On _____ को

9 _____ को 10 _____ को
On _____ को On _____ को

Prepared by

Checked by



மாவட்ட ஆட்சியர் அலுவலகம்,
திருப்பூர் மாவட்டம், திருப்பூர்.

நாள்: 02.01.2019.

ந.க. 882 / கனிமம் / 2018

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - சாதாரண கற்கள் - காங்க்யம் வட்டம் - முதலிபாளையம் கிராமம் - புல எண். 857/2 (0.87.90), 860/2A (Part) (1.81.00), 860/2B (1.14.00) ஆகியவற்றில் மொத்தம் 3.82.90 ஹெக்டர் பரப்பிலிருந்து சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க ஐந்தாண்டுகளுக்கு குவாரிக் குத்தகை உரிமம் கோரிய திரு. விஜயகுமார், த/பெ. கந்தசாமி என்பவர் மனு - அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் சுற்றுச் சூழல் ஒப்புதல் பெற்று அளிக்க கோருதல் - தொடர்பாக.

- பார்வை:
1. திரு. விஜயகுமார், த/பெ. கந்தசாமி என்பவரின் குவாரிக் குத்தகை உரிமம் கோரிய விண்ணப்பம் நாள்: 27.06.2018.
 2. திரு. விஜயகுமார் விண்ணப்பம் நாள்: 27.09.2018.
 3. தாராபுரம் சார் ஆட்சியர் அவர்களின் அறிக்கை ந.க. 2557 / 2018 / ஆ நாள்: 12.10.2018
 4. உதவிப் புவியியலாளர் (கனிமம்), புவியியல் மற்றும் சுரங்கத்துறை, திருப்பூர் இடப்பார்வை அறிக்கை நாள்: 17.10.2018.
 5. அரசாணை எண். Ms. No. 79, தொழில் (எம்.எம்.சி-1) துறை நாள்: 6.4.2015.
 6. திருப்பூர் மாவட்ட ஆட்சியர் அவர்களின் குறிப்பாணை ந.க. 882 /கனிமம் / 2018 நாள்: 17.10.2018.
 7. திரு. விஜயகுமார் என்பவரது விண்ணப்பம் நாள்: 13.12.2018

காங்க்யம் வட்டம், முதலிபாளையம் கிராம பட்டா புல எண்கள். 857/2 (0.87.90), 857/3 (பகுதி) (0.25.50), 860/2A (பகுதி) (1.81.00) மற்றும் 860/2B (1.14.00) ஆகியவற்றில் மொத்தம் 4.08.40 ஹெக்டர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க ஐந்தாண்டுகளுக்கு திரு. விஜயகுமார், த/பெ. கந்தசாமி என்பவர் குவாரிக் குத்தகை உரிமம் கோரி விண்ணப்பித்ததன் பேரில் குவாரிக் குத்தகை உரிமம் வழங்குவது தொடர்பாக, தாராபுரம் சார் ஆட்சியர் மற்றும் உதவிப் புவியியலாளர் (கனிமம்) ஆகியோரால் மேற்காணும் விண்ணப்பப் புலத்தில் 4.08.40 ஹெக்டரில் ஐந்து ஆண்டுகளுக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள், 1959ன் விதி எண். 19 (1), 20, 33 ஆகியவற்றின் கீழ் சாதாரண

கற்கள் மற்றும் கிராவல் மண் குவாரிக் குத்தகை உரிம அனுமதி வழங்கலாம் என பரிந்துரை செய்யப்பட்டு, அதன் பேரில், அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டத்தை (Approved Mining Plan) மூன்று மாதத்திற்குள் மாவட்ட ஆட்சியர் முன்பு சமர்ப்பிக்க வேண்டும் என பார்வை 6-ல் காணும் குறிப்பாணையில் தெரிவிக்கப்பட்டது.

2. தாராபுரம் சார் ஆட்சியர் மற்றும் உதவிப் புவியியலாளர் (கனிமம்) ஆகியோரால் பரிந்துரை செய்யப்பட்ட புலங்களில் புல எண். 857/3 (பகுதி) (0.25.5) ஐ தவிர்த்து, மனுதாரர் தனது குடும்ப சூழ்நிலையின் காரணமாக மற்ற புலங்களான 857/2 (0.87.90), 860/2A (Part) (1.81.00), 860/2B (1.14.00) ஆகியவற்றில் மொத்தம் 3.82.90 ஹெக்டர் பரப்பிற்கு மட்டும் குவாரி உரிமம் வழங்குமாறு பார்வை 7-ல் கண்டுள்ள விண்ணப்பத்தில் கேட்டுக் கொண்டதற்கிணங்க, 3.82.90 ஹெக்டர் நிலத்தில் சாதாரணக் கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 5 ஆண்டுகளுக்கு குவாரி குத்தகை அனுமதி வழங்குவது குறித்து உரிய நடவடிக்கை எடுக்கும் பொருட்டு அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டத்தை உரிய காலத்திற்குள் சமர்ப்பிக்குமாறு மனுதாரருக்கு தெரிவிக்கப்படுகிறது.

3. மேலும் விண்ணப்ப பட்டா புல எண். 857/2 (0.87.90), 860/2A (Part) (1.81.00), 860/2B (1.14.00) ஆகியவற்றில் மொத்தம் 3.82.90 ஹெக்டர் பரப்புக்கு சாதாரணக் கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 5 ஆண்டுகளுக்கு அனுமதி வழங்குவது தொடர்பாக சுற்றுச் சூழல் மதிப்பீட்டு தாக்க ஆணையத்திடம் ஒப்புதலை பெற்று சமர்ப்பிக்க தெரிவிக்கப்படுகிறது.

இணைப்பு: குவாரி உரிமம் கோரும்
விண்ணப்பம் இணைப்புகளுடன்

(ஓம்)... கே.எஸ். பழனிச்சாமி,
மாவட்ட ஆட்சியர்,
திருப்பூர்.

// உண்மை நகல் / உத்தரவுப்படி //


மாவட்ட ஆட்சியர்,
திருப்பூர்.

பெறுநர்

திரு. கே. விஜயகுமார்,
த/பெ. கந்தசாமி,
4/55, கம்மாலாபாளையம்,
கொழும்புக்குழி கிராமம்,
தாராபுரம் வட்டம்.

TEST REPORT
ULR-TC606023000006740F

Report Number: GLCS/TR/5903/2023-24

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3458	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/5903	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	31.10.2023	
Location Name	AN1 – Core Zone	Location Coordinates - 10° 52' 39.36"N 77 32' 2.69"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	06:00	40.9	49.8	47.32
2	07:00	41.2	50.1	47.62
3	08:00	42.6	51.4	48.93
4	09:00	43.7	53.3	50.74
5	10:00	41.8	54.8	52.00
6	11:00	42.9	53.6	50.94
7	12:00	43.5	54.5	51.82
8	13:00	44.1	56.1	53.36
9	14:00	40.5	52.9	50.13
10	15:00	42.9	53.3	50.67
11	16:00	41.8	54.7	51.91
12	17:00	40.7	51.9	49.21
13	18:00	40.9	50.5	47.94
14	19:00	39.5	49.8	47.18

For Global Lab and Consultancy Services



Page 1 of 2


Authorised Signatory
L. SUDHAPRIYA
Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT ULR-TC606023000006740F

Report Number: GLCS/TR/5903/2023-24

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalpalayam Village, Kangayam Taluk, Tiruppur District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3458	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/5903	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	31.10.2023	
Location Name	AN1 – Core Zone	Location Coordinates - 10° 52' 39.36"N 77° 32' 2.69"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
15	20.00	38.5	47.5	45.00
16	21.00	40.7	46.9	44.82
17	22.00	41.8	47.1	45.21
18	23.00	32.5	45.1	42.32
19	0.00	31.2	40.1	37.62
20	1.00	30.5	39.1	36.65
21	2.00	31.2	39.2	36.83
22	3.00	30.5	35.1	33.38
23	4.00	30.1	37.5	35.22
24	5.00	31.3	36.2	34.41
Day Mean dB(A)				49.3
Night Mean dB(A)				37.7

For Global Lab and Consultancy Services




Authorised Signatory

*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request 125 A report number and report date along with report copy.

TEST REPORT
ULR-TC606023000006741F

Report Number: GLCS/TR/5904/2023-24

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3458	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/5904	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	31.10.2023	
Location Name	AN2 – Near Existing Quarry	Location Coordinates	- 10° 52' 34.22"N 77° 32' 13.25"E	
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	06:15	39.9	47.5	45.19
2	07:15	40.1	49.2	46.69
3	08:15	41.9	53.9	51.16
4	09:15	42.5	55.5	52.70
5	10:15	41.3	56.6	53.72
6	11:15	43.2	57.1	54.26
7	12:15	42.8	55.2	52.43
8	13:15	41.5	56.1	53.24
9	14:15	42.5	55.4	52.61
10	15:15	41.7	54.8	52.00
11	16:15	42.3	53.9	51.18
12	17:15	40.6	54.6	51.76
13	18:15	39.8	48.5	46.04
14	19:15	38.4	47.6	45.08



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L. SUDHAPRIYA
Technical Manager

Page 1 of 2

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TEST REPORT
ULR-TC606023000006741F

Report Number: GLCS/TR/5904/2023-24

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3458	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/5904	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	31.10.2023	
Location Name		Location Coordinates - 10°52' 34.22"N 77°32'13.25"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
15	20.15	37.5	48.9	46.19
16	21.15	36.1	41.5	39.59
17	22.15	33.3	39.9	37.75
18	23.15	32.7	39.5	37.31
19	0.15	32.5	37.9	35.99
20	1.15	32.1	38.5	36.39
21	2.15	33.4	38.1	36.36
22	3.15	31.6	39.5	37.14
23	4.15	32.5	38.3	36.30
24	5.15	32.2	39.5	37.23
			Day Mean dB(A)	49.9
			Night Mean dB(A)	37.1

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*****End of Report*****
Page 2 of 2

L. SUDHAPRIYA
Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request 127 A report number and report date along with report copy.

TEST REPORT
ULR-TC606023000006742F

Report Number: GLCS/TR/5905/2023-24

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3458	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/5905	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	31.10.2023	
Location Name	AN3 – Mudhalipalayam	Location Coordinates - 10° 53' 6.80"N 77° 32' 47.82"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	06:35	38.9	47.1	44.70
2	07:35	39.1	50.6	47.89
3	08:35	39.5	51.2	48.47
4	09:35	41.8	52.6	49.94
5	10:35	39.6	53.6	50.76
6	11:35	40.7	54.1	51.28
7	12:35	42.3	52.5	49.89
8	13:35	41.5	53.3	50.57
9	14:35	42.8	55.2	52.43
10	15:35	39.4	52.1	49.32
11	16:35	40.1	50.9	48.24
12	17:35	41.5	52.7	50.01
13	18:35	40.7	49.8	47.29
14	19:35	39.8	47.8	45.43

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Page 1 of 2

L. SUDHAPRIYA
Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT
ULR-TC606023000006742F

Report Number: GLCS/TR/5905/2023-24

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3458	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/5905	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	31.10.2023	
Location Name		Location Coordinates - 10° 53' 6.80"N 77° 32' 47.82"E		
S. No	Time(Hrs)	AN3 – Mudhalipalayam Min dB(A)	Max dB(A)	Leq dB(A)
15	20.35	33.8	46.6	43.81
16	21.35	32.7	45.1	42.33
17	22.35	33.3	44.5	41.81
18	23.35	32.5	40.1	37.79
19	0.35	33.8	39.5	37.52
20	1.35	31.7	36.6	34.81
21	2.35	31.5	37.1	35.15
22	3.35	30.5	38.5	36.13
23	4.35	32.5	36.9	35.23
24	5.35	31.4	37.2	35.20
Day Mean dB(A)			47.9	
Night Mean dB(A)			36.7	



For Global Lab and Consultancy Services


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*****End of Report*****
Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT
ULR-TC606023000006743F

Report Number: GLCS/TR/5906/2023-24

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3458	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/5906	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	31.10.2023	
Location Name	AN4 – Tammareddipalayam	Location Coordinates - 10° 51' 45.24"N 77° 29' 8.35"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	06:00	40.1	51.5	48.79
2	07:00	41.2	52.9	50.17
3	08:00	39.6	50.7	48.01
4	09:00	40.9	50.1	47.58
5	10:00	41.5	55.1	52.28
6	11:00	42.8	54.9	52.15
7	12:00	41.4	54.7	51.89
8	13:00	41.9	55.1	52.29
9	14:00	42.6	53.6	50.92
10	15:00	41.6	54.1	51.33
11	16:00	40.8	51.9	49.21
12	17:00	39.3	50.4	47.71
13	18:00	38.5	49.6	46.91
14	19:00	40.1	49.5	46.96



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L. SUDHAPRIYA
Technical Manager

Page 1 of 2

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request 130 A report number and report date along with report copy.

TEST REPORT
ULR-TC606023000006743F

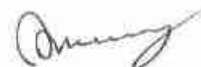
Report Number: GLCS/TR/5906/2023-24

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3458	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/5906	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	04.10.2023 – 05.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	31.10.2023	
Location Name	AN4 – Tammareddipalayam	Location Coordinates - 10° 51' 45.24"N 77° 29' 8.35"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
15	20.00	37.5	48.2	45.54
16	21.00	36.1	43.6	41.30
17	22.00	35.5	41.1	39.15
18	23.00	34.5	40.8	38.70
19	0.00	32.6	38.9	36.80
20	1.00	31.5	37.8	35.70
21	2.00	30.9	36.1	34.24
22	3.00	31.7	35.9	34.29
23	4.00	30.6	36.2	34.25
24	5.00	30.2	35.5	33.61
Day Mean dB(A)			48.4	
Night Mean dB(A)			35.8	



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Authorised Signatory

L. SUDHAPRIYA
Technical Manager

*****End of Report*****

Page 2 of 2

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request 131 A report number and report date along with report copy.

TEST REPORT
ULR-TC606023000006744F

Report Number: GLCS/TR/5907/2023-24

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3458	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/5907	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	05.10.2023 – 06.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	31.10.2023	
Location Name	AN5 – Punganthurai	Location Coordinates - 10° 52' 13.16"N 77° 35' 15.79"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	06:30	39.1	48.1	45.60
2	07:30	40.5	50.2	47.63
3	08:30	41.9	52.6	49.94
4	09:30	42.6	53.4	50.74
5	10:30	39.8	51.1	48.40
6	11:30	38.9	50.9	48.16
7	12:30	39.4	51.4	48.66
8	13:30	40.1	51.9	49.17
9	14:30	39.5	50.9	48.19
10	15:30	39.5	56.7	53.77
11	16:30	40.1	52.6	49.83
12	17:30	36.6	49.8	46.99
13	18:30	35.5	45.6	42.99
14	19:30	34.4	43.2	40.73



For Global Lab and Consultancy Services


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L. SUDHAPRIYA
Technical Manager

Page 1 of 2

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting an E-mail request with report number and report date along with report copy.

TEST REPORT
ULR-TC606023000006744F

Report Number: GLCS/TR/5907/2023-24

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3458	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/5907	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	05.10.2023 – 06.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	31.10.2023	
Location Name		Location Coordinates - 10° 52' 13.16"N 77° 35' 15.79"E		
AN5 – Punganthurai				
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
15	20.30	32.6	43.7	41.01
16	21.30	33.1	42.2	39.69
17	22.30	32.8	40.1	37.83
18	23.30	32.9	38.9	36.86
19	0.30	33.1	36.8	35.33
20	1.30	32.4	37.4	35.58
21	2.30	30.6	37.7	35.46
22	3.30	31.5	36.3	34.53
23	4.30	30.3	36.1	34.10
24	5.30	31.2	35.9	34.16
Day Mean dB(A)				47.0
Night Mean dB(A)				35.5



For Global Lab and Consultancy Services


Authorised Signatory

*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT ULR-TC606023000006745F

Report Number: GLCS/TR/5908/2023-24

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3458	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/5908	
Sampling Time	Every 60 minutes.	Sample Receipt Date	07.10.2023	
Sampling Date	05.10.2023 – 06.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	31.10.2023	
Location Name	AN6 – Nochipalayam	Location Coordinates - 10° 50' 23.60"N 77° 31' 56.87"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	06:00	39.9	50.1	47.49
2	07:00	41.5	53.2	50.47
3	08:00	42.9	55.5	52.72
4	09:00	42.1	54.2	51.45
5	10:00	43.2	55.7	52.93
6	11:00	41.7	54.6	51.81
7	12:00	42.1	53.9	51.17
8	13:00	40.6	52.2	49.48
9	14:00	41.8	53.7	50.96
10	15:00	40.9	52.1	49.41
11	16:00	39.5	50.5	47.82
12	17:00	37.5	49.4	46.66
13	18:00	36.1	47.6	44.89
14	19:00	38.1	46.3	43.90



For Global Lab and Consultancy Services


Authorised Signatory
L. SUDHAPRIYA
Technical Manager

Page 1 of 2

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TEST REPORT
ULR-TC606023000006745F

Report Number: GLCS/TR/5908/2023-24

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3458	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/5908	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	05.10.2023 – 06.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	31.10.2023	
Location Name	AN6 – Nochipalayam	Location Coordinates - 10° 50' 23.60"N 77° 31' 56.87"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
15	20.00	36.5	45.3	42.83
16	21.00	34.4	42.5	40.12
17	22.00	33.6	40.1	37.97
18	23.00	33.5	38.2	36.46
19	0.00	32.5	39.4	37.20
20	1.00	34.1	38.1	36.55
21	2.00	32.9	37.5	35.78
22	3.00	30.5	36.9	34.79
23	4.00	31.8	36.1	34.46
24	5.00	32.6	37.2	35.48
		Day Mean dB(A)		48.4
		Night Mean dB(A)		36.5



For Global Lab and Consultancy Services


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*****End of Report*****
Page 2 of 2

L. SUDHAPRIYA
Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT
ULR-TC606023000006746F

Report Number: GLCS/TR/5909/2023-24

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3458	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/5909	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	05.10.2023 – 06.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	31.10.2023	
Location Name	AN7 – Sengodampalayam	Location Coordinates - 10° 55' 0.91"N 77° 30' 60.00"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	06:30	38.9	49.5	46.85
2	07:30	40.5	51.1	48.45
3	08:30	41.2	52.4	49.71
4	09:30	43.6	54.2	51.55
5	10:30	41.4	53.6	50.84
6	11:30	42.6	53.3	50.64
7	12:30	42.9	54.4	51.69
8	13:30	43.4	55.7	52.94
9	14:30	40.5	54.1	51.28
10	15:30	41.2	55.6	52.74
11	16:30	40.6	53.1	50.33
12	17:30	39.1	48.9	46.32
13	18:30	38.9	45.5	43.35
14	19:30	36.6	43.2	41.05

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L. SUDHAPRIYA
Technical Manager

Page 1 of 2

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TEST REPORT
ULR-TC606023000006746F

Report Number: GLCS/TR/5909/2023-24

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.		
Attention	-	Sampling Condition	Good - Active	
TRF No	3458	Sampled by	Laboratory	
Sample Name	Noise Level Monitoring	Sampling Method	GLCS/SOP/N/014	
Sample Description	Sound Pressure Level	Sample Code	GLCS/5909	
Sampling Time	Every 60 minutes	Sample Receipt Date	07.10.2023	
Sampling Date	05.10.2023 – 06.10.2023	Date of Analysis	07.10.2023	
		Date of Completion	31.10.2023	
Location Name	AN7 – Sengodampalayam	Location Coordinates - 10°55' 0.91"N 77°30'60.00"E		
S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
15	20.30	37.4	42.1	40.36
16	21.30	35.9	41.9	39.86
17	22.30	36.9	40.6	39.13
18	23.30	34.2	39.5	37.61
19	0.30	33.2	36.9	35.43
20	1.30	35.1	38.1	36.85
21	2.30	34.2	39.5	37.61
22	3.30	33.8	37.6	36.10
23	4.30	32.5	37.9	35.99
24	5.30	32.9	38.2	36.31
Day Mean dB(A)				47.5
Night Mean dB(A)				37.2

For Global Lab and Consultancy Services


Authorised Signatory

*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT ULR-TC606023000006747F

Report Number: GLCS/TR/5910/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2 kg
Sample Name	Soil - 1	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5910	Sample Receipt Date	07.10.2023
Location Name	Project Area	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 52' 37.48"N 77° 32' 4.44"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.69
2	pH	IS 2720 (Part 26)	-	8.12
3	Specific Electrical Conductivity	IS 14767	µS/cm	448
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	17.1
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.16
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	7.8
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	8.8
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	52



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Page 1 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT
ULR-TC606023000006747F

Report Number: GLCS/TR/5910/2023-24(1)

Report Date: 09.11.2023

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Chloride (as in Saturation Extract)	GLCS/SOP/S/004	meq/l	4.9
10	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.5
11	Bulk Density	GLCS/SOP/S/017	g/cc	1.26
12	Texture : Sand	GLCS/SOP/S/015	%	27.5
13	Texture : Silt	GLCS/SOP/S/015	%	44.4
14	Texture : Clay	GLCS/SOP/S/015	%	28.1
15	Water Holding Capacity	GLCS/SOP/S/016	%	54
16	Available Nitrogen as N	GLCS/SOP/S/029	kg/hc	200.7

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*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/5910/2023-24(2)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2 kg
Sample Name	Soil - 1	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5910	Sample Receipt Date	07.10.2023
Location Name	Project Area	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 52' 37.48"N 77° 32' 4.44"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permeability	By Permeameter	%	49
2	Manganese	USEPA Method	mg/kg	32
3	Zinc	USEPA Method	mg/kg	12
4	Cadmium as Cd	USEPA Method	mg/kg	4.5
5	Chromium	USEPA Method	mg/kg	24
6	Copper as Cu	USEPA Method	mg/kg	4.5
7	Lead as Pb	USEPA Method	mg/kg	2
8	Iron as Fe	USEPA Method	mg/kg	10
9	Boron as B	USEPA 6010D	mg/kg	10
10	Organic Carbon	GLCS/SOP/S/003	%	0.98

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*****End of Report*****

Page 1 of 1

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 L. SUDHAPRIYA
 Technical Manager

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TEST REPORT ULR-TC606023000006748F

Report Number: GLCS/TR/5911/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2 kg
Sample Name	Soil - 2	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5911	Sample Receipt Date	07.10.2023
Location Name	Mudhalipalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 53' 6.20"N 77° 32' 47.47"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.53
2	pH	IS 2720 (Part 26)	-	8.34
3	Specific Electrical Conductivity	IS 14767	µS/cm	470
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	15.8
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.34
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	8.6
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	5
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	45.6

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Page 1 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT
ULR-TC606023000006748F

Report Number: GLCS/TR/5911/2023-24(1)

Report Date: 09.11.2023

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Chloride (as in Saturation Extract)	GLCS/SOP/S/004	meq/l	5.6
10	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.7
11	Bulk Density	GLCS/SOP/S/017	g/cc	1.14
12	Texture : Sand	GLCS/SOP/S/015	%	41.87
13	Texture : Silt	GLCS/SOP/S/015	%	25.63
14	Texture : Clay	GLCS/SOP/S/015	%	32.5
15	Water Holding Capacity	GLCS/SOP/S/016	%	47.2
16	Available Nitrogen as N	GLCS/SOP/S/029	kg/hc	224

For Global Lab and Consultancy Services


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*****End of Report*****
Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/5911/2023-24(2)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2 kg
Sample Name	Soil - 2	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5911	Sample Receipt Date	07.10.2023
Location Name	Mudhalipalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10°53'6.20"N 77°32'47.47"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permeability	By Permeameter	%	42
2	Manganese	USEPA Method	mg/kg	37
3	Zinc	USEPA Method	mg/kg	21
4	Cadmium as Cd	USEPA Method	mg/kg	4.8
5	Chromium	USEPA Method	mg/kg	33
6	Copper as Cu	USEPA Method	mg/kg	3.4
7	Lead as Pb	USEPA Method	mg/kg	BDL (DL : 0.5)
8	Iron as Fe	USEPA Method	mg/kg	23
9	Boron as B	USEPA 6010D	mg/kg	18.2
10	Organic Carbon	GLCS/SOP/S/003	%	0.89

Note: BDL – Below Detection Limit, DL – Detection Limit.

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*****End of Report*****

Page 1 of 1

L. SUDHAPRIYA
Technical Manager

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TEST REPORT ULR-TC606023000006749F

Report Number: GLCS/TR/5912/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2 kg
Sample Name	Soil - 3	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5912	Sample Receipt Date	07.10.2023
Location Name	Tammareddipalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 51' 45.69"N 77° 29' 8.45"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.08
2	pH	IS 2720 (Part 26)	-	7.91
3	Specific Electrical Conductivity	IS 14767	µS/cm	398
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	15.9
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.01
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	6.6
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	4.4
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	59

For Global Lab and Consultancy Services




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Page 1 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT
ULR-TC606023000006749F

Report Number: GLCS/TR/5912/2023-24(1)

Report Date: 09.11.2023

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Chloride (as in Saturation Extract)	GLCS/SOP/S/004	meq/l	5.1
10	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	17.2
11	Bulk Density	GLCS/SOP/S/017	g/cc	1.19
12	Texture : Sand	GLCS/SOP/S/015	%	41.2
13	Texture : Silt	GLCS/SOP/S/015	%	29.05
14	Texture : Clay	GLCS/SOP/S/015	%	29.75
15	Water Holding Capacity	GLCS/SOP/S/016	%	48.6
16	Available Nitrogen as N	GLCS/SOP/S/029	kg/hc	175.6

For Global Lab and Consultancy Services


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*****End of Report*****
Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/5912/2023-24(2)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2 kg
Sample Name	Soil - 3	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5912	Sample Receipt Date	07.10.2023
Location Name	Tammareddipalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 51' 45.69"N 77° 29' 8.45"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permeability	By Permeameter	%	52
2	Manganese	USEPA Method	mg/kg	25
3	Zinc	USEPA Method	mg/kg	29
4	Cadmium as Cd	USEPA Method	mg/kg	7
5	Chromium	USEPA Method	mg/kg	22
6	Copper as Cu	USEPA Method	mg/kg	5
7	Lead as Pb	USEPA Method	mg/kg	BDL (DL : 0.5)
8	Iron as Fe	USEPA Method	mg/kg	33
9	Boron as B	USEPA 6010D	mg/kg	16
10	Organic Carbon	GLCS/SOP/S/003	%	0.63

Note: BDL – Below Detection Limit, DL – Detection Limit.

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*****End of Report*****

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L. SUDHAPRIYA
Technical Manager

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TEST REPORT ULR-TC606023000006750F

Report Number: GLCS/TR/5913/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2 kg
Sample Name	Soil - 4	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5913	Sample Receipt Date	07.10.2023
Location Name	Pungathurai	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 52' 12.92"N 77° 35' 16.83"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	2.2
2	pH	IS 2720 (Part 26)	-	8.43
3	Specific Electrical Conductivity	IS 14767	µS/cm	415
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	13
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.34
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	7.8
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	4.6
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	60

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Page 1 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT
ULR-TC606023000006750F

Report Number: GLCS/TR/5913/2023-24(1)

Report Date: 09.11.2023

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Chloride (as in Saturation Extract)	GLCS/SOP/S/004	meq/l	6.3
10	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.6
11	Bulk Density	GLCS/SOP/S/017	g/cc	1.15
12	Texture : Sand	GLCS/SOP/S/015	%	25
13	Texture : Silt	GLCS/SOP/S/015	%	41.3
14	Texture : Clay	GLCS/SOP/S/015	%	33.7
15	Water Holding Capacity	GLCS/SOP/S/016	%	48.8
16	Available Nitrogen as N	GLCS/SOP/S/029	kg/hc	263.4

For Global Lab and Consultancy Services


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*****End of Report*****
Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/5913/2023-24(2)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2 kg
Sample Name	Soil - 4	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5913	Sample Receipt Date	07.10.2023
Location Name	Punganthurai	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 52' 12.92"N 77° 35' 16.83"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permeability	By Permeameter	%	49
2	Manganese	USEPA Method	mg/kg	31
3	Zinc	USEPA Method	mg/kg	27
4	Cadmium as Cd	USEPA Method	mg/kg	6
5	Chromium	USEPA Method	mg/kg	22
6	Copper as Cu	USEPA Method	mg/kg	8
7	Lead as Pb	USEPA Method	mg/kg	2.5
8	Iron as Fe	USEPA Method	mg/kg	82
9	Boron as B	USEPA 6010D	mg/kg	13.5
10	Organic Carbon	GLCS/SOP/S/003	%	1.28

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*****End of Report*****

Page 1 of 1

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L. SUDHAPRIYA
Technical Manager

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TEST REPORT ULR-TC606023000006751F

Report Number: GLCS/TR/5914/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthaipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2 kg
Sample Name	Soil – 5	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5914	Sample Receipt Date	07.10.2023
Location Name	Nochipalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 50' 23.40"N 77° 31' 56.82"E		

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.76
2	pH	IS 2720 (Part 26)	-	7.78
3	Specific Electrical Conductivity	IS 14767	µS/cm	452
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	14.6
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.35
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	5.8
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	5
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	53

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L. SUDHAPRIYA
Technical Manager

Page 1 of 2

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TEST REPORT
ULR-TC606023000006751F

Report Number: GLCS/TR/5914/2023-24(1)

Report Date: 09.11.2023

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Chloride (as in Saturation Extract)	GLCS/SOP/S/004	meq/l	7.2
10	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.8
11	Bulk Density	GLCS/SOP/S/017	g/cc	1.08
12	Texture : Sand	GLCS/SOP/S/015	%	35.6
13	Texture : Silt	GLCS/SOP/S/015	%	29.3
14	Texture : Clay	GLCS/SOP/S/015	%	35.1
15	Water Holding Capacity	GLCS/SOP/S/016	%	51.6
16	Available Nitrogen as N	GLCS/SOP/S/029	kg/hc	213.2

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*****End of Report*****
Page 2 of 2

L. SUDHAPRIYA
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TEST REPORT

Report Number: GLCS/TR/5914/2023-24(2)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2 kg
Sample Name	Soil – 5	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5914	Sample Receipt Date	07.10.2023
Location Name	Nochipalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 50' 23.40"N 77° 31' 56.82"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permeability	By Permeameter	%	46
2	Manganese	USEPA Method	mg/kg	40
3	Zinc	USEPA Method	mg/kg	4.5
4	Cadmium as Cd	USEPA Method	mg/kg	7.5
5	Chromium	USEPA Method	mg/kg	32
6	Copper as Cu	USEPA Method	mg/kg	8
7	Lead as Pb	USEPA Method	mg/kg	3.5
8	Iron as Fe	USEPA Method	mg/kg	54
9	Boron as B	USEPA 6010D	mg/kg	23
10	Organic Carbon	GLCS/SOP/S/003	%	1.02

For Global Lab and Consultancy Services



*****End of Report*****

Page 1 of 1

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Technical Manager

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TEST REPORT
ULR-TC606023000006752F

Report Number: GLCS/TR/5915/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2 kg
Sample Name	Soil – 6	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5915	Sample Receipt Date	07.10.2023
Location Name	Sengodampalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 55' 0.48"N 77° 30' 59.76"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.62
2	pH	IS 2720 (Part 26)	-	8.56
3	Specific Electrical Conductivity	IS 14767	µS/cm	386
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	11.7
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.37
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	7
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	5
8	Sulphate as SO ₄	GLCS/SOP/S/009	mg/100g	54.6

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L. SUDHAPRIYA
Technical Manager

Page 1 of 2

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TEST REPORT
ULR-TC606023000006752F

Report Number: GLCS/TR/5915/2023-24(1)

Report Date: 09.11.2023

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Chloride (as in Saturation Extract)	GLCS/SOP/S/004	meq/l	6.1
10	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	17.5
11	Bulk Density	GLCS/SOP/S/017	g/cc	1.12
12	Texture : Sand	GLCS/SOP/S/015	%	32.5
13	Texture : Silt	GLCS/SOP/S/015	%	37.9
14	Texture : Clay	GLCS/SOP/S/015	%	29.6
15	Water Holding Capacity	GLCS/SOP/S/016	%	54
16	Available Nitrogen as N	GLCS/SOP/S/029	kg/hc	188.2

For Global Lab and Consultancy Services


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*****End of Report*****
Page 2 of 2

L. SUDHAPRIYA
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/5915/2023-24(2)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2 kg
Sample Name	Soil – 6	Sampled by	Laboratory
Sample Description	-	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 5915	Sample Receipt Date	07.10.2023
Location Name	Sengodampalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10°55'0.48"N 77°30'59.76"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permeability	By Permeameter	%	50
2	Manganese	USEPA Method	mg/kg	33
3	Zinc	USEPA Method	mg/kg	54
4	Cadmium as Cd	USEPA Method	mg/kg	4
5	Chromium	USEPA Method	mg/kg	60
6	Copper as Cu	USEPA Method	mg/kg	18
7	Lead as Pb	USEPA Method	mg/kg	7
8	Iron as Fe	USEPA Method	mg/kg	71
9	Boron as B	USEPA 6010D	mg/kg	6
10	Organic Carbon	GLCS/SOP/S/003	%	0.94

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*****End of Report*****

Page 1 of 1

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L. SUDHAPRIYA
Technical Manager

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TEST REPORT ULR-TC606023000006753F

Report Number: GLCS/TR/5916/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalpalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2Liters
Sample Name	Surface Water	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS / 5916	Sample Receipt Date	07.10.2023
Location Name	Amaravathi River	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 50' 38.30"N 77° 35' 25.09"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	<5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	7.92
4	Electrical Conductivity	IS 3025 PART14	µs/cm	2368
5	Turbidity	IS 3025 PART10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	1540
7	Total Alkalinity as CaCO ₃	IS 3025 PART 23	mg/l	860
8	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	920
9	Calcium as Ca	IS 3025 PART40	mg/l	194

For Global Lab and Consultancy Services




Authorised Signatory

Page 1 of 3

L. SUDHAPRIYA
Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT
ULR-TC606023000006753F

Report Number: GLCS/TR/5916/2023-24(1)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	107
11	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	184
12	Sulphate as SO ₄ ²⁻	IS 3025 PART 24	mg/l	40
13	Iron as Fe	IS 3025 PART 53	mg/l	0.36
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
15	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL(DL:1.0)
16	Fluoride as F ⁻	GLCS/SOP/W/015	mg/l	0.79
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	BDL(DL :2.0)
19	Dissolved Oxygen	IS 3025 PART 38	mg/l	6
20	Bio-Chemical Oxygen Demand @ 27°C for 3 days	IS 3025 PART 44	mg/l	12
21	Chemical Oxygen Demand	IS 3025 PART 58	mg/l	32
22	Ammonical Nitrogen as NH ₃ N	IS 3025 PART 34	mg/l	BDL(DL:1.0)

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services


Authorised Signatory



Page 2 of 3

L. SUDHAPRIYA
Technical Manager

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TEST REPORT ULR-TC606023000006753F

Report Number: GLCS/TR/5916/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Good
Customer Ref No	3458	Sample Quantity	300 ml
Sample Name	Surface Water 1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS / 5916	Sample Receipt Date	07.10.2023
Location Name	Amaravathi River	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	11.10.2023
Location Coordinates	10° 50' 38.30"N 77° 35' 25.09"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS	LIMITS
1	Total Coliforms	IS 1622	MPN/100ml	<2	Total Coliforms Organism MPN/100ml shall be 50 or less
2	<i>Escherichia coli</i>	IS 1622	MPN/100ml	<2	-

Note: MPN- Most Probable Number. Limits - Tolerance limit as per TNPCB norms.

For Global Lab and Consultancy Services




Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

*****End of Report*****

Page 3 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT

Report Number: GLCS/TR/5916/2023-24(2)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2Liters
Sample Name	Surface Water	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS / 5916	Sample Receipt Date	07.10.2023
Location Name	Amaravathi River	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 50' 38.30"N 77° 35' 25.09"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Suspended Solids	IS 3025 PART 17	mg/l	14
2	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)
3	Anionic Detergents	IS 13428 Annex K	mg/l	BDL(DL:0.05)
4	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
5	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)
6	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
7	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
8	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
9	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
10	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
11	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
12	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
13	Chromium	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)
14	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
15	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
16	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)

Note : BDL – Below Detection Limit, DL – Detection Limit.



*****End of Report*****

Page 1 of 1

For Global Lab and Consultancy Services

(Signature)
Authorised Signatory

L. SUDHAPRIYA
Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT
ULR-TC60602300006754F

Report Number: GLCS/TR/5917/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2Liters
Sample Name	Well Water	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS / 5917	Sample Receipt Date	07.10.2023
Location Name	Near Project Area	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 52' 20.39"N 77° 32' 16.65"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	<5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	7.34
4	Electrical Conductivity	IS 3025 PART14	µs/cm	1530
5	Turbidity	IS 3025 PART10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	995
7	Total Alkalinity as CaCO ₃	IS 3025 PART 23	mg/l	440
8	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	490
9	Calcium as Ca	IS 3025 PART40	mg/l	124

For Global Lab and Consultancy Services




Authorised Signatory

L. SUDHAPRIYA
Technical Manager

Page 1 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT
ULR-TC60602300006754F

Report Number: GLCS/TR/5917/2023-24(1)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	44
11	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	258
12	Sulphate as SO ₄ ⁻²	IS 3025 PART24	mg/l	80
13	Iron as Fe	IS 3025 PART 53	mg/l	0.26
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
15	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL(DL:1.0)
16	Fluoride as F ⁻	GLCS/SOP/W/015	mg/l	0.41
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	BDL(DL:2.0)
19	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2.0)

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services


Authorised Signatory



Page 2 of 3

L. SUDHAPRIYA
Technical Manager

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TEST REPORT
ULR-TC606023000006754F

Report Number: GLCS/TR/5917/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Good
Customer Ref No	3458	Sample Quantity	300 ml
Sample Name	Well Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS / 5917	Sample Receipt Date	07.10.2023
Location Name	Near Project Area	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	11.10.2023
Location Coordinates	10° 52' 20.39"N 77° 32' 16.65"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS	IS 10500:2012 Drinking Water	
					Acceptance Limit	Permissible Limit
1	Total Coliforms	IS 15185	Per 100ml	Absent	Should be Absent	
2	<i>Escherichia coli</i>	IS 15185	Per 100ml	Absent		

For Global Lab and Consultancy Services



L. Dineshkumar
Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

*****End of Report*****
Page 3 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT

Report Number: GLCS/TR/5917/2023-24(2)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2Liters
Sample Name	Well Water	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS / 5917	Sample Receipt Date	07.10.2023
Location Name	Near Project Area	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 52' 20.39"N 77° 32' 16.65"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)
2	Anionic Detergents	IS 13428 Annex K	mg/l	BDL(DL:0.05)
3	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
4	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)
5	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
6	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
7	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
8	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
9	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
10	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
11	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
12	Chromium	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)
13	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
14	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
15	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
16	Ammonical Nitrogen as NH ₃ N	IS 3025 PART 34	mg/l	BDL(DL:1.0)

Note : BDL – Below Detection Limit, DL – Detection Limit.



*****End of Report*****

Page 1 of 1

For Global Lab and Consultancy Services

(Signature)
Authorised Signatory
L. SUDHAPRIYA
 Technical Manager

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TEST REPORT
ULR-TC606023000006755F

Report Number: GLCS/TR/5918/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2Liters
Sample Name	Well Water	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS / 5918	Sample Receipt Date	07.10.2023
Location Name	Sengodampalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 55' 8.67"N 77° 30' 56.49"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	<5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	7.28
4	Electrical Conductivity	IS 3025 PART14	µs/cm	2086
5	Turbidity	IS 3025 PART10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	1356
7	Total Alkalinity as CaCO ₃	IS 3025 PART 23	mg/l	560
8	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	670
9	Calcium as Ca	IS 3025 PART40	mg/l	136

For Global Lab and Consultancy Services




Authorised Signatory

L. SUDHAPRIYA
Technical Manager

Page 1 of 3

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TEST REPORT
ULR-TC606023000006755F

Report Number: GLCS/TR/5918/2023-24(1)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	80
11	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	412
12	Sulphate as SO ₄ ²⁻	IS 3025 PART 24	mg/l	42
13	Iron as Fe	IS 3025 PART 53	mg/l	0.53
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
15	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL(DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.44
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	BDL(DL:2.0)
19	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2.0)

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services


Authorised Signatory



Page 2 of 3

L. SUDHAPRIYA
Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT ULR-TC606023000006755F

Report Number: GLCS/TR/5918/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Good
Customer Ref No	3458	Sample Quantity	300 ml
Sample Name	Well Water - 2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS / 5918	Sample Receipt Date	07.10.2023
Location Name	Sengodampalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	09.10.2023
Location Coordinates	10 55 8.67"N 77 30'56.49"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS	IS 10500:2012 Drinking Water	
					Acceptance Limit	Permissible Limit
1	Total Coliforms	IS 15185	Per 100ml	Absent	Should be Absent	
2	<i>Escherichia coli</i>	IS 15185	Per 100ml	Absent		

For Global Lab and Consultancy Services



L. Dineshkumar
Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

*****End of Report*****

Page 3 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT

Report Number: GLCS/TR/5918/2023-24(2)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2Liters
Sample Name	Well Water	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS / 5918	Sample Receipt Date	07.10.2023
Location Name	Sengodampalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 55' 8.67"N 77° 30' 56.49"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)
2	Anionic Detergents	IS 13428 Annex K	mg/l	BDL(DL:0.05)
3	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
4	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)
5	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
6	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
7	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
8	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
9	Aluminium as Al	GLCS/SOP/W/62	mg/l	0.054
10	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
11	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
12	Chromium	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)
13	Barium as Ba	GLCS/SOP/W/62	mg/l	0.28
14	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
15	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
16	Ammonical Nitrogen as NH ₃ N	IS 3025 PART 34	mg/l	BDL(DL:1.0)

Note : BDL – Below Detection Limit, DL – Detection Limit.



*****End of Report*****

Page 1 of 1

For Global Lab and Consultancy Services

(Signature)
Authorised Signatory

L. SUDHAPRIYA
Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT ULR-TC606023000006756F

Report Number: GLCS/TR/5919/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2Liters
Sample Name	Well Water	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS / 5919	Sample Receipt Date	07.10.2023
Location Name	Tammareddipalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10°51'40.54"N 77°29'26.41"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	<5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	7.7
4	Electrical Conductivity	IS 3025 PART14	µs/cm	1810
5	Turbidity	IS 3025 PART10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	1176
7	Total Alkalinity as CaCO ₃	IS 3025 PART 23	mg/l	620
8	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	720
9	Calcium as Ca	IS 3025 PART40	mg/l	144

For Global Lab and Consultancy Services




Authorised Signatory

L. SUDHAPRIYA
Technical Manager

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Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT
ULR-TC606023000006756F

Report Number: GLCS/TR/5919/2023-24(1)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	87
11	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	218
12	Sulphate as SO ₄ ²⁻	IS 3025 PART 24	mg/l	48
13	Iron as Fe	IS 3025 PART 53	mg/l	0.41
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
15	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL(DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.32
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	BDL(DL:2.0)
19	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2.0)

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services




Authorised Signatory

Page 2 of 3

L. SUDHAPRIYA
Technical Manager

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TEST REPORT ULR-TC606023000006756F

Report Number: GLCS/TR/5919/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Good
Customer Ref No	3458	Sample Quantity	300 ml
Sample Name	Well Water - 3	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS / 5919	Sample Receipt Date	07.10.2023
Location Name	Tammareddipalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	09.10.2023
Location Coordinates	10° 51' 40.54"N 77° 29' 26.41"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS	IS 10500:2012 Drinking Water	
					Acceptance Limit	Permissible Limit
1	Total Coliforms	IS 15185	Per 100ml	Absent	Should be Absent	
2	<i>Escherichia coli</i>	IS 15185	Per 100ml	Absent		

For Global Lab and Consultancy Services



L. Dineshkumar
Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

*****End of Report*****

Page 3 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT

Report Number: GLCS/TR/5919/2023-24(2)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2Liters
Sample Name	Well Water	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS / 5919	Sample Receipt Date	07.10.2023
Location Name	Tammareddipalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10° 51' 40.54"N 77° 29' 26.41"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)
2	Anionic Detergents	IS 13428 Annex K	mg/l	BDL(DL:0.05)
3	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
4	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)
5	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
6	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
7	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
8	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
9	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
10	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
11	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
12	Chromium	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)
13	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
14	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
15	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
16	Ammonical Nitrogen as NH ₃ N	IS 3025 PART 34	mg/l	BDL(DL:1.0)

Note : BDL – Below Detection Limit, DL – Detection Limit.



*****End of Report*****

Page 1 of 1

For Global Lab and Consultancy Services

Authorized Signatory

L. SUDHAPRIYA
Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT ULR-TC606023000006757F

Report Number: GLCS/TR/5920/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalpalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2Liters
Sample Name	Borewell Water	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS / 5920	Sample Receipt Date	07.10.2023
Location Name	Near Project Area	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10°52'41.99"N 77°31'49.90"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	<5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	7.28
4	Electrical Conductivity	IS 3025 PART14	µs/cm	1320
5	Turbidity	IS 3025 PART10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	858
7	Total Alkalinity as CaCO ₃	IS 3025 PART 23	mg/l	410
8	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	380
9	Calcium as Ca	IS 3025 PART40	mg/l	64

For Global Lab and Consultancy Services




Authorised Signatory

Page 1 of 3

L. SUDHAPRIYA
Technical Manager

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TEST REPORT
ULR-TC606023000006757F

Report Number: GLCS/TR/5920/2023-24(1)

Report Date: 09.11.2023.

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	54
11	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	114
12	Sulphate as SO ₄ ⁻	IS 3025 PART 24	mg/l	31
13	Iron as Fe	IS 3025 PART 53	mg/l	0.24
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
15	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL(DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.5
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	BDL(DL:2.0)
19	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2.0)

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services


Authorised Signatory

L. SUDHAPRIYA
Technical Manager



Page 2 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT ULR-TC606023000006757F

Report Number: GLCS/TR/5920/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Good
Customer Ref No	3458	Sample Quantity	300 ml
Sample Name	Borewell Water - 1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS / 5920	Sample Receipt Date	07.10.2023
Location Name	Near Project Area	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	09.10.2023
Location Coordinates	10°52'41.99"N 77°31'49.90"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS	IS 10500:2012 Drinking Water	
					Acceptance Limit	Permissible Limit
1	Total Coliforms	IS 15185	Per 100ml	Absent	Should be Absent	
2	<i>Escherichia coli</i>	IS 15185	Per 100ml	Absent		



For Global Lab and Consultancy Services


Authorised Signatory
L. DINESHKUMAR
 Technical Manager-Microbiology

*****End of Report*****

Page 3 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

174A

TEST REPORT

Report Number: GLCS/TR/5920/2023-24(2)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2Liters
Sample Name	Borewell Water	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS / 5920	Sample Receipt Date	07.10.2023
Location Name	Near Project Area	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10°52'41.99"N 77°31'49.90"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)
2	Anionic Detergents	IS 13428 Annex K	mg/l	BDL(DL:0.05)
3	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
4	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)
5	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
6	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
7	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
8	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
9	Aluminium as Al	GLCS/SOP/W/62	mg/l	0.028
10	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
11	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
12	Chromium	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)
13	Barium as Ba	GLCS/SOP/W/62	mg/l	0.097
14	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
15	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
16	Ammonical Nitrogen as NH ₃ N	IS 3025 PART 34	mg/l	BDL(DL:1.0)

Note : BDL – Below Detection Limit, DL – Detection Limit.



*****End of Report*****

Page 1 of 1

For Global Lab and Consultancy Services

Authorised Signatory

L. SUDHAPRIYA
Technical Manager

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TEST REPORT ULR-TC606023000006758F

Report Number: GLCS/TR/5921/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2Liters
Sample Name	Borewell Water	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS / 5921	Sample Receipt Date	07.10.2023
Location Name	Nochipalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10°50'23.98"N 77°32'4.12"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	<5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	7.68
4	Electrical Conductivity	IS 3025 PART14	µs/cm	1723
5	Turbidity	IS 3025 PART10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	1120
7	Total Alkalinity as CaCO ₃	IS 3025 PART 23	mg/l	480
8	Total Hardness as CaCO ₃	IS 3025 PART 21	mg/l	570
9	Calcium as Ca	IS 3025 PART40	mg/l	120

For Global Lab and Consultancy Services




Authorised Signatory

Page 1 of 3

L. SUDHAPRIYA
Technical Manager

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TEST REPORT
ULR-TC60602300006758F

Report Number: GLCS/TR/5921/2023-24(1)

Report Date: 09.11.2023

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	66
11	Chloride as Cl ⁻	IS 3025 PART 32	mg/l	323
12	Sulphate as SO ₄ ⁻²	IS 3025 PART24	mg/l	17
13	Iron as Fe	IS 3025 PART 53	mg/l	0.5
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
15	Free Residual Chlorine as Cl ₂	IS 3025 PART 26	mg/l	BDL(DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.52
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)
18	Nitrate as NO ₃	IS 3025 PART 34	mg/l	BDL(DL:2.0)
19	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2.0)

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services




Authorised Signatory

Page 2 of 3

L. SUDHAPRIYA
Technical Manager

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT
ULR-TC606023000006758F

Report Number: GLCS/TR/5921/2023-24(1)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Good
Customer Ref No	3458	Sample Quantity	300 ml
Sample Name	Borewell Water - 2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS / 5921	Sample Receipt Date	07.10.2023
Location Name	Nochipalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	09.10.2023
Location Coordinates	10°50'23.98"N 77°32'4.12"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS	IS 10500:2012 Drinking Water	
					Acceptance Limit	Permissible Limit
1	Total Coliforms	IS 15185	Per 100ml	Absent	Should be Absent	
2	<i>Escherichia coli</i>	IS 15185	Per 100ml	Absent		



For Global Lab and Consultancy Services

L. Dineshkumar
Authorised Signatory
L. DINESHKUMAR
 Technical Manager-Microbiology

*****End of Report*****

Page 3 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

TEST REPORT

Report Number: GLCS/TR/5921/2023-24(2)

Report Date: 09.11.2023

Issued To : Thiru. A.Selvaraj, S/o. Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - 638 703.		Site Address : Lease Area – 3.66.0 Ha. S.F.No : 860/1, 860/2A (Part), 861/1 & 861/2, Muthalipalayam Village, Kangayam Taluk, Tiruppur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3458	Sample Quantity	2Liters
Sample Name	Borewell Water	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS / 5921	Sample Receipt Date	07.10.2023
Location Name	Nochipalayam	Date of Analysis	07.10.2023
Sampling Date	05.10.2023	Date of Completion	31.10.2023
Location Coordinates	10°50'23.98"N 77°32'4.12"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)
2	Anionic Detergents	IS 13428 Annex K	mg/l	BDL(DL:0.05)
3	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
4	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)
5	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
6	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
7	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
8	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
9	Aluminium as Al	GLCS/SOP/W/62	mg/l	0.051
10	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
11	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
12	Chromium	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)
13	Barium as Ba	GLCS/SOP/W/62	mg/l	0.064
14	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
15	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
16	Ammonical Nitrogen as NH ₃ N	IS 3025 PART 34	mg/l	BDL(DL:1.0)

Note : BDL – Below Detection Limit, DL – Detection Limit.



*****End of Report*****

Page 1 of 1

For Global Lab and Consultancy Services

(Signature)
Authorised Signatory
L. SUDHAPRIYA
 Technical Manager

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LABORATORY | CONSULTANCY | SUSTAINABILITY

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Web: www.glcs.in

SUMMARY REPORT

Issued To	Thiru.A.Selvaraj, S/o.Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - -638703.		
Site Location	Lease Area – 3.66.0Ha S.F.No.860/1,860/2A(part),861/1 & 861/2, Mudhalpalayam village, Kangayam Taluk, Tiruppur District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 1 – Core Zone (Project Area)
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code Ref	GLCS/5889, 5896,6312, 6319,6622,6629,6977,6984, 7192,7199, 7474, 7481,7736,7743,8124,8131,8457,8464,8805,8812,9155,9162,9453,9460,9820,9827		
Location Coordinates	10° 52' 37.37"N 77° 31' 59.35"E		
Report Date	08.01.2024		

Date	Period. hrs	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.10.2023	10.30am - 10.30am	44.5	22.0	7.2	22.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	10.35am - 10.35am	42.7	24.1	BDL(DL:4)	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	11.00am - 11.00am	45.8	24.9	BDL(DL:4)	25.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	11.10am - 11.10am	46.0	25.8	5.2	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	11.00am - 11.00am	44.5	21.6	6.3	22.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	11.10am - 11.10am	43.2	21.6	BDL(DL:4)	22.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	11.30am - 11.30am	42.5	20.8	4.6	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	11.40am - 11.40am	40.4	23.3	4.6	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	11.30am - 11.30am	43.6	21.2	5.2	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	11.40am - 11.40am	42.9	23.7	7.0	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	8.00am - 8.00am	41.6	22.8	BDL(DL:4)	23.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	8.05am - 8.05am	44.6	20.8	BDL(DL:4)	22.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	11.00am - 11.00am	40.6	20.4	4.6	19.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	11.10am - 11.10am	40.5	20.4	5.7	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.11.2023	11.30am - 11.30am	40.2	20.0	4.6	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	11.40am - 11.40am	41.2	20.8	7.0	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	11.30am - 11.30am	42.1	21.6	7.0	19.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	11.40am - 11.40am	40.7	20.4	6.7	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
6.12.2023	11.30am - 11.30am	40.8	20.0	BDL(DL:4)	22.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
7.12.2023	11.40am - 11.40am	42.9	22.5	6.2	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	8.00am - 8.00am	40.1	20.4	5.4	21.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	8.05am - 8.05am	41.6	20.8	BDL(DL:4)	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	11.00am - 11.00am	41.0	20.0	5.7	25.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	11.10am - 11.10am	43.1	23.7	4.9	18.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	11.30am - 11.30am	40.4	20.0	BDL(DL:4)	25.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	11.40am - 11.40am	43.0	23.7	BDL(DL:4)	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Authorised Signatory

L. SUDHAPRIYA
Technical Manager



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SUMMARY REPORT

Issued To	Thiru.A.Selvaraj, S/o.Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District --638703.		
Site Location	Lease Area – 3.66.0Ha S.F.No.860/1,860/2A(part),861/1 & 861/2, Mudhalipalayam village, Kangayam Taluk, Tiruppur District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 1 – Core Zone (Project Area)
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
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Location Coordinates	10° 52' 37.37"N 77° 31' 59.35"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	BENZENE (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
04.10.2023	10.30am - 10.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	10.35am - 10.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	11.00am - 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	11.00am - 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	8.00am - 8.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	8.05am - 8.05am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	11.00am - 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.11.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.11.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
6.12.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
7.12.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.12.2023	8.00am - 8.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	8.05am - 8.05am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.12.2023	11.00am - 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.12.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.12.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



(Signature)
Authorised Signatory

L. SUDHAPRIYA
Technical Manager

*****End of Report*****



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SUMMARY REPORT

Issued To	Thiru.A.Selvaraj, S/o.Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - -638703.		
Site Location	Lease Area – 3.66.0Ha S.F.No.860/1,860/2A(part),861/1 & 861/2, Mudhalipalayam village, Kangayam Taluk, Tiruppur District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 2 – Near Existing Quarry
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5890, 5897,6313, 6320,6623, 6630,6978,6985,7193,7200,7475,7482,7737,7744,8125,8132,8458,8465, 8806,8813, 9156,9163,9454,9461,9821,9828		
Location Coordinates	10° 52' 34.48"N 77° 32' 12.83"E		
Report Date	08.01.2024		

Date	Period. hrs	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.10.2023	10.45am - 10.45am	42.7	24.1	8.8	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	10.50am - 10.50am	43.0	23.3	8.2	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	11.15am - 11.15am	44.7	24.1	8.7	26.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	11.25am -11.25am	46.6	24.1	BDL(DL:4)	25.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	11.15am - 11.15am	42.5	22.4	4.7	23.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	11.25am - 11.25am	43.9	21.2	5.4	24.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	11.50am - 11.50am	42.2	22.4	4.9	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	12.00pm - 12.00 pm	43.7	20.8	5.9	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	11.50am - 11.50am	41.2	22.4	4.9	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	12.00pm - 12.00 pm	40.9	21.6	5.7	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	8.15am - 8.15am	44.1	20.8	6.1	22.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	8.20am - 8.20am	42.6	23.7	BDL(DL:4)	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	11.15am - 11.15am	43.7	23.7	7.0	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	11.25am - 11.25am	44.4	24.1	6.2	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.11.2023	11.50am - 11.50am	44.9	21.6	5.2	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	12.00pm - 12.00 pm	42.6	21.6	4.4	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	11.50am - 11.50am	40.8	21.2	4.1	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	12.00pm - 12.00 pm	41.8	20.4	6.5	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
6.12.2023	11.50am - 11.50am	45.8	25.4	BDL(DL:4)	22.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
7.12.2023	12.00pm - 12.00pm	45.9	24.9	7.0	21.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	8.20m - 8.20am	46.6	25.7	BDL(DL:4)	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	8.05am - 8.05am	43.3	24.0	5.8	22.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	11.15am - 11.15am	45.6	25.4	8.0	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	11.25am - 11.25am	47.6	25.8	8.3	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	11.50am - 11.50am	47.2	25.8	4.6	22.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	12.00pm - 12.00pm	46.4	24.1	BDL(DL:4)	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

Authorised Signatory

L. SUDHAPRIYA
Technical Manager



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SUMMARY REPORT

Issued To	Thiru.A.Selvaraj, S/o.Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - -638703.		
Site Location	Lease Area – 3.66.0Ha S.F.No.860/1,860/2A(part),861/1 & 861/2, Mudhalipalayam village, Kangayam Taluk, Tiruppur District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 2 – Near Existing Quarry
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5890, 5897,6313, 6320,6623, 6630,6978,6985,7193,7200,7475,7482,7737,7744,8125,8132,8458,8465, 8806,8813, 9156,9163,9454,9461,9821,9828		
Location Coordinates	10°52' 34.48"N 77°32' 12.83"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	BENZENE (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	
04.10.2023	10.45am - 10.45am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
05.10.2023	10.50am - 10.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
11.10.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
12.10.2023	11.25am -11.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
18.10.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
19.10.2023	11.25am - 11.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
25.10.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
26.10.2023	12.00pm - 12.00 pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
1.11.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
2.11.2023	12.00pm - 12.00 pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
8.11.2023	8.15am - 8.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
9.11.2023	8.20am - 8.20am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
15.11.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
16.11.2023	11.25am - 11.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
21.11.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
22.11.2023	12.00pm - 12.00 pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
29.11.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
30.11.2023	12.00pm - 12.00 pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
6.12.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
7.12.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
13.12.2023	8.00am - 8.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
14.12.2023	8.05am - 8.05am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
20.12.2023	11.00am - 11.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
21.12.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
27.12.2023	11.30am - 11.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
28.12.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)	
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0	

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



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*****End of Report*****

Page 2 of 2

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L. SUDHAPRIYA
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SUMMARY REPORT

Issued To	Thiru.A.Selvaraj, S/o.Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - -638703.		
Site Location	Lease Area – 3.66.0Ha S.F.No.860/1,860/2A(part),861/1 & 861/2, Mudhalipalayam village, Kangayam Taluk, Tiruppur District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 3 – Mudhalipalayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5891, 5898,6314,6321,6624,6631,6979,6986,7194,7201,7476,7483,7738,7745,8126,8133, 8459,8466,8807,8814,9157,9164,9455,9462,9822,9829		
Location Coordinates	10° 53' 6.47"N 77° 32' 48.04"E		
Report Date	08.01.2024		

Date	Period. hrs	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.10.2023	11.10am - 11.10am	43.3	22.9	4.9	23.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	11.15am - 11.15am	44.1	22.0	10.0	19.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	11.40am - 11.40am	43.7	23.3	9.0	24.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	11.50am - 11.50am	43.8	24.5	BDL(DL:4)	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	11.40am - 11.40am	43.2	23.3	7.7	24.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	11.50am - 11.50am	42.3	22.5	4.9	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	12.15pm - 12.15pm	41.5	21.6	4.6	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	12.25pm - 12.25pm	42.1	21.6	5.6	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	12.15pm - 12.15pm	43.3	20.8	BDL(DL:4)	19.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	12.25pm - 12.25pm	42.5	22.5	5.4	19.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	8.30am - 8.30am	41.2	22.5	6.8	23.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	8.35am - 8.35am	41.6	22.5	8.3	22.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	11.40am - 11.40am	42.6	22.5	7.3	19.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	11.50am - 11.50am	42.6	22.5	BDL(DL:4)	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.11.2023	12.15pm - 12.15pm	42.5	22.5	BDL(DL:4)	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	12.25pm - 12.25pm	41.7	20.8	4.1	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	12.15pm - 12.15pm	43.1	22.5	BDL(DL:4)	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	12.25pm - 12.25pm	41.6	21.6	7.2	22.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
6.12.2023	12.15pm - 12.15pm	42.7	21.6	4.1	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
7.12.2023	12.25pm - 12.25pm	41.9	20.0	BDL(DL:4)	19.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	8.30am - 8.30am	42.2	21.6	7.0	22.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	8.35am - 8.35am	41.9	21.2	5.6	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	11.40am - 11.40am	43.0	22.0	4.4	19.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	11.50am - 11.50am	42.4	22.5	BDL(DL:4)	24.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	12.15pm - 12.15pm	42.6	22.5	BDL(DL:4)	25.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	12.25pm - 12.25pm	41.9	21.2	7.5	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Authorised Signatory

L. SUDHAPRIYA
Technical Manager



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SUMMARY REPORT

Issued To	Thiru.A.Selvaraj, S/o.Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - -638703.		
Site Location	Lease Area - 3.66.0Ha S.F.No.860/1,860/2A(part),861/1 & 861/2, Mudhalipalayam village, Kangayam Taluk, Tiruppur District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 3-Mudhalipalayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5891, 5898,6314,6321,6624,6631,6979,6986,7194,7201,7476,7483,7738,7745,8126,8133, 8459,8466,8807,8814,9157,9164,9455,9462,9822,9829		
Location Coordinates	10°53' 6.47"N 77°32' 48.04"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	BENZENE (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
04.10.2023	11.10am - 11.10am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	11.15am - 11.15am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	8.30am - 8.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	8.35am - 8.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.11.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.11.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
6.12.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
7.12.2023	12.00am - 12.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.12.2023	8.30am - 8.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	8.35am - 8.35am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.12.2023	11.40am - 11.40am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.12.2023	11.50am - 11.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.12.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



*****End of Report*****

Page 2 of 2

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Authorized Signatory

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SUMMARY REPORT

Issued To	Thiru.A.Selvaraj, S/o.Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - -638703.		
Site Location	Lease Area – 3.66.0Ha S.F.No.860/1,860/2A(part),861/1 & 861/2, Mudhalipalayam village, Kangayam Taluk, Tiruppur District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 4 – Tammareddipalayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5892,5899,6315,6322,6625,6632,6980,6987, 7195,7202,7477,7484,7739,7746,8127,8134, 8460,8467,8808,8815,9158,9165,9456,9463,9823,9830		
Location Coordinates	10° 51' 45.53"N 77° 29' 8.21"E		
Report Date	08.01.2024		

Date	Period. hrs	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.10.2023	12.15pm – 12.15pm	42.3	23.3	BDL(DL:4)	19.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	12.35pm - 12.35pm	44.8	22.9	6.0	23.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	12.15pm – 12.15pm	44.0	23.7	6.3	23.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	12.25pm - 12.25pm	45.0	25.4	BDL(DL:4)	24.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	12.15pm – 12.15pm	41.6	21.2	BDL(DL:4)	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	12.25pm - 12.25pm	44.3	21.6	5.2	22.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	12.45pm - 12.45pm	43.4	22.4	4.6	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	12.50pm - 12.50pm	44.2	22.5	4.9	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	12.45pm - 12.45pm	41.8	22.0	5.4	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	12.50pm - 12.50pm	43.2	20.8	4.9	19.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	8.50am - 8.50am	43.0	23.7	BDL(DL:4)	22.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	8.55am - 8.55am	42.8	22.0	4.6	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	12.15pm - 12.15pm	42.0	22.0	6.0	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	12.25pm – 12.25pm	41.6	21.6	5.2	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.11.2023	12.45pm - 12.45pm	43.6	23.3	5.7	19.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	12.50pm - 12.50pm	42.1	22.4	4.9	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	12.45pm - 12.45pm	43.7	24.1	BDL(DL:4)	19.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	12.50pm - 12.50pm	43.7	22.5	5.9	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
6.12.2023	12.45pm - 12.45pm	43.8	23.3	5.7	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
7.12.2023	12.50pm - 12.50pm	43.0	24.1	7.3	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	8.50am - 8.50am	43.3	22.5	BDL(DL:4)	21.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	8.55am - 8.55am	43.4	22.5	6.4	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	12.15pm - 12.15pm	41.6	22.5	5.4	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	12.25pm – 12.25pm	43.6	23.7	7.5	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	12.45pm - 12.45pm	42.8	21.6	BDL(DL:4)	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	12.50pm - 12.50pm	43.3	21.6	BDL(DL:4)	27.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

(Signature)
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SUMMARY REPORT

Issued To	Thiru.A.Selvaraj, S/o.Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - -638703.		
Site Location	Lease Area – 3.66.0Ha S.F.No.860/1,860/2A(part),861/1 & 861/2, Mudhalipalayam Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ4 - Tammareddipalayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5892,5899,6315,6322,6625,6632,6980,6987, 7195,7202,7477,7484,7739,7746,8127,8134, 8460,8467,8808,8815,9158,9165,9456,9463,9823,9830		
Location Coordinates	10 51' 45.53"N 77 29' 8.21"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	BENZENE (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
04.10.2023	12.15pm – 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	12.35pm - 12.35pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	12.15pm – 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	12.15pm – 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	12.25pm - 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	8.50am - 8.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	8.55am - 8.55am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	12.25pm – 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.11.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.11.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
6.12.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
7.12.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.12.2023	8.50am - 8.50am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	8.55am - 8.55am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.12.2023	12.15pm - 12.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.12.2023	12.25pm – 12.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.12.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



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*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager



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SUMMARY REPORT

Issued To	Thiru.A.Selvaraj, S/o.Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - -638703.		
Site Location	Lease Area – 3.66.0Ha S.F.No.860/1,860/2A(part),861/1 & 861/2, Mudhalipalayam village, Kangayam Taluk, Tiruppur District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 5 – Punganthurai
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5893, 5900, 6316,6323,6626, 6633, 6981,6988,7196, 7203,7478,7485,7740,7747, 8128,8135,8461, 8468,8809, 8816,9159,9166,9457,9464,9824,9831		
Location Coordinates	10° 52' 13.37"N 77° 35' 15.54"E		
Report Date	08.01.2024		

Date	Period. hrs	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.10.2023	12.45pm - 12.45pm	42.1	23.7	BDL(DL:4)	22.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	12.55pm - 12.55pm	43.5	24.1	BDL(DL:4)	21.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	12.45pm - 12.45pm	45.2	23.3	BDL(DL:4)	24.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	12.50pm - 12.50pm	43.2	23.2	6.0	23.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	12.45pm - 12.45pm	43.7	23.7	4.9	22.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	12.50pm - 12.50pm	41.5	22.0	BDL(DL:4)	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	1.15pm - 1.15pm	42.6	20.4	7.0	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	1.25pm - 1.25pm	42.5	22.0	6.4	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	1.15pm - 1.15pm	43.0	23.3	6.2	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	1.25pm - 1.25pm	41.9	23.8	BDL(DL:4)	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	9.25am - 9.25am	42.2	23.3	5.4	21.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	9.30am - 9.30am	40.9	23.3	7.5	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	12.45pm - 12.45pm	43.1	22.5	5.7	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	12.50pm - 12.50pm	42.7	22.0	4.6	21.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.11.2023	1.15pm - 1.15pm	43.2	21.2	6.7	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	1.25pm - 1.25pm	43.8	20.4	5.9	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	1.15pm - 1.15pm	42.0	23.0	BDL(DL:4)	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	1.25pm - 1.25pm	42.4	24.1	4.9	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
6.12.2023	1.20pm - 1.20pm	42.4	21.6	4.9	21.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
7.12.2023	1.25pm - 1.25pm	41.8	21.6	5.4	19.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	9.25am - 9.25am	44.1	23.7	4.4	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	9.30am - 9.30am	42.4	22.5	5.9	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	12.45pm - 12.45pm	43.5	22.8	5.2	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	12.50pm - 12.50pm	42.7	21.6	7.8	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	1.15pm - 1.15pm	43.0	21.2	7.8	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	1.25pm - 1.25pm	43.1	22.8	BDL(DL:4)	19.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

Authorised Signatory



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SUMMARY REPORT

Issued To	Thiru.A.Selvaraj, S/o.Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - -638703.		
Site Location	Lease Area – 3.66.0Ha S.F.No.860/1,860/2A(part),861/1 & 861/2, Mudhalipalayam village, Kangayam Taluk, Tiruppur District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ5 - Punganthurai
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5893, 5900, 6316,6323,6626, 6633, 6981,6988,7196, 7203,7478,7485,7740,7747, 8128,8135,8461, 8468,8809, 8816,9159,9166,9457,9464,9824,9831		
Location Coordinates	10° 52' 13.37"N 77° 35' 15.54"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	BENZENE (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
04.10.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	12.55pm - 12.55pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	9.25am - 9.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	9.30am - 9.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.11.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.11.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
6.12.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
7.12.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.12.2023	9.25am - 9.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	9.30am - 9.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.12.2023	12.45pm - 12.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.12.2023	12.50pm - 12.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.12.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



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*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager



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SUMMARY REPORT

Issued To	Thiru.A.Selvaraj, S/o.Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - -638703.		
Site Location	Lease Area – 3.66.0Ha S.F.No.860/1,860/2A(part),861/1 & 861/2, Mudhalipalayam village, Kangayam Taluk, Tiruppur District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 6 – Nochipalayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5894,5901,6317, 6324, 6627,6634, 6982,6989, 7197,7204, 7479,7486,7741,7748,8129, 8136,8462,8469, 8810, 8817,9160,9167,9458,9465,9825,9832		
Location Coordinates	10° 50' 23.40"N 77° 31'56.33"E		
Report Date	08.01.2024		

Date	Period. hrs	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.10.2023	1.15pm – 1.15pm	46.1	22.5	BDL(DL:4)	24.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	1.20pm – 1.20 pm	45.7	23.7	4.4	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	1.15pm – 1.15pm	45.4	25.4	BDL(DL:4)	23.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	1.25pm – 1.25 pm	44.1	23.3	7.1	25.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	1.15pm – 1.15pm	43.5	24.1	BDL(DL:4)	24.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	1.25pm – 1.25 pm	42.1	23.7	BDL(DL:4)	22.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	1.45 pm - 1.45pm	43.8	22.0	4.1	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	1.50pm - 1.50pm	43.7	24.1	5.4	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	1.45 pm - 1.45pm	42.5	21.2	5.7	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	1.50pm - 1.50pm	43.0	22.8	6.2	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	9.55am - 9.55am	41.6	22.5	BDL(DL:4)	23.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	10.00am - 10.00am	43.6	23.7	BDL(DL:4)	23.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	01.15pm – 01.15pm	41.7	21.6	4.1	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	1.25pm - 1.25pm	40.8	20.8	4.2	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.11.2023	1.45 pm - 1.45pm	42.5	22.0	BDL(DL:4)	22.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	1.50pm - 1.50pm	40.8	21.2	6.4	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	1.45 pm - 1.45pm	42.8	22.5	4.9	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	1.50pm - 1.50pm	42.3	21.6	4.1	19.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
6.12.2023	1.40 pm - 1.40pm	44.1	23.7	5.2	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
7.12.2023	1.50pm - 1.50pm	42.3	23.3	4.6	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	9.55am - 9.55am	43.4	22.0	5.2	19.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	10.00am - 10.00am	43.3	23.7	4.6	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	1.15pm – 1.15pm	42.8	22.5	BDL(DL:4)	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	1.25pm – 1.25 pm	41.6	20.4	7.0	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	1.45pm - 1.45pm	43.6	23.7	6.7	19.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	1.50pm - 1.50pm	42.6	22.0	BDL(DL:4)	26.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

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SUMMARY REPORT

Issued To	Thiru.A.Selvaraj, S/o.Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - -638703.		
Site Location	Lease Area – 3.66.0Ha S.F.No.860/1,860/2A(part),861/1 & 861/2, Mudhalipalayam village, Kangayam Taluk, Tiruppur District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ6 - Nochipalayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5894,5901,6317, 6324, 6627,6634, 6982,6989, 7197,7204, 7479,7486,7741,7748,8129, 8136,8462,8469, 8810, 8817,9160,9167,9458,9465,9825,9832		
Location Coordinates	10° 50' 23.40"N 77° 31' 56.33"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	BENZENE (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
04.10.2023	1.15pm – 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	1.20pm – 1.20 pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	1.15pm – 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	1.25pm – 1.25 pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	1.15pm – 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	1.25pm – 1.25 pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	1.45 pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	1.50pm - 1.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	1.45 pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	1.50pm - 1.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	9.55am - 9.55am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	10.00am -10.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	01.15pm –1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	1.25pm - 1.25pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.11.2023	1.45 pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	1.50pm - 1.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.11.2023	1.45 pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	1.50pm - 1.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
6.12.2023	1.45 pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
7.12.2023	1.50pm - 1.50pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.12.2023	9.55am - 9.55am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	10.00am -10.00am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.12.2023	1.15pm – 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.12.2023	1.25pm – 1.25 pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.12.2023	2.15pm – 2.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	2.30pm – 2.30 pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



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*****End of Report*****

Page 2 of 2

L. SUDHAPRIYA
Technical Manager

GLOBAL LAB AND CONSULTANCY SERVICES



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SUMMARY REPORT

Issued To	Thiru.A.Selvaraj, S/o.Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - -638703.		
Site Location	Lease Area – 3.66.0Ha S.F.No.860/1,860/2A(part),861/1 & 861/2, Mudhalpalayam village, Kangayam Taluk, Tiruppur District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ 7 – Sengodampalayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5895,5902, 6318, 6325,6628,6635,6983, 6990,7198,7205,7480,7487,7742,7749,8130, 8137, 8463, 8470,8811,8818,9161,9168,9459,9466,9826,9833		
Location Coordinates	10° 55' 0.99"N 77° 30'59.22"E		
Report Date	08.01.2024		

Date	Period. hrs	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)	O3 (µg/m3)	NH3 (µg/m3)	CO (mg/ m3)
04.10.2023	1.15pm - 1.15pm	43.9	21.6	BDL(DL:4)	25.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
05.10.2023	1.30pm - 1.30pm	43.7	25.8	BDL(DL:4)	18.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
11.10.2023	1.45pm - 1.45pm	43.2	24.1	9.3	21.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.10.2023	1.55pm - 1.55pm	46.2	24.5	4.6	22.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.10.2023	1.45pm - 1.45pm	41.0	22.9	BDL(DL:4)	23.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.10.2023	1.55pm - 1.55pm	42.7	22.5	5.2	24.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.10.2023	2.15pm - 2.15pm	41.1	21.2	6.2	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.10.2023	2.30pm - 2.30pm	42.5	23.3	5.6	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
1.11.2023	2.15pm - 2.15pm	42.3	22.5	6.4	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
2.11.2023	2.30pm - 2.30pm	44.6	21.6	6.2	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
8.11.2023	10.25am - 10.25am	43.8	21.2	8.3	19.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
9.11.2023	10.30am - 10.30am	42.1	21.2	7.5	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.11.2023	1.45pm - 1.45pm	42.2	21.2	BDL(DL:4)	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.11.2023	1.55pm - 1.55pm	41.6	21.6	6.2	19.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.11.2023	2.15pm - 2.15pm	40.8	22.5	6.2	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.11.2023	2.30pm - 2.30pm	42.5	22.0	BDL(DL:4)	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.11.2023	2.15pm - 2.15pm	42.6	22.5	4.6	19.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.11.2023	2.30pm - 2.30pm	42.1	22.5	BDL(DL:4)	19.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
6.12.2023	2.10pm - 2.10pm	42.8	21.2	6.8	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
7.12.2023	2.30pm - 2.30pm	43.4	22.0	BDL(DL:4)	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.12.2023	10.25am - 10.25am	42.8	21.6	6.0	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.12.2023	10.30am - 10.30am	42.0	21.6	4.9	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.12.2023	1.45pm - 1.45pm	44.5	23.3	7.3	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.12.2023	1.55pm - 1.55pm	42.4	21.6	5.2	18.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.12.2023	2.15pm - 2.15pm	41.3	22.0	BDL(DL:4)	24.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.12.2023	2.30pm - 2.30pm	43.3	23.7	7.3	21.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



(Signature)
Authorised Signatory

L. SUDHAPRIYA
Technical Manager



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SUMMARY REPORT

Issued To	Thiru.A.Selvaraj, S/o.Arumugam, No.2/147, Saralai Thottam, Mookkanangkottai, Uthiyur Village, Kangayam Taluk, Tiruppur District - -638703.		
Site Location	Lease Area – 3.66.0Ha S.F.No.860/1,860/2A(part),861/1 & 861/2, Mudhalipalayam village, Kangayam Taluk, Tiruppur District.		
Sampling Method	GLCS/SOP/AAQ/015	Sample Drawn by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Location	AAQ7 -Sengodampalayam
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sample Code	GLCS/5895,5902, 6318, 6325,6628,6635,6983, 6990,7198,7205,7480,7487,7742,7749,8130, 8137, 8463, 8470,8811,8818,9161,9168,9459,9466,9826,9833		
Location Coordinates	10°55' 0.99"N 77°30'59.22"E		
Report Date	08.01.2024		

Date	Period. hrs	Ni (ng/m ³)	As (ng/m ³)	BENZENE (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)
04.10.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
05.10.2023	1.30pm - 1.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
11.10.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.10.2023	1.55pm - 1.55pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.10.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.10.2023	1.55pm - 1.55pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.10.2023	2.15pm - 2.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.10.2023	2.30pm - 2.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
1.11.2023	2.15pm - 2.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
2.11.2023	2.30pm - 2.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
8.11.2023	10.25am- 10.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
9.11.2023	10.30am- 10.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.11.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.11.2023	1.55pm - 1.55pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.11.2023	2.15pm - 2.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.11.2023	2.30pm - 2.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.11.2023	2.15pm - 2.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.11.2023	2.30pm - 2.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
6.12.2023	1.15pm - 1.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
7.12.2023	1.30pm - 1.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.12.2023	10.25am- 10.25am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.12.2023	10.30am- 10.30am	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.12.2023	1.45pm - 1.45pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.12.2023	1.55pm - 1.55pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.12.2023	2.15pm - 2.15pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.12.2023	2.30pm - 2.30pm	BDL (DL:1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
NAAQ* Standard		<20	<6.0	<5.0	<1.0	<1.0

Note: BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Authorised Signatory

*****End of Report*****

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L. SUDHAPRIYA
Technical Manager



National Accreditation Board for Education and Training



Certificate of Accreditation

Geo Exploration & Mining Solutions, Salem

No. 17, Advaita Ashram Road, Fairlands, Salem – 636 004, Tamilnadu, India.

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 opencast only	1	1 (a) (i)	A
2	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	B
3	Building and construction projects	38	8(a)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Jan 06, 2023 and 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/23/2684 dated Feb 20, 2023. The accreditation needs to be renewed before the expiry date by Geo Exploration & Mining Solutions, Salem following due process of assessment.

Sr. Director, NABET
Dated: Feb 20, 2023

Certificate No.
NABET/EIA/2225/RA 0276

Valid up to
August 06, 2025

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to the QCI-NABET website.