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 S. VELU ROUGH STONE AND GRAVEL QUARRY

Extent – 8.34.4 Ha

Cluster Extent – 13.32.96 Ha

Project Proponent

Thiru. S. Velu,

S/o. Sudalaiyandi
No.5/36, Parkkaneri Keelur, Tiruvambalapuram,
Radhapuram,
Tirunelveli District, Tamil Nadu – 627 130

PROJECT LOCATION	PROPOSED PRODUCTION
S.F.Nos.: 196/2B (P), 197/2B(P), 195/2ª(P), 195/2B(P) & 195/3(P) Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk Tirunelveli District, Tamil Nadu	**Reserves:** 23,79,925 m^3 of Rough Stone & 1,45,604 m^3 of Gravel Peak Production = 2,46,330m^3 of Rough Stone, 50,730 m^3 of Gravel Proposed Depth = 57m bgl

File No: 10504 ToR Identification: T023B0108TN5680365N Dated: 03/04/2024

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
Approved by ISO:9001:2015, NABL, FSSAI, Experts in QHSE
S.F No:92/3A2, Geetha Nagar, Alagapuram Pudur, Salem-636016

Baseline Monitoring Period

MARCH TO MAY 2024

JUNE 2024

UNDERTAKING

I S. Velu given undertaking that this EIA & EMP report prepared for our Rough stone and Gravel quarry situated in S.F. No 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P) over an extent of 8.34.40Ha in Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide ToR Identification: T023B0108TN5680365N Dated: 03/04/2024. 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

S. Velu

Place: Tirunelveli
Dated:

DECLARATION

I Dr. M.Ifthikhar Ahmed – EIA Co Ordinator declare that the EIA & EMP report for the Rough stone and Gravel quarry in S.F. No 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P), over an extent of 8.34.40Ha in Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli 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 represantation 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 QUARRIES					
CODE	**Name of the Owner**	**Village**	**S.F. Nos**	**Extent in Ha**	**Status**
P1	Thiru.S.Velu, S/o. Sudalaiyandi, 5/36, Parkkaneri, Keelur, Tiruvambalapuram, Radhapuram Taluk, Tirunelveli District	Kasthurirengapuram Part-II	196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P)	8.34.40	ToR Identification: T023B0108TN5680365N Dated: 03/04/2024.
			TOTAL EXTENT	**8.34.40**	
EXISTING QUARRIES					
CODE	**Name of the Owner**	**Village**	**S.F. Nos**	**Extent in Ha**	**Status**
E-1	Thiru.S.Rajendran, S/o.Sreedaran. 13-85/43, Pathittavillai, Chitharal Post, Kanniyakumari District	Kasthurirengapuram Part-II	191/(P) & 194/1(P)	4.98.56	20.10.2021 – 19.10.2026
			TOTAL EXTENT	**4.98.56**	
ABANDONED QUARRY					
A-1	Thiru.K.Rajendran, S/o. Kaiyappan, 9C, ittamozhi Road, Tisaiyanvilai, Tisaiyan Taluk, Tirunelveli District	Kasthurirengapuram Part-II	190/2	**3.85.0**	20.06.2005 – 19.06.2010
			TOTAL EXTENT	**3.85.0**	
EXPIRED QUARRY					
EX-1	Thiru.S.Rajendran, S/o.Sreedaran. 13-85/43, Pathittavillai, Chitharal Post, Kanniyakumari District	Kasthurirengapuram Part-II	181/1A(P)	**2.45.48**	17.04.2018 – 16.04.2023
EX-2	Thiru.C.Sugu, S/o. Chellappan, Residing at No.13-8, Vellancode, Chitharai Post. Kanniyakumari District	Kasthurirengapuram Part-II	193 (P)	**1.26.25**	17.04.2018 – 16.04.2023
			TOTAL CLUSTER EXTENT	**13.32.96**	

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

TERMS OF REFERENCE (ToR) COMPLIANCE

Thiru.S.Velu – TO23B0108TN5680365N Dated:03.04.2024

Specific Terms of Reference for (Mining of Minerals)		
1	The proponent shall obtain NOC from the Competent Authority under the provisions of the Central Electricity Authority Notifications No. CEA-PS-16/1/2021-CEI Division dt 08.07.2023	The NOC from the Competent Authority under the provisions of the Central Electricity will be submitted during appraisal

SEAC STANDARD CONDITIONS		
2.1	1.In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following	It is a fresh lease area, at present the area is virgin. There is no pit.
	i. original pit dimension of the existing quarry	It is a fresh lease area, at present the area is virgin. There is no pit.
	ii. Quantity achieved vs EC approved quantity	
	iii. Balance quantity as per Mineable Reserve calculated	
	iv. Mined out Depth as on date vs EC permitted depth	
	v. Details of illegal/Illicit Mining carried out, if any	Non Illigal
	vi. Non-Compliance / violation in the quarry during the past working	Non violence
	vii. Quantity of material mine out outside the mine lease area (or) in the adjacent quarry/field	-
	viii. condition of safety / benches	Addressed in the Mining Plan by providing adequate safety and making bench formations.
	ix. Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	Ultimate pit = Pit: 365m(L) x 246m(W) x 57m(D) (BGL)
	2.Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	The letter detailing habitations around the proposed mining is obtained from VAO Kasthurirengapuram Part-II Village , dated 25.10.2023 enclosed as **Annexure**
	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 1km of the proposed quarry.	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 are discussed under Chapter No. 4
	4.The proponent shall carry out Bio diversity study through reputed institution and the same shall be included in EIA Report.	The Bio diversity study has been conducted by the Functional Area Expert approved by the NABET. The same has been detailed in the Chapter No.3
	5.The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	Request to consider the secondary source data detailing the nearest reserve forest from Tamil Nadu Geographical Information System (TNGIS). The Nearest Reserve Forest Sathankulam R.F. 13 Km NW
	6.ln the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRI/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus" The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall	It is a fresh lease area, at present the area is virgin. There is no pit.

	and possible mitigation measures during the time of appraisal for obtaining the EC.	
	7.However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.	Proposed depth is 57m Bgl.
	8. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 196l such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	The PP affirms that post execution of Quarry Lease Deed the application for Notice of Opening of the Mine along with Notice of Appointment of Competent Person shall be submitted to Director General Mines Safety, Chennai as per MMR, 1961. And ensure the quarry is operated under the Competent Person Employed.
	9.The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	The details of design for carrying out controlled blasting operation involving line drilling and muffle blasting to minimize blast-induced ground vibrations and controlled fly rock travel beyond 30 m from the blast site is detailed in Chapter 4.
	10.The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	The PP has submitted self-declaration affidavit that there are no other quarries applied or existing in his name elsewhere in the state.
	11.If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD mines,	It is a fresh lease area, at present the area is virgin. There is no pit.
	12.What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	
	13. 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.	mining plan depth is 57m bgl
	14.All corner coordinates of the mine lease area, superimposed on a high-resolution Imagery/Toposheet, 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 area).	Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2,
	15.The PP shall carry out Drone video survey covering the cluster, green belt, fencing etc.,	The Drone Video of the project site is taken covering the Greenbelt and Fencing around the Project and enclosed as soft copy as CD.
	16.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.	As per the recommendations during SEAC ToR Presentation of the proposal and commitment of PP a count of 4200 Nos of trees were planted as a part of greenbelt development programme all along the periphery of the lease applied area and approach roads and village roads. As well the pp has provided wire fencing as recommended all along the boundary of the lease applied area.

	17. The Project proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology justifications, with the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	Details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology justifications are provided in Chapter 2. The anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same are provided in Chapter 4.
	18. 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, 196l for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	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, 196l for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
	19.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 l km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data' it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be Provided.	The 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 are discussed under Chapter No. 3.
	20.The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quantity, air quality, soil quality & flora/fauna including Traffic/vehicular movement study.	Baseline Data were collected for Summer season March 2024 to May 2024 Details in Chapter No. 3.
	21.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.	Cumulative impact study has been carried out covering proposed and existing quarries in the cluster and results related to air pollution, water pollution, & health impacts have been given in chapter No. 7, Based on the results, environmental management plan has been prepared and given in Chapter No. 10.
	22.Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	The lower part of the mine pit will be utilized as rain water harvesting structure (Temporary) and the water will be used for the water sprinkling on haul roads and Greenbelt development purpose. Rainwater harvesting structure will be constructed near the mine office.
	23.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 pre operational, 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. 3, Table No 3.3
	24.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

	25.Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
	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 lower part of the mine pit will be utilized as rain water harvesting structure (Temporary) and the water will be used for the water sprinkling on haul roads and Greenbelt development purpose. Rainwater harvesting structure will be constructed near the mine office.
	27.Impact on local transport infrastructure due to the Project should be indicated.	Traffic density survey was carried out to analyze the impact of transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from the project area. Details have been provided in Chapter No.2
	28.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.	As per the recommendations during SEAC ToR Presentation of the proposal and commitment of PP a count of 4200Nos of trees were planted as a part of greenbelt development programme all along the periphery of the lease applied area and approach roads and village roads.
	29.A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	Noted & agreed. Mine closure plan is detailed in Chapter:4.
	30.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.	Noted, it will submit final EIA/EMP report.
	31.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 in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of Small medium/tall trees alternating with shrubs should be planted io a mixed manner.	As per the recommendations during SEAC ToR Presentation of the proposal and commitment of PP a count of 4200 Nos of trees were planted as a part of greenbelt development programme all along the periphery of the lease applied area and approach roads and village roads.
	32.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.	Detailed in chaper-3 Ecology biodiversity studies.
	33.A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan is detailed in Chapter-7
	34.A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report.	A Risk Assessment and management Plan Chapter- 7
	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	Occupational Health impacts are discussed in chapter- 10

	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.	No Public Health Implications anticipated due to this project. Details of CER and CSR are discussed under Chapter 8.
	37.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.	Details are listed in Chapter:3.
	38.Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No Litigation is pending
	39.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.	Project benefit is given in the Chapter No.8.
	40.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 applied area is a new proposal for Environmental Clearance.
	41.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.	Noted and agreed
	42.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 Reference besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted and agreed

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.	Cluster Management Committee has been constituted initially with 2 quarries.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.	The information will be shared to the cluster management committee during the monthly meeting.
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	The list of members of the committee formed will be submitted to AD/Mines before the execution of mining lease.
4	Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	All the information has been discussed in Chapter No.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	The risk management plan and disaster management plan will be followed as per the EIA report.

	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.	Environmental policy is described in the EIA report Chapter No. 6 and the same will be followed.
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.	Proper action plan regarding the restoration will be followed by the committee.
8	The committee shall furnish the Emergency Management plan within the cluster.	The committee will submit the emergency management plan to the respective authority in the stipulated time period.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	The information on the health of the workers and the local people will be updated periodically.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	A proper action plan with reference to water, sanitation & safety will be devised and submitted by the committee to the respective authority.
11	The committee shall furnish the tire safety and evacuation plan in the case of fire accidents.	The fire safety and evacuation plan will be carried out by as per the respective quarry mines managers.
Impact study of mining		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & soil biological, physical land chemical features . b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health. e) Agriculture, Forestry & Traditional practices. f) Hydrothermal/Geothermal effect due to destruction in the Environment. g) Bio-geochemical processes and its foot prints including environmental stress. h) Sediment geochemistry in the surface streams.	Details of Soil health is given in Chapter No 3 and biodiversity is given in Chapter No 3. The project will not cause any significant changes in the climate Climatic changes and GHG are described in Chapter No 4. Details of water contamination and impact on aquatic ecosystem is given in Chapter No 4. Hydrothermal/ Geothermal effects due to destruction in the environment, Bio geochemical process and sediment geo chemistry given in the Chapter No 7.
Agriculture & Agro-Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining Area.	As the proposed lease area is dominantly surrounded by mining land, barren land, and fallow land, the impact on the surrounding agricultural fields if present will be low. With proper mitigation measures, the project will be carried out to reduce the impact further to the level of negligence.
14	Impact on soil flora & vegetation around the project site.	The vegetation details have been provided in chapter III. There is no schedule I species of animals observed within study area as per Wildlife Protection Act, 1972 and no species falls in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	The vegetation details have been provided in chapter III. There is no schedule I species of animals observed within study area as per Wildlife Protection Act, 1972 and no species falls in vulnerable, endangered or threatened category as

		per IUCN. There is no endangered red list species found in the study area
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 are discussed in Chapter No.3
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	The Eco System of the area will be retained during the mining operation by the way of planting trees in the boundary barrier and un utilized areas. After completion of mining operation, the quarried-out pit will be facilitated to collect the rainwater to pit act as temporary reservoir
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 South side and North side barren land. Budgetary allocation given in the Chapter No. 10. .
Forests		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	There is no Reserve Forest within 1km radius from the project area. The mining operation will not cause any significant impact to the Reserve Forest and Wild life Sanctuaries
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna	There is no forest/wildlife within 10km radius, chapter 3 details of Ecology and Biodiversity, and 4 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.	Details are discussed in the Chapter No.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, onds 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.	There are 8 open wells and 6 bore wells within the radius of 1km from the project area, Hydrogeological study has been conducted by the resistivity method
24	Erosion Control measures.	Details discussed in the chapter No.4
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.	Details in Chapter 3
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Food webs describe who eats whom in an ecological community. Made of interconnected food chains, food webs help us understand how changes to ecosystems — say, removing a top predator or adding nutrients — affect many different species, both directly and indirectly. Whereas in this proposed project is for quarrying of Rough Stone and Gravel and is on a hard batholith formation where no diversion of any water bodies is proposed of there is no intersection of ground water table anticipated.

27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	Details are given in the Chapter No 4.
28	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	Details in Chapter 4 impact of bio diversity.
29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical. chemical components and microbial components.	Details of impact on soil environment is detailed in Chapter No.4
30	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	Sathankulam R.F. 13 Km NW There is, National Parks, Eco sensitive areas, Wild life sanctuaries within the radius of 10km. An ecological survey of the study area was conducted particularly with reference to the listing of species and assessment of the existing baseline ecological (terrestrial) condition in the study area. Ecological Environment is discussed under Chapter 3
Energy		
31	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.	Detailed discussed in chapter 4
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.	A greenhouse gas (GHG) is a gas that absorbs and emits radiant energy within the thermal infrared range, causing the greenhouse effect. The primary greenhouse gases in Earth's atmosphere are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3) Carbon dioxide (CO_2): Carbon dioxide enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees and other biological materials. Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle. Methane (CH_4): Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices, land use and by the decay of organic waste in municipal solid waste landfills. Nitrous oxide (N_2O): Nitrous oxide is emitted during agricultural, land use, and industrial activities; combustion of fossil fuels and solid waste; as well as during treatment of wastewater
33	The Environmental impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Detailed discussed in chapter 3.
Mine Closure Plan		
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Progressive Mine closure plan has been prepared considering the entire lease period in the mining plan and the same has been approved.

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 discussed in 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.	Detailed discussed in chapter 10.
	Risk Assessment	
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	A Risk Assessment and management Plan 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 area communication order issued.	Disaster management Plan details in Chapter-7
Others		
39	The project proponent shall furnish VAC) 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.	Letter obtained from the VAO regarding surface features within 300m radius
40	As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	The issues raised during public hearing is addressed in chapter No.7
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.	Plastic waste management in the project area detailed in Chapter No.7.

S. No	Terms of Reference	Reply
1.1	An EIA-EMP Report shall be prepared for peak capacity (.MTPA) operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.	Peak Production = 2,46,330m^3 of Rough Stone Proposed Depth = 57m bgl Project area of 8.34.40Ha.

1.2	An EIA-EMP Report would be prepared for peak capacity operation to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for.... MTPA of mineral production based on approved project/Mining Plan for.... MTPA. Baseline data collection can be for any	Peak capacity of 2,46,330m^3operation to cover the impacts and environment management plan in chapter- IV and Chapter-10 covered in project specific activities. Baseline Data were collected for Summer Season March– May 2024 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. III
1.3	Proper KML file with pin drop and coordinate of mine at 500-1000 m interval be provided.	Noted, Google earth image showing lease area with Coordinates of pillars in chapter-
1.4	A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines, and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also.	Land use and land cover of the 10km Radius of study area is discussed in Chapter No. III. Geology map of the project area covering 10km radius Figure No. 2.5, Page No. 20. Geomorphology of the area is given in Chapter No 2 Figure No 2.6, Page No. 20 There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
1.5	Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.	Land use and land cover of the study area is discussed in Chapter No. III with Physical features such as waterbodies, odai, canal etc.,
1.6	A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.	DEM data using Drainage pattern around 10km radius showing streams and lakes etc., discussed in Chapter No. 3.
1.7	Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ riverlet system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/ river need elaboration in form of length, quantity and quality of water to be diverted.	Drainage pattern around 10km radius showing streams and lakes etc., is discussed in Chapter No. 3.

1.8	(Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.	Details in chapter-2 showing the land features. And also enclosed Approved mining plan in annexure
1.9	Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.	It is an opencast quarrying operation proposed to operate in Mechanized method. The Rough Stone quarry 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
1.10	Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing though the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.	Impact Studies and Mitigation Measures of Water Environment including Surface Water and Ground Water are discussed in Chapter 4.
1.11	A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc.,	Not Applicable. The details of waste dump management are given in the Chapter No. 4

1.12

Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights

Sno	ML. project Land use	Area under Surface Rights(ha	Area Under Mining Rights(ha)	Ar un Bo (ha
1	Agriculture Land			
2	Forest Land			
3	Grazing Land			
4	Settlements			
5	Others (Specify)			

S.No	Details	Area (Ha)
1	Buildings	
2	Infrastructure	
3	Roads	
4	Others (Specify)	
	Total	

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 2.5.

Description	Present area (Ha)	Area at the end o lease period (Ha)
Area under quarrying	Nil	7.30.47
Infrastruct ure	Nil	0.02.00
Roads	Nil	0.05.00
Green Belt	Nil	0.93.56
Unutilized Area	8.34.40	0.03.37
Grand Total	**8.34.40**	**8.34.40**

1.13

Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan

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.

1.14

One-season (other than monsoon) primary baseline data on environmental quality - air (PM10, PM2.5, SOx, NOx and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided. The detail of NABL/ MoEF&CC certification of the respective laborartory and NABET

Baseline Data were collected for Summer season March–May 2024 as per CPCB Notification and MoEF & CC Guidelines.Details in Chapter No. 3.

1.15	Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air) / downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for	Details in chapter-3 showing the various sampling stations As per CPCB guidelines.
1.16	For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAMSQ shall be planned by the collection of air quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10km buffer zone i.e., dispersed in 10 km buffer area. In case of expansion, the	Air Quality Modelling and windrose pattern for prediction of incremental GLC's of pollutant was carried out using AERMOD view 13 Model. Details in Chapter No. 4.
1.17	A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP	Traffic density survey was carried out to analyses the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from the project area. Details in Chapter-II.
1.18	The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status & economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data to be provided and to link it with the initialization and	Detailed in chapter-3 socio-economic study with occupational status & economic status of the study area. The study should also include the status of infrastructural facilities and amenities present in the study area CSR are discussed under Chapter 8.
1.19	The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion	Detailed Ecology and biodiversity study in chapter-3
1.20	Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.	Detailed in chapter-4 population in the impact zone and measures for occupational health and safety and proposed occupational health in chapter-X
1.21	Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted.	Noted and agreed

1.22	Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.	The ground water table is at 75m below ground level. In these projects, ultimate depth is 57m Bgl It is inferred the quarrying activities in the Cumulative EIA project (Quarry) will not intersect the Ground water table.
1.23	Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.	Detailed in Chapter-IV Anticipated and mitigation measures of in the study area.
1.24	Detailed water balance should be provided. The breaku p of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.	Total Water Requirement: 3.5 KLD Discussed under Chapter 2, Table No 2.15, The required water will be met from rainwater accumulated in mine pit (when available) and from the approved water vendors.
1.25	PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs	Methodology And Instrument Used For Air Quality Analysis in chapter-3and Air Pollution control equipment (APCEs) in chapter-10 sub 10.2 Environmental policy.
1.26	PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored.	Details in Machinery and equipment details in Chapter-2 Table No 2.10
1.27	PP to evaluate the green house emission gases from the mine operation/ washery plant and corresponding carbon absorption plan.	Noted and agreed
1.28	Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.	A Risk Assessment and Disaster Preparedness and management Plan Chapter- 7
1.29	Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.	Detailed in Machinery and technology used Chapter-3 Table 3.17 – Methodology and Instrument Used for Air Quality Analysis Detailed study in chapter-4 Impact of choice of mining method and impact on air quality and blasting and noise and vibrations.
1.30	Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen	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. Infrastructure & other facilities will be provided to the Mine Workers after the

1.31	Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.	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
1.32	The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.	Detailed in chapter-2 for mineral transportation route with approach roads etc., and impacting air quality detailed given chapter-4
1.33	Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre-mining status should be provided. A Plan for the ecological restoration of the mined-out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and	Discussed under Chapter 2. Mine Closure Plan is a part of Approved Mining Plan enclosed as Annexure Volume – 1.
1.34	Adequate greenbelt nearby areas, mineral stock yard and transportation area of mineral shall be provided with details of species selected and survival rate Greenbelt development should be undertaken	Greenbelt Development Plan is discussed under Chapter 4,
1.35	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.	The total cost and the details are given in the Chapter No. 10
1.36	Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc. and costs along with the schedule of the implementation of the	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.
1.37	CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.	CSR are discussed under Chapter 8. And specific budgetary provisions (capital and recurring) for specific activities over the life of the project in chapter-10
1.38	Corporate Environment Responsibility:	CER are discussed under Chapter 8.
1.39	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.	Detailed in chapter-10 The Environment Policy
1.40	b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.	
1.41	c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.	The Environment Monitoring Cell discussed under Chapter 6
1.42	d) To have proper checks and balances, the company should have a well laid down 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.	The Environment Monitoring Cell discussed under Chapter 6
1.43	e) Environment Management Cell and its responsibilities to be clearly spell out in EIA/ EMP	The Environment Monitoring Cell discussed under Chapter 6

1.44	f) In built mechanism of self-monitoring of compliance of environmental regulations should be	The Environment Monitoring Cell discussed under Chapter 6
1.45	Status of any litigations/ court cases filed/pending on the project should be provided.	No litigation is pending in any court against this project
1.46	PP shall submit clarification from DFO that mine does not falls under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.	Koothankulam Kodankulam Birds Sanctuary 23km - NW It will submit final EIA/EMP report.
1.47	Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable	It will submit final EIA/EMP report
1.48	Details on the Forest Clearance should be given as per the format given: Total Mine lease area (ha): Total Forest Land (Ha) : Date of FC : Extent of Forest Land : Balance area for which FC is yet to be obtained: Status of application for diversion of forest Land:	Sathankulam R.F. 13 Km NW Total Mine Lease area 8.34.40ha It will submit final EIA/EMP report
1.49	In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report.	Enclosed Approved mining plan in Annexure volume-I
1.50	Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated	The outcome of public hearing will be updated in the final EIA/AMP report.
1.51	PP shall carry out survey through drone highlighting the ground reality for at least 10 minutes.	Noted and agreed
1.52	Detailed Chronology of the project starting from the first lease deed allotted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s),	Noted and agreed
1.53	The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET accreditation) and Laboratory (NABL / MoEF & CC certification)	As per detailed in front page of Draft EIA/EMP, NABET, NABL certification detailed given in the report.
1.54	The compliances of Tor must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report in all the	As per Tor compliance each chapter wise page and table, figure no given in the EIA/EMP report.

TABLE OF CONTENTS

1.INTRODUCTION 1

1.0 PREAMBLE 1

1.1 PURPOSE OF THE REPORT 1

1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENTS 3

1.3 BRIEF DESCRIPTION OF THE PROJECT 4

1.4 ENVIRONMENTAL CLEARANCE 7

1.5 TERMS OF REFERENCE (ToR) 7

1.6 POST ENVIRONMENT CLEARANCE MONITORING 8

1.7 GENERIC STRUCTURE OF EIA DOCUMENT 8

1.8 THE SCOPE OF THE STUDY 8

2. PROJECT DESCRIPTION 10

2.0 GENERAL 10

2.1 DESCRIPTION OF THE PROJECT 10

2.2 LOCATION OF THE PROJECT 10

2.3 GEOLOGY 17

2.4 RESOURCES AND RESERVES 21

2.5 METHOD OF MINING 25

2.6 GENERAL FEATURES 26

2.7 PROJECT REQUIREMENT 28

2.8 EMPLOYMENT REQUIREMENT: 29

2.9 PROJECT IMPLEMENTATION SCHEDULE 29

3. DESCRIPTION OF ENVIRONMENT 30

3.0 GENERAL 30

3.1 LAND ENVIRONMENT 32

3.2 WATER ENVIRONMENT 39

3.3 AIR ENVIRONMENT 50

3.4 NOISE ENVIRONMENT 58

3.6 SOCIO ECONOMIC ENVIRONMENT 84

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES 93

4.0 GENERAL 93

4.1 LAND ENVIRONMENT: 93

4.2 WATER ENVIRONMENT 94

4.3 AIR ENVIRONMENT 95

4.4 NOISE ENVIRONMENT 101
4.6 SOCIO ECONOMIC 108
4.7 OCCUPATIONAL HEALTH AND SAFETY 108
4.8 MINE WASTE MANAGEMENT 109
4.9 MINE CLOSURE 109
5.0 INTRODUCTION 111
5.1 FACTORS BEHIND THE SELECTION OF PROJECT SITE 111
5.2 ANALYSIS OF ALTERNATIVE SITE 111
5.3 FACTORS BEHIND SELECTION OF PROPOSED TECHNOLOGY 111
5.4 ANALYSIS OF ALTERNATIVE TECHNOLOGY 111
6. ENVIRONMENTAL MONITORING PROGRAMME 112
6.0 GENERAL 112
6.1 METHODOLOGY OF MONITORING MECHANISM 112
6.2 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES 113
6.3 MONITORING SCHEDULE AND FREQUENCY 114
6.4 BUDGETARY PROVISION FOR EMP 114
6.5 REPORTING SCHEDULES OF MONITORED DATA 115
7. ADDITIONAL STUDIES 116
7.0 GENERAL 116
7.1. PUBLIC CONSULTATION 116
7.2 RISK ASSESSMENT 116
7.3 DISASTER MANAGEMENT PLAN 118
7.4 CUMULATIVE IMPACT STUDY 121
7.5 PLASTIC WASTE MANAGEMENT PLAN 127
8.PROJECT BENEFITS 129
8.0 GENERAL 129
8.1 EMPLOYMENT POTENTIAL 129
8.2 SOCIO-ECONOMIC WELFARE MEASURES PROPOSED 129
8.3 IMPROVEMENT IN PHYSICAL INFRASTRUCTURE 129
8.4 IMPROVEMENT IN SOCIAL INFRASTRUCTURE 129
8.5 OTHER TANGIBLE BENEFITS 129
9. ENVIRONMENTAL COST BENEFIT ANALYSIS 131
10. ENVIRONMENTAL MANAGEMENT PLAN 132
10.0. GENERAL 132
10.1. ENVIRONMENTAL POLICY 132

10.2. LAND ENVIRONMENT MANAGEMENT –..... 133

10.3. SOIL MANAGEMENT..... 133

10.4. WATER MANAGEMENT..... 134

10.5. AIR QUALITY MANAGEMENT..... 134

10.6. NOISE POLLUTION CONTROL..... 134

10.7. GROUND VIBRATION AND FLY ROCK CONTROL..... 135

10.8. BIOLOGICAL ENVIRONMENT MANAGEMENT..... 135

10.9. OCCUPATIONAL SAFETY & HEALTH MANAGEMENT..... 137

10.10.: CONCLUSION –..... 143

11. SUMMARY AND CONCLUSION..... 144

LIST OF TABLES

TABLE 1.1: DETAILS OF PROJECT PROPONENT 3

TABLE 1.2: SALIENT FEATURES OF THE PROPOSED PROJECT 3

TABLE 1.3: ENVIRONMENT ATTRIBUTES 8

TABLE 2.2: CO-ORDINATES – PROJECT BOUNDARY 10

TABLE 2.3: LAND USE PATTERN 17

TABLE 2.4: RESOURCES AND RESERVES 17

TABLE 2.5: RESOURCES AND RESERVES 21

TABLE 2.6: YEAR-WISE PRODUCTION PLAN FIRST FIVE YEARS 21

TABLE 2.6A: YEAR-WISE PRODUCTION PLAN SECOND- FIVE YEARS 21

TABLE 2.7: ULTIMATE PIT DIMENSION 22

TABLE 2.8 PROPOSED MACHINERY DEPLOYMENT 26

TABLE.2.9: TRAFFIC SURVEY LOCATIONS 26

TABLE 2.10: EXISTING TRAFFIC VOLUME 26

TABLE 2.11: ROUGH STONE & GRAVEL HOURLY TRANSPORTATION REQUIREMENT 27

TABLE 2.12: SUMMARY OF TRAFFIC VOLUME 27

TABLE 2.13: WATER REQUIREMENT FOR THE PROJECT 28

TABLE 2.14: PROPOSED MANPOWER DEPLOYMENT 29

TABLE 2.15: EXPECTED TIME SCHEDULE 29

TABLE 3.1: MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING 31

TABLE 3.2: LAND USE / LAND COVER TABLE 10 Km RADIUS 32

TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE CLUSTER 35

TABLE 3.4: NEARBY WATER BODIES FROM THE PROPOSED PROJECT SITE 35

TABLE 3.5: SOIL SAMPLING LOCATIONS 36

TABLE 3.6: METHODOLOGY OF SAMPLING COLLECTION 36

TABLE 3.7: SOIL QUALITY OF THE STUDY AREA 38

TABLE 3.8: WATER SAMPLING LOCATIONS 40

TABLE 3.9: GROUND WATER SAMPLING RESULTS 42

TABLE 3.10: SURFACE WATER SAMPLING RESULTS 43

TABLE 3.11: WINTER SEASON WATER LEVEL OF OPEN WELLS 1 KM RADIUS 45

TABLE 3.12: WINTER SEASON WATER LEVEL OF BOREWELLS 1 KM RADIUS 46

TABLE 3.13: RAINFALL DATA....51
TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE....51
TABLE 3.15: METHODOLOGY AND INSTRUMENT USED FOR AAQ ANALYSIS....52
TABLE 3.16: NATIONAL AMBIENT AIR QUALITY STANDARDS....53
TABLE 3.17: AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS....53
TABLE 3.18: SUMMARY OF AAQ 1 to AAQ 7....55
TABLE 3.19: ABSTRACT OF AMBIENT AIR QUALITY DATA....56
TABLE 3.21: DETAILS OF SURFACE NOISE MONITORING LOCATIONS....59
TABLE 3.22: AMBIENT NOISE QUALITY RESULT....60
TABLE 3.32: KASTHURIRANGAPURAM VILLAGE CENSUS 2011 DATA....86
TABLE 3.33 KASTHURIRANGAPURAM WORKING POPULATION ---CENSUS 2011....87
TABLE 3.34: POPULATION DATA OF STUDY AREA....88
TABLE 3.35: WORKERS PROFILE OF STUDY AREA....89
TABLE 3.36: EDUCATIONAL FACILITIES IN THE STUDY AREA....90
TABLE 3.37: MEDICAL FACILITIES IN THE STUDY AREA....91
TABLE 4.1: ESTIMATED EMISSION RATE....96
TABLE 4.2: INCREMENTAL & RESULTANT GLC OF PM_{10}....99
TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM2.5....99
TABLE 4.4: INCREMENTAL & RESULTANT GLC OF SO2....99
TABLE 4.5: INCREMENTAL & RESULTANT GLC OF NOX....100
TABLE 4.7: ACTIVITY AND NOISE LEVEL PRODUCED BY MACHINERY....102
TABLE 4.8: PREDICTED NOISE INCREMENTAL VALUES....102
TABLE 4.9: PREDICTED PPV VALUES DUE TO BLASTING....103
TABLE 4.12: RECOMMENDED SPECIES FOR GREENBELT DEVELOPMENT PLAN....107
TABLE 4.13: GREENBELT DEVELOPMENT PLAN....108
TABLE 6.1 IMPLEMENTATION SCHEDULE....113
TABLE 6.2: PROPOSED MONITORING SCHEDULE POST EC FOR P1....114
TABLE 6.3 ENVIRONMENT MONITORING PROGRAM BUDGET....114
TABLE 7.1 RISK ASSESSMENT& CONTROL MEASURES....116
TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION....119
TABLE 7.3: PROPOSED FIRE EXTINGUISHERS AT DIFFERENT LOCATIONS....120

TABLE 7.4: LIST OF QUARRIES WITHIN 500 METER RADIUS 121

TABLE 7.7: SALIENT FEATURES OF PROPOSAL "E1" 123

TABLE 7.11: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE 123

TABLE 7.12: CUMULATIVE PRODUCTION LOAD OF WEATHERED ROCK 124

TABLE 7.13: CUMULATIVE PRODUCTION LOAD OF GRAVEL 124

TABLE 7.14: EMISSION ESTIMATION FROM QUARRIES WITHIN 500 METER RADIUS 124

TABLE 7.15: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER 124

TABLE 7.16: PREDICTED NOISE INCREMENTAL VALUES FROM CLUSTER 125

TABLE 7.17: NEAREST HABITATION FROM EACH MINE 126

TABLE 7.18: GROUND VIBRATIONS AT 2 MINES 126

TABLE 7.19: SOCIO ECONOMIC BENEFITS FROM 2 MINES 126

TABLE 7.20: EMPLOYMENT BENEFITS FROM 2 MINES 127

TABLE 7.21: GREENBELT DEVELOPMENT BENEFITS FROM 2 MINES 127

TABLE 7.22: ACTION PLAN TO MANAGE PLASTIC WASTE 128

TABLE 8.1 CER – ACTION PLAN 130

TABLE 10.1. PROPOSED CONTROLS FOR LAND ENVIRONMENT 133

TABLE 10.2. PROPOSED CONTROLS FOR SOIL MANAGEMENT 133

TABLE 10.3. PROPOSED CONTROLS FOR WATER ENVIRONMENT 134

TABLE 10.4. PROPOSED CONTROLS FOR AIR ENVIRONMENT 134

TABLE 10.5.: PROPOSED CONTROLS FOR NOISE ENVIRONMENT 135

TABLE 10.6.: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK – P1 135

TABLE 10.7: PROPOSED GREENBELT ACTIVITIES 136

TABLE 10.8. RECOMMENDED SPECIES FOR THE PLANTSAITON 137

TABLE 10.9. MEDICAL EXAMINATION SCHEDULE 137

TABLE 10.10: EMP BUDGET FOR PROPOSED PROJECT 139

LIST OF FIGURES

FIGURE 1.1 SATELLITE IMAGERY CLUSTER QUARRIES....2

FIGURE 1.2 LOCATION MAP OF THE PROJECT SITE....5

FIGURE 1.3: TOPOSHEET MAP OF THE STUDY AREA 10 KM RADIUS....5

FIGURE 1.4: TOPOSHEET MAP OF THE STUDY AREA 2KM RADIUS....6

FIGURE 2.1: TOPOGRAPHICAL VIEW OF PROJECT AREA....11

FIGURE 2.2: GOOGLE IMAGE OF THE PROJECT AREA....12

FIGURE 2.4: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE....14

FIGURE 2.5: IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS....15

FIGURE 2.6: IMAGE SHOWING SURFACE FEATURES AROUND 1 KM RADIUS....16

FIGURE 2.7: REGIONAL GEOLOGY MAP....20

FIGURE 2.8: GEOMORPHOLOGY MAP....20

FIGURE 2.9: TOPOGRAPHY, GEOLOGICAL, YEAR-WISE DEVELOPMENT PRODUCTION PLAN AND SECTIONS....22

FIGURE 2.10: CLOSURE PLAN AND SECTIONS....23

FIGURE.2.11: MINERAL TRANSPORTATION ROUTE MAP....27

FIGURE 3.1: PIE DIAGRAM OF LAND USE AND LAND COVER....32

FIGURE 3.2: PHYSIOGRAPHIC MAP 10KM RADIUS....34

FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS....34

FIGURE 3.5: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS....37

FIGURE 3.6: SOIL MAP....37

FIGURE 3.7: SOIL SAMPLE COLLECTION....39

FIGURE 3.8: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS....41

FIGURE 3.9: OPEN WELL CONTOUR MAP Mar 2024 - May 2024....45

FIGURE 3.10: BOREWELL CONTOUR MAP – Mar 2024 to May 2024....46

FIGURE 3.11: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE....47

FIGURE 3.12: GROUND WATER PROSPECT MAP....47

FIGURE 3.13: WINDROSE DIAGRAM....51

FIGURE 3.14: AIR QUALITY MONITORING PHOTOGRAPHS....54

FIGURE 3.15: AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS....54

FIGURE 3.16: BAR DIAGRAM OF SUMMARY OF AAQ 1 – AAQ7....56

FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER $PM_{2.5}$....56

FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER PM_{10} 57

FIGURE 3.19: BAR DIAGRAM OF GASEOUS POLLUTANT SO_2 57

FIGURE 3.20: BAR DIAGRAM OF GASEOUS POLLUTANT NO_x 58

FIGURE 3.23: NOISE MONITORING STATIONS AROUND 10 KM RADIUS 59

FIGURE 3.24: DAY TIME NOISE LEVELS IN CORE AND BUFFER ZONE 61

FIGURE 3.25: NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE 61

FIGURE 3.29: STRUCTURE MAP 300m RADIUS 85

FIGURE 4.1: AERMOD TERRAIN MAP 97

FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM_{10} 97

FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF $PM_{2.5}$ 97

FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO_X 98

FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF SO2 98

FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST 98

FIGURE 4.6: GROUND VIBRATION PREDICTION 103

FIGURE 6.1: PROPOSED ENVIRONMENTAL MONITORING CELL 113

FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT 118

FIGURE 10.1.: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS 138

1.INTRODUCTION

1.0 PREAMBLE

Project History: -

The project proponent Thiru S.Velu applied for Rough Stone and Gravel Quarry over an extent of 8.34.40 Ha in S.F.No 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P), Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District.

- Proponent applied for Rough Stone and Gravel quarry lease on 03.02.2023
- Precise area communication letter was issued by the District Collector vide RC. No. M2/85/2023 Dated 21.08.2023
- The Mining plan has been prepared by the Qualified person and got approval vide Letter RC. No. M2/85/2023 Dated 19.09.2023
- The Mining plan has been approved for the quantity of 23,79,925 m^3 of Rough Stone and 1,45,604m^3 of Gravel up to the depth of 57m 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 (Cluster quarries - 1 proposal, 1 Exiting, 2 Expired and 1 Abandoned quarries forming Cluster Category {Total Extent of the Cluster is 17.06.69 Ha}- Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016).

- Proponent applied for Terms of Reference Identification: T023B0108TN5680365N Dated 03.04.2024

  Based on the ToR Baseline Monitoring study has been carried out for one season ie., **March to May 2024** and this EIA/EMP report is prepared for considering cumulative impacts arising out of this project, 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

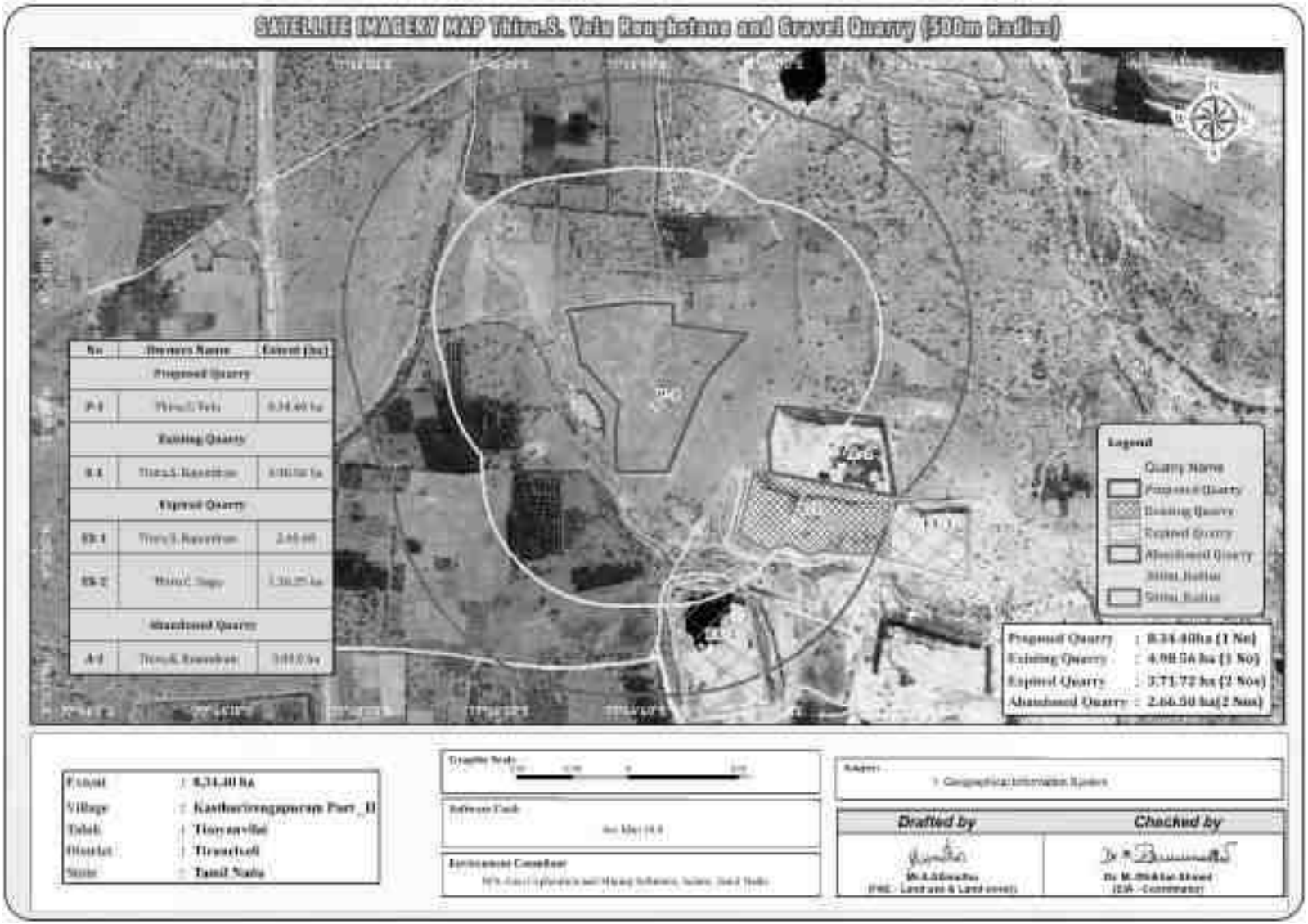
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 1889 of 20thApril 2022, Mining Projects are classified under two categories i.e. A (> 250 Ha) and B (≤ 250 Ha), and 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. S. Velu Rough Stone and Gravel Quarry
Address	S/o. Sudalaiyandi, 5/36, Parkkaneri, Keelur, Tiruvambalapuram, Radhapuram Taluk, Tirunelveli District.
Mobile	+91 97508 96859
Email	Velu5081961@gmail.com
Status	Individual

1.2.2 Identification of Project

TABLE 1.2: SALIENT FEATURES OF THE PROPOSED PROJECT

Name of the Project	Thiru. S. Velu Rough Stone and Gravel Quarry	
S.F. No.	196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P)	
Extent	8.34.40 ha	
Village, Taluk and District	Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District.	
Land Type	It is a patta lands. S.F.Nos. 195/2A, 196/2B & 197/2B are registered in the name of Thiru.M.Sundalairaja, vide Patta Nos. 1722,1858 & 1732, S.F.No.195/2B is registered in the name of Thiru.M.Sivaprasath, vide Patta No. 1672 and S.F.No.195/3 is registered in the name of Thiru.R.Rahul vide Patta No.332. The applicant has registered lease deed from the Pattadhars for the period of twenty years	
Toposheet No	58-H/15	
Latitude between	8° 16' 25.7953"N to 8° 16' 38.1692"N	
Longitude between	77° 46' 35.0006"N to 77° 46' 48.0727"E	
Elevation of the area	100m AMSL	
Lease period	10 Years	
Mining Plan period	10 years	
Proposed Depth of Mining	57m bgl (2m Gravel + 55m Rough stone)	
Geological Resources	Rough Stone in m^3	Gravel m^3
	45,87,330	1,66,812
Mineable Reserves	23,79,925	1,45,604
Year wise Production for first five years	11,90,435	1,45,604
Year wise Production for next five years	11,89,490	-
Peak Production	2,46,330	50,730
Ultimate Pit Dimension	365m (L) x 246m (W) x 57m(D) bgl	
Water Level in the region	75 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is plain terrain. The area has gentle sloping towards South side and altitude of the area is 100m above from Mean Sea level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the surface outcrops & nearby existing quarry pit.	
Machinery proposed	Jack Hammer	4 Nos
	Compressor	1 No
	Wagon Drill	2 Nos

	Excavator with Bucket and Rock Breaker	3 Nos
	Tippers	6 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.	
Proposed Manpower Deployment	41 Nos	
Project Cost	Rs. 5,57,08,000/-	
EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs. 5,64,68,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Odai	65m West
	Kulam	320m NW
	Odai	650m NE
	Tank	900m NW
	Tank	1km South
	Thottavilai River	2.2km East
Greenbelt Development Plan	Proposed to plant 4200 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	3.5 KLD	
Nearest Habitation	1.7Km – North west	
Nearest Reserve Forest	Sathankulam R.F – 13.32 Km – NE (Source - TNGIS)	
Nearest Wild Life Sanctuary	Koothakulam - Kodankulam Birds Sanctuary – 23 Km – NW	

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.

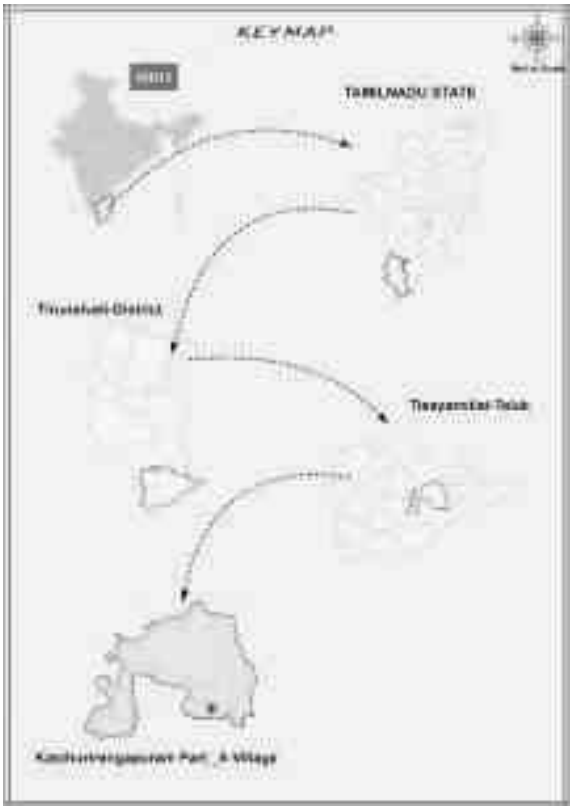
The peak production of Rough stone is 2,46,330m^3 maximum in a year (822m^3 per day/ 69 Tippers per day considering 12m^3 per load). The depth of the mining is 57m bgl.

1.3.2 Location of the Project

- The project site is located in Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District.
- 42km Southeast of Tirunelveli town, 12km Southwest of Thisayanvilai and lease applied area located along Kasthurirengapuram Part-II Village.

Tiruvannamalai —42km (Southeast)→ Thisayanvilai —12km (Southwest)→ Kasthurirengapuram —3km (Southeast)→ Lease applied area

FIGURE 1.2 LOCATION MAP OF THE PROJECT SITE



Source: Survey of India Toposheet 58-H/15

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

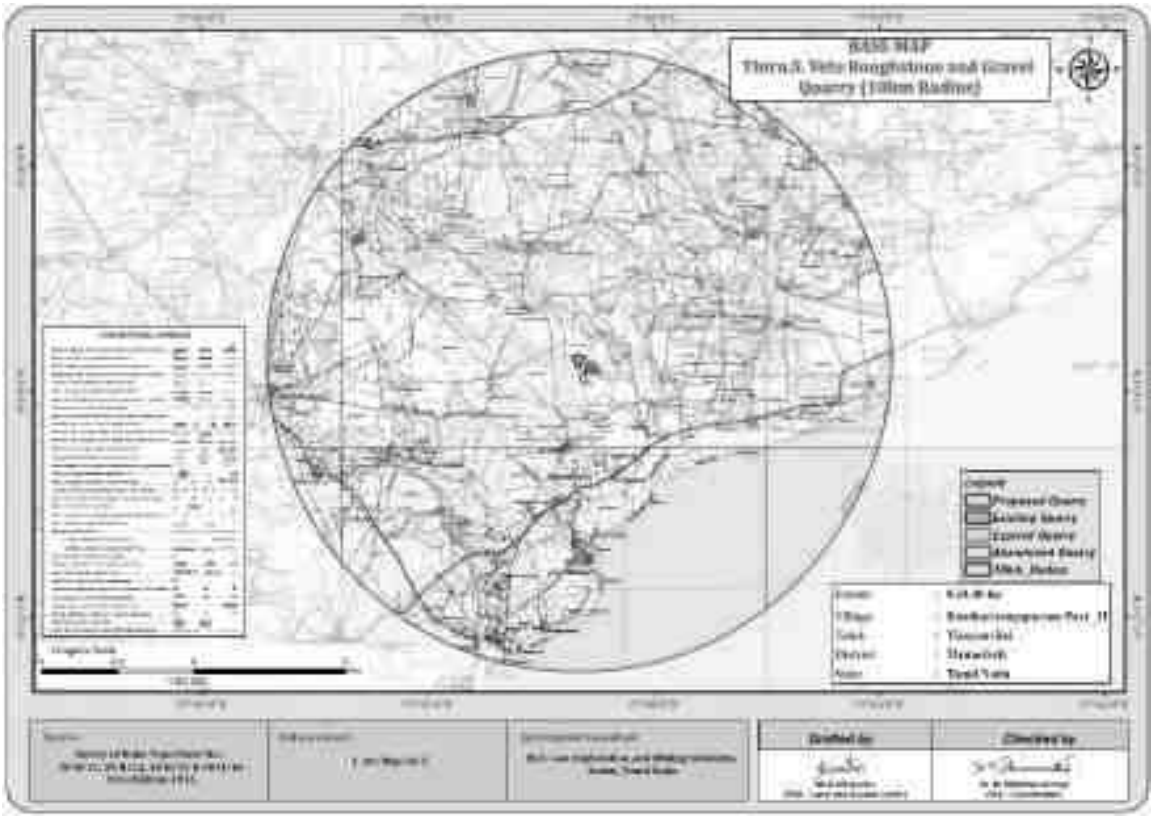
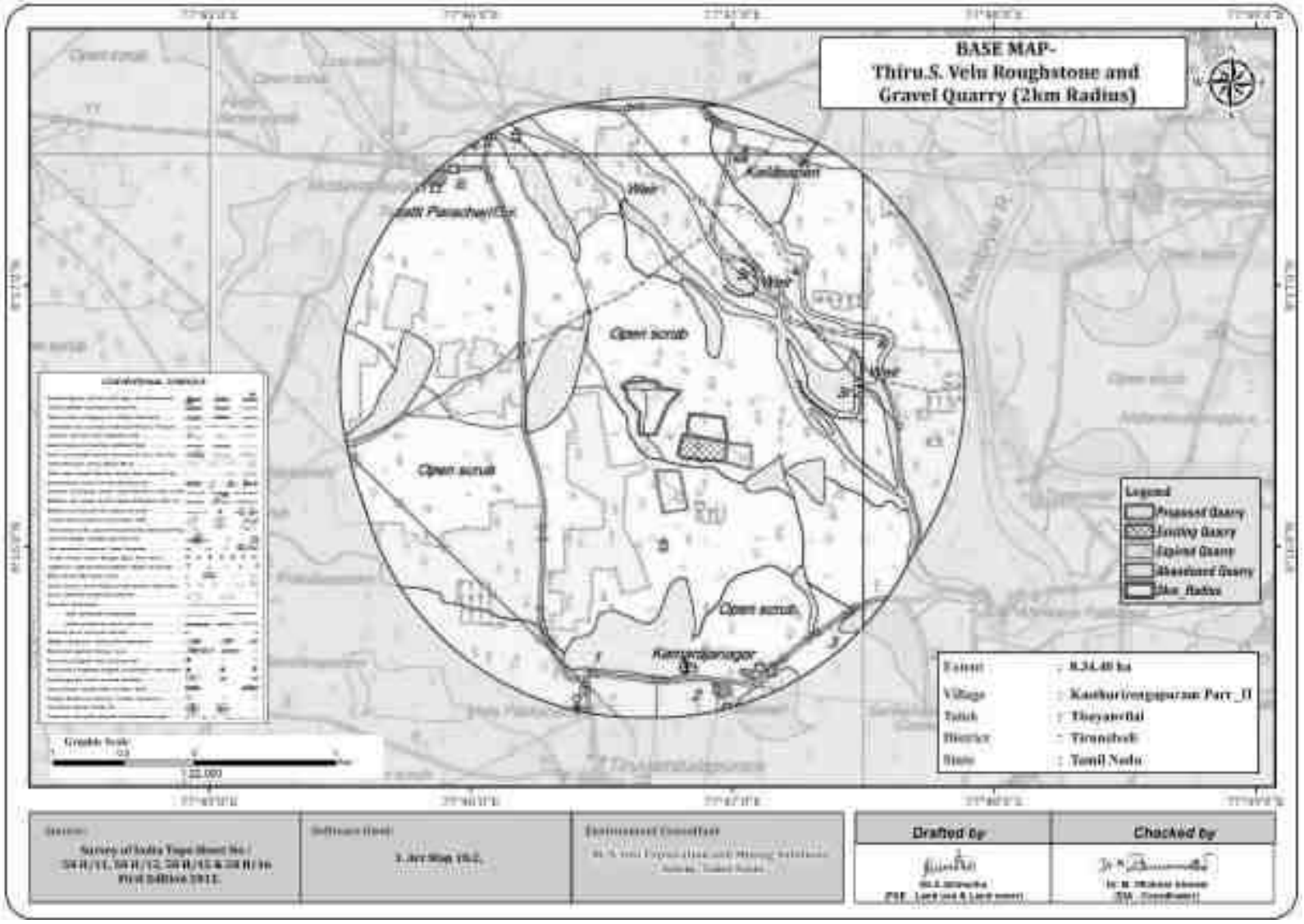


FIGURE 1.4: TOPOSHEET MAP OF THE STUDY AREA 2KM RADIUS



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 –

- Proponent applied for Rough stone and Gravel quarry lease on 03.02.2023
- Precise area communication letter was issued by the District Collector vide RC. No. M2/85/2023 Dated 21.08.2023
- The Mining Plan was prepared by Recognized Qualified Person and approved by Assistant Director, Geology and Mining, Tirunelveli District, vide vide RC.No. M2/85/2023 Dated 19.09.2023
- 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/453376/2023. dated: 25.11.2023.

SCOPING:

- The proposal was placed in 441th SEAC meeting held on 31.01.2024 and the committee recommended for issue of ToR.
- The proposal was considered in 698thSEIAA meeting held on 19.02.2024 and issued Terms of Reference Identification: T023B0108TN5680365N Dated 03.04.2024

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 Terms of Reference Identification: T023B0108TN5680365N Dated 03.04.2024. The Details of the ToR Compliance is given in the Page No. A-P

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 summer season (March to May 2024) 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 (2 Core & 5 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 – 2 Surface water and 4 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)	8 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.
- Terms of Reference Identification: T023B0108TN5680365N Dated 03.04.2024

****

2. PROJECT DESCRIPTION

2.0 GENERAL

The Proposed Rough Stone Quarries requires Environmental Clearance. There are 1 proposed, 1 existing, 2 Expired and 1 abandoned 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 17.04.69 ha.

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

- 42km Southeast of Tirunelveli town, 12km Southwest of Thisayanvilai and lease applied area located along Kasthurirengapuram Part-II Village.

Tiruvannamalai —42km (Southeast)→ Thisayanvilai —12km (Southwest)→ Kasthurirengapuram —3km (Southeast)→ Lease applied area

TABLE 2.1: SITE CONNECTIVITY

Nearest Roadway	NH – 44 – Tirunelveli – Kanyakumari -21.6 km -NW SH – 176 – Thoothukudi – Kanyakumari -3.5km-NW
Nearest Village	Kasthurirengapuram – 3.0 Km – North East
Nearest Town	Thisayanvilai - 12km – NE
Nearest Railway Station	Valliyur – 22.3Km – NW
Nearest Airport	Tiruvananthapuram – 96.7km – NW
Seaport	Thoothukudi - 66.0km – NE

Source: Survey of India Toposheet

TABLE 2.2: CO-ORDINATES – PROJECT BOUNDARY

Corner Nos.	Latitude	Longitude
1	$8^0$16’37.5434” N	$77^0$46’35.0006” E
2	$8^0$16’38.1692” N	$77^0$46’40.0391” E
3	$8^0$16’38.0607” N	$77^0$46’41.6293” E
4	$8^0$16’38.0584” N	$77^0$46’42.6651” E
5	$8^0$16’36.5382” N	$77^0$46’42.6998” E
6	$8^0$16’35.8253” N	$77^0$46’48.0727” E

7	$8^0$16’32.9258” N	$77^0$46’45.4010” E
8	$8^0$16’32.0595” N	$77^0$46’44.8642” E
9	$8^0$16’25.7953” N	$77^0$46’42.2730” E
10	$8^0$16’25.7982” N	$77^0$46’38.5865” E
11	$8^0$16’28.5390” N	$77^0$46’38.4412” E
12	$8^0$16’30.7917” N	$77^0$46’38.7494” E
13	$8^0$16’33.4087” N	$77^0$46’36.3483” E
14	$8^0$16’33.5534” N	$77^0$46’35.9564” E
15	$8^0$16’35.8425” N	$77^0$46’35.4921” E
Datum: UTM-WGS84, Zone 43 North		

Source: Approved Mining Plan

FIGURE 2.1: TOPOGRAPHICAL VIEW OF PROJECT AREA

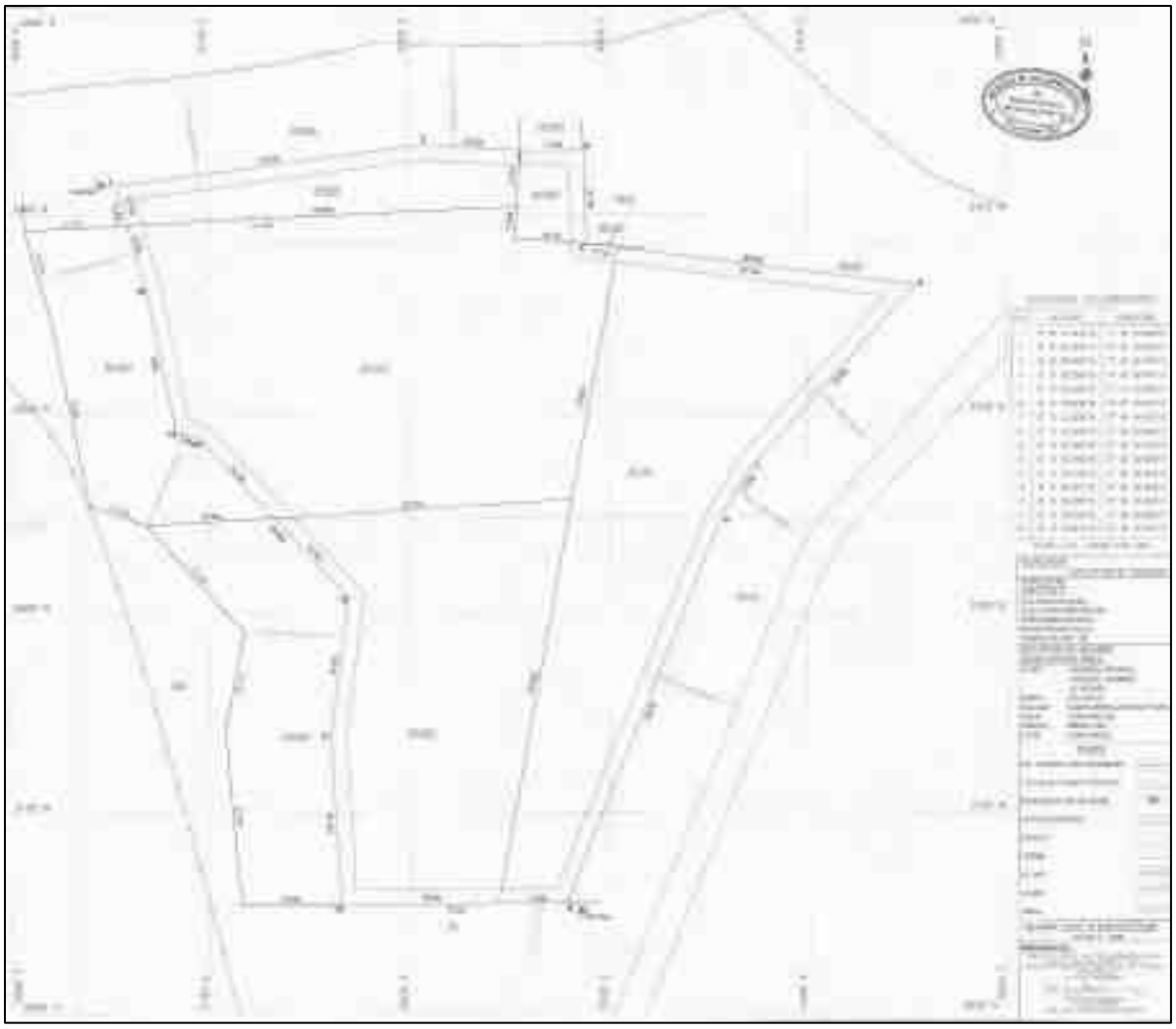
Project Site Photographs

Fencing & Greenbelt at Project site

FIGURE 2.2: GOOGLE IMAGE OF THE PROJECT AREA

Source: Google Earth Imagery

FIGURE 2.3: QUARRY LEASE PLAN / SURFACE PLANN



Source: Approved Mining Plan

FIGURE 2.4: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE

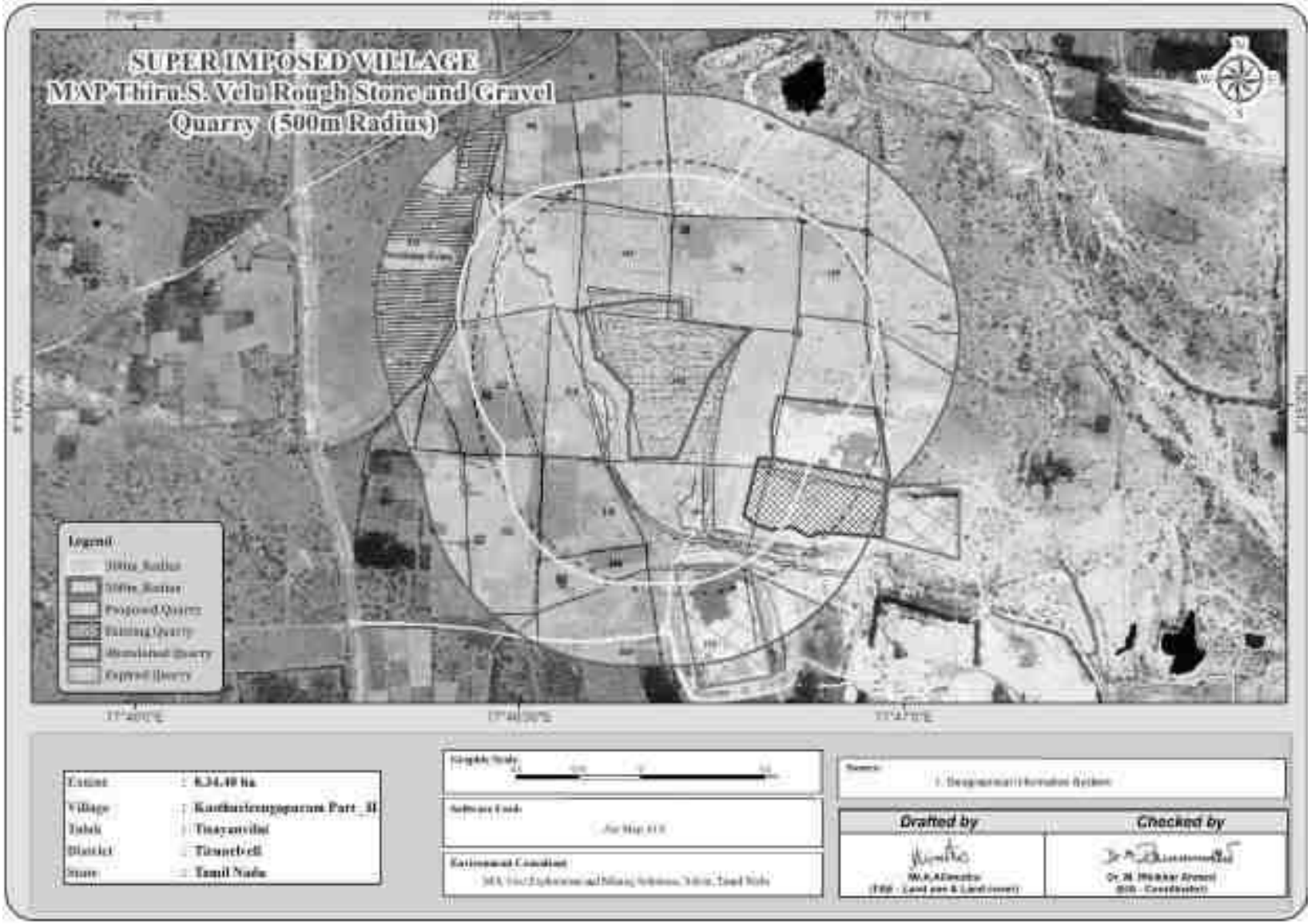


FIGURE 2.5: IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS

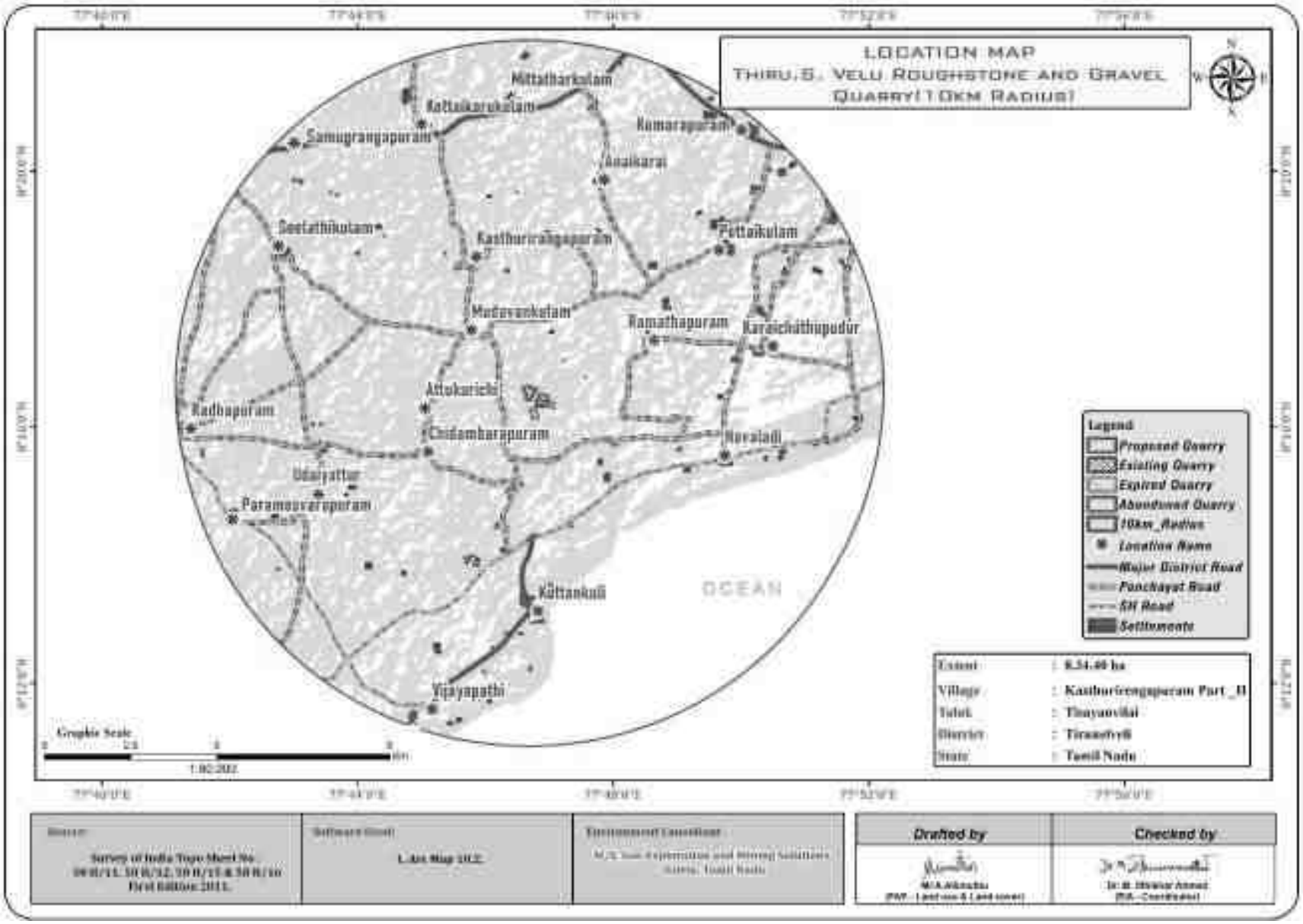
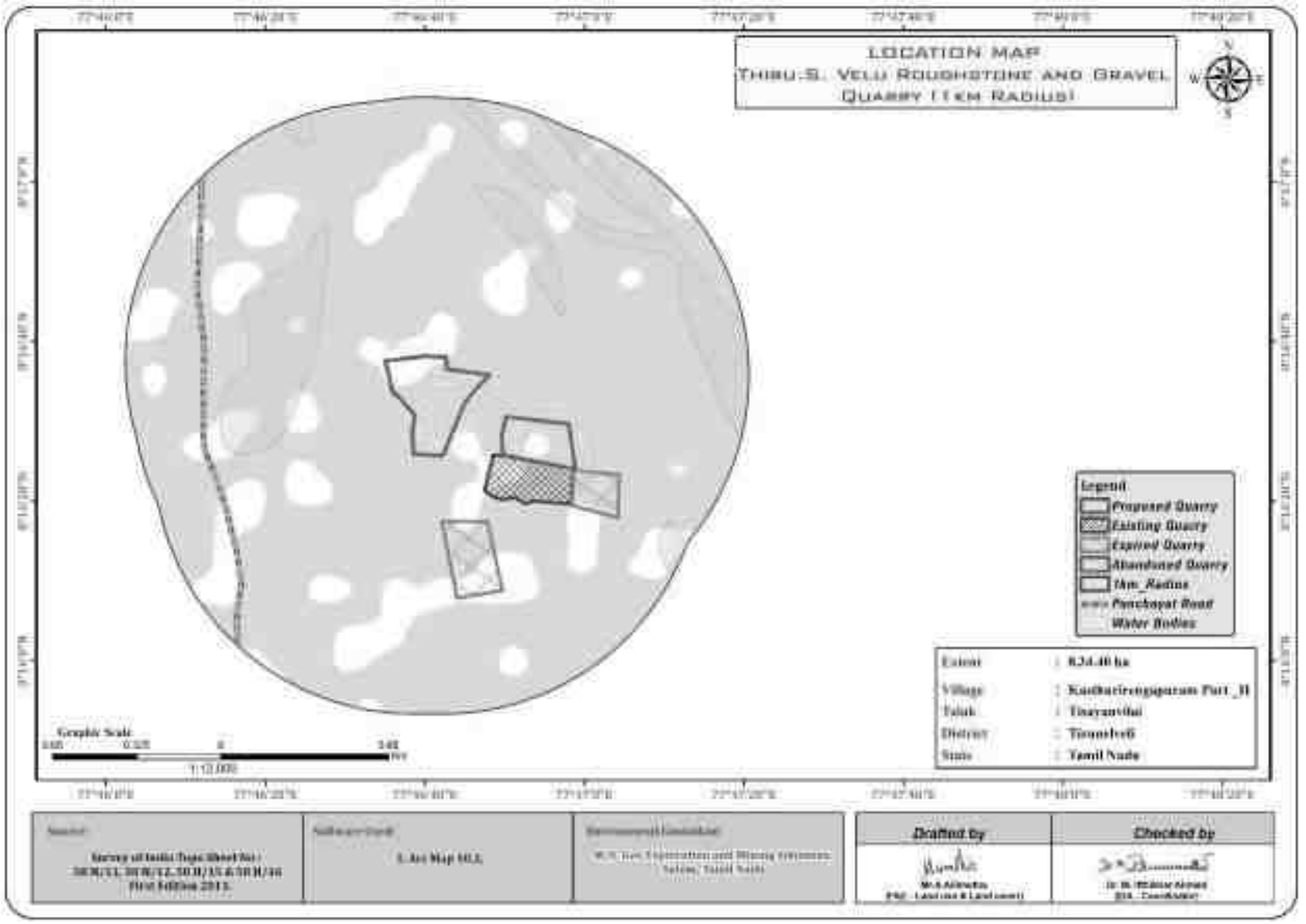


FIGURE 2.6: IMAGE SHOWING SURFACE FEATURES AROUND 1 KM RADIUS



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 (Ha)	Area required during the First five years (Ha)	Area at the end of lease period (Ha)
Area under quarrying	Nil	7.30.0088	1.72.0
Infrastructure	Nil	0.01.0	0.01.0
Roads	Nil	0.02.0	0.02.0
Green Belt	Nil	0.20.47	0.42.0
Unutilized Area	8.34.40	0.44.0	0.22.0
Grand Total	**8.34.40**	**2.39.0**	**2.39.0**

Source: Approved Mining

2.2.2 Size or Magnitude of Operation

TABLE 2.4: RESOURCES AND RESERVES

PARTICULARS	DETAILS	
	Rough Stone in m^3	**Gravel in m^3**
Geological Resources	8,36,500	47,800
Mineable Reserves	2,79,180	36,316
Production for first five-year plan period	1,56,265	31,334
Production for second five-year plan period	89,165	-
Peak Production	40,550	19,380
Mining Plan Period / Lease Applied Period	10 Years	
Number of Working Days	300 Days	
Production per day	135	65
No of Lorry loads ($12m^3$ per load)	11	5
Total Depth of Mining	37m (2m Gravel +35m Rough stone) below ground level.	

Source: Approved mining plan.

2.3 GEOLOGY

2.3.1 Regional Geology

Tirunelveli district represents a well-developed lithopackage of meta-sedimentary sequence inter banded with charnockite Group of rocks. The rock types exposed are of quartzite, calc-granulite, garnet-biotite-sillimanite gneiss, garnet quartzo-feldspathic gneiss and garnet-biotite-cordierite gneiss belonging to Khondalite Group of rock. Charnockite and pyroxene Granulite are the Charnockite Group. Hornblende-biotite gneiss belongs to Migmatitic Complex. Besides, basic intrusive (pyroxenite) and acid intrusive (granite) are noticed. The younger intrusive are represented by pegmatite and quartz veins. Evidence of development of incipient / patchy charnockite along the shear plane is noticed in the district along the Western Ghat high hills

2.3.2 Stratigraphy of the area: -

Age	Group	Lithology
Holocene to Recent	Alluvium Colluvium	Red Soil Coastal Sand Clay River Alluvium Laterite

		Red Teri Kankar Tuffaceous Kankar Shell LimeStone Calcareous Sandstone
Mio-Pliocence	Panamparai Sandstone	Hard,Compact, Calcareous Sandstone Shell Limestone
Precambrian	Crystalline Complex	Charnockite Mixed Composite Gneiss Peliticgneiss Calc-Granulite Quarzite

Rock type found in the area belong to the Khondalite and Charnockite groups and Migmatite Complex of Easter Ghats Super group (Archaean Age),which are unconformably overlain by Tertiary and Quaternary sediments.Garnet-biotie-sillimanite gneiss, quartzite, calc-granulite and limestone of Khondalite group with epidiorite occurring as narrow linear bands.Charnockite group is represented by acid variants. These rock types occur as xenoliths within the Migmatite Complex occupies a major part of the area,comprising medium grained hornblende-biotite gneiss and garnet-biotitegneiss.Gypsum, limestone, beach sand, kankar and shell limestone are the Economic minerals of the district.

Crystalline Limestone, Multi color dimension stone, rough stone/gravel, garnet and ilmenite sand are noteble economic importance minerals of found in Tirunelveli District. Minor occurrences of graphite, mica and gemstone are also reported in the district. Mining activities based on rough stone (mostly charnockite) are majorly concentrated in Alangulam, Ambasamudram, Nanguneri, Palayamkottai, Radhapuram, Sankarankoil, Shenkottai, Sivagiri, Tenkasi, Tirunelveli, and Veerakeralamputhur Taluks in the district under operation for production of construction materials and earth fill as gravel.

Source: https://tirunelveli.nic.in/document-category/geology-and-mining/

2.3.3. Geology of the lease area

The study area follows the regional trend and mainly comprises of Hard Rock Formation as a homogeneous formation / Batholith formation of Charnockite. The lease applied area is plain terrain. The area has gentle slope towards Southern side. The altitude of the area is 98 m (max) above mean sea level. The area is covered by 2 m (avg) thickness of Gravel Formation. Massive Charnockite is found after 2 m (Gravel Formation) which is clearly inferred from the nearby existing quarry pit.

2.3.4 Hydrogeology

Aquifer Systems:

The district is underlain by both porous and fissured formations. The important aquifer systems in the district are constituted by unconsolidated & semiconsolidated formations and weathered and fractured crystalline rocks.

The porous formations in the district include sandstones and clays of Recent to subrecent and Tertiary age (Quaternary). The Recent formations comprising mainly sands, clays and gravels are confined to major drainage courses in the district. The maximum thickness of alluvium is 45.0 m bgl, whereas the average thickness is about 25.0 m. Ground water occurs under water table and confined conditions in these formations and is being developed by means of dug wells and filter points. The productive zones are encountered in the depth range of 29.5 to 62 m bgl. Alluvium, which forms a good aquifer system along the Vaippar and Gundar river bed which is one of the major sources of water supply to the villages

The water-bearing properties of crystalline formations which lack primary porosity depend on the extent of development of secondary intergranular porosity. The occurrence and movement of ground water in these rocks are under unconfined conditions in the joints & fissures and dependent on the nature and extent of pores and interconnection of fractures zones. The morpho-tectonic analysis of the crystalline tract indicates the presence of deep seated tensile and shear fractures particularly along the fold axes. These tension joints and fractures and shear fractures at deeper depth of 30 to 100 m have been acting as conduits for ground water movement.

Aquifer Parameters

The thickness of aquifer in this district is highly erratic and varies between 15 m to 20 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:

FIGURE 2.7: REGIONAL GEOLOGY MAP

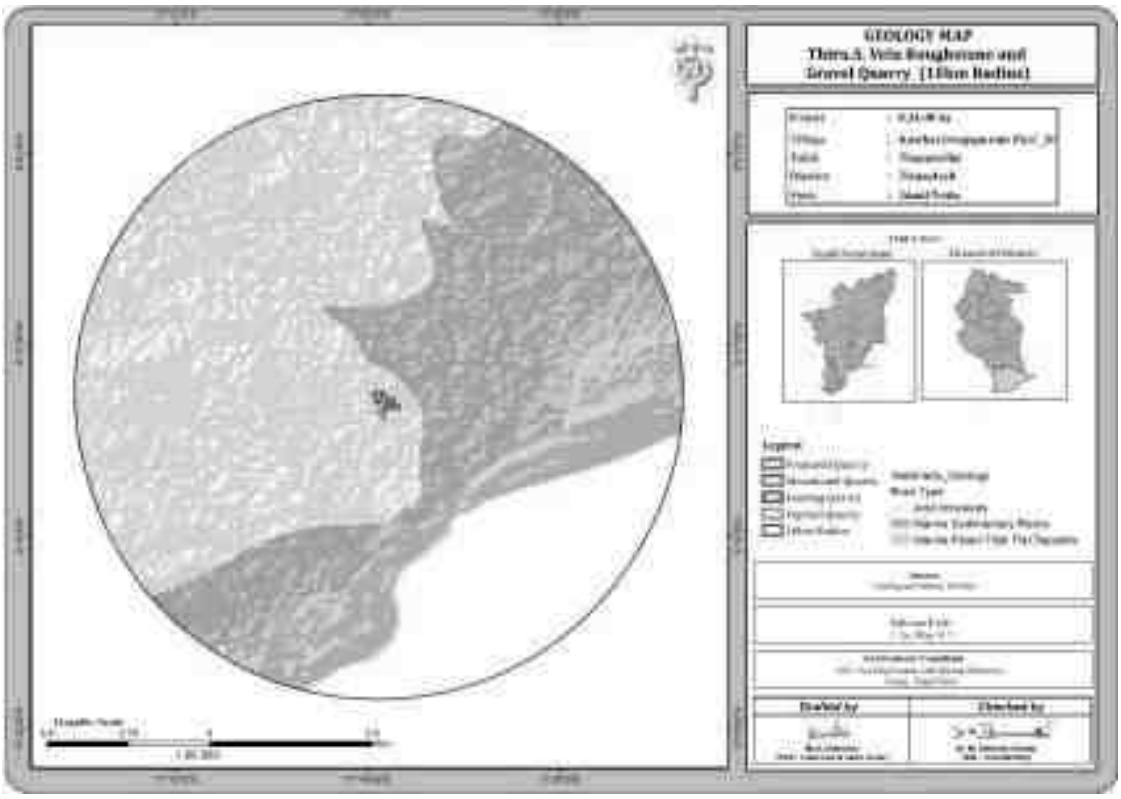
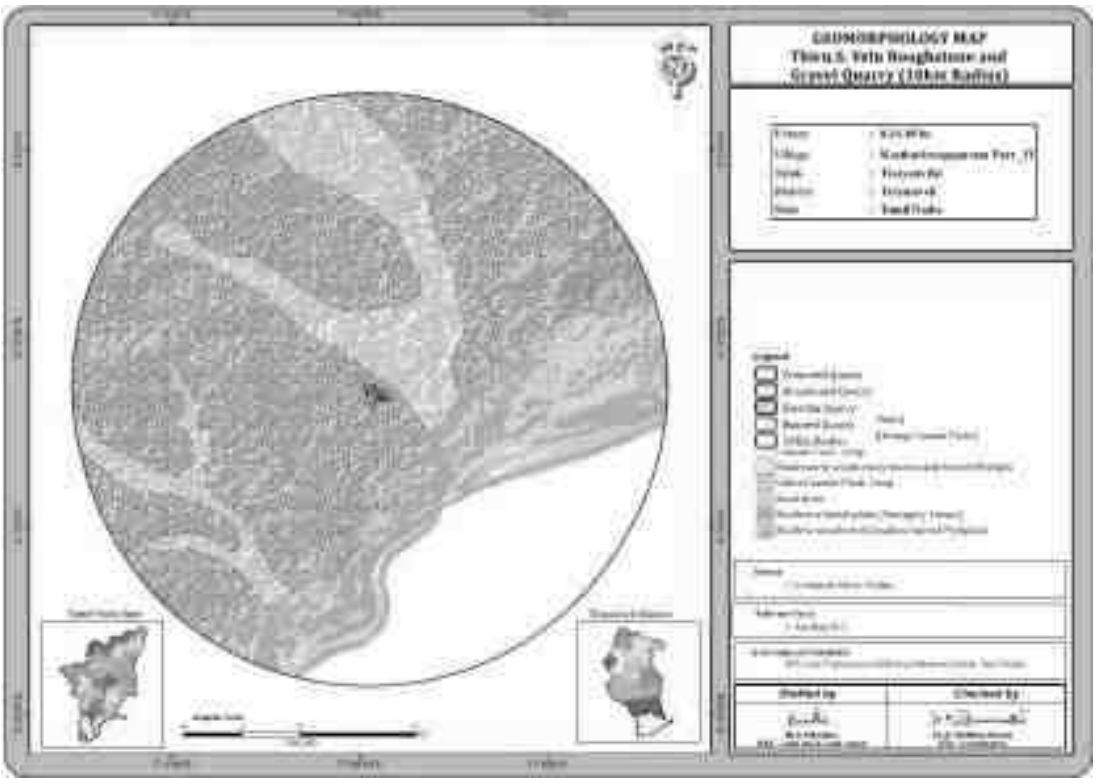


FIGURE 2.8: GEOMORPHOLOGY MAP



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	Gravel m^3
Geological Resource in m^3	45,87,330	1,66,812
Mineable Resource in m^3	23,7,925	1,45,604
Year wise production for Ten-year plan period	23,79,925	1,45,604

Source: Approved Mining Plan

TABLE 2.6: YEAR-WISE PRODUCTION PLAN FIRST FIVE YEARS

YEAR	ROUGH STONE (m^3)	GRAVEL (m^3)
I	2,38,660	46,658
II	2,37,525	48,216
III	2,46,330	50,730
IV	2,43,730	-
V	2,24,190	-
TOTAL	**1,190,435**	**1,45,604**

Source: Approved Mining Plan

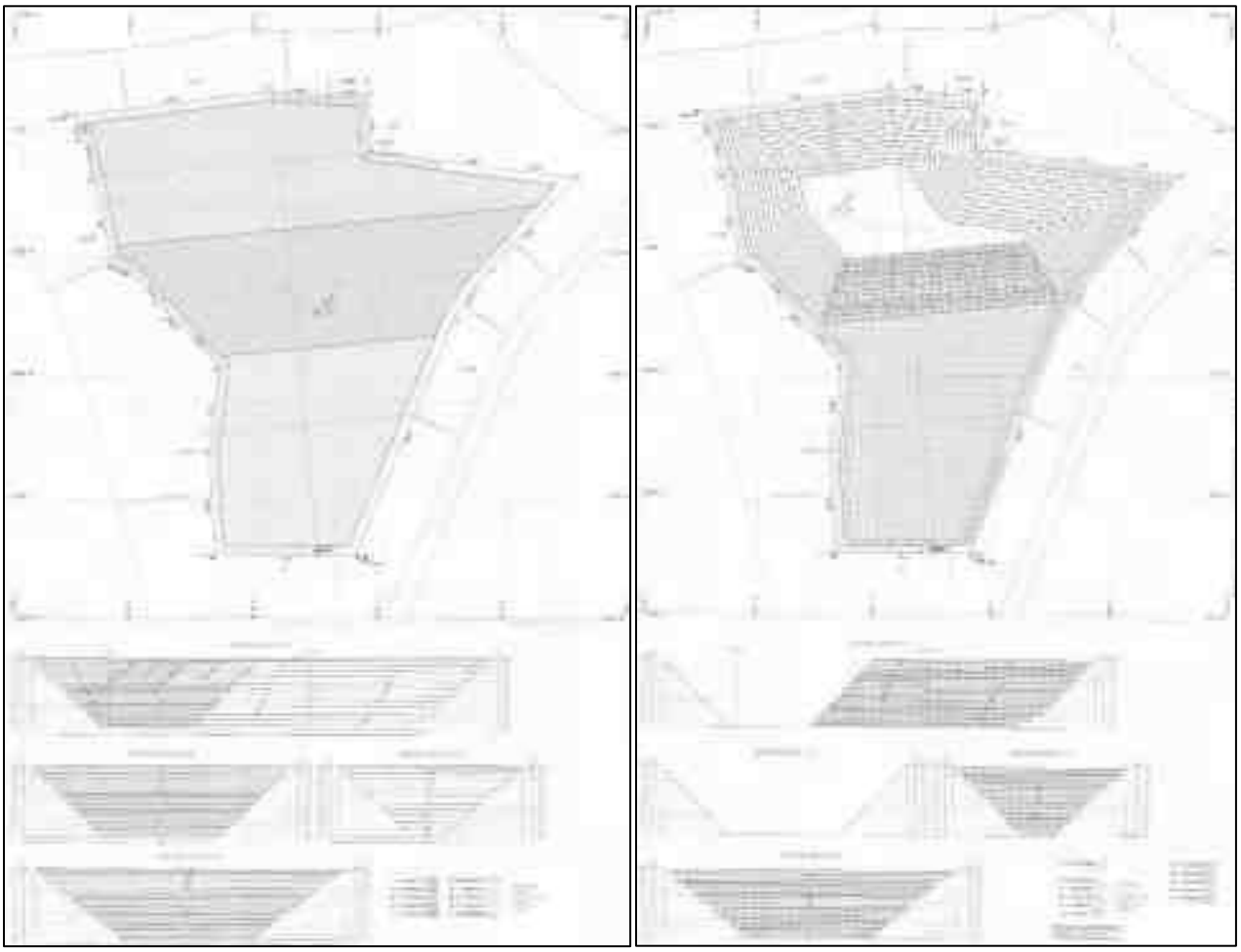
TABLE 2.6A: YEAR-WISE PRODUCTION PLAN SECOND- FIVE YEARS

YEAR	ROUGH STONE (m^3)
VI	2,38,115
VII	2,46,190
VIII	2,43,020
IX	2,39,820
X	2,23,490
TOTAL	**11,89,490**

Disposal of Waste

The overburden in the form of Gravel formation is about 1,45,604m^3 up to depth 2m for during this period. the Gravel will be directly loaded into tippers for the filling and levelling of low-lying areas, this will be done only after obtaining permission and paying necessary seigniorage fees to the Government.

FIGURE 2.9: TOPOGRAPHY, GEOLOGICAL, YEAR-WISE DEVELOPMENT PRODUCTION PLAN AND SECTIONS



Source: Approved Mining Plan

Conceptual Mining Plan/ Final Mine Closure Plan

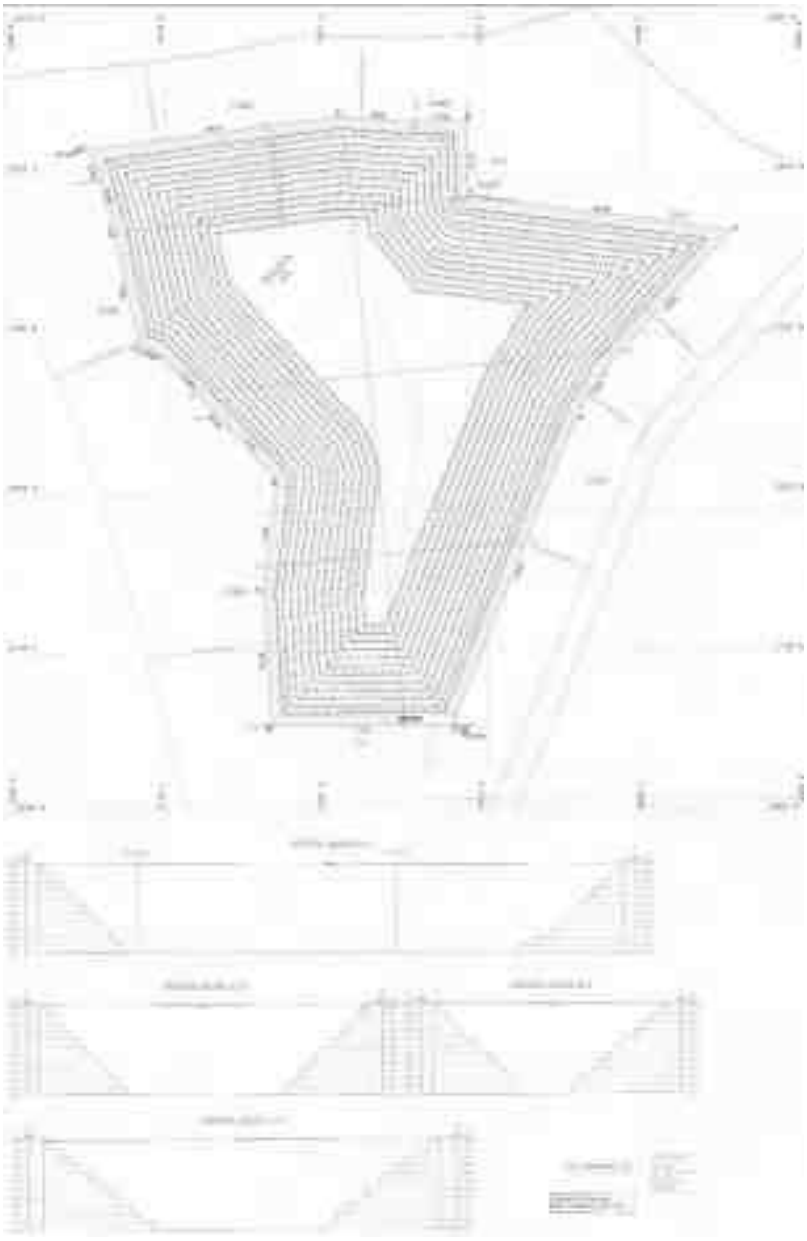
The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.

TABLE 2.7: ULTIMATE PIT DIMENSION

Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max)
I	365	246	57m bgl

Source: Approved Mining Plan

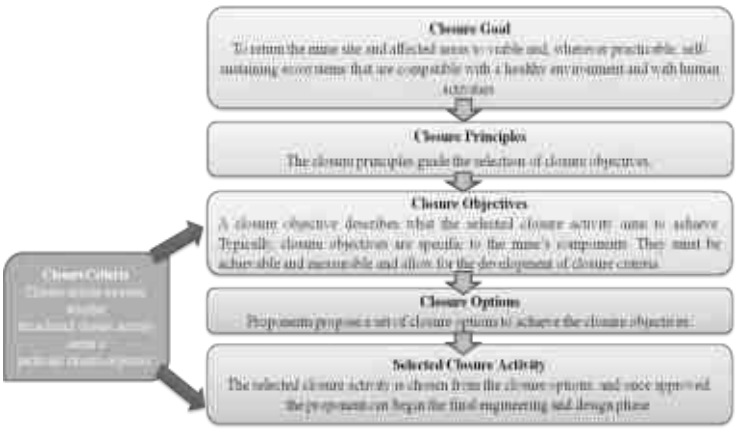
FIGURE 2.10: CLOSURE PLAN AND SECTIONS



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 60^0.

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	–	2.5m
Burden	–	2.0 m
Depth of hole	–	6.5 m
Charge per hole	–	25kg
Powder factor	–	6.0 tonnes/kg
Diameter of hole	–	110 mm
Peak production Capacity	=	794m^3 of Rough stone per day
Spacing X Burden X Depth	=	2.5m X 2.0m X 6.5m = 32.5m^3
	=	1.8m^3 X 2.6 (Bulk Density) = 85Ts per hole

hence for the peak production of 794m^3 (2,064Ts) = 25 Nos of holes to be drilled per day

Explosives per hole = ½ kg hence 29 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	4	1.2m to 2.0m	Compressed air
2	Compressor	1	400psi	Diesel Drive
3	Wagon Drill	2	60 HP	TAM Rock
4	Excavator with Bucket and Rock Breaker	3	300 HP	Diesel Drive
5	Tippers	6	20 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. Kasthurirengapuram Panchayat Road (PanchayatRoad)
2. Kanniyakumari - Tirucen (State highway 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	Kasthurirengapuram Panchayat Road	1Km NW	Panchayat Road
TS2	Kanniyakumari - Tirucendhur SH Road	4km South	State Highway

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	120	360	80	80	90	45	485
TS2	50	100	30	30	46	23	153

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
20 tonnes	65	195

FIGURE.2.11: MINERAL TRANSPORTATION ROUTE MAP

Proposed Transportation Route:

1. The Rough stone will be transported to the Crusher which is located 70m East side of the project site.
2. 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 – 1960guidelines
Kasthurirengapuram Panchayat Road	485	195	680	1500
Kanniyakumari - Tirucendhur SH Road	153	195	348	900

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 Panchayat Road can handle 900 PCU in hour and State Highway 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	1.6KLD	From the existing pit or from the water vendors
Green Belt	1.1KLD	From the existing pit or from the water vendors
Sanitation & Drinking	0.8KLD	From the existing pit or from the water vendors.
Total	**3.5 KLD**	

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 25m^3 of Broken up Rough stone per hour and 60m^3 of Gravel per hour.

Peak production of Rough stone = 794m^3

Peak production of Gravel = 162m^3

Type of machinery	Working hours	Average Diesel consumption/ Hour	Quantity of Diesel in Ltrs
Working hours of Excavator (Aprx)	794m^3/20 m^3 = 40 Hrs (Rough stone)	18 Ltrs	720
	162/60m^3 = 3Hrs	18 Ltrs	54
Compressor	Working hours per day 3 Hrs	8 Ltrs	24
Tippers, Motor pumps to drain water	Occasionally		20
Total Diesel Consumption			**818**

The Maximum diesel consumption is around 818 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 564 Lakhs.

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 Manager/Mines Foreman	1
Mate/Blaster	2
Jack hammer operator	8
Wagon Drill Operators	2
Excavator Operator & Tipper Driver	9
Labour & Helper	6
Cleaner & Co-operator	9
Security	4
Total	**41**

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
		1st	2nd	3rd	4th	5th	
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 March to May 2024 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 by Global Lab and Consultancy Services, – An accredited by ISO/IEC 17025:2017 (NABL).

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 Winter season i.e., March to May 2024.

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's were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, PM_{10} and SO_2, 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 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 (2 surface water & 4 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Automatic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
*Ambient Air Quality	PM10 PM2.5 SO2 NOX Fugitive Dust	24 hourly twice a week (March to May 2024)	7 (2 core & 5 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	8 (2 core & 6 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrate & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio–Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.

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

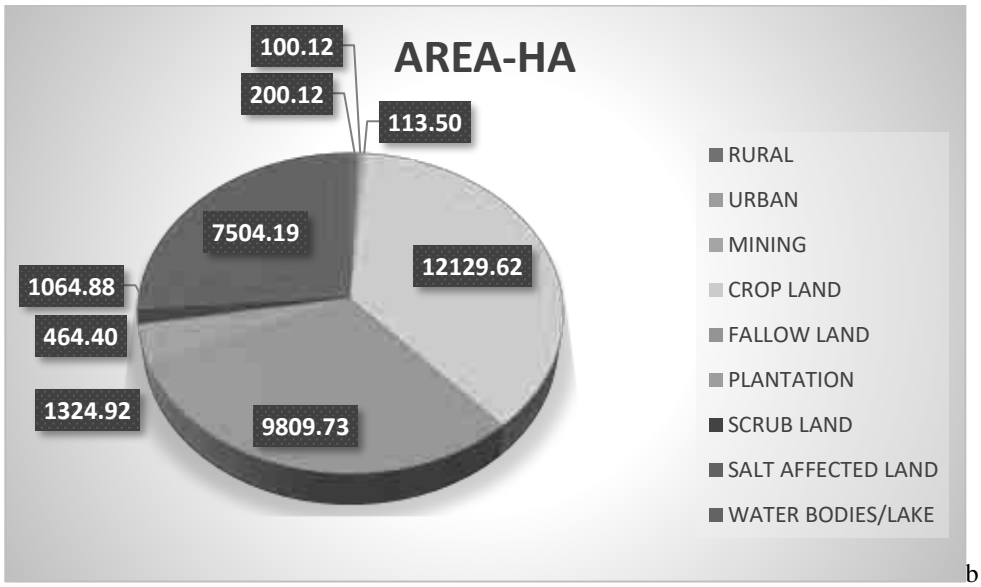
A visual interpretation technique has been adopted for land use classification based on the keys suggested in the chapter – V of the guidelines issued by NNRMS Bangalore & Level III classification with 1:50,000 scale for the preparation of land use mapping. Land use pattern of the area was studied through 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 in HA	AREA in %
	BUILTUP		
1	Urban	200.12	0.61
2	Rural	100.12	0.31
3	Mining	113.50	0.35
	AGRICULTURAL LAND		
4	Crop land	12129.62	37.08
	Fallow Land	9809.73	29.99
5	Plantation	1324.92	4.05
	BARREN/WASTE LANDS		
6	Scrub land	464.40	1.42
7	Salt Affected Land	1064.88	3.26
	WETLANDS/ WATER BODIES		
7	Water bodies/lake/river	7504.19	22.94
TOTAL		32711.48	100.00

Source: Survey of India Toposheet and Landsat Satellite Imagery

FIGURE 3.1: PIE DIAGRAM OF LAND USE AND LAND COVER



b

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) 71.12% followed by Built-up Lands – 1.27%, Scrub land – 1.42%, and Water bodies 22.94%.

The total mining area within the study area is 113.50 ha i.e., 0.35%. The cluster area of 17.04.96 ha contributes about 15 % 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 plain terrain having gentle slope towards South side. The altitude of the area is 100m AMSL The area is covered by 2m thickness of gravel & followed by massive charnockite which is clearly inferred from the surface outcrops

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 and Reserved Forest area is involved in the project area. Therefore, there will be no need to acquisition/diversion of forest land. The details related to the environment sensitivity around the proposed mine lease area i.e. 10 km radius, are given in the below Table 3.3.

FIGURE 3.2: PHYSIOGRAPHIC MAP 10KM RADIUS

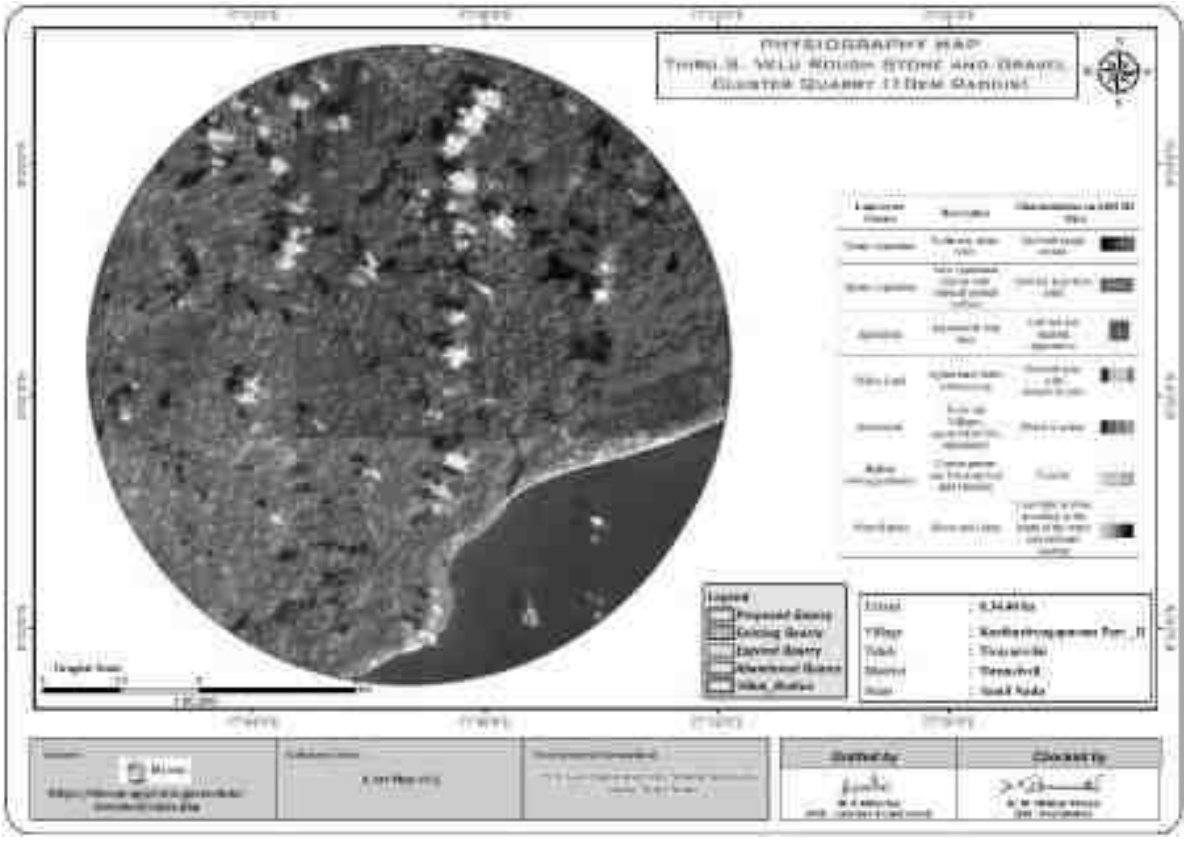


FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS

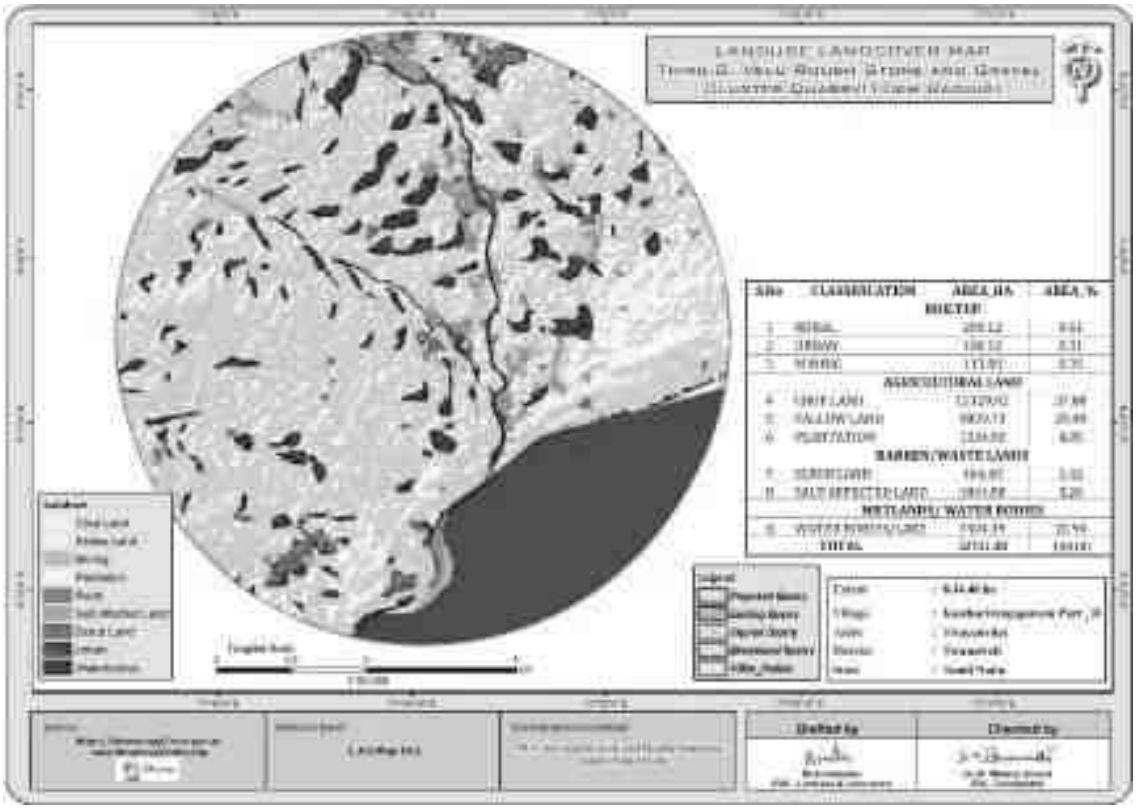


TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE CLUSTER

Sl.No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	Koothankulam-Kodankulam Brids Samctuary	23 Km – NW
2	Reserve Forest	Sathankulam R.F	13.32 Km - NE (Source - TNGIS)
3	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	None	Nil within 10Km Radius
4	Critically Polluted Areas	None	Nil within 10km Radius
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	Odai	65m West
2	Kulam	320m NW
3	Odai	650m NE
4	Tank	900m NW
5	Tank	1km South
6	Thottavilai River	2.2km East
7	Odai	65m West

Source: Village Cadastral Map and Field Survey

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	S1	Core Zone	Project Area	8°16'29.53"N 77°46'42.06"E
2	S2	Muduvankulam Near School	1.8km NW	8°17'27.00"N 77°46'0.41"E
3	S3	Kilurcheri	5.8km SW	8°14'48.65"N 77°43'49.48"E
4	S4	Perunkulam	5km NE	8°18'28.40"N 77°48'41.84"E
5	S5	Thottavilai	3km SE	8°15'19.81"N 77°47'55.44"E
6	S6	Karaisithupudur	6.5km East	8°17'12.11"N 77°50'14.64"E

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

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

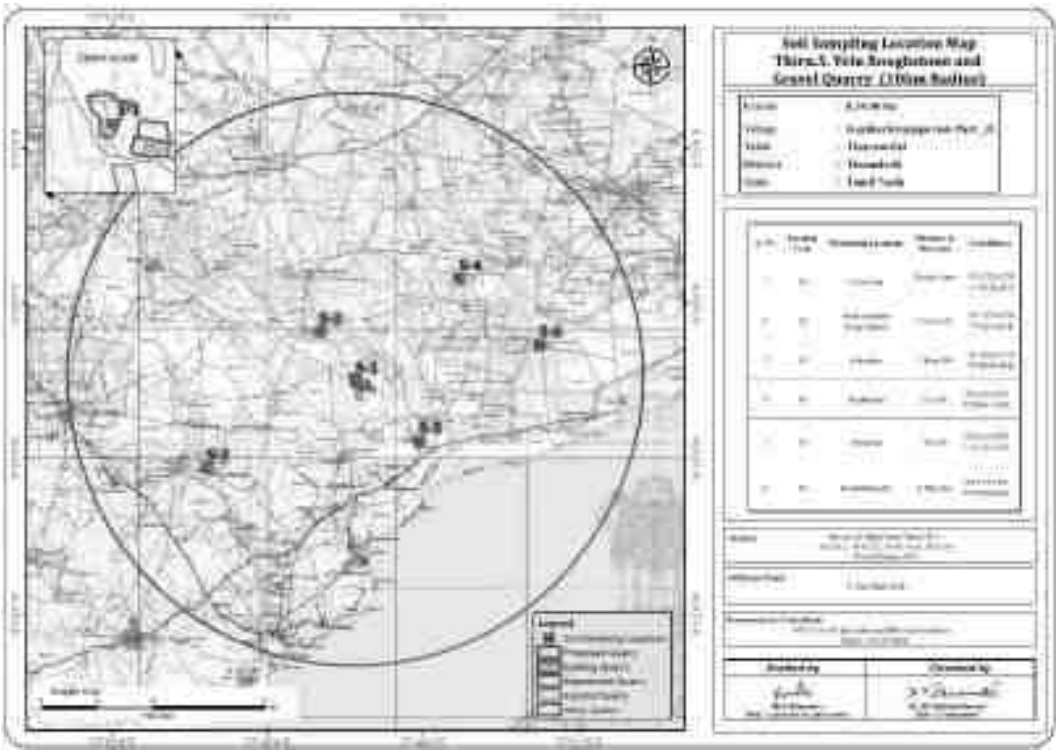


FIGURE 3.6: SOIL MAP

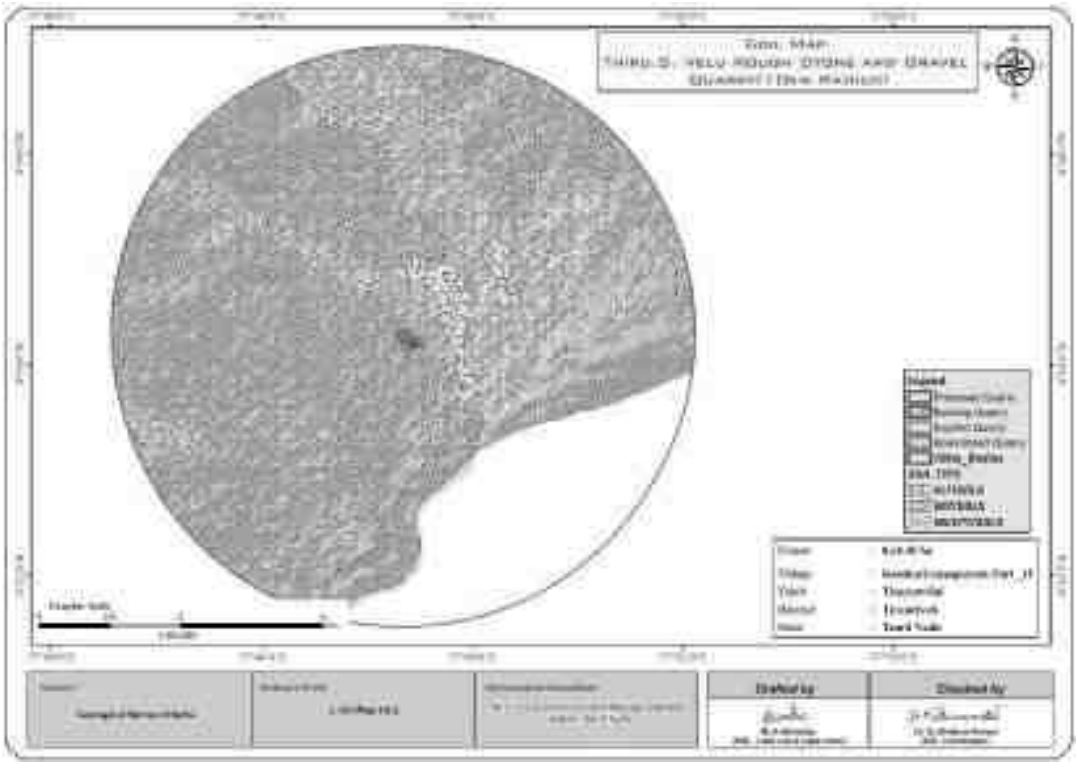


TABLE 3.7: SOIL QUALITY OF THE STUDY AREA

S. No	Test Parameters	Protocols	S-1 Core Zone	S-2 Muduvankulam Near School	S-3 Kilurcheri	S-4 Perunkulam	S-5 Thottavilai	S-6 Karaisithupudur
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	5.6	6.2	4.2	5.2	4.6	4.9
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	128 µmhos/cm	136 µmhos/cm	110 µmhos/cm	120 µmhos/cm	106 µmhos/cm	119µmhos/cm
03	**Texture:**							
	Clay	Gravimetric method	33.38 %	33.74%	39.08 %	31.76%	31.6 %	39.27 %
	Sand		24.5 %	23.49 %	26.12 %	22.87 %	32.8 %	24.48 %
	Silt		42.11%	42.77%	34.80 %	45.36 %	35.6 %	36.25 %
04	Water Holding Capacity	By Gravimetric method	21.0 %	28.0 %	18.8 %	27.6 %	46.7 %	19.0 %
05	Bulk Density	By Cylindrical method	1.17 g/cm^3	1.30 g/cm^3	1.11 g/cm^3	1.13g/cm^3	1.10 g/cm^3	1.08 g/cm^3
06	Calcium as Ca	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	0.3 mg/kg	0.5 mg/kg	0.2 mg/kg	0.3mg/kg	74.5mg/kg	0.2 mg/kg
07	Magnesium as Mg		0.1 mg/kg	0.2 mg/kg	0.1 mg/kg	0.2 mg/kg	52 mg/kg	0.1 mg/kg
08	Manganese as Mn		17.19mg/kg	19.29 mg/kg	13.3 mg/kg	6.50 mg/kg	27.1 mg/kg	19.25 mg/kg
09	Zinc as Zn		8.59 mg/kg	4.96 mg/kg	8.12 mg/kg	56.23 mg/kg	4.9 mg/kg	8.75 mg/kg
10	Boron as B		0.53 mg/kg	BDL(DL:0.5)	BDL(DL:0.5)	1.16 mg/kg	6.6 mg/kg	7.0 mg/kg
11	Chloride as Cl	APHA 23rd Edn 2019 4500 Cl B	6.3 mg/kg	7.0 mg/kg	5.8 mg/kg	5.2 mg/kg	31.1 mg/kg	6.0 mg/kg
12	Total Soluble Sulphate as SO_4	IS 2720 Part 27 : 1977 (Reaff:2015)	10.7 %	11.2 %	11.1 %	10.3 %	0.0019 %	11.4 %
13	Potassium as K	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	1.45 mg/kg	1.93mg/kg	1.23 mg/kg	1.73 mg/kg	17 mg/kg	1.08 mg/kg
14	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	16.91 mg/kg	19.2 mg/kg	20.0 mg/kg	20.9 mg/kg	3.55 mg/kg	21.5 mg/kg
15	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	351.2 mg/kg	363.7 mg/kg	213.2 mg/kg	326.1 mg/kg	400 mg/kg	413.9 mg/kg
16	Cadmium as Cd	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)					
17	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)					
18	Copper as Cu		BDL (DL : 1.0 mg/kg)					
19	Lead as Pb		1.75 mg/kg	BDL(DL:0.5)	BDL(DL:0.5)	1.84 mg/kg	2.01 mg/kg	0.75 mg/kg
20	Iron as Fe		10.35 mg/kg	7.03 mg/kg	11.0 mg/kg	4.75 mg/kg	8.08 mg/kg	20.75 mg/kg
21	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.22 %	0.33 %	0.19 %	0.22 %	1.98 %	0.18 %
22	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.12%	0.19 %	0.11 %	0.1273%	1.15 %	0.105 %
23	Cation Exchange Capacity	USEPA 9080 – 1986	42.6 meq/100g of soil	51.3meq/100g of soil	38.6 meq/100g of soil	49.0 meq/100g of soil	43.51meq/100g of soil	36.0 meq/100g of soil

Source: Sampling Results by GLCS Lab Private Limited.

FIGURE 3.7: SOIL SAMPLE COLLECTION

Interpretation & Conclusion

Physical Characteristics –

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay (31.6 % to 39.27 %) to Sandy Loam Soil and Bulk Density of Soils in the study area varied between 1.08 – 1.17 g/cc. The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e., ranging from 18.8 – 46.7 %.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline with pH range 4.2 to 6.2
- The available Nitrogen content range between 213.2 to 413.9 mg/kg
- The available Phosphorus content range between 16.91 to 21.5 mg/kg
- The available Potassium range between 0.87 mg/kg to 1.93 mg/kg

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.

WATER SAMPLING PHOTOS

3.2.1 Surface Water Resources:

Thottavilai 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

Two (2) surface water and Four (4) 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	Tank Near Perunkulam	5km NE	8°18'40.12"N 77°48'36.62"E
2	SW-2	Thottavilai River	3km SE	8°15'10.78"N 77°48'9.68"E
GROUND WATER				
3	WW-1	Near Project Area	150m North	8°16'42.86"N 77°46'42.80"E
4	WW-2	Near Kilurcheri	5km SW	8°15'18.34"N 77°44'11.81"E
5	BW-1	Near Crusher	780m SE	8°16'5.31"N 77°46'57.45"E
6	BW-2	Karaisithupudur	6.5km East	8°17'11.49"N 77°50'16.79"E

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

FIGURE 3.8: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS

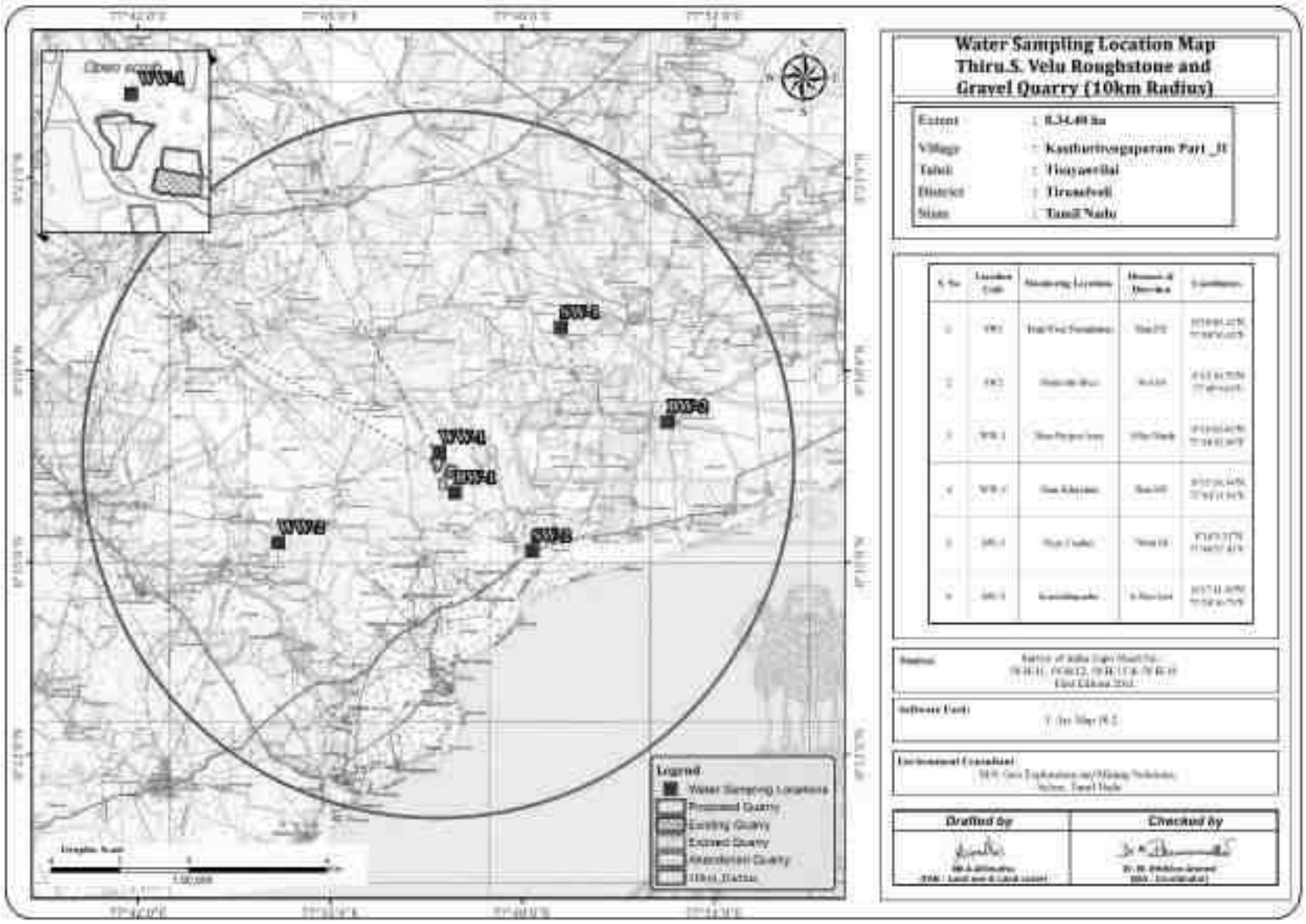


TABLE 3.9: GROUND WATER SAMPLING RESULTS

S.NO	Parameter	BW-1 Near Project Area	BW-2 Near Kilurcheri	WW-1 Near Project Area	WW-2 Near Kilurcheri
1	Color	5 Hazen	5 Hazen	5 Hazen	5 Hazen
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable
3	pH@ 25ºC	7.16	7.14	7.24	7.31
4	Electrical Conductivity @ 25ºC	1206 µmhos/cm	1165 µmhos/cm	1400 µmhos/cm	1470 µmhos/cm
5	Turbidity	<1.0 NTU	<1 NTU	<1.0 NTU	<1 NTU
6	Total Dissolved Solids	711 mg/l	687 mg/l	826 mg/l	867 mg/l
7	Total Hardness as $CaCO_3$	324 mg/l	312 mg/l	356 mg/l	360 mg/l
8	Calcium as Ca	92.9 mg/l	65.7 mg/l	97.7 mg/l	92.9 mg/l
9	Magnesium as Mg	22.3 mg/l	31.1 mg/l	27.2 mg/l	31.1 mg/l
10	Total Alkalinity	245.2 mg/l	273.3 mg/l	164 mg/l	211 mg/l
11	Chloride as Cl^-	253.7 mg/l	223.5 mg/l	316.1 mg/l	324.2 mg/l
12	Sulphate as SO_4^-	23.3 mg/l	34.0 mg/l	38.6 mg/l	26.0 mg/l
13	Iron as Fe	0.11 mg/l	0.13 mg/l	0.17 mg/l	0.16 mg/l
14	Free Residual Chlorine	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	Fluoride as F	0.11 mg/l	0.12 mg/l	0.10 mg/l	0.11 mg/l
16	Nitrates as NO_3	BDL (DL :2.0)	BDL (DL :2.0)	BDL (DL :2.0)	BDL (DL :2.0)
17	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)
18	Manganese as Mn	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)
21	Selenium as Se	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
23	Lead as Pb	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	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	Total Chromium	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	Boron as B	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	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	Phenolic Compunds as C_6H_5OH	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents as	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	Cynaide as CN	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
31	Total Coliform	Absent	Absent	Present	Present
32	E-Coli	Absent	Absent	Absent	Absent
33	Barium as Ba	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)
34	Ammonia (as Total	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
35	Sulphide as H_2S	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
36	Molybdenum as Mo	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
37	Total Arsenic as As	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
38	Total Suspended Solids	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)

* 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: SW- Surface water, GW – Ground water

TABLE 3.10: SURFACE WATER SAMPLING RESULTS

Sl. No.	Parameter	Unit	RESULT		CPCB Designated Best Use
			SW1- Tank Near Perunkulam	SW2- Thottavillai River	
1	Colour	Hazen	8	5	300
2	Odour	-	Agreeable	Agreeable	Not specified
3	pH@ 25ºC	-	7.57	7.62	6.5 – 8.5
4	Electrical Conductivity @ 25°C	µs/cm	1772	1917	
5	Turbidity	NTU	2	3	Not specified
6	Total Dissolved Solids	mg /l	1045	1131	1500
7	Total Hardness as $CaCO_3$	mg/l	412	460	Not specified
8	Calcium as Ca	mg/l	115.4	109	Not specified
9	Magnesium as Mg	mg/l	30.1	45.7	Not specified
10	Total Alkalinity as $CaCO_3$	mg/l	406	450.2	Not specified
11	Chloride as Cl^-	mg/l	370.4	396.6	600
12	Sulphate as SO_4^-	mg/l	50.6	38.9	400
13	Iron as Fe	mg/l	0.25	0.20	50
14	Free Residual Chlorine	mg/l	BDL (DL:0.1 mg/l)	BDL (DL:0.1)	400
15	Fluoride as F	mg/l	0.13	0.13	1.5
16	Nitrates as NO_3	mg/l	BDL(DL:2.0)	BDL(DL:2.0)	50
17	Copper as Cu	mg/l	BDL (DL:0.01)		1.5
18	Manganese as Mn	mg/l	BDL (DL:0.02)		Not specified
19	Mercury as Hg	mg/l	BDL (DL:0.0005)		Not specified
20	Cadmium as Cd	mg/l	BDL (DL:0.001)		0.01
21	Selenium as Se	mg/l	BDL (DL:0.005)		Not specified
22	Aluminium as Al	mg/l	BDL (DL:0.005)		Not specified
23	Lead as Pb	mg/l	BDL (DL:0.005)		0.1
24	Zinc as Zn	mg/l	BDL(DL : 0.05)		15
25	Total Chromium	mg/l	BDL(DL : 0.02)		0.05
26	Boron as B	mg/l	BDL(DL : 0.05)		Not specified
27	Mineral Oil	mg/l	BDL(DL : 0.01)		Not specified
28	Phenolic Compounds as C_6H_5OH	mg/l	BDL (DL:0.0005)		0.005
29	Anionic Detergents as MBAS	mg/l	BDL (DL:0.01)		Not specified
30	Cyanide as CN	mg/l	BDL (DL:0.01)		0.05
31	Biological Oxygen Demand, 3 days @ 27°C		9.0	11.0	3
32	Chemical Oxygen Demand		30.1	40.1	Not specified
33	Dissolved Oxygen		4.1	4.7	4
34	Total Coliform	MPN/ 100ml	240 MPN/100ml	170 MPN/100ml	5000
35	E-Coli		50MPN/100ml	30MPN/100ml	Not specified
36	Barium as Ba	mg/l	BDL (DL:0.05)		300
37	Ammonia (as Total Ammonia-N)	mg/l	BDL(DL:1.0)	BDL(DL:1.0)	Not specified
38	Sulphide as H_2S	mg/l	BDL (DL:0.01)		Not specified
39	Molybdenum as Mo	mg/l	BDL (DL:0.02)		Not specified
40	Total Arsenic as As	mg/l	BDL (DL:0.005)		0.2
41	Total Suspended Solids	mg/l	3.0	4.0	-

Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number.

3.2.4 Interpretation& Conclusion

Surface Water

The pH varied from 7.57 to 7.62 while turbidity found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH).

Total Dissolved Solids:

Total Dissolved Solids varied from 1045 to 1131mg/l, the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter.

Other parameters:

Chloride content is 370.4 to 396.6mg/l and sulphates varied from 38.9 to 50.6 mg/l.

Ground Water

The pH of the water samples collected ranged from 7.14 to 7.31 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 687 to 869mg/l in all samples. Total hardness varied between 312 to 360mg/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 between 75m bgl. The maximum depth proposed out of proposed projects is 57m (2m Gravel + 55m 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 ie., 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 seven open well and six borewells.

The average water level in the open well is varies from = 13.2m to 14.6m bgl

The water level in the bore well is varies from = 72 to 74.7m 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 75m 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: WINTER SEASON WATER LEVEL OF OPEN WELLS 1 KM RADIUS

S.NO	LABEL	LONGITUDE	LATITUDE	Mar-24	Apr-24	May-24
1	OW-1	77° 46' 42.8352" E	8° 16' 42.8284" N	13.4	14	14.6
2	OW-2	77° 47' 11.5401" E	8° 16' 24.6087" N	13.8	14.4	15
3	OW-3	77° 46' 39.3120" E	8° 16' 01.3815" N	13.2	13.8	14.4
4	OW-4	77° 46' 35.6689" E	8° 15' 54.0557" N	14	14.6	15.2
5	OW-5	77° 46' 31.3964" E	8° 16' 08.7550" N	13.6	14.2	14.8
6	OW-6	77° 46' 25.7226" E	8° 16' 28.5381" N	13.9	14.5	15.1
7	OW-7	77° 45' 56.0174" E	8° 16' 39.2503" N	13.5	14.1	14.7
8	OW-8	77° 46' 44.9177" E	8° 17' 18.9835" N	13.7	14.3	14.9

Source: Onsite monitoring data

FIGURE 3.9: OPEN WELL CONTOUR MAP Mar 2024 - May 2024

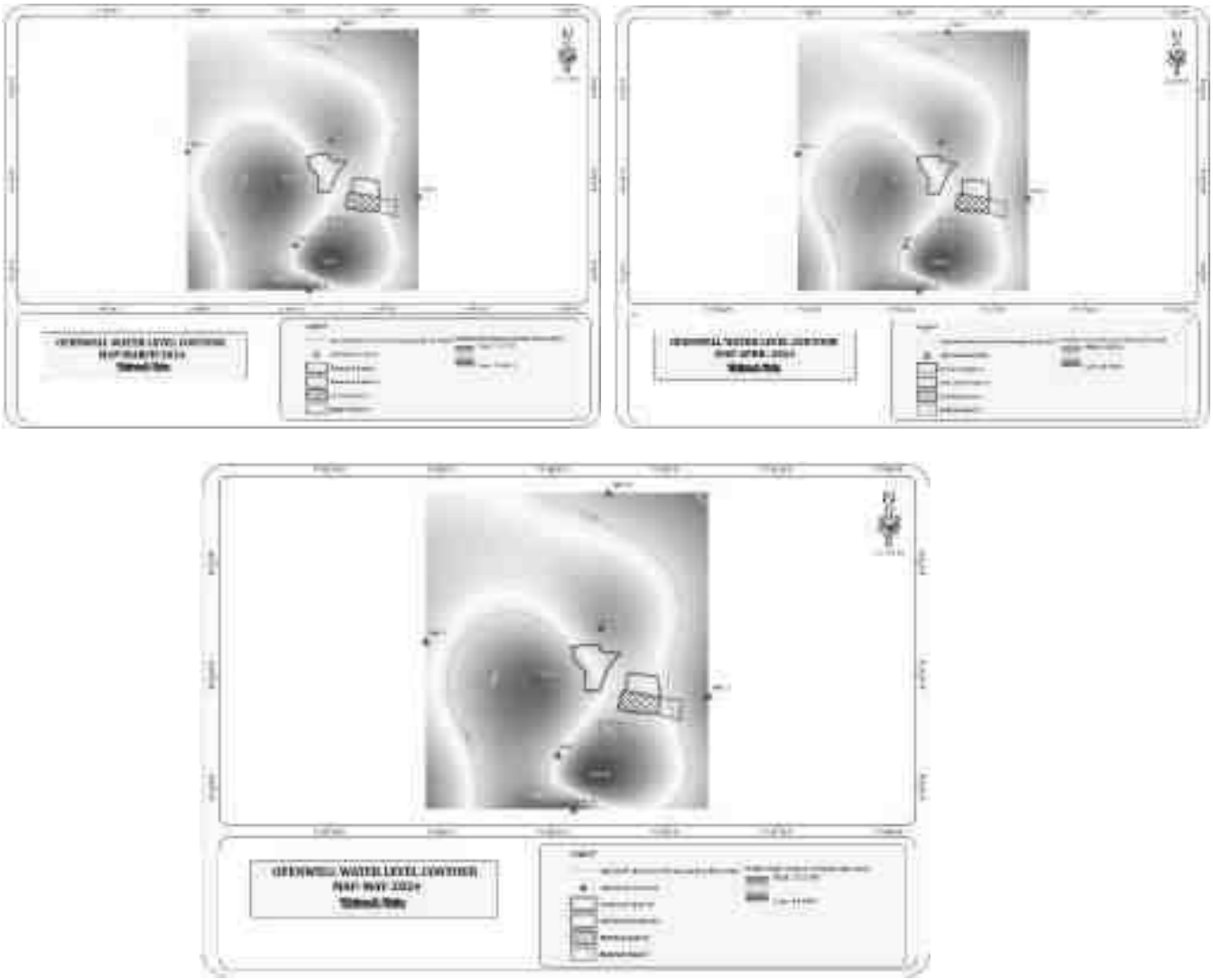


TABLE 3.12: WINTER SEASON WATER LEVEL OF BOREWELLS 1 KM RADIUS

S.NO	LABEL	LONGITUDE	LATITUDE	Mar-24	Apr-24	May-24
1	BW1	77° 46' 57.4283" E	8° 16' 05.1912" N	72	72.6	73.2
2	BW2	77° 46' 44.0353" E	8° 15' 59.7548" N	73.5	74.1	74.7
3	BW3	77° 46' 29.0799" E	8° 15' 59.6961" N	73.2	73.8	74.4
4	BW4	77° 46' 04.9900" E	8° 16' 42.8962" N	73	73.6	74.2
5	BW5	77° 46' 48.7060" E	8° 17' 09.7520" N	72.8	73.4	74
6	BW6	77° 47' 15.0002" E	8° 16' 52.2970" N	72.6	73.2	73.8

Source: Onsite monitoring data

FIGURE 3.10: BOREWELL CONTOUR MAP – Mar 2024 to May 2024

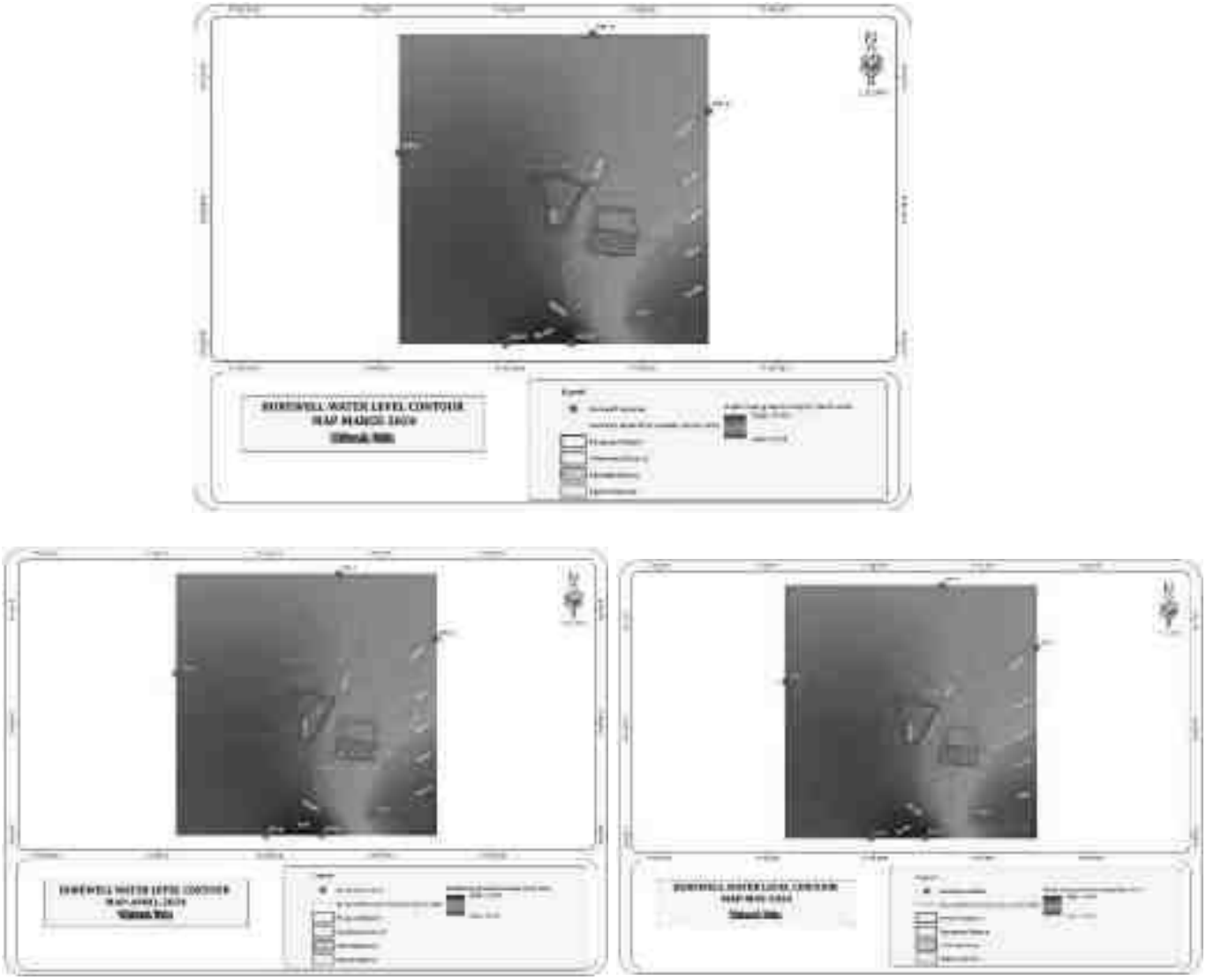
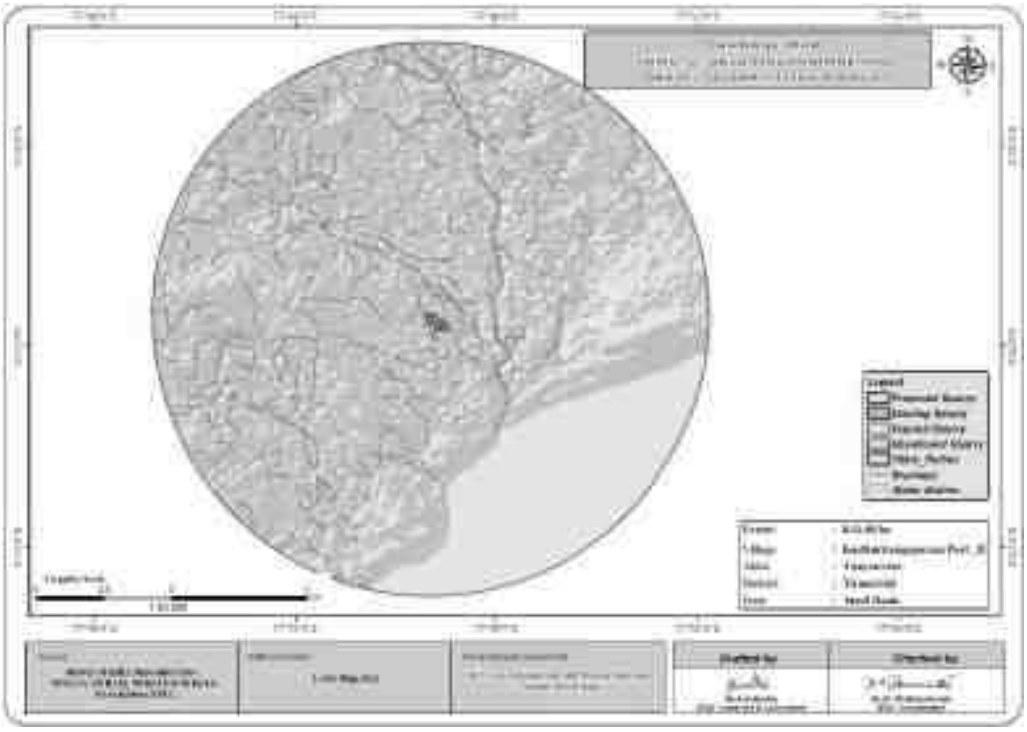
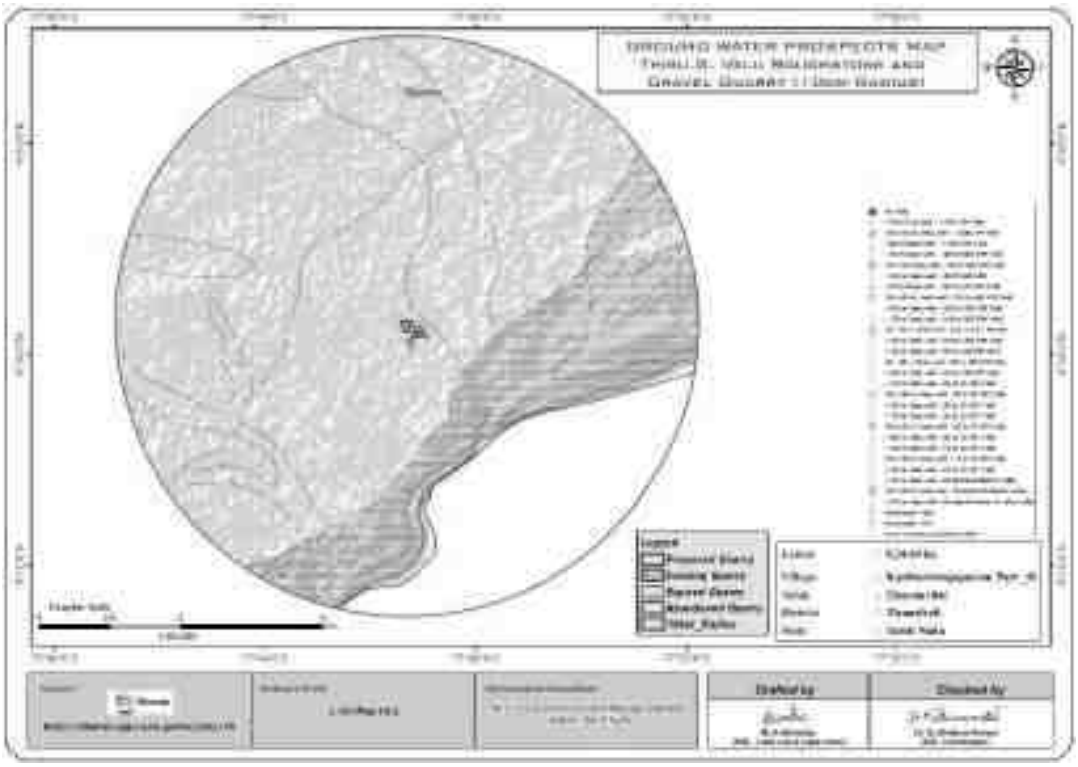


FIGURE 3.11: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE



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 30-80m 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 in homogeneities 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 farm 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 in homogeneities 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,

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

ρr = Resistivity of Rocks

ρw = Resistivity of water in pores of rock

F = Formation Factor

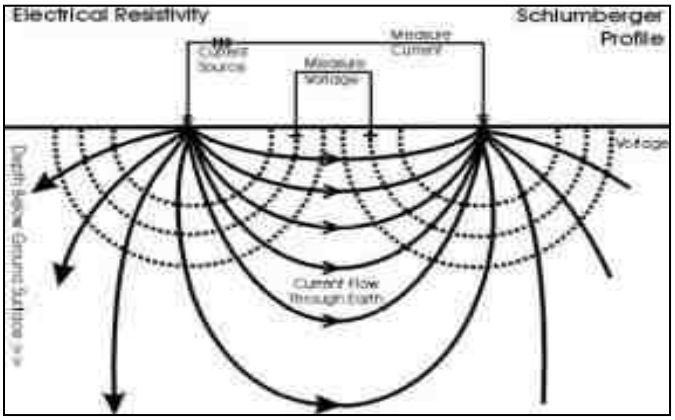
$\emptyset$ = Fractional pore volume

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 nose 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 between 75m. The maximum depth proposed out of proposed projects 57m 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. When compared with winter, the summers have much more rainfall. The climate here is classified as Aw by the Köppen-Geiger. In Tirunelveli, the mean yearly temperature amounts to 27.5 °C | 81.4 °F. The annual rainfall is 968 mm | 38.1 inch.
- This region, situated near the equator line, is characterized by difficult-to-define summer seasons. It is recommended that the optimal period for embarking on a journey would be during January, February, March, June, July, August, September, November, December.
- The month with the least amount of precipitation is February exhibiting a mere 32 mm | 1.3 inch rainfall. In November, the precipitation reaches its peak, with an average of 251 mm | 9.9 inch.
- The month of May boasts the highest average temperature, with a recorded maximum of 29.9 °C | 85.8 °F. At 24.5 °C | 76.1 °F on average, December is the coldest month of the year.
  https://en.climate-data.org/asia/india/tamil-nadu/tirunelveli-2784/

Rainfall

TABLE 3.13: RAINFALL DATA

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
1127.0	1137.8	1057.7	790.2	1569.3	985

Source: https://www.twadboard.tn.gov.in/content/tirunelvelli

TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE

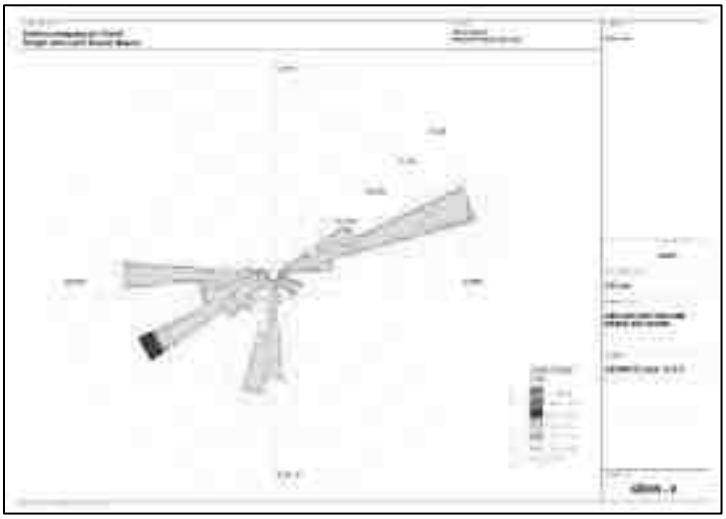
S.No	Parameters		Mar-2024	Apr-2024	May-2024
1	Temperature (^{0}C)	Max	30.98	31.9	30.31
		Min	25.55	29.05	25.91
		Avg	28.26	30.47	28.11
2	Relative Humidity (%)	Avg	62.75	65.19	80.75
3	Wind Speed (m/s)	Max	4.58	4.54	6.41
		Min	1.73	1.70	1.08
		Avg	3.15	3.12	3.745
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ENE,SE	S,ENE	WSW,W

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

Correlation between Secondary and Primary Data

The average rain fall over the period of five years is 985mm. The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Tirunelveli. A comparison of site data generated during the three months with that of IMD, Tirunelveli. Wind rose diagram of the study site is depicted in Figure. 3.13 Predominant downwind direction of the area during study season is -South East to North 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 NE, E, SSE
2. Wind velocity readings were recorded between 1.08 to 6.41m/s
3. Calm conditions prevail of about 0 % of the monitoring period
4. Temperature readings ranging from 25.55 to 31.9 °C
5. Relative humidity ranging from 62.75 to 80.75 %
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
SO2	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NOx	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 GLCS lab & 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 (µg/m3)	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	Nitrogen Dioxide (µg/m3)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	Particulate matter (size less than 10µm) PM10 (µg/m3)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than 2.5 µm PM2.5 (µg/m3)	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 Mar 2024 – May 2024. The baseline data of ambient air has been generated for PM_{10}, $PM_{2.5}$, Sulphur Dioxide (SO_2) & Nitrogen Dioxide (NO_2) 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 ± 0.5m 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 SE Corner	8°16'26.24"N 77°46'41.75"E
2	AAQ-2	Core Zone	Project Area NW Corner	8°16'36.97"N 77°46'35.61"E
3	AAQ-3	Near Existing Quarry	480m SE	8°16'19.35"N 77°46'56.32"E
4	AAQ-4	Muduvankulam Near School	1.8km NW	8°17'26.21"N 77°45'59.42"E
5	AAQ-5	Kilurcheri	5.8km SW	8°14'48.65"N 77°43'47.14"E
6	AAQ-6	Perunkulam	5km NE	8°18'27.88"N 77°48'42.61"E
7	AAQ-7	Thottavilai	3km SE	8°15'18.17"N 77°47'55.08"E

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

FIGURE 3.14: AIR QUALITY MONITORING PHOTOGRAPHS

FIGURE 3.15: AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

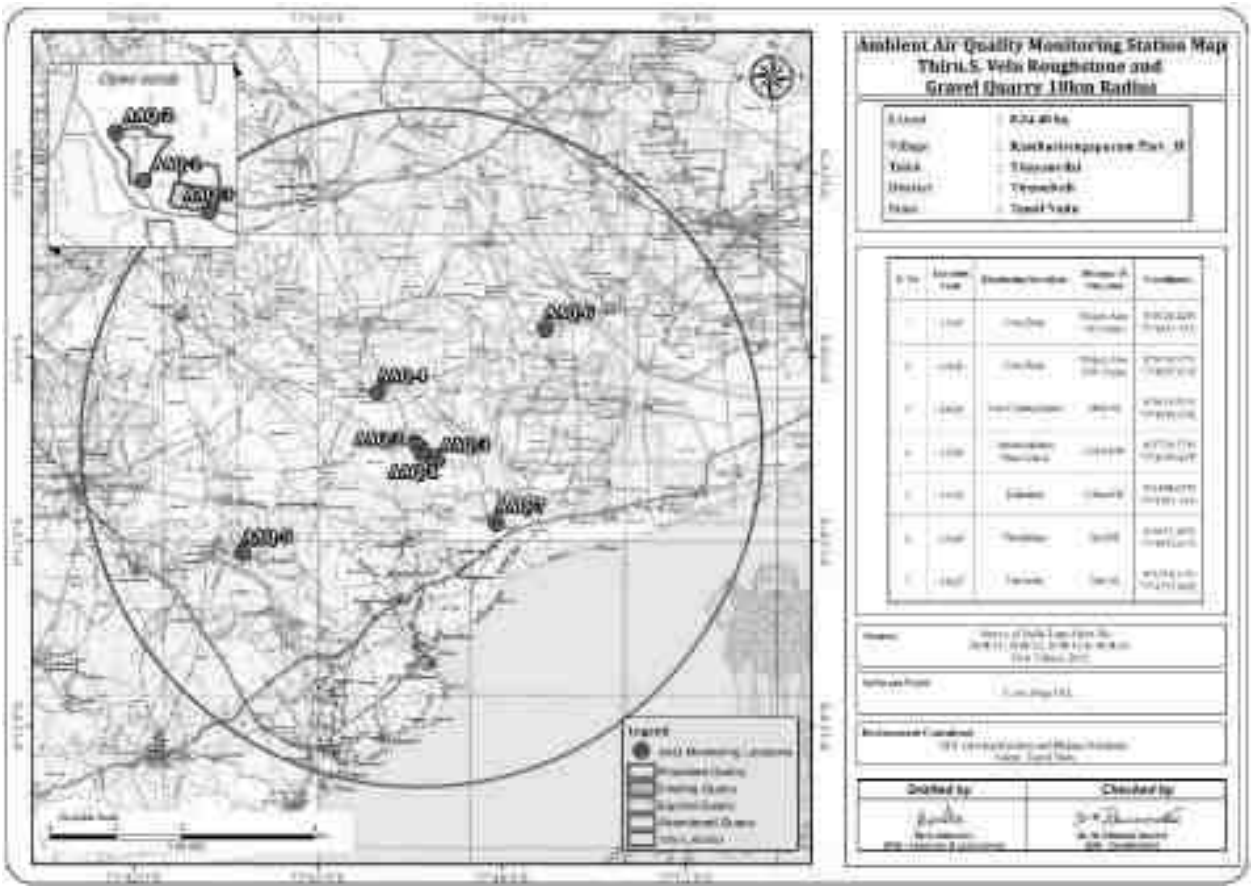


TABLE 3.18: SUMMARY OF AAQ 1 to AAQ 7

PM10	AAQ1 Core zone	AAQ2 Core Zone	AAQ3 Near Existing Quarry	AAQ4 Muduvankulam near School	AAQ5 Kilurcheri	AAQ6 Perunkulam	AAQ7 Thottavilai
Arithmetic Mean	40.6	21.2	6.2	25.3	40.6	21.2	6.2
Minimum	38.4	19.9	6.0	18.9	38.4	19.9	6.0
Maximum	39.2	19.6	5.8	19.1	39.2	19.6	5.8
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	18.8	19.1	19.3	19.3	19.2	18.9	19.2
Minimum	17.0	17.0	16.2	0.0	16.2	15.8	15.8
Maximum	22.0	22.0	22.4	0.0	23.7	24.5	21.6
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	5.0	5.3	5.2	5.2	5.4	5.6	5.7
Minimum	4.0	4.2	4.0	4.0	4.1	4.2	4.2
Maximum	6.5	6.6	6.6	6.2	7.0	6.9	7.0
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	18.9	18.9	19.0	18.9	18.9	18.9	19.3
Minimum	15.4	14.1	15.3	15.8	15.0	9.8	15.6
Maximum	26.0	23.8	23.6	25.2	21.9	23.2	25.3
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

1	**Parameter**	**PM10**	**PM2.5**	**SO_2**	**NO_2**
2	No. of Observations	44.5	23.5	7.0	24.5
3	98th Percentile Value	41.2	19.8	5.6	19.7
4	Arithmetic Mean	41.2	19.7	5.5	19.6
5	Geometric Mean	2.1	1.8	0.8	2.3
6	Standard Deviation	37.6	17.4	4.2	16.5
7	Minimum	44.5	23.5	7.0	24.5
8	Maximum	44.5	23.5	7.0	24.5
9	**NAAQ Norms***	**100.0**	**60.0**	**80.0**	**80.0**
	% Values exceeding Norms*	0.0	0.0	0.0	0.0

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

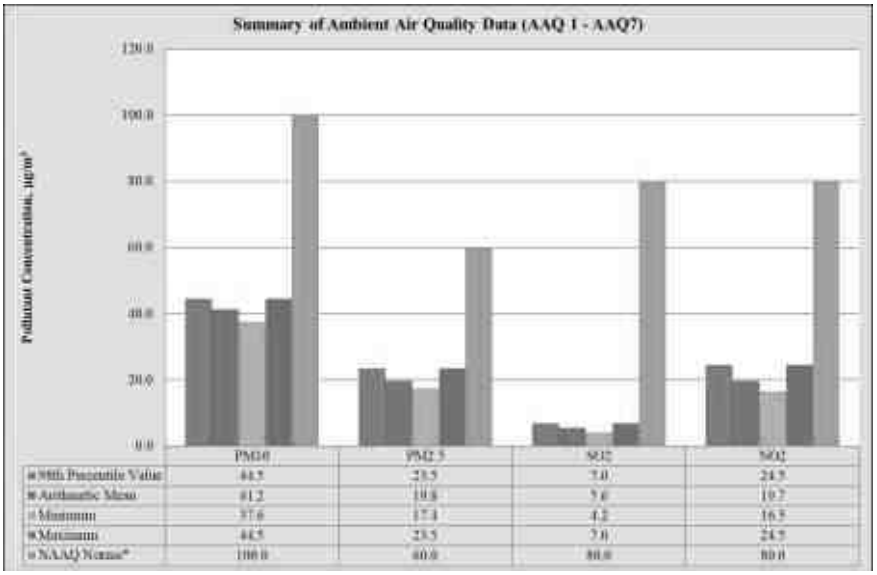


FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER $PM_{2.5}$

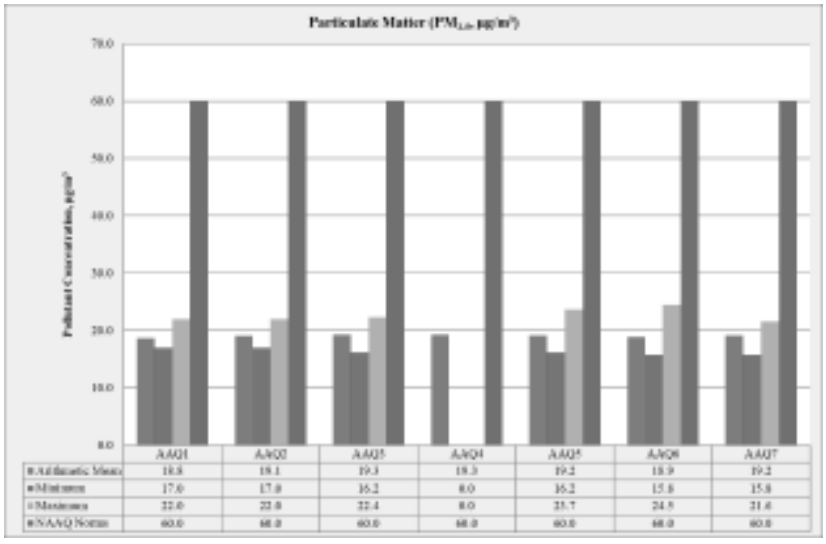
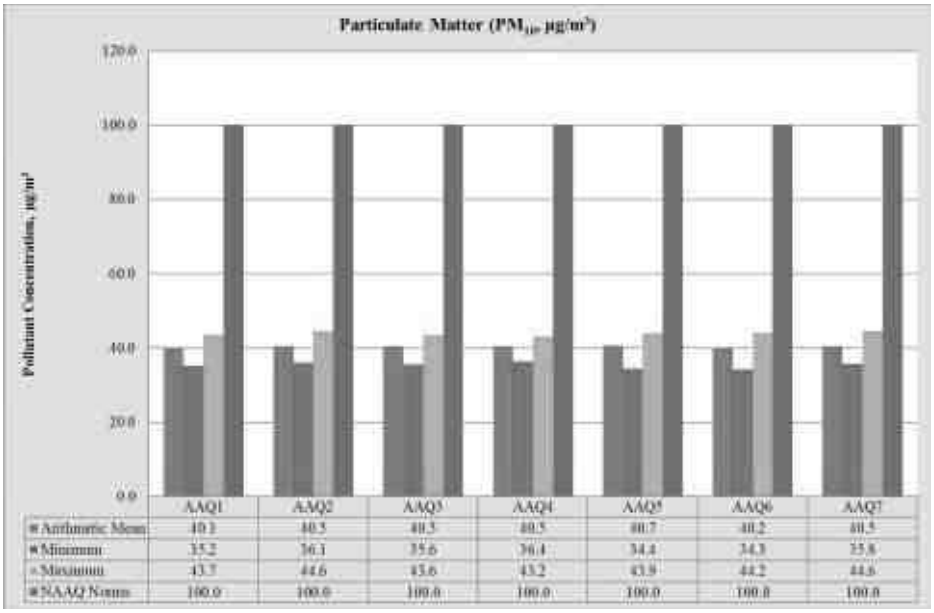


FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER PM_{10}



	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	40.1	40.5	40.5	40.5	40.7	40.2	40.5
Minimum	35.2	36.1	35.6	36.4	34.4	34.3	35.8
Maximum	43.7	44.6	43.6	43.2	43.9	44.2	44.6
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0

FIGURE 3.19: BAR DIAGRAM OF GASEOUS POLLUTANT SO_2

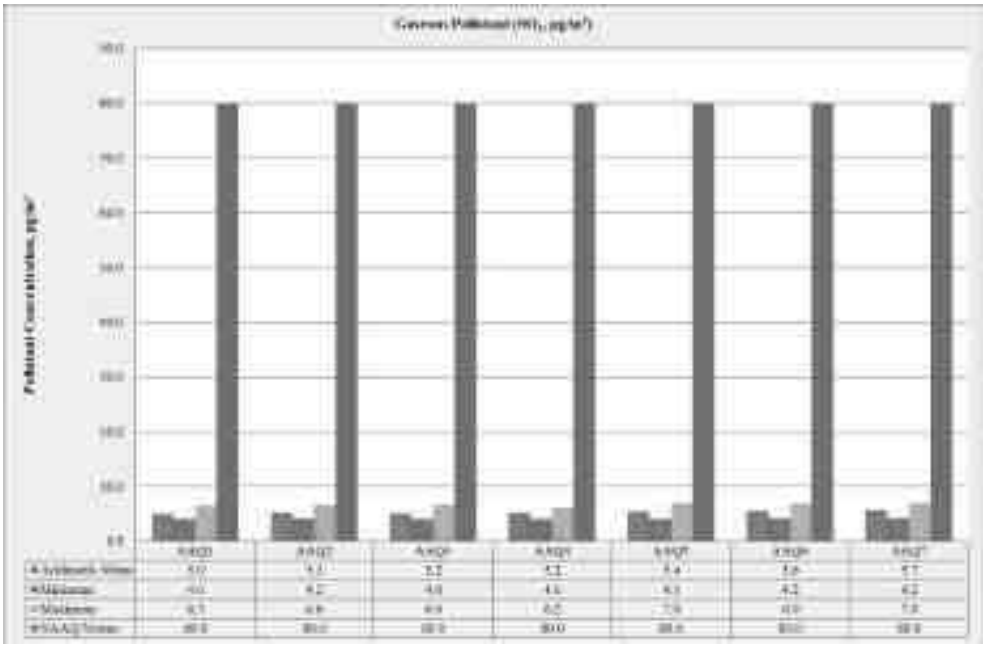
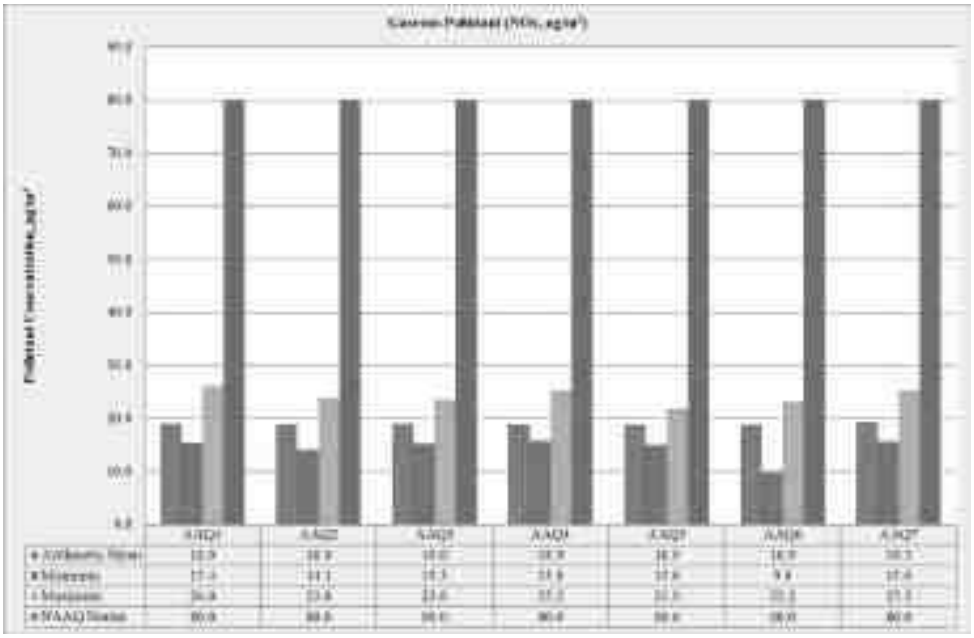


FIGURE 3.20: BAR DIAGRAM OF GASEOUS POLLUTANT NO_x



3.3.6 Interpretations & Conclusion

As per monitoring data, PM_{10} ranges from 37.6 µg/m^3 to 44.5 µg/m^3, $PM_{2.5}$ data ranges from 17.4 µg/m^3 to 23.5 µg/m^3, SO_2 ranges from 4.2 µg/m^3 to 7.0 µg/m^3 and NO_2 data ranges from 16.5 µg/m^3 to 24.5 µg/m^3. 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 Seven (7) 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	N1	Core Zone	Project Area SE Corner	8°16'27.45"N 77°46'42.08"E
2	N2	Core Zone	Project Area NW Corner	8°16'37.40"N 77°46'35.93"E
3	N3	Near Existing Quarry	480m SE	8°16'19.46"N 77°46'55.39"E
4	N4	Muduvankulam Near School	1.8km NW	8°17'26.10"N 77°45'58.75"E
5	N5	Kilurcheri	5.8km SW	8°14'49.31"N 77°43'47.18"E
6	N6	Perunkulam	5km NE	8°18'28.05"N 77°48'42.36"E
7	N7	Thottavilai	3km SE	8°15'19.05"N 77°47'55.07"E
8	N8	Karaisithupudur	6.5km East	8°17'11.68"N 77°50'16.13"E

Source: On-site monitoring/sampling by GLCS 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,

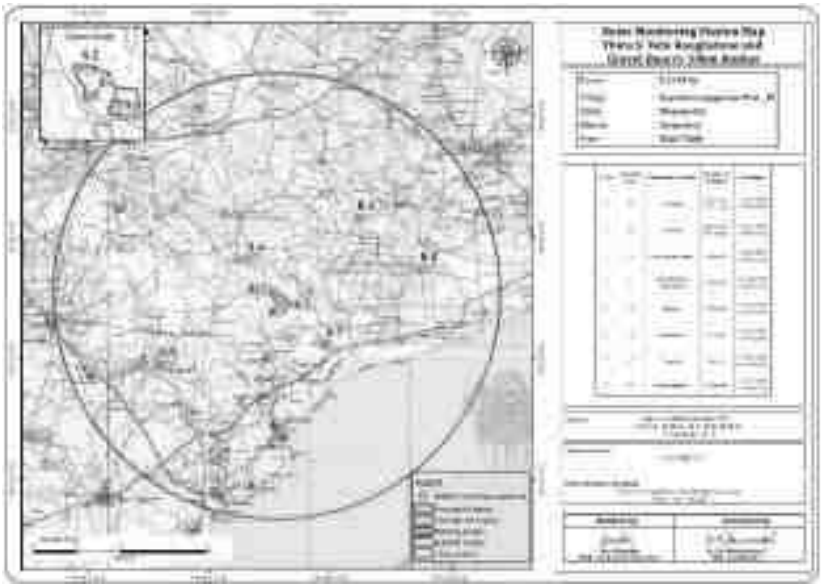
$Leq = 10 \text{ Log } L / T\sum (10Ln/10)$

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	43.1	37.7	**Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)**
2	Core Zone	46.8	37.4	
3	Near Existing Quarry	47.7	36.7	**Residential Day Time– 55 dB (A) Night Time- 45 dB (A)**
4	Muduvankulam Near School	47.2	38.1	
5	Kilurcheri	47.3	37.5	
6	Perunkulam	48.6	38.7	
7	Thottavilai	49.0	37.0	
8	Karaisithupudur	47.9	37.0	

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

FIGURE 3.24: DAY TIME NOISE LEVELS IN CORE AND BUFFER ZONE

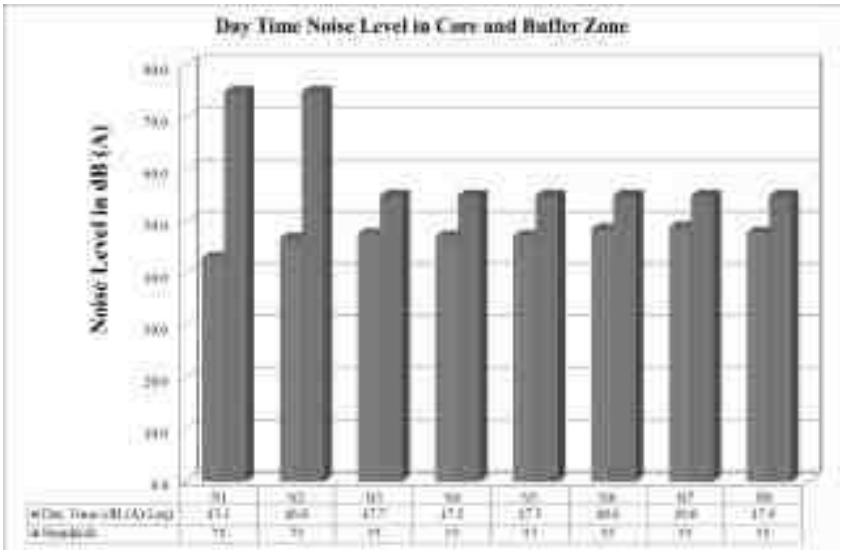
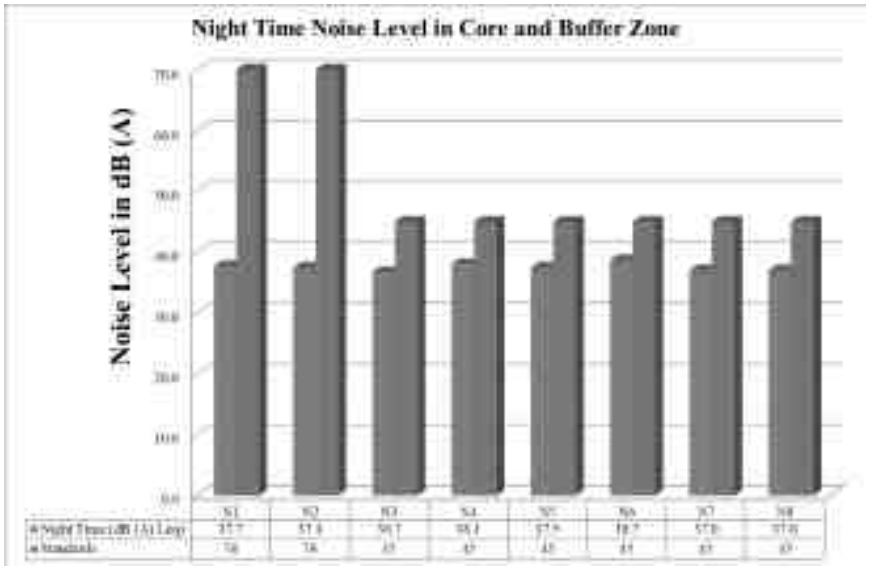


FIGURE 3.25: NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE



3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 8 (Eight) locations around the proposed project area. Noise levels recorded in core zone during day time were from 43.1 46.8 dB (A) Leq and during night time were from 37.4 – 37.7 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 47.2 to 49.0 dB (A) Leq and during night time were from 36.7 to 38.7 dB (A) Leq. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5.1.Study area Ecology

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. On the basis of onsite observations as well as forest department records the checklist of flora and fauna was prepared.

The main objective of the present study is to assess the current ecology & and biodiversity scenario during primary field survey carried out within 10 km radius impact zone in and around the Kasthurirengapuram Part-II Rough stone and gravel quarry (ML Area: 8.34.40 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.

The present study was carried out in two separate headings for floral and faunal community. The aspects to be covered in the study for the project are given in Table No 3.53.

Table No: 3.53: Aspect to be covered in the study area

Aspect of Environment	Impacts
A. Terrestrial Ecology	Impacts on terrestrial flora and fauna
	Impacts on Rare-Endangered-Threatened (RET) wildlife
B. Aquatic Ecology	Impacts on aquatic fauna/flora
	Impacts on spawning and breeding grounds for aquatic species

3.5.2. Objectives of Biological Studies

a) Undertake an intensive field survey to assess the status of floral & faunal component in different habitats in the core and buffer areas of the project site.
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.

3.5.2.1. Field surveys

The field visit was carried out to understand and assess the impacts of mining activities on flora & and 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.

3.5.2.2. 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, age 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.

3.5.3. Methodology of Sampling

Primary survey was conducted with established and accepted ecological methods in different habitats of study area. The field data collection mainly included biodiversity status assessment of different life forms habit of flora elements such as Trees, Shrubs, Climbers Herbs and Grass. Faunal diversity was assessed by inventorying the taxonomical groups like Mammals, Herpetofauna, birds and butterflies.

Nocturnal faunal species were searched by locating their calls during night time and by searching along the forest shrubs areas, dense dry bushes, below the stones, water bodies. During the study, to know more about the seasonal presence of flora and faunal species, information was obtained from local people and forest department.

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.

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. 0700 to 1100 Hrs and 1430 to 1730 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 ordinates. 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).

The secondary baseline data of flora and fauna has been complied through the following data sources:

1. Forest working plan
2. Schedule I to V: Indian Wildlife (Protection) Act, 1972
3. Vivek Menon, Indian Mammals: A Field Guide. Hachette Book publishing India Pvt.Ltd., India.
4. Daniel J.C. The Book of Indian Reptiles and Amphibians, Bombay Natural History Society., India.
5. Ali, S and Ripley. handbook of the Birds of India and Pakistan together with those of Nepal, Sikkim and Bhutan, Oxford University Press, Bombay.
6. ENVIS Centre on Wildlife and Protected Area.
7. Birds Life Data Zone
8. Ebird.org
9. Global Biodiversity Information Facility

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. Field Equipment's/ References

Following tools/equipment were used for conducting phytosociological study.

- Ballpoint pen, Field bags, Field notebooks, field shoes, gloves, GPS, Measuring tapes and scales, Plant cutters, packet lens, ropes etc.
- 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 (Fauna Sampling)

3.5.4.1. Transect walk – Birds

Eight no 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 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 on 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. 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.

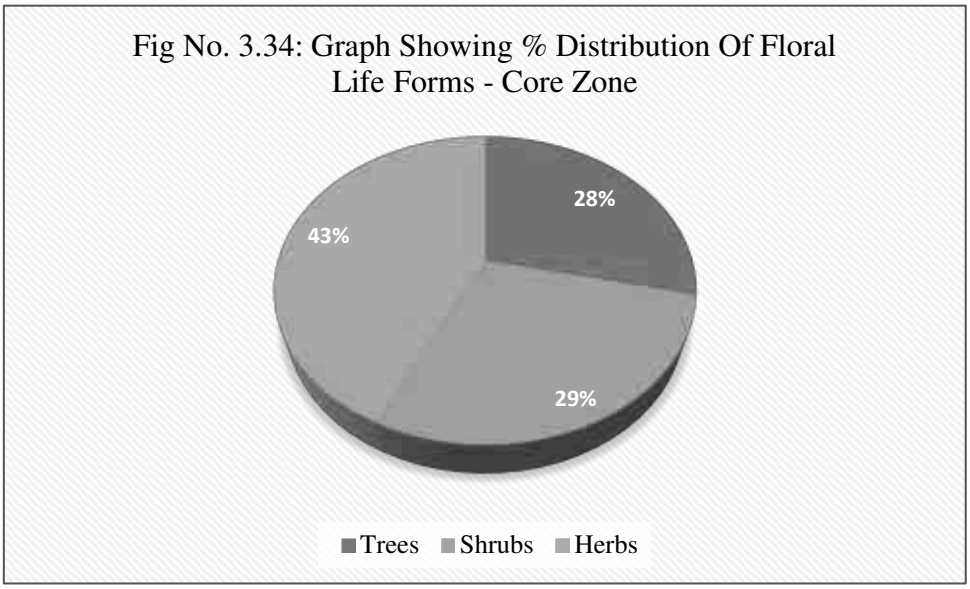
3.5.1. Flora Composition in the Core Zone

Core zone flora sampling was conducted between 8.00 am to 10.00 am in two locations. The proposed applied area is exhibits plain terrain, we used with quadrate sampling methods. Taxonomically a total of 7 species belonging to families have been recorded from the core zone mining lease area. Based on the habitat classification of the enumerated plants the majority of species were Herbs 3, followed by Shrubs 2 and Trees 2. Details of flora with the scientific names were mentioned in Table No. 3.54. No species were found as threatened category.

Table No: 3.54. Flora in the Core zone of area, Kasthurirengapuram Part-II Village, Rough stone and gravel quarry (Primary data)

SI.No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Neem or Indian lilac	Vembu maram	Azadirachta indica	Meliaceae
2.	Velvet mesquite	Mullu Maram	Prosopis juliflora	Fabaceae
Shrubs				
3.	Milk Weed	Peruke	Calotropis gigantea	Apocynaceae
4.	Triangular spruge	Chaturakalli	Euphorbia antiquorum	Euphorbiaceae
Herbs				
5.	Coat buttons	Thatha poo	Tridax procumbens	Asteraceae
6.	Holy basil	Thulasi	Ocimum tenuiflorum	Lamiaceae
7.	Indian doab	Arugampul	Cynodon dactylon	Poaceae

Sources: Species observation in the field study



The trees surveys were conducted around 300m radius from the proposed project site cluster are of Kasthurirengapuram Part-II village. This is the standard scientific method followed by various workers in respect of phytosociological studies (Cottom and Curtis 1956; Ralhan et al. 1982; Saxena and Sing 1982; Nayak et al. 2000; Lu et al. 2004; Nautiyal 2008). While sampling, circumference at breast Height (CBH) of tree species was measured at 1.30m from ground level, along with the name of the species, phenology (flowering, fruiting, and flushes), and uses. After surveying areas, a detailed trees inventory has been compiled. A list of all plants from the study area was prepared and their habitats were recorded. The species of trees were documented during this

base line survey. The dominant plant species growing in this area were Cocos nucifera Prosopis juliflora, etc. Please refer the Table No.3.55.

Table No: 3.55. Tree survey around 300m radius from the proposed project site (Primary data)

S.No	English Name	Vernacular Name	Scientific Name	No of trees
Trees				
1.	Acacia Nilotica	Karuvelammaram	Vachellianilotica	2
2.	Mesquite	Mullumaram	Prosopis juliflora	18
3.	Neem	Vembu	Azadirachta indica	30
4.	Asian Palmyra palm	Panai maram	Borassus flabellifer	4
5.	Coconut	Thennai maram	Cocos nucifera	110

(**Sources**: Species observation in the field study)

Table No: 3.56. Flora in Buffer Zone of Kasthurirengapuram Part-II, Rough stone and gravel quarry (Primary data & Secondary data)

SI.No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	White-bark acacia	Velvelam	Acacia leucophloea	Mimosaceae
2.	Coconut	Thennai maram	Cocos nucifera	Arecaceae
3.	Neem or Indian lilac	Vembu	Azadirachta indica	Meliaceae
4.	Frywood	Vaagai	Albizia lebbeck	Mimosaceae
5.	Indian plum	Elanthai maram	Ziziphus mauritiana	Rhamnaceae
6.	Pongamia pinnata	Pongam	Millettia pinnata	Fabaceae
7.	Oil cake tree	Wunja	Albizia amara	Fabaceae
8.	Eucalyptus	Thailam maram	Eucalyptus tereticornis	Myrtaceae
9.	Velvet mesquite	Velikatthaan	Prosopis juliflora	Fabaceae
10.	River tamarind	Savunda	Leucaenaleucocephala	Fabaceae
11.	Sacred Tree	Flame of Forest	Butea monosperma	Fabaceae
12.	Madras thorn	Kudukapuli	Pithecellobium dulce	Fabaceae
13.	Portia tree	Poovarasan	Thespesia Populnea	Malvaceae
14.	Royal poinciana	Cemmayir Konra	Delonix regia	Fabaceae
15.	Lemon	Ezhumuchaipalam	Citrus lemon	Rutaceae
16.	Jamun Fruit Plant	Naval maram	Syzygium cumini	Myrtaceae
17.	Gum arabic tree	Karuvelam	Acacia nilotica	Fabaceae
18.	Kassod Tree	ManjalKonrai	Cassia siamea	Fabaceae
19.	Common guava	Koyya	Psidium guajava	Myrtaceae
20.	Monkey pod tree	Kondraimaram	Samaneasaman	Fabaceae
21.	Senna siamea	Manjal Konnai	Sennasiamea	Fabaceae
22.	Asian Palmyra palm	Panai maram	Borassus flabellifer	Arecaceae
23.	Bamboo	Moongil	Bambusoideae	Poaceae
24.	Teak	Thekku	Tectona grandis	Verbenaceae
25.	Banyan	Alamaram	Ficus benghalensis	Moraceae
26.	Kapok tree	Ilavamaram	Ceibapentandra	Malvaceae
27.	Otaheite Gooseberry	Nellai	Phyllanthus acidus	Phyllanthaceae
28.	Common fig	Athi Maram	Ficus Carica	Anacardiaceae
29.	Horsetail She-oak	Savukku maram	Casuarina equisetifolia	Casuarinaceae
30.	Tamarind	Puliyamaram	Tamarindus indica	Legumes
31.	Moringa	Murungai Maram	Moringa oleifera	Moringaceae
32.	Phoenix sylvestris	Pereatchai	Phoenix sylvestris	Arecaceae
33.	Creamy peacock flower	Perungondrai	Delonix elata	Fabaceae
34.	Mango	Manga	Mangifera indica	Anacardiaceae

35.	Curry tree	Karuveppilai	Murraya koenigii	Rutaceae
36.	Papaya	Pappali maram	Carica papaya	Caricaceae
37.	Banana tree	Vazhaimaram	Musa acuminata	Musaceae
38.	Jack fruit	Palamaram	Artocarpus heterophyllus	Moraceae
39.	Singapore Cherry	Ten pazham	Muntingia calabura	Malvaceae
Shrubs				
1.	Common Wireweed	Arivalmanai poondu	Sida acuta	Malvaceae
2.	Bush Morning Glory	Neiveli Kattamani	Ipomoea carnea	Convolvulaceae
3.	Chinese chastetree	Nochi	Vitex negundo	Lamiaceae
4.	Wild jujube	Nari-y-ilantai	Zizyphus nummularia	Rhamnaceae
5.	Malabar nut	Adhatoda	Justicia adhatoda	Acanthaceae
6.	Fish poison	Kolinchi	Tephrosia purpurea	Fabaceae
7.	Jackal jujube	Surai Ilantai	Ziziphus oenoplia	Rhamnaceae
8.	Milk Weed	Erukku	Calotropis gigantea	Apocynaceae
9.	Peacock Flower	Mayil Kontai	Caesalpinia pulcherrima	Fabaceae
10.	Solanum pubescens	Malaisundai	Solanum pubescens Willd	Solanaceae
11.	Night shade plan	Sundaika	Solanum torvum	Solanaceae
12.	Mesquite	Seemai karuvelam	Prosopis juliflora	Fabaceae
13.	Triangular spruge	Chaturakalli	Euphorbia antiquorum	Euphorbiaceae
14.	Yellow elder	Manjarali Sonnapatti	Tecoma stans	Bignoniaceae
15.	Henna Tree	Maruthani	Lawsonia inermis	Lythraceae
16.	Martynia annua	Thael kodukkukaai	Martynia annua	Martyniaceae
17.	Devil's trumpet	Umathai	Datura metel	Solanaceae
18.	Jhahrberi	Narielandai	Ziziphus nummularia	Rhamnaceae
19.	Castor bean	Amanakku	Ricinus communis	Euphorbiaceae
20.	Shoe flower	Chemparuthi	Hibiscu rosa-sinensis	Malvaceae
21.	Bellyache bush	Kaatamanaku	Jatropagossypifolia	Euphorbiaceae
22.	Blue snakeweed	Seemai nayaroovi	Stachytarpheta indica	Verbenaceae
23.	Touch-me-not	Thottalchinungi	Mimosa pudica	Mimosaceae
24.	Indian mallow	Thuthi	Abutilon indicum	Meliaceae
25.	Apple of sodom	Vellerukku	Calotropis procera	Asclepiadaceae
26.	Avaram	Avarai	Senna auriculata	Fabaceae
27.	Indian Oleander	Arali	Nerium indicum	Apocynaceae
28.	West Indian Lantana	Unni chedi	Lantana camara	Verbenaceae
Herbs				
1.	Septicweed	Kattuttakarai	Senna occidentalis	Fabaceae
2.	Red Pea Eggplant	Vellai tuduvalai	Solanum trilobatum	Solanaceae
3.	Bladder Cherry	Kupanti	Physalis minima	Solanaceae

4.	Chamber bitter	Malai Kizhanelli	Phyllanthus urinaria L.	Euphorbiaceae
5.	Indian Whitehead	Vella ragu	Enicostema axillare	Gentianaceae
6.	Carrot grass	Vishapoondu	Parthenium hysterophorus	Asteraceae
7.	Green amaranth	Kuppaikeerai	Amaranthus viridis	Amaranthaceae
8.	Aloe barbadensis	Katrazhai	Aloe vera	Asphodelaceae
9.	Indian Mercury	Kuppamani	Acalypha indica	Euphorbiaceae
10.	False daisy	Karisalankanni	Eclipta prostrata	Asteraceae
11.	Indian nettle	Nayuruvi	Achyranthes aspera	Amaranthaceae
12.	Indian doab	Arugampul	Cynodon dactylon	Poaceae
13.	Rough cocklebur	Marul-umattai	Xanthium strumarium	Asteraceae
14.	Riceweeds	Seruppadai	Coldenia procumbens	Boraginaceae
15.	Cracker plant	Kiranti nayan	Ruellia tuberosa	Acanthaceae
16.	East Indian globe thistle	kottai-k-karantai	Sphaeranthus indicus	Asteraceae
17.	Mountain knotgrass	Sirupulai	Aerva lanata	Amaranthaceae
18.	Tickweed	Nai kadugu	Celome viscosa	Capparidaceae
19.	Frog fruit	Poduthalai	Phyla nodiflora	Poduthalai
20.	Common leucas	Thumbai	Leucas aspera	Lamiaceae
21.	Fish poison	Kollukkai Vela	Tephrosia purpurea	Fabaceae
22.	Pig weed	Mukkarattai Keerai	Boerheavia diffusa	Nyctaginaceae
23.	Asthma-plant	Amman pacharisi	Euphorbia hirta	Euphorbiaceae
24.	Marsh Barbel	Neermulli	Hygrophila auriculata	Acanthaceae
25.	Bhringaraj	Karisalankanni	Eclipta alba	Asteraceae
26.	Spiny amaranth	Mullukkirai	Amaranthus spinosus	Amaranthaceae
27.	Holy basil	Thulasi	Ocimum tenuiflorum	Lamiaceae
28.	Indian Turnsole	Thel kodukku	Heliotropium indicum	Boraginaceae
29.	Tridax daisy	Thatha poo	Tridax procumbens	Asteraceae
30.	Gale of the wind	Keelaneeli	Phyllanthus niruri	Phyllanthaceae
Climber/ Creepers				
1.	Balloon vine	Mudakathan	Cardiospermum halicacabum	Sapindaceae
2.	Ivy gourd	Kovai	Coccinia grandis	Cucurbitaceae
3.	Bitter apple	Peikkumatti	Citrullus colocynthis	Cucurbitaceae
4.	Wild water lemon	Poonai puduku chedi	Passiflora foetida	Passifloraceae
5.	Stemmed vine	Perandai	Cissus quadrangularis	Vitaceae
6.	Butterfly pea	Sangu poo	Clitoria ternatea	Fabaceae
7.	Bitter melon	Paagarkaai	Momordica charantia	Cucurbitaceae
8.	Rosary pea	Kundumani	Abrus precatorius	Fabaceae
9.	Madras Pea Pumpkin	Musumuskkai	Mukia mederaspatna	Cucurbitaceae
10.	Bottle gourd	Churakka	Lagenaria siceraria	Cucurbitaceae

Grass				
1.	Great brome	Thodappam	Bromus diandrus	Poaceae
2.	Common needle grass	-	Aristida adscensionis	Poaceae
3.	Windmill grass	Chevvarakupul	Chloris barbata	Amaranthaceae
4.	Eragrostis	Pullu	Eragrostis ferruginea	Poaceae
5.	Narrowleaf cattail	Sambu	Typha angustifolia	Typhaceae
6.	Water grass	Mukkutikorei	Bulbostylis barbatta	Cyperaceae
7.	Finger grass	Kuruthupillu	Chloris dolichostachya	Poaceae
8.	Umbrella-sedge	Vattakorai	Cyperus difformis	Cyperaceae
9.	Marvel grass	Marvel grass	Dichanthium annulatum	Poaceae
10.	Tropical crabgrass	Crab grass	Digetaria adscendens	Poaceae
11.	Purple love grass	Bunchgrass	Eragrostis spectabilis	Poaceae

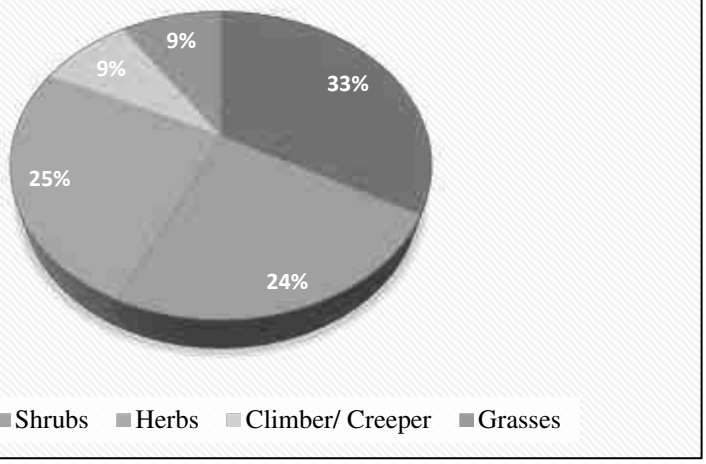
3.6. Flora Composition in the Buffer Zone (Primary & Secondary data)

Buffer zone flora sampling was conducted between 10.00 am to 4.00 pm in eight different locations in 10 km radius as per the ToR. The most important and widely used methods for a general assessment is belt transect/quadrate methods. The study area was divided according to habitat types followed the random sampling methods in the selected area. For plant biodiversity study in the ecosystems, the quadrate methods were followed. The proposed applied area is exhibiting plain topography. 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 floral (118) varieties among them Trees 39, Herbs 30, Shrubs 28, Climbers/Creepers 10, and Grasses 11 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.3.56. 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 No. 3.57 and their % distribution is shown in Figure No. 3.35.

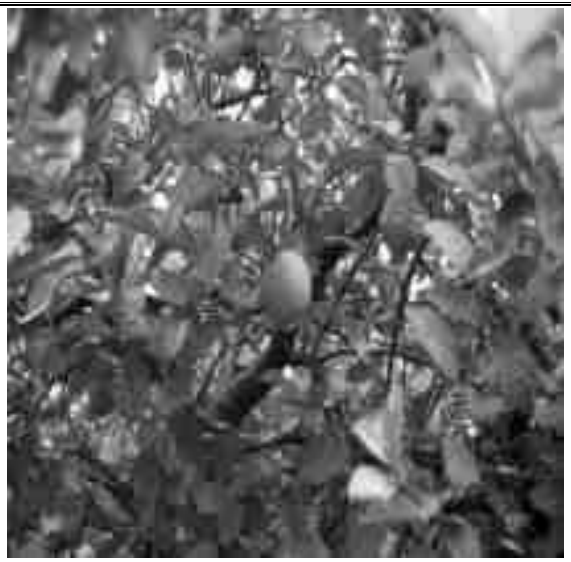
Table No: 3.57. Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	39
2	Shrubs	28
3	Herbs	30
4	Climber/ Creeper	10
6	Grasses	11
Total No. of Species		**118**

Fig No. 3.35: Graph Showing % Distribution Of Floral Life Forms (Buffer Zone)



a. Azadirachta indica



b. Citrus lemon

c. Prospis juliflora

d. Musa paradisiaca

e. Cynodon dactylon

f. Tridax daisy

g. Solanum virginianum

h. Mangifera indica

i.Abutilon indicum

j. Coccus nucifera

k. Lagenaria siceraria

l. Cissus quadrangularis

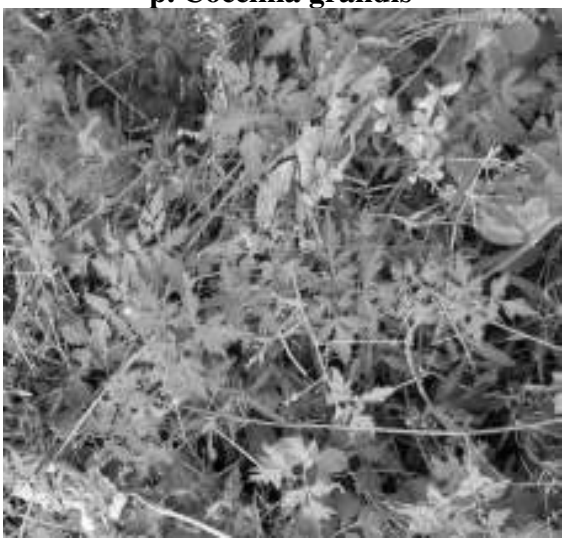
m. Solanumnigrum

n. Parthenium hysterophorus

o. Psidium guajava

p. Coccinia grandis

q. Jatropha curcas



r. Cardiospermum halicacabum

Fig No:3.36. List of Flora details in Buffer Zone of Mine area

3.6.3. 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 buffer zone. 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.

Hence' submission of clearance from the National Board of Wildlife does not arise because it is located away from the proposed project site. Here 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.

3.7. 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.

3.7.1. Fauna Composition in the Core Zone (Primary data)

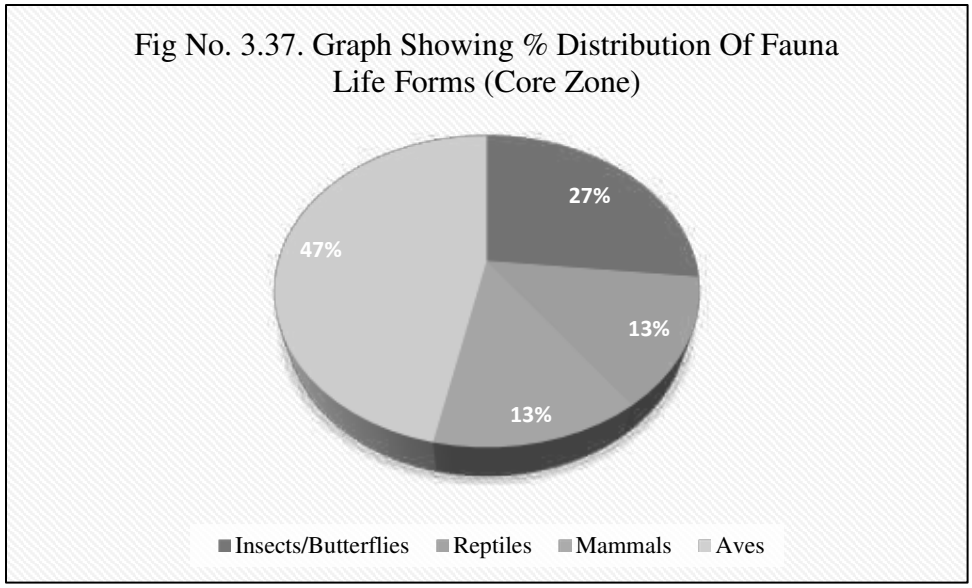
Core zone fauna samplings were conducted between 6.00 am to 8.00 am in three locations. A total of 15 varieties of species were observed in the Core zone of Kasthurirengapuram Part-II During the study, it was found that the faunal diversity in the core site was limited to Butterflies, insects, and some species of mammals & and reptiles among them numbers Insects/Butterflies 4, Reptiles 2, Mammals 2, and Avian 7. The core site has avifauna species like crow, Black drongo, Koel, etc. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and 8 species are under Schedule IV according to the Indian Wildlife Act 1972. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

Table No: 3.58. Fauna in the Core zone of Kasthurirengapuram Part-II Village, Rough stone and gravel quarry (Primary data)

SI. No	Common Name	Scientific Name	Schedule list WLPC 1972
Insects/Butterflies			
1.	Common Tiger	Danaus genutia	NL
2.	Red-veined darter	Sympetrum fonscolombii	NL
3.	House fly	Musca domestica	-
4.	Dragonfly	Agriansp	-
Reptiles			
1.	Oriental garden lizard	Calotes versicolor	NL
2.	Indian forest skink	Sphenomorphus indicus	NL
Mammals			
1.	Indian Field Mouse	Mus booduga	Schedule IV
2.	Squirrel	Funambulus palmarum	Schedule IV
Aves			
1.	Rose-ringed parkeet	Psittacula krameri	Schedule IV
2.	Common myna	Acridotheres tristis	Schedule IV
3.	Small-blue kingfisher	Alcedoatthis	Schedule IV
4.	Asian koel	Eudynamysscolopacea	Schedule IV
5.	Red-vented Bulbul	Pycnonotus cafer	Schedule IV

6.	Black drongo	Dicrurus macrocercus	Schedule IV
7.	House crow	Corvussplendens	Schedule V

(Sources: Species observation in the field study)



3.8.Inventory of Faunal Diversity in the Buffer Zone

The Buffer zone fauna samplings were conducted between 3.00 pm to 6.00 pm in different locations. 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 are 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.

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 Bee-eaters, Mynas, Reed Kites and Drongos etc.

The list of Mammals (*directly sighted animals & Secondary data) is given in table No.3.59. The list of bird species recorded during the field survey and literature from the study area are given in Table 3.60. The list of reptilian species recorded during the field survey and literature from the study area is given in Table 3.61. The list of insect species recorded during the field survey and literature from the study area are given in Table 3.62. The list of Butterflies species recorded during the field survey and literature from the study area are given in Table 3.63. 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 78 species recorded were from the buffer zone area. Based on habitat classification the majority of species were birds 31, followed by Butterflies 20, Reptiles 8, Insects 10, Mammals 5, and Amphibians 4. There are two Schedule II species, and 55 species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 31 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 amphibians was observed during the extensive field visit Sphaerotheca breviceps, Euphlyctis hexadactylus, Bufomelanostictus, etc. There is no Schedule I Species in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

Table No. 3.59. List of Fauna & Their Conservation Status, Mammals: (*directly sighted animals & Secondary data)

S.No	Scientific name	Common name	Family	IUCN/WPA Schedule
1.	Funambulus palmarum	Indian Palm squirrel	Squirrel	LC – IV
2.	Herpertes edwardrii	Indian grey mongoose	Mongoose	LC – IV
3.	Lepus nigricollis	Hare	Leporids	LC – IV
4.	Rattus norvegicus	Field mouse	Murids	LC – IV
5.	Rattus rattus	House rat	Murids	LC – IV

Table No. 3.60. Listed birds (Primary data & Secondary data)

SI. No	Scientific Name	Common Name	Family	Schedule list WLP 1972
1.	Psittaculakrameria	Rose-ringed Parakeet	Psittaculidae	Schedule IV
2.	Tachybaptusruficollis	Little grebe	Podicipedidae	Schedule IV
3.	Pycnonotus cafer	Red-vented Bulbul	Pycnonotidae	Schedule IV
4.	Alcedo atthis	Small blue Kingfisher	Alcedinidae	Schedule IV
5.	Leptocoma zeylonica	Purple Sunbird	Nectariniidae	Schedule IV
6.	Leptocoma zeylonica	Purple-rumped Sunbird	Nectariniidae	Schedule IV
7.	Dicrurus macrocercus	Two-tailed Sparrow	Dicruridae	Schedule IV
8.	Ardeacineria	Grey heron	Ardeidae	Schedule IV
9.	Bubulcus ibis	Cattle egret	Ardeidae	Schedule IV
10.	Acridotheres tristis	Common myna	Sturnidae	Schedule IV
11.	Coracias benghalensis	Indian roller	Coraciidae	Schedule IV
12.	Nycticorax nycticorax	Night heron	Ardeidae	Schedule IV
13.	An thus rufulus	Paddy field Pipit	Motacillidae	Schedule IV
14.	Pycnonotus jocosus	Red-whiskered Bulbul	Pycnonotidae	Schedule IV
15.	Egretta garzetta	Little Egret	Ardeidae	Schedule IV
16.	Merops orientalis	Green Bee-eater	Meropidae	Schedule IV
17.	Tringa ochropus	Green Sandpiper	Scolopacidae	Schedule IV
18.	Motacilla cinerea	Grey Wagtail	Motacillidae	Schedule IV
19.	Passer domesticus	House Sparrow	Passeridae	Schedule IV
20.	Dicrurus macrocercus	Black Drongo	Dicruridae	Schedule IV
21.	Lanius cristatus	Brown Shrike	Laniidae	Schedule IV
22.	Streptopeliachinensis	Spotted dove	Columbidae	Schedule IV
23.	Accipiter badius	Shikra	Accipitridae	Schedule IV
24.	Eudynamysscolopacea	Asian koel	Cuculidae	Schedule IV
25.	Dicrurus leucophaeus	Ashy Drongo	Dicruridae	Schedule IV
26.	Columba livia	Rock Pigeon	Columbidae	Schedule IV
27.	Corvussplendens	House crow	Corvidae	Schedule V
28.	Corvusmacrorhynchos	Jungle crow	Corvidae	Schedule IV
29.	Copsychussaularis	Robin	Muscicapidae	Schedule IV
30.	Ardeolagrayii	Pond heron	Ardeidae	Schedule IV
31.	Coturnix coturnix	Common quail	Phasianidae	Schedule IV

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

Table No. 3.61. List of Reptiles either spotted or reported from the study area

SI. No	Scientific Name	Common Name		Schedule list

			Family	WLP 1972
1.	Calotes versicolor	Common Garden lizard	Agamid lizards	LC – IV
2.	Bangarus caeruleus	Common krait	Elapidae	LC – II
3.	Hemidactylus flaviviridis	House gecko	Geckos	LC – IV
4.	Ahaetulla nasuta	Common Green Snake	Colubridae	LC – IV
5.	Lissemys punctata	Indian mud turtle	Softshell turtles	LC – IV
6.	Naja naja	Indian Cobra	Elapid snakes	LC – II
7.	Ptyas mucosus	Common rat snake	Colubrid Snakes	LC – IV
8.	Varanus benegaiensis	Udumbu	Varanidae	LC – IV

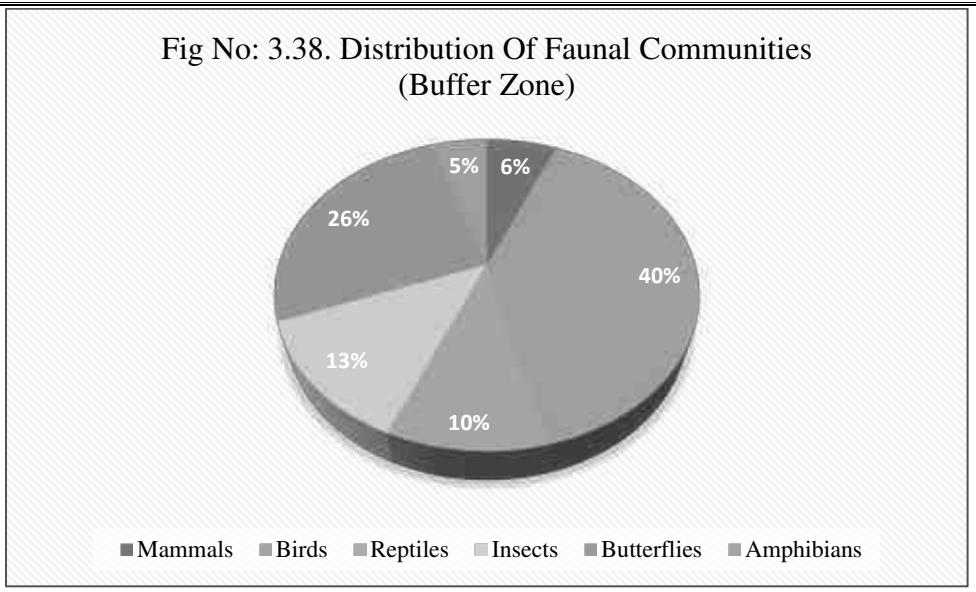
Table No. 3.62. List of insects either spotted or reported from the study area

SI. No	Scientific Name	Common Name	Family	Schedule list WLP 1972
1.	Agrion sp	Dragon fly	Anisoptera	LC - IV
2.	Apis indica	Honey bee	Apidae	LC - IV
3.	Aranea sp	Spider	Crambidae	LC - IV
4.	Carausius sp	Stick insect	Lonchodinae	LC - IV
5.	Coccinella septenpunctata	Lady bird beetle	Coccinellidae	LC - IV
6.	Hamitermes silvestri	Termite	----	LC - IV
7.	Hieroglyphus sp	Grasshopper	Acrididae	LC - IV
8.	Scorpion	Palamnaeus swammerdam	Scorpionoidea	LC - IV
9.	Centipede	Scolopendra	House Centipedes	LC - IV
10.	Cicada sp	Cicade	Cicadidae	LC - IV

Table No. 3.63. List of Butterflies identified from the project site and their conservation status

SI. No	Scientific Name	Common Name	IUCN Conservation Status
1.	Danaus genutia	Striped Tiger	LC
2.	Danaus chrysippuschrysippus	Plain Tiger	LC
3.	Acraea terpsicore	Tawny Coster	LC
4.	Papiliopolytespolytes	Common Mormon	LC
5.	Papiliopolytesromulus	Common Mormon	LC
6.	Papiliodemoleusdemoleus	Lime Butterfly	LC
7.	Hypolimnasmisippus	Danaid Eggfly	LC
8.	Junoniahierta	Yellow Pansy	LC
9.	Junonialemonias	Lemon Pansy	LC
10.	Euchrysops pandava	Plain cupid	LC
11.	Phalantaphalantha	Common Leopard	LC
12.	Junonia iphita iphita	Chocolate pansy	LC
13.	Terias hecabe	Common grass yellow	LC
14.	Junonia orythia	Blue pansy	LC
15.	Junonia lemonias	Lime pansy	LC
16.	Euploea core	Common Crow	LC
17.	Melanitisledaleda	Common Evening Brown	LC
18.	Jamidescelenoceleno	Common Cerulean	LC
19.	Evereslacturnus	Indian Cupid	LC
20.	Pachlioptaaristolochiae	Common Rose	LC

Fig No: 3.38. Distribution Of Faunal Communities (Buffer Zone)



a. Acridotheres tristis

b. Bubulcus ibis

c. Danaus chrysippus

d. Calotes versicolor

e. Sitana ponticeriana

f. Corvus splendens

g. Cuculus canorus

h. Orthetrum sabina

i. Psittacula krameri

j. Danaus plexippus

k. Dicrurus macrocercus

l. Sympetrum fonscolombii

Fig No: 3.39. List Fauna in Buffer Zone of study area

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 No 3.64.

Table No: 3.64 Characterization of Fauna in the Study Area (As Per W.P Act, 1972)

S.No	Schedule of Wildlife Protection Act 1972	No. of species	Remark
1.	Schedule I	0	-
2.	Schedule II	2	-
3.	Schedule III	0	-
4.	Schedule IV	55	-
5.	Schedule V	1	-
6.	Schedule VI	0	-

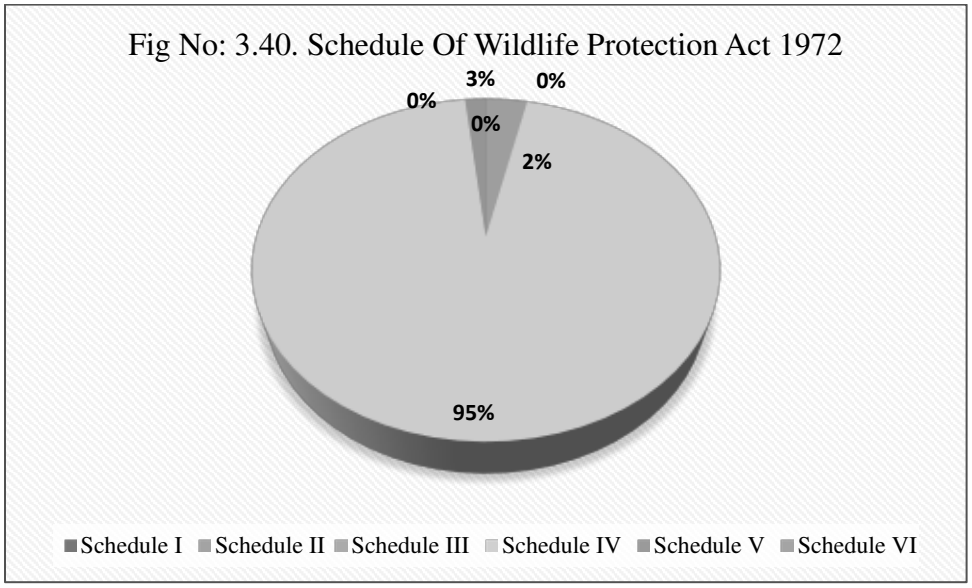


Table No: 3.65. Description of Flora & Fauna

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	-
11.	Invasive Alien species	None	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 3.65 are the species recorded/reported from the study area, out of which 2 species belongs to schedule-II, 1 species belongs to Schedule-V and rest of the species belongs to schedule-IV of Wildlife Protection Act, 1972. And there is no Invasive alien species (IAP) in the study area.

3.9. Aquatic Ecology

Mining activities will not have an impact on aquatic ecosystems because no effluent discharge from the Limestone mine 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 faun. 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. Tyche 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

3.9.1. 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.

3.9.2. Macrophytes

The macrophytes observed within the study area are tabulated in Table No. 3.66.

Table No.3.66 Description of Macrophytes

Sl.No	Scientific name	Common Name	Vernacular Name (Tamil)	IUCN Red List of Threatened Species
1.	Eichornia crassipe	Water hyacinth	Agayatamarai	NA

2.	Aponogetonnatans	Floating lace plant	Kottikizhnagu	NA
3.	Nymphaea nouchali	Blue water lily	Nellambal	LC
4.	Typha angustifolia	Sambu	Narrowleaf cattail	LC
5.	Carex cruciata	Cross Grass	Koraipullu	NA
6.	Cyperus exaltatus	Tall Flat Sedge	Koraikizhangu	LC

Sources: Species observation in the field study

3.9.3. Aquatic Faunal Diversity

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

Table No. 3.67. Amphibians Observed/Recorded from the Study Area

SI. No	Common Name/English Name	Scientific Name	Schedule list WLPA 1972	IUCN Red List data
1.	Indian Burrowing frog	Sphaerotheca breviceps	Schedule IV	LC
2.	Green pond frog	Euphlyctis hexadactylus	Schedule IV	LC
3.	Indian Toad	Bufomelanostictus	Schedule IV	LC
4.	Skipper	Euphlyctiscynophlyctis	Schedule IV	LC

*Status assigned by the IUCN, where – CR – Critically Endangered; EN – Endangered; LC – Least Concern; NT – Near Threatened; VU – Vulnerable, DA – Data Deficient, NE – Not Evaluated

3.9.4. Other Aquatic Fauna

3.9.4.1. 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 3.68.

Table 3.68. 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.	Rohu	Labeo rohita	Cyprinidae
4.	Catfish	Siluriformes	-
5.	Snakehead murrel	Channa striata	-
6.	Eel fish	Electrophorus electricus	Gymnotidae

3.9.4.2. Findings/Results

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

S.No	Ecological sensitive habitat	Direction and Distance from the project site
1.	National Parks/ Wildlife Sanctuary/ Biosphere reserves/ Elephant Reserve/ Any Other Reserve	Nil
2.	Reserved Forests	Nil
3.	Wildlife Corridors & Routes	Nil
4.	Wetlands / Water bodies	-
5.	Ramsar Site	Nil
6.	Important Bird Habitats	Nil
7.	Breeding/nesting areas of endangered species	Not present
8.	Mangroves	None

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. 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.

3.10. 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 6 structures within the radius of 300m from the project site.

FIGURE 3.29: STRUCTURE MAP 300m RADIUS

Enumeration of Structures from 0 - 300m Radius						
Structure Numbers	**Distance & Direction from the project site**	**Structure Details and Usage Purpose**	**Type of Structure Structures (Kutcha/ Brick/ Cement/ RCC/ Framed Structures)**	**No.of Occupants**	**Structure belongs to owner (Yes/No)**	**Remarks**
1	60m – East	Power Transmission Tower	Framed Structure	-	No	Transmission of Power
2	180m – West	Windmill	Framed Structure	-	No	Generating of Electricity
3	210m – North	Mines Shed	Sheet Structure	1 No	No	Storage Purposes – No Stay
4	220m – NE & NW	Windmill	Framed Structure	-	No	Generating of Electricity
5	270m - NE	Power Transmission Tower	Framed Structure	-	No	Transmission of Power

3.6.1 Objectives of the Study

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

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

3.6.2 Scope of Work

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

3.6.3 District Profile

'In 2011, Tirunelveli had population of 30,77,233 of which male and female were 15,20,912 and 15,56,321 respectively. In 2001 census, Tirunelveli had a population of 27,23,988 of which males were 13,33,939 and remaining 13,90,049 were females. Tirunelveli District population constituted 4.27 percent of total Maharashtra population. In 2001 census, this figure for Tirunelveli District was at 4.36 percent of Maharashtra population.

There was change of 12.97 percent in the population compared to population as per 2001. In the previous census of India 2001, Tirunelveli District recorded increase of 8.93 percent to its population compared to 1991.

3.6.4 Study area:

KASTHURIRANGAPURAM VILLAGE

Kasthurirangapuram is a large village located in Radhapuram Taluka of Tirunelveli district, Tamil Nadu with total 834 families residing. The Kasthurirangapuram village has population of 3081 of which 1475 are males while 1606 are females as per Population Census 2011.

Sex Ratio of Kasthurirangapuram Village -Census 2011

In Kasthurirangapuram village population of children with age 0-6 is 371 which makes up 12.04 % of total population of village. Average Sex Ratio of Kasthurirangapuram village is 1089 which is higher than Tamil Nadu state average of 996. Child Sex Ratio for the Kasthurirangapuram as per census is 932, lower than Tamil Nadu average of 943.

Literacy of Kasthurirangapuram Village

Kasthurirangapuram village has lower literacy rate compared to Tamil Nadu. In 2011, literacy rate of Kasthurirangapuram village was 72.92 % compared to 80.09 % of Tamil Nadu. In Kasthurirangapuram Male literacy stands at 80.67 % while female literacy rate was 65.94 %.

Worker's profile of Kasthurirangapuram Village

In Kasthurirangapuram village out of total population, 1563 were engaged in work activities. 90.40 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 9.60 % were involved in Marginal activity providing livelihood for less than 6 months. Of 1563 workers engaged in Main Work, 145 were cultivators (owner or co-owner) while 875 were Agricultural labourer.

TABLE 3.32: KASTHURIRANGAPURAM VILLAGE CENSUS 2011 DATA

Description	Census 2011 Data
Village Name	Kasthurirangapuram
Teshil Name	Tisaiyanvilai
District Name	Tirunelveli
State Name	Tamil Nadu
Total Population	3081
Total Area	4168(Hectares)
Total No of House Holds	834
Total Male Population	1475
Total Female Population	1606
0-6 Age group Total Population	371
0-6 Age group Male Population	192
0-6 Age group Female Population	179
Total Person Literates	1976
Total Male Literates	1035
Total Female Literates	941
Total Person Illiterates	1105
Total Male Illiterates	440
Total Female Illiterates	665
Scheduled Cast Persons	1421

Scheduled Cast Males	670
Scheduled Cast Females	751
Scheduled Tribe Persons	0
Scheduled Tribe Males	0
Scheduled Tribe Females	0

Source: https://etrace.in/census/village/kasthurirangapuram-radhapuram-district-tirunelveli-tamil-nadu-643064/

TABLE 3.33 KASTHURIRANGAPURAM WORKING POPULATION ---CENSUS 2011

	Total	**Male**	**Female**
Total Workers	15693	860	703
Main Workers	1413	819	594
Main Workers Cultivators	145	99	46
Agriculture Labourer	875	479	396
Household Industries	52	10	42
Other Workers	341	231	110
Marginal Workers	150	41	109
Non-Working Persons	1518	615	903

Source: https://etrace.in/census/village/kasthurirangapuram-radhapuram-district-tirunelveli-tamil-nadu-643064/

TABLE 3.34: POPULATION DATA OF STUDY AREA

SI.No.	Village Name	No of House Holds	Total Population	Male	Female	Total Literate Population	Male Literate	Female Literate	Total Illiterate Population	Male Illiterate	Female Illiterate
1	Appuvilai	539	2212	1111	1101	1790	900	890	422	211	211
2	Karaichuthupudur	1765	7184	3476	3708	5680	2826	2854	1504	650	854
3	Karaichuthuvari (Part)	865	3122	1467	1655	2454	1208	1246	668	259	409
4	Kasthurirangapuram	834	3081	1475	1606	1976	1035	941	1105	440	665
5	Koondankulam	2996	12957	6483	6474	9992	5248	4744	2965	1235	1730
6	Kottaikarungulam	865	3160	1538	1622	2460	1280	1180	700	258	442
7	Kumarapuram	1002	3993	1951	2042	3069	1565	1504	924	386	538
8	Kumbikulam	811	3148	1556	1592	2321	1231	1090	827	325	502
9	Muthumuthamozhi	1201	4786	2340	2446	3927	1978	1949	859	362	497
10	Parameswarapuram	594	2324	1150	1174	1773	940	833	551	210	341
11	Radhapuram	2043	7469	3644	3825	5797	2961	2836	1672	683	989
12	Tiruvambalapuram (Part)	890	3438	1659	1779	2439	1250	1189	999	409	590
13	Tisayanvilai	554	2048	1019	1029	1676	853	823	372	166	206
14	Udayathoor	1240	4550	2224	2326	3196	1714	1482	1354	510	844
15	Urumankulam	1190	4868	2343	2525	3808	1934	1874	1060	409	651
16	Vijayapathi	2651	10854	5456	5398	8588	4390	4198	2266	1066	1200

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

TABLE 3.35: WORKERS PROFILE OF STUDY AREA

SI.No.	Village Name	Total Workers Population	Male Workers	Female Workers	Total Main Workers	Main Workers Male	Main Workers Female	Main Cultivation Workers	Main Agriculture Workers	Main Other Workers	Non-Worker Population
1	Appuvilai	819	629	190	657	532	125	40	58	503	1393
2	Karaichuthupudur	2894	1877	1017	2598	1716	882	214	385	1448	4290
3	Karaichuthuvari (Part)	1176	847	329	1097	816	281	88	126	764	1946
4	Kasthurirangapuram	1563	860	703	1413	819	594	145	875	341	1518
5	Koondankulam	6173	3561	2612	4714	2787	1927	223	268	2896	6784
6	Kottaikarungulam	1408	838	570	829	577	252	89	153	516	1752
7	Kumarapuram	1792	1154	638	1413	954	459	84	375	771	2201
8	Kumbikulam	1492	860	632	1147	673	474	159	362	452	1656
9	Muthumuthamozhi	2069	1398	671	1735	1198	537	92	195	1228	2717
10	Parameswarapuram	1015	636	379	438	353	85	28	32	342	1309
11	Radhapuram	3057	1989	1068	2748	1854	894	306	682	1615	4412
12	Tiruvambalapuram (Part)	1404	920	484	1235	862	373	149	495	446	2034
13	Tisayanvilai	796	573	223	710	520	190	34	9	649	1252
14	Udayathoor	2056	1269	787	1850	1217	633	255	621	802	2494
15	Urumankulam	1794	1285	509	1358	1024	334	159	565	548	3074
16	Vijayapathi	4290	3052	1238	3884	2863	1021	112	430	2912	6564

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

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	Appuvilai	1	1	1	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	1	2	2
2	Karaichuthupudur	1	2	1	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	Karaichuthuvari (Part)	1	2	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	Kasthurirangapuram	1	2	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	Koondankulam	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6	Kottaikarungulam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7	Kumarapuram	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	Kumbikulam	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
9	Muthumuthamozhi	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10	Parameswarapuram	1	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	Radhapuram	1	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	Tiruvambalapuram (Part)	1	2	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	Tisayanvilai	1	1	1	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	Udayathoor	1	2	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	Urumankulam	1	2	1	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	Vijayapathi	1	2	1	1	1	1	2	1	2	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	Appuvilai	0	0	0	0	0	0	0	0	0	0	0	a
2	Karaichuthupudur	0	1	2	1	1	0	0	1	0	0	1	
3	Karaichuthuvari (Part)	0	0	2	0	0	0	0	0	0	0	0	b
4	Kasthurirangapuram	0	0	1	0	0	0	0	0	0	0	0	b
5	Koondankulam	0	1	2	2	1	0	0	1	2	0	1	
6	Kottaikarungulam	0	0	1	0	0	0	0	0	0	0	0	b
7	Kumarapuram	0	0	1	0	0	0	0	0	0	0	0	a
8	Kumbikulam	0	0	1	0	0	0	0	0	0	0	0	b
9	Muthumuthamozhi	0	0	1	0	0	0	0	0	0	0	0	a
10	Parameswarapuram	0	0	0	0	0	0	0	0	0	0	0	b
11	Radhapuram	0	0	1	1	1	0	0	0	1	0	0	c
12	Tiruvambalapuram (Part)	0	0	1	0	0	0	0	0	1	0	0	b
13	Tisayanvilai	0	0	0	0	0	0	0	0	0	0	0	b
14	Udayathoor	0	0	1	0	0	0	0	0	0	0	0	a
15	Urumankulam	0	0	1	0	0	0	0	0	0	0	0	b
16	Vijayapathi	0	2	1	2	2	0	0	2	0	0	2	

Abbreviations: CHC-Community Health Centre; TBC-TB Clinic; VH- Veternity Hospital; PHC-Primary Health Centre; HA-Aallopathic 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 - Tamilnadu Census of India – 2011

3.6.6 Recommendation and Suggestion

- The main activities in the area are agriculture, quarry operation and 2 Nos are already in the Operation. Hence starting up of new mine in this region is necessary at current scenario
- Due to the project about 41 Nos of people will benefitted directly due to employment and more than 80 Nos of people and Crushers will benefitted through this project
- As part of CER activities proponent intends to spend Rs 5 Laksh 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.

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

- 7.30.47 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 7.30.47 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 4200 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
- 3.5 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 judicially 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 PM_{10} & $PM_{2.5}$ and emissions of Sulphur dioxide (SO_2) & Oxides of Nitrogen (NOx) 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 PM_{10} was observed close to the source due to low to moderate wind speeds. Incremental value of PM_{10} was superimposed on the base line data monitored at the proposed site to predict total GLC of PM_{10} due to combined impacts

TABLE 4.1: ESTIMATED EMISSION RATE

PM_{10}			
Activity	**Source type**	**Value**	**Unit**
Drilling	Point Source	0.134024099	g/s
Blasting	Point Source	0.010459934	g/s
Mineral Loading	Point Source	0.049312020	g/s
Haul Road	Line Source	0.002526627	g/s/m
Overall Mine	Area Source	0.104246964	g/s
SO_2			
Activity	**Source type**	**Value**	**Unit**
Overall Mine	Area Source	0.003184733	g/s
NO_X			
Overall Mine	Area Source	0.000568574	g/s

FIGURE 4.1: AERMOD TERRAIN MAP

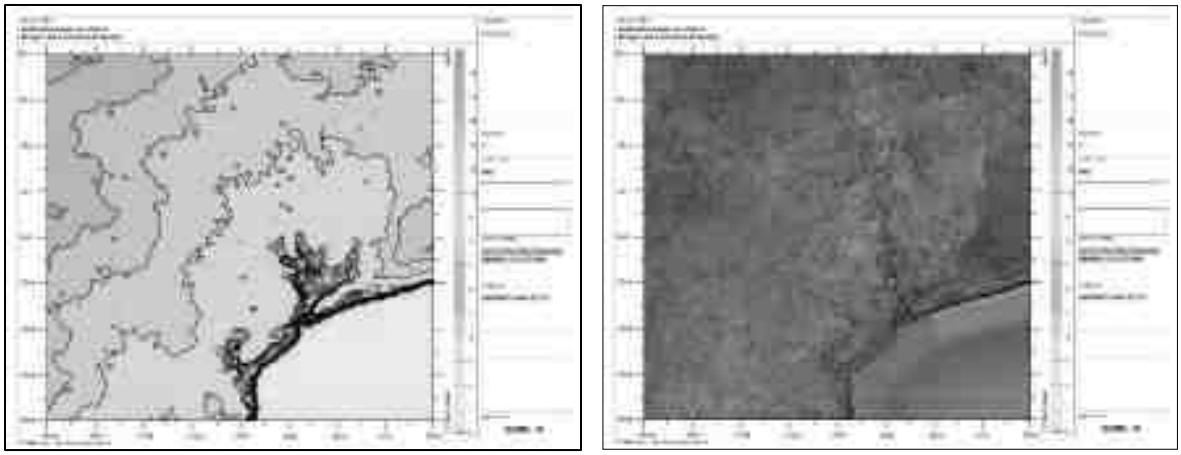


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM_{10}

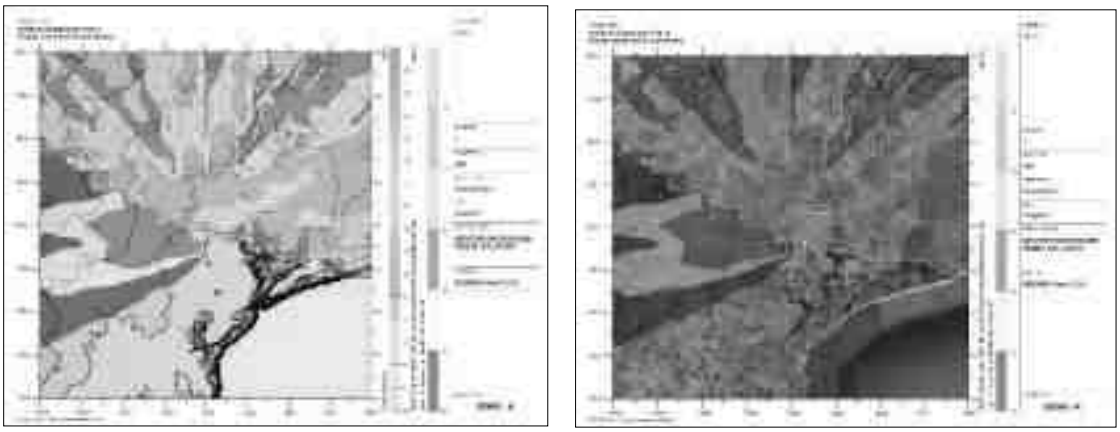


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF $PM_{2.5}$

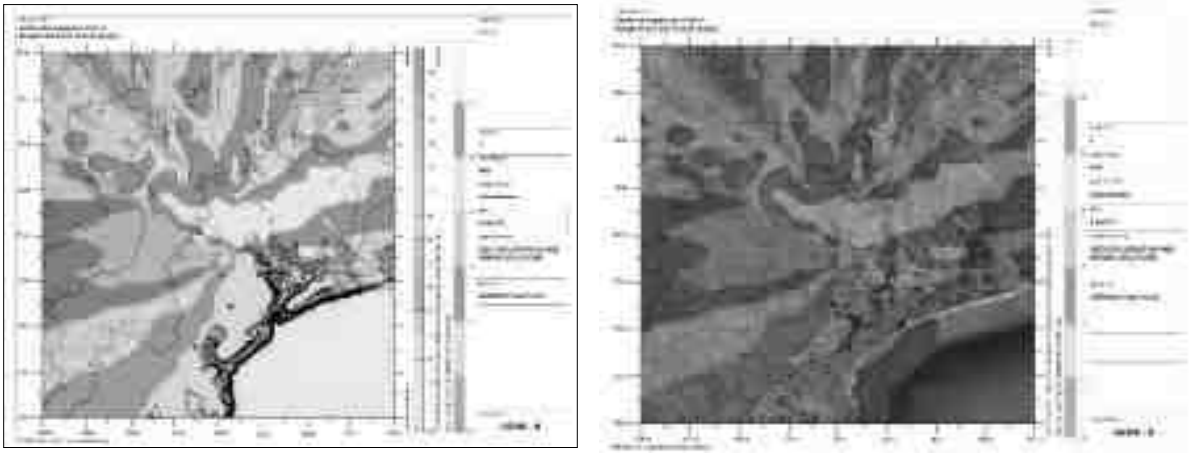


FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO_X

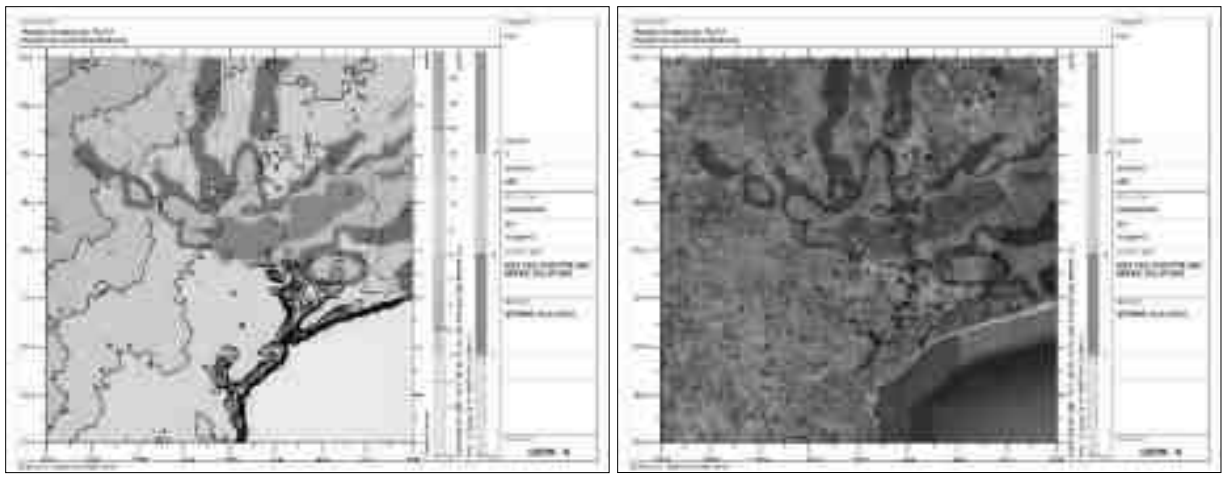


FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF SO2

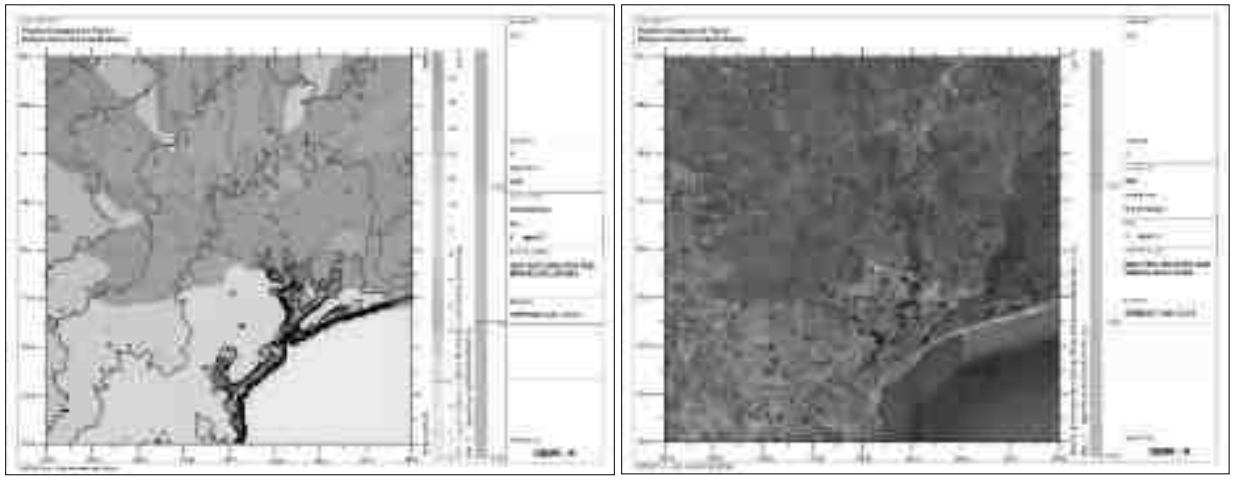
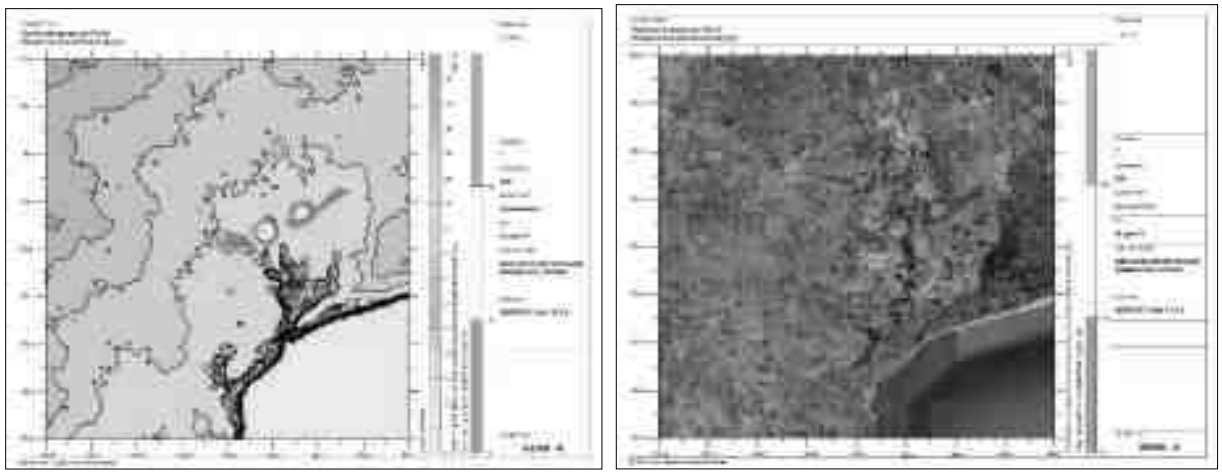


FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST



4.3.2.1 Model Results

The post project Resultant Concentrations of PM_{10}, $PM_{2.5}$, SO_2 & NO_X (GLC) is given in Table below:

TABLE 4.2: INCREMENTAL & RESULTANT GLC OF PM_{10}

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM_{10} ($\mu g/m^3$)	Incremental value of PM_{10} due to mining ($\mu g/m^3$)	Total PM_{10} ($\mu g/m^3$)
AAQ1	8°16'26.24"N 77°46'41.75"E	-1	-176	40.1	16.00	56.1
AAQ2	8°16'36.97"N 77°46'35.61"E	-193	153	40.5	17.56	58.06
AAQ3	8°16'19.71"N 77°46'55.57"E	421	-378	40.5	0	40.5
AAQ4	8°17'26.21"N 77°45'59.42"E	-1304	1682	40.5	14.00	54.5
AAQ5	8°14'48.65"N 77°43'47.14"E	-5371	-3191	40.7	2.15	42.85
AAQ6	8°18'27.88"N 77°48'42.61"E	3713	3587	40.2	11.00	51.2
AAQ7	8°15'18.17"N 77°47'55.08"E	2251	-2281	40.5	0	40.5

TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM2.5

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline $PM_{2.5}$ ($\mu g/m^3$)	Incremental value of $PM_{2.5}$ due to mining ($\mu g/m^3$)	Total $PM_{2.5}$ ($\mu g/m^3$)
AAQ1	8°16'26.24"N 77°46'41.75"E	-1	-176	18.8	7.50	26.3
AAQ2	8°16'36.97"N 77°46'35.61"E	-193	153	19.1	8.79	27.89
AAQ3	8°16'19.71"N 77°46'55.57"E	421	-378	19.3	3.18	22.48
AAQ4	8°17'26.21"N 77°45'59.42"E	-1304	1682	19.3	6.62	25.92
AAQ5	8°14'48.65"N 77°43'47.14"E	-5371	-3191	19.2	1.92	21.12
AAQ6	8°18'27.88"N 77°48'42.61"E	3713	3587	18.9	5.00	23.9
AAQ7	8°15'18.17"N 77°47'55.08"E	2251	-2281	19.2	0	19.2

TABLE 4.4: INCREMENTAL & RESULTANT GLC OF SO2

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO_2 ($\mu g/m^3$)	Incremental value due to mining ($\mu g/m^3$)	Total SO_2 ($\mu g/m^3$)
AAQ1	8°16'26.24"N 77°46'41.75"E	-1	-176	5.0	3.08	8.08
AAQ2	8°16'36.97"N 77°46'35.61"E	-193	153	5.3	3.42	8.72
AAQ3	8°16'19.71"N 77°46'55.57"E	421	-378	5.2	0	5.2
AAQ4	8°17'26.21"N 77°45'59.42"E	-1304	1682	5.2	2.80	8
AAQ5	8°14'48.65"N 77°43'47.14"E	-5371	-3191	5.4	0	5.4
AAQ6	8°18'27.88"N 77°48'42.61"E	3713	3587	5.6	2.00	7.6
AAQ7	8°15'18.17"N 77°47'55.08"E	2251	-2281	5.7	0	5.7

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF NOX

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline NOx ($\mu g/m^3$)	Incremental value due to mining ($\mu g/m^3$)	Total NOx ($\mu g/m^3$)
AAQ1	8°16'26.24"N 77°46'41.75"E	-1	-176	18.9	7.49	26.39
AAQ2	8°16'36.97"N 77°46'35.61"E	-193	153	18.9	12.71	31.61
AAQ3	8°16'19.71"N 77°46'55.57"E	421	-378	19.0	0	19
AAQ4	8°17'26.21"N 77°45'59.42"E	-1304	1682	18.9	5.83	24.73
AAQ5	8°14'48.65"N 77°43'47.14"E	-5371	-3191	18.9	0	18.9
AAQ6	8°18'27.88"N 77°48'42.61"E	3713	3587	18.9	0	18.9
AAQ7	8°15'18.17"N 77°47'55.08"E	2251	-2281	19.3	0	19.3

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 & NOX 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 taurpaulin
- 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 –

- 1200 Nos of trees will be planted through this project in the lease area and village roads (Approach Road) 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.

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

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.

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

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 nose prediction modelling.

TABLE 4.8: PREDICTED NOISE INCREMENTAL VALUES

Location ID	**N1**	**N2**	**N3**	**N4**	**N5**	**N6**	**N7**	**N8**
Maximum Monitored Value (Day) dB(A)	51.5	53.5	55.1	52.9	55.6	58.6	59.8	59.5
Incremental Value dB(A)	60.1	60.1	43.8	33.9	24.2	25.7	30.1	23.7
Total Predicted Noise level dB(A)	60.7	61.0	55.4	53.0	55.6	58.6	59.8	59.5

The incremental noise level is found within the range of 60.7-61.0dB (A) in Core Zone and 53.0 – 59.8 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 though 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:

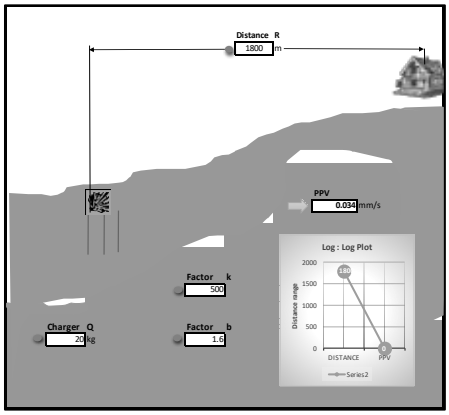
$$V = K [R/Q^{0.5}]^{-B}$$

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	20	1800-NW	0.035

FIGURE 4.6: GROUND VIBRATION PREDICTION



From the above graph, the charge per blast 20 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 20kg 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. Impact on the Biological Environment

4.5.1. Anticipated Impact on agricultural land associated with flora

1. Dust particle settle on neighbouring agricultural land & coconut farms it is located about 150m on the west side. Mostly dust emission from nearby crusher unit and during operation and minerals are transported in approach roads.
2. Dust deposition on leaf observed on nearby lease boundary local plant species which may result in decline the rate of photosynthesis and retards the plant growth.

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.

After the operation of mining production capacity, Green belt and Plantation species should be in accordance with the Terms and Conditions of the Environmental Clearance Green belt is created not only for the purpose of protecting sensitive areas or maintaining the ecological balance but because they also act as efficient biological filters or sinks for particulate and gaseous emissions, generated by vehicular movements and various industrial and mining activities. Optimally designed green belts can be effective in reducing the impact of fugitive emissions and pollutants accidentally or otherwise released at ground levels.

4.5.3.2. Proposed Green Belt

Extensive green belt development will be started during the construction phase, which will continue till the operation of the plant. About 500 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. In addition to the above, all open spaces available within the premises will be developed as nurseries, parks, gardens, and other forms of greenery. 5 m wide greenbelt will be developed along the plant premises, as per land available.

4.5.3.3. Development of Green Belt

The plantation matrix adopted for the green belt development includes pit of 0.3 m x 0.3 m in size with a spacing of 2 m x 2 m. In addition, earth filling and manure may also be required for the proper nutritional balance and nourishment of the sapling. 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.

4.5.3.4. Selection of Plant Species for Green Belt Development

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 Native plant species will be preferred.

- The species should be wind-firm and deep-rooted.
- The species should form a dense canopy.
- Fast-growing plants will be planted
- Species tolerance to air pollution like SO2 and NO2 should be preferred.
- Plants having large leaf area index will be considered
- Soil improving plants (Nitrogen fixing rapidly decomposable leaf litter).
- Attractive appearance with good flowering and fruit-bearing.
- Birds and insects attract tree species.
- Roadsides will be planted with local vegetation.

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

S. No	Scientific name	Tamil Name
1	Aegle marmelos	Vilva maram
2	Albizia lebbeck	Vaagai maram
3	Cassia fistula	Konrai tree
4	Lannea coromandelica	Othiyam
5	Limonia acidissima	Vila maram
6	Syzygium cumini	Naval maram
7	Toona ciliata	Santhana Vembu
8	Ficus hispida	Aththi maram
9	Borassus flabellifer	Panai-maram
10	Madhuca longifolia	Illupai maram

(***Source:** Term of Reference-ToR)

Table No 4.2. Species suitable for abatement of noise and dust pollution

S. No	Botanical name	Common name
1	Azadirachta indica	Vembhu maram
2	Ficus religiosa	Arasan maram
3	Ficus hispida	Aththi maram
4	Bombax ceiba	Mul Elavu
5	Syzygium cumini	Naval maram
6	Tamarindus indica	Puliyamaram
7	Mangifera indica	Manga maram
8	Harwickia binata	Anjan maram
9	Delonix regia	Neruppu Kondrai
10	Cassia Fistula	Sara Kondrai

(***Source:** Guidance for Developing Green belts Manual, CPCB 2000)

The above-suggested list covers species with thick canopy cover, perennial green nature, native origin, and a large leaf area index. The proposed species will help in forming an effective barrier between the mine site area and the surroundings.

These species need to be planted along the periphery of the lease area for absorb fugitive emissions and noise levels which is generated during mining activities. All the open spaces, where tree plantation may not be possible, should be covered with shrubs and grass to prevent erosion of topsoil.

4.5.4. Anticipated Impact on Fauna

- Noise generation due to vehicle may affect avifauna.
- The lease area is not inhabited by any wild life, as there is no forest cover, hence there will not be any effect on migration or extinction of wildlife.
- There is no National Park, Biosphere Reserve, Wildlife corridors, and Tiger/Elephant Reserve found within 10 km radius of the project site.

4.5.4.1. 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 to 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. Impact on Aquatic Biodiversity

- The major lake along the project sites doesn't have a rich biodiversity and almost all the species of both fauna and flora listed are either least concerned or not evaluated.
- There is no impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.

Table No. 4.3. Overall Ecological impact assessments of Kasthurirengapuram Village, Rough stone Quarry, Tisaiyanvilai Taluk, Tirunelveli District and Tamil Nadu.

S.No	Attributes	Assessment
	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.
2	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.
3	Proximity to national park/wildlife sanctuary/reserve forest /mangroves/ coastline/estuary/sea	Nil
4	The proposed project restricts access to waterholes for wildlife	'No '
5	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.
6	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.
7	Risk of fall/slip or cause death to wild animals due to project activities.	'No'
8	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.
9	Mining projects affect the forest-based livelihood/ any specific forest product on which local livelihood depended.	'No'
10	The project likely to affect migration routes.	'No 'migration route was observed during the monitoring period.
11	The project is likely to affect the flora of an area, which have medicinal value	'No'
12	Forestland is to be diverted, has carbon high sequestration.	'No 'There was no forest land diverted.
13	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 4.12: RECOMMENDED SPECIES FOR GREENBELT DEVELOPMENT PLAN

SI.No	Name of the plant (Botanical)	Common Name	Habit
1	Aegle marmelos	Vilvam	Tree
2	Bauhinia racemose	Aathi	Tree
3	Borassus flabellifer	Panai	Tree
4	Pongamia pinnata	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 4.13: GREENBELT DEVELOPMENT PLAN

Year	No. of tress proposed to be planted	Area to be covered in m^2	Name of the species
I	4200	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development and along village roads.	Vilvam, Aathi, Panai & Pungam

4.6 SOCIO ECONOMIC

4.6.1 Anticipated Impact

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

4.6.2 Mitigation Measures

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

4.7 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 57m 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 7.30.47 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. 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 this project. This technology is having least gestation period, economically viable, safest and less labour intensive. The method has inbuilt flexibility for increasing or decreasing the production as per market condition.

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.

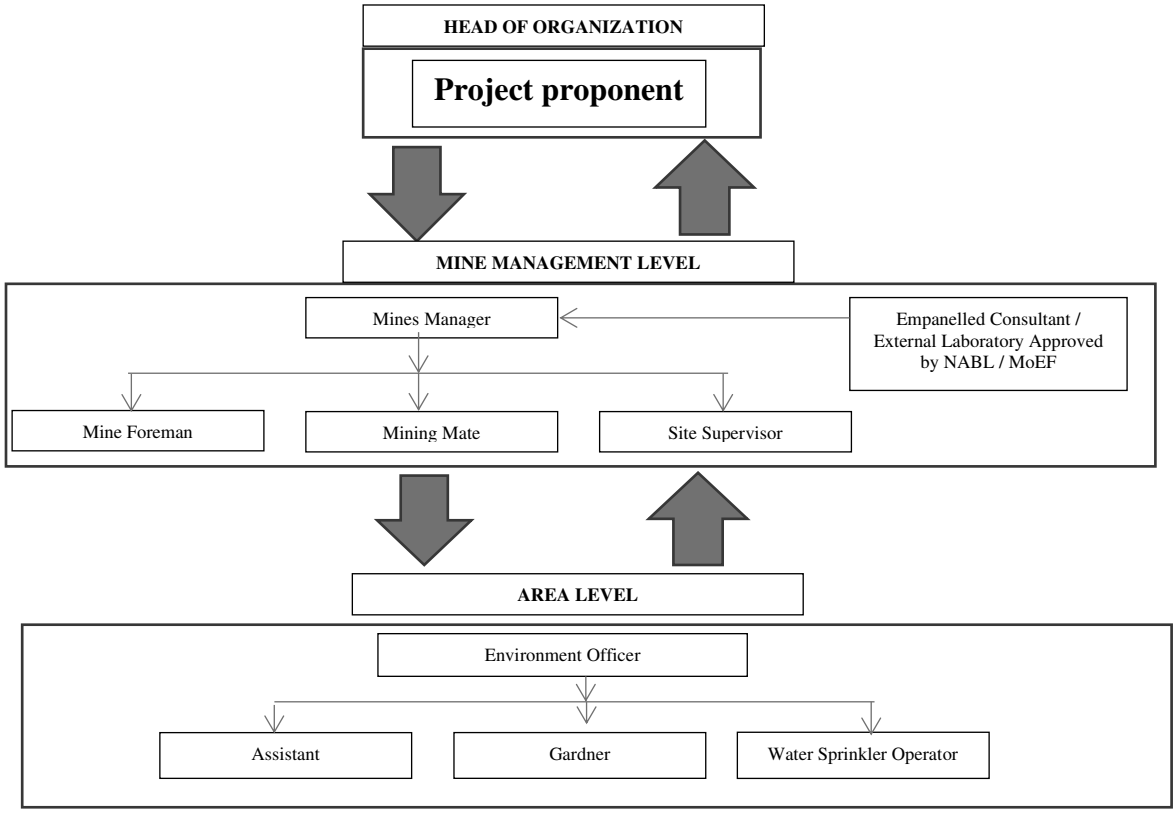
The responsibilities of this cell will be:

- 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



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	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, $PM_{2.5}$, PM_{10}, SO_2 and NO_x.
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting Operation	Peak Particle Velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

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

6.4 BUDGETARY PROVISION FOR 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 76,000 per annum for each Proposed Project.

TABLE 6.3 ENVIRONMENT MONITORING PROGRAM BUDGET

S.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

			Working of quarry, as per approved plans and regularly updating the mine plans; Cleaning of mine faces on daily basis shall be daily done in order to avoid any overhang or undercut; Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager; Maintenance and testing of all mining equipment as per manufacturer 's guidelines.
2	Drilling	Improper and unsafe practices Due to high pressure of compressed air, hoses may burst Drill Rod may break	Safe operating procedure established for drilling (SOP) will be strictly followed. Only trained operators will be deployed. No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places, Drilling shall not be carried on simultaneously on the benches at places directly one above the other. Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition. Operator shall regularly use all the personal protective equipment.
4	Blasting	Fly rock, ground vibration, Noise and dust. Improper charging, stemming & Blasting/ fining of blast holes Vibration due to movement of vehicles	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. SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation Shots are fired during daytime only. All holes charged on any one day shall be fired on the same day. The danger zone will be distinctly demarcated (by means of red flags)
5	Transportation	Potential hazards and unsafe workings contributing to accident and injuries Overloading of material While reversal & overtaking of vehicle	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. Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. Concave mirrors should be kept at all corners All vehicles should be fitted with reverse horn with one spotter at every tipping point Loading according to the vehicle capacity Periodical maintenance of vehicles as per operator manual

		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

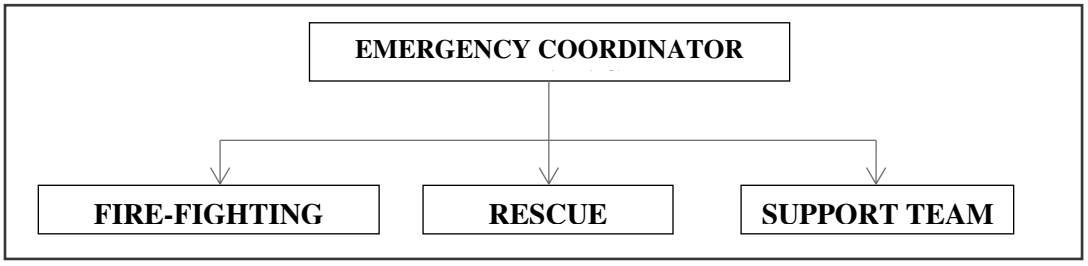
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

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 QUARRIES					
CODE	**Name of the Owner**	**Village**	**S.F. Nos**	**Extent in Ha**	**Status**
P1	Thiru.S.Velu, S/o. Sudalaiyandi, 5/36, Parkkaneri, Keelur, Tiruvambalapuram, Radhapuram Taluk, Tirunelveli District	Kasthurirengapuram Part-II	196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P)	8.34.40	ToR Identification: T023B0108TN5680365N Dated: 03/04/2024.
			TOTAL EXTENT	**8.34.40**	
EXISTING QUARRIES					
CODE	**Name of the Owner**	**Village**	**S.F. Nos**	**Extent in Ha**	**Status**
E-1	Thiru.S.Rajendran, S/o.Sreedaran. 13-85/43, Pathittavillai, Chitharal Post, Kanniyakumari District	Kasthurirengapuram Part-II	191/(P) & 194/1(P)	4.98.56	20.10.2021 – 19.10.2026
			TOTAL EXTENT	**4.98.56**	
ABANDONED QUARRY					
A-1	Thiru.K.Rajendran, S/o. Kaiyappan, 9C, ittamozhi Road, Tisaiyanvilai, Tisaiyan Taluk, Tirunelveli District	Kasthurirengapuram Part-II	190/2	**3.85.0**	20.06.2005 – 19.06.2010
			TOTAL EXTENT	**3.85.0**	
EXPIRED QUARRY					
EX-1	Thiru.S.Rajendran, S/o.Sreedaran. 13-85/43, Pathittavillai, Chitharal Post, Kanniyakumari District	Kasthurirengapuram Part-II	181/1A(P)	**2.45.48**	17.04.2018 – 16.04.2023
EX-2	Thiru.C.Sugu, S/o. Chellappan, Residing at No.13-8, Vellancode, Chitharai Post. Kanniyakumari District	Kasthurirengapuram Part-II	193 (P)	**1.26.25**	17.04.2018 – 16.04.2023
			TOTAL CLUSTER EXTENT	**17.04.96**	

- **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. S. Velu Rough Stone and Gravel Quarry	
S.F. No.	196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P)	
Extent	8.34.40 ha	
Village, Taluk and District	Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District.	
Land Type	It is a patta lands. S.F.Nos. 195/2A, 196/2B & 197/2B are registered in the name of Thiru.M.Sundalairaja, vide Patta Nos. 1722,1858 & 1732, S.F.No.195/2B is registered in the name of Thiru.M.Sivaprasath, vide Patta No. 1672 and S.F.No.195/3 is registered in the name of Thiru.R.Rahul vide Patta No.332. The applicant has registered lease deed from the Pattadhars for the period of twenty years	
Toposheet No	58-H/15	
Latitude between	8° 16' 25.7953"N to 8° 16' 38.1692"N	
Longitude between	77° 46' 35.0006"N to 77° 46' 48.0727"E	
Elevation of the area	100m AMSL	
Lease period	10 Years	
Mining Plan period	10 years	
Proposed Depth of Mining	57m bgl (2m Gravel + 55m Rough stone)	
Geological Resources	Rough Stone in m^3	Gravel m^3
	45,87,330	1,66,812
Mineable Reserves	23,79,925	1,45,604
Year wise Production for first five years	11,90,435	1,45,604
Year wise Production for next five years	11,89,490	-
Peak Production	2,46,330	50,730
Ultimate Pit Dimension	365m (L) x 246m (W) x 57m(D) bgl	
Water Level in the region	75 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is plain terrain. The area has gentle sloping towards South side and altitude of the area is 100m above from Mean Sea level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the surface outcrops & nearby existing quarry pit.	
Machinery proposed	Jack Hammer	4 Nos
	Compressor	1 No
	Wagon Drill	2 Nos
	Excavator with Bucket and Rock Breaker	3 Nos
	Tippers	6 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.	
Proposed Manpower Deployment	41 Nos	
Project Cost	Rs. 5,57,08,000/-	
EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs. 5,64,68,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Odai	65m West
	Kulam	320m NW
	Odai	650m NE
	Tank	900m NW
	Tank	1km South

	Thottavilai River	2.2km East
Greenbelt Development Plan	Proposed to plant 4200 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	3.5 KLD	
Nearest Habitation	1.7Km – North west	
Nearest Reserve Forest	Sathankulam R.F – 13.32 Km – NE (Source - TNGIS)	
Nearest Wild Life Sanctuary	Koothakulam - Kodankulam Birds Sanctuary – 23 Km – NW	

Source: Approved Mining Plan

TABLE 7.7: SALIENT FEATURES OF PROPOSAL "E1"

Name of the Quarry	Thiru. S. Rajendran Rough Stone & Gravel Quarry		
S.F.No.	191/1(P) and 194/1(P)		
Toposheet No	58 H/15		
Mining Period	5 years		
Latitude between	08°16'19"N to 08°16'25"N		
Longitude between	77°46'47"E to 77°46'58"E		
Year-wise production	Rough Stone in m^3	Weathered Rock in m^3	Gravel m^3
	12,29,205	56,336	15,270
Depth of Mining	65m		
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting		
Proposed Manpower Deployment	24		
Project Cost	99.05 lakhs		
CER Cost @ 2% of Project Cost	Rs.1,99,000/-		

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 7.16 & 7.17.

TABLE 7.11: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE

Quarry	Production for Ten-year plan period	Per Year Production in m^3	Per Day Production in m^3	Number of Lorry Load Per Day
P1	23,79,925	2,37,992	794	67
Total	**23,79,925**	**2,37,992**	**794**	**67**
E1	12,29,205	2,45,841	820	69
Total	**12,29,205**	**2,45,841**	**820**	**69**
Grand Total	**36,09,130**	**4,83,833**	**1,614**	**136**

TABLE 7.12: CUMULATIVE PRODUCTION LOAD OF WEATHERED ROCK

Quarry	Production for One-year plan period	Per Year Production in m^3	Per Day Production in m^3	Number of Lorry Load Per Day
P1	-	-	-	-
Total	**-**	**-**	**-**	**-**
E1	56,336	56,336	188	16
Grand Total	**56,336**	**56,336**	**188**	**16**

TABLE 7.13: CUMULATIVE PRODUCTION LOAD OF GRAVEL

Quarry	Production for five-year plan period	Per Year Production in m^3	Per Day Production in m^3	Number of Lorry Load Per Day
P1	1,45,604	48,535	162	14
Total	**1,45,604**	**48,535**	**162**	**14**
E1	15,270	15,270	51	5
Total	**15,270**	**15,270**	**51**	**5**
Grand Total	**1,60,874**	**63,805**	**213**	**19**

On a cumulative basis considering the proposed quarries, it can be seen that the overall production of Rough Stone is 1,614m^3 per day and overall production of Gravel is 213m^3 per day with a capacity of 136trips of Rough Stone per day, 16 trips of Weathered Rock per day and 19 Trips per day of Gravel from the cluster.

Note: Per day production of Rough Stone is calculated for 5 Years Lease Period and for Gravel production with 3 years production period. 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 3 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"				
Estimated Emission Rate for PM_{10}	**Activity**	**Source type**	**Value**	**Unit**
	Drilling	Point Source	0.134024099	g/s
	Blasting	Point Source	0.010459934	g/s
	Mineral Loading	Point Source	0.049312020	g/s
	Haul Road	Line Source	0.002526627	g/s/m
	Overall Mine	Area Source	0.104246964	g/s
Estimated Emission Rate for SO_2	Overall Mine	Area Source	0.003184733	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000568574	g/s
EMISSION ESTIMATION FOR QUARRY "E1"				
Estimated Emission Rate for PM_{10}	**Activity**	**Source type**	**Value**	**Unit**
	Drilling	Point Source	0.135335111	g/s
	Blasting	Point Source	0.010981632	g/s
	Mineral Loading	Point Source	0.048856112	g/s
	Haul Road	Line Source	0.002522683	g/s/m
	Overall Mine	Area Source	0.083991873	g/s
Estimated Emission Rate for SO_2	Overall Mine	Area Source	0.002839213	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000316701	g/s

Source: Emission Calculation

TABLE 7.15: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM_{10} in µg/m^3

Background	40.1
Incremental	16.0
Resultant	56.1
NAAQ Norms	**100 µg/m^3**
$PM_{2.5}$ in µg/m^3	
Background	18.8
Incremental	7.50
Resultant	26.3
NAAQ Norms	**60 µg/ m^3**
So2 in µg/m^3	
Background	5.0
Incremental	3.08
Resultant	8.08
NAAQ Norms	**80 µg/ m^3**
No2 in µg/m^3	
Background	18.9
Incremental	7.49
Resultant	26.39
NAAQ Norms	**80 µg/ m^3**

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.

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

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.

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

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	48.9	35.5	49.1	55
Habitation Near E1	38.4	32.4	39.4	

Source: Lab Monitoring Data

The incremental noise level is found within the range of 48.1 – 47.3 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 4 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 4 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 4 mines respectively are as in below Table 7.21.

TABLE 7.17: NEAREST HABITATION FROM EACH MINE

Location ID	Distance & Direction
Habitation Near P1	1.8km- North West
Habitation Near E1	2.3 km North West

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	20	1.8Km NW	0.034
E1	20	2.3Km NW	0.023

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 2 mines shall contribute towards CER and the community shall develop.

TABLE 7.19: SOCIO ECONOMIC BENEFITS FROM 2 MINES

Location ID	Project Cost	CER
P1	Rs. 5,64,68,000/-	Rs.5,00,000/-
E1	Rs.99,04,204/-	Rs.1,99,000/-
Total	**Rs. 6,63,72,204/-**	**Rs.6,99,000/-**

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 2 MINES

Description	Employment
P1	41
Total	**41**
E1	24
Total	**24**
Grand Total	**65**

A total of 65 people will get employment due to 1 proposed mines in cluster and 24 people are already employed at existing mines.

TABLE 7.21: GREENBELT DEVELOPMENT BENEFITS FROM 2 MINES

CODE	No of Trees proposed to be planted	Survival %	Area Covered Sq.m	Name of the Species
P1	4200	80%	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development	Neem, Pinnata, Pongamia, Ashoka etc.,
Total	**4200**			
E1	2500			
Total	**2500**			
G.Total	**6,700**			

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 6700 Trees Planted over a period of 5 Years with Survival Rate of 80% by proposed quarry.

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 Kasthurirengapuram Part II Village aims to produce 23,79,925m^3 Rough Stone over a period of 10 Years and Gravel 1,45,604 m^3 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 41 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 Kasthurirengapuram Part II Village, Tisaiyanvilai Taluk and Tirunelveli District of 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 Kasthurirengapuram Part II 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
• 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 S. Velu 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 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 upto a depth of 57 m BGL, the water table in the area is 75 m below ground level, hence the proposed project 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 access 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 4200 nos. 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 tress proposed to be planted	Area to be covered	Name of the species
I	4200	The plantation is along the safety distance, village road etc..	Neem, Pongamia, Vilvam, Ashoka 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 PLANTSAITON

S.No	Botanical Name	\Local Name
1	Azadirachta indica	Neem, Vembu
2	Tamarindus indica	Tamarind
3	Polyalthia longifolia	Nettilinkam
4	Borassus Flabellifer	Palmyra Palm

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	1st Year	2nd Year	3rd Year	4th Year	5th 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

Activities	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	83440	83440
	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 - 4 Units	100000	10000
	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 Governers @ Rs. 5000/- per Tipper/Dumper deployed - 6 Units	30000	1500
	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	166880
	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 / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	3093903
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 management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	83440	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	1668800	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 4200 Trees - (1320 Inside Lease Area & 2880 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)	264000	39600

		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	864000	86400
	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	272550	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 Budge and not necessarily implemented in the Project Site	21419325	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) - 41 Employees	164000	41000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	41000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	16688
	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	417200	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 (1st Class / 2nd 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			**5134880**	**4562411**

*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 five years.

Year	Total Cost	Year	Total Cost
1st	₹ 96,97,291/-	**6th**	₹ 83,90,360/-
2nd	₹ 47,90,531/-	**7th**	₹ 62,42,438/-
3rd	₹ 50,30,058/-	**8th**	₹ 65,54,560/-
4th	₹ 52,81,560/-	**9th**	₹ 68,82,288/-
5th	₹ 55,45,638/-	**10th**	₹ 74,98,953/-

Total Cost for 10 years – Rs.659 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 proposed Rough Stone and Gravel Quarry project located in S.F. No 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P), Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk and Tirunelveli District belongs to Thiru. S. Velu the Project falls in the Cluster category consist of 1 Proposed, 1 Existing and 2 Expired Quarries 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 March to May 2024 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 41 people directly in the proposed projects and indirectly around 80 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 Thiru. S. Velu Rough Stone and Gravel Quarry (Extent – 8.34.40 ha).

12. DISCLOSURE OF CONSULTANT

Thiru S. Velu have engaged with 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, Advaitha 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 S. Velu Rough Stone & Gravel Quarry over an Extent of 8.34.40 ha in Kasthurirengapuram Part-II Village of Tisaiyanvilai Taluk, Tirunelveli 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**

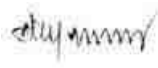
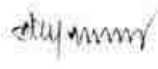
Date & Signature:

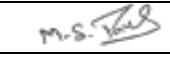
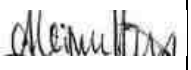
Period of Involvement: **January 2019 to till date**

Associated Team Member with EIA Coordinator:

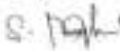
1. **Mr.P. Viswanathan**
2. **Mr. M. Santhoshkumar**
3. **Mr. S. Ilavarasan**

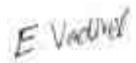
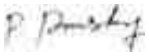
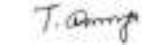
FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

Sl. No.	Functional Area	Involvement	Name of the Expert/s	Signature
1	AP	▪ Identification of different sources of air pollution due to the proposed mine activity ▪ Prediction of air pollution and propose mitigation measures / control measures	Mr. A. Jagannathan	
2	WP	▪ Suggesting water treatment systems, drainage facilities ▪ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures.	Dr. M. Ifthikhar Ahmed	
			Mr. N. Senthilkumar	
3	HG	▪ Interpretation of ground water table and predict impact and propose mitigation measures. ▪ Analysis and description of aquifer Characteristics	Dr. P. Thangaraju	
4	GEO	▪ Field Survey for assessing the regional and local geology of the area. ▪ Preparation of mineral and geological maps. ▪ Geology and Geo morphological analysis/description and Stratigraphy/Lithology.	Dr. M. Ifthikhar Ahmed	
			Dr. P. Thangaraju	
5	SE	▪ Revision in secondary data as per Census of India, 2011. ▪ Impact Assessment & Preventive Management Plan ▪ Corporate Environment Responsibility.	Mrs. K. Anitha	
6	EB	▪ Collection of Baseline data of Flora and Fauna. ▪ Identification of species labelled as Rare, Endangered and threatened as per IUCN list.	Mrs. Amirtham	

		▪ Impact of the project on flora and fauna. ▪ Suggesting species for greenbelt development.	Mr. Alagappa Moses	
7	RH	▪ 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	▪ 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	▪ Identify impacts due to noise and vibrations ▪ Suggesting appropriate mitigation measures for EMP.	Mr. A. Jagannathan	
10	AQ	▪ Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. ▪ Recommending mitigations measures for EMP	Mr. N. Senthilkumar	
11	SC	▪ Assessing the impact on soil environment and proposed mitigation measures for soil conservation	Dr. M. Ifthikhar Ahmed	
12	SHW	▪ Identify source of generation of non-hazardous solid waste and hazardous waste. ▪ Suggesting measures for minimization of generation of waste and how it can be reused or recycled.	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	▪ 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	▪ 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	▪ 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	▪ Site Visit with FAE ▪ Provide inputs on Geological Aspects	

			▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan	
5	Mr. A. Allimuthu	SE	▪ Site Visit with FAE ▪ Assist FAE with collection of data's ▪ Provide inputs by analysing primary and secondary data	
6	Mr. S. Ilavarasan	LU; SC	▪ Site Visit with FAE ▪ Assisting FAE in preparation of land use maps ▪ Provide inputs & Assisting FAE with soil conservation methods and identifying impacts	
7	Mr. E. Vadivel	HG	▪ 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	
8	Mr. D. Dinesh	NV	▪ 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	
9	Mr. Panneer Selvam	EB	▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna	
10	Mrs. Nathiya	EB	▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna	

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 S. Velu Rough Stone & Gravel Quarry over an Extent of 8.34.40ha in Kasthurirengapuram Part-II Village of Tisaiyanvilai Taluk, Tirunelveli 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 S. VELU ROUGH STONE AND GRAVEL QUARRY

S.F. Nos: 196/2B (P), 197/2B(P), 195/2ª(P), 195/2B(P) & 195/3(P)

Kasthurirengapuram Part-II Village,

Tisaiyanvilai Taluk,

Tirunelveli District.

EXTENT = 8.34.4 Ha

ToR obtained vide

File No: 10504 ToR Identification: T023B0108TN5680365N Dated: 03/04/2024

Project Proponent

Thiru. S. Velu,

S/o. Sudalaiyandi

No.5/36, Parkkaneri Keelur,

Tiruvambalapuram,

Radhapuram,

Tirunelveli District,

Tamil Nadu – 627 130

LIST OF ANNEXURES

ANNEXURES	DESCRIPTION	PAGE NOS
P1 THIRU. S. VELU,	COPY OF TERMS OF REFERENCE	1A – 13A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	14A – 17A
	COPY OF MINING PLAN APPROVED LETTER	18A – 21A
	COPY OF APPROVED MINING PLAN WITH PLATES	22A – 164A
	COPY OF HYDROGEOLOGICAL REPORT	165A – 175A
	COPY OF INSPECTION REPORT	176A – 191A
	COPY OF EXPLOSIVES LETTER	192A – 193A
	COPY OF 300m & VAO ATTESTATION LETTER	194A – 195A
E1 THIRU .S.RAJENDRAN,	COPY OF ENVIRONMENTAL CLEARANCE	196A – 213A
	COPY OF BASE LINE MONITORING DATA	214A – 288A
	COPY OF CONSULTANT ACCREDITATION CERTIFICATE	289A

File No: 10564
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA), TAMIL NADU)
***

Dated **03/04/2024**

To,

SUDALAIYANDI THEVAR VELU
SUDALAIYANDI THEVAR VELU
S/o. Sudalaiyandi, No.5/36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram,, TIRUNELVELI, TAMIL NADU, 627130
velu15081961@gmail.com

Subject: Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding.

Sir/Madam,

This is in reference to your application for Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding in respect of project Thiru. S. Velu, Kasthurirengapuram Part-II Rough stone and Gravel Quarry Project over an Extent of 8.34.40Ha of Patta lands in S.F.Nos. 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District, Tamil Nadu State. submitted to Ministry vide proposal number SIA/TN/MIN/453376/2023 dated 12/03/2024.

Reference:

1. Online proposal No.SIA/TN/MIN/453376/2023, Dated: 25.11.2023.
2. Your application submitted for Terms of Reference dated: 30.11.2023

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO23B0108TN5680365N
(ii) File No.	10564
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vii) Name of Project	Thiru. S. Velu, Kasthurirengapuram Part-II Rough stone and Gravel Quarry Project over an Extent of 8.34.40Ha of Patta lands in S.F.Nos. 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District, Tamil Nadu State.
(viii) Name of Company/Organization	SUDALAIYANDI THEVAR VELU

(ix) Location of Project (District, State)	TIRUNELVELI, TAMIL NADU
(x) Issuing Authority	SEIAA
(xii) Applicability of General Conditions	no
(xiii) Applicability of Specific Conditions	no

3. In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A and B) were submitted to the Ministry for an appraisal by the State Environment Impact AssessmentAuthority(SEIAA) Appraisal Committee (SEIAA) in the Ministry under the provision of EIA notification 2006 and its subsequent amendments.

4. The above-mentioned proposal has been considered by State Environment Impact AssessmentAuthority(SEIAA) Appraisal Committee of SEIAA in the meeting held on 18/03/2024. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B, Part C EIA, EMP)] are available on PARIVESH portal which can be accessed by scanning the QR Code above.

5. The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations recommended the proposal for grant of Terms of Reference under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (2).

6. The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the State Environment Impact Assessment Authority(SEIAA) Appraisal Committee hereby decided to grant Terms of Reference for instant proposal of Thiru. S.Velu under the provisions of EIA Notification, 2006 and as amended thereof.

7. The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.

8. The Terms of Reference to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project..

9. This issues with the approval of the Competent Authority.

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

Copy To

1.The Additional Chief Secretary to Government, Environment, Climate Change and Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2.The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 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, Tirunelveli District.
6.Stock File.

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Mining Conditions - Site Specific

S. No	Terms of Reference
1.1	1. The proponent shall obtain NOC from the Competent Authority under the provisions of the Central Electricity Authority Notification No. CEA-PS-16/1/2021-CEI Division dt 08.07.2023.

2. Seac Standard Conditions

S. No	Terms of Reference
2.1	1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m. 2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site. 3. The 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. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site. 6. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC. 7. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level. 8. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent. 9. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site. 10. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences. 11. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,

S. No	Terms of Reference
	12. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? 13. Quantity of minerals mined out. ● Highest production achieved in any one year ● Detail of approved depth of mining. ● Actual depth of the mining achieved earlier. ● Name of the person already mined in that leases area. ● If EC and CTO already obtained, the copy of the same shall be submitted. ● Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches. 14. 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). 15. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc., 16. 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. 17. 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. 18. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment. 19. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. 20. 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. 21. 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. 22. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted. 23. 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. 24. 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.

S. No	Terms of Reference
	25. 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. 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 on local transport infrastructure due to the Project should be indicated. 28. 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. 29. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific. 30. 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. 31. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner. 32. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner 33. 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. 34. 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. 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. 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. 38. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given. 39. 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. 40. 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. 41. 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.

S. No	Terms of Reference
	42. 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.

3. Seiaa Standard Conditions:

S. No	Terms of Reference
3.1	**<u>Cluster Management Committee</u>** 1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry. 2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc., 3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines. 4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network. 5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan. 6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail. 7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner. 8. The committee shall furnish the Emergency Management plan within the cluster. 9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public. 10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety. 11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents. **<u>Impact study of mining</u>** 12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & soil biological, physical land chemical features . b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health. e) Agriculture, Forestry & Traditional practices. f) Hydrothermal/Geothermal effect due to destruction in the Environment. g) Bio-geochemical processes and its foot prints including environmental stress. h) Sediment geochemistry in the surface streams. **<u>Agriculture & Agro-Biodiversity</u>** 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.

S. No	Terms of Reference
	16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. 17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services. 18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. **Forests** 19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife. 20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna. 21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection. 22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site. **Water Environment** 23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period. 24. Erosion Control measures. 25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas. 26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. 27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities. 28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts. 29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. 30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites. **Energy** **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** **EMP** 35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued. 36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan. **Risk Assessment** **Disaster Management Plan** **Others**

S. No	Terms of Reference
	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.

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	An EIA-EMP Report shall be prepared for peak capacity (…..MTPA)operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.
1.2	An EIA-EMP Report would be prepared for peak capacity operation to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for..... MTPA of mineral production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.
1.3	Propoer KML file with pin drop and coordinate of mine at 500-1000 m interval be provided
1.4	A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines, and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also
1.5	Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.
1.6	A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.
1.7	Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ riverlet system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/ river

S. No	Terms of Reference
	need eloboration in form of lengthe, quantity and quality of water to be diverted
1.8	(Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.
1.9	Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.
1.10	Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing though the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.
1.11	A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.
1.12	Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights S.N ML/Project Land use Area under Surface Rights(ha) Area Under Mining Rights(ha) (ha) Area under Both (ha) 1 Agricultural land 2 Forest Land 3 Grazing Land 4 Settlements 5 Others (specify) S.N. Details Area (ha) 1 Buildings 2 Infrastructure 3 Roads 4 Others (specify) Total
1.13	Study on the existing flora and fauna in the study area (10km) should be carried out by an institution

S. No	Terms of Reference
	of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.
1.14	One-season (other than monsoon) primary baseline data on environmental quality - air (PM10, PM2.5, SOx, NOx and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided. The detail of NABL/ MoEF&CC certification of the respective laborartory and NABET accreditation of the consultant to be provided.
1.15	Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.
1.16	For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAMSQ shall be planned by the collection of air quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area. In case of expansion, the displayed data of CAAQMS and its comparison with the monitoring data to be provided
1.17	A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report.
1.18	The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status & economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data to be provided and to link it with the initialization and quantification of need based survey for CSR activities to be followed.
1.19	The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.
1.20	Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.

S. No	Terms of Reference
1.21	Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted
1.22	Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
1.23	Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.
1.24	Detailed water balance should be provided. The break up of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.
1.25	PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs
1.26	PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored.
1.27	PP to evaluate the green house emission gases from the mine operation and corresponding carbon absorption plan.
1.28	Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.
1.29	Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.
1.30	Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.
1.31	Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.
1.32	The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.
1.33	Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the

S. No	Terms of Reference
	pre- mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.
1.34	Adequate greenbelt nearby areas, mineral stock yard and transportation area of mineral shall be provided with details of species selected and survival rate Greenbelt development should be undertaken particularly around the transport route.
1.35	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.
1.36	Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given.
1.37	CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.
1.38	Corporate Environment Responsibility:
1.39	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
1.40	b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
1.41	c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
1.42	d) To have proper checks and balances, the company should have a well laid down 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.
1.43	e) Environment Managament Cell and its responsibilities to be clearly spleel out in EIA/ EMP report
1.44	f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.
1.45	Status of any litigations/ court cases filed/pending on the project should be provided.
1.46	PP shall submit clarification from DFO that mine does not falls under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.
1.47	Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan

S. No	Terms of Reference
	approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.
1.48	Details on the Forest Clearance should be given as per the format given: Total ML Project Area (ha) / Total Forest land (ha) If more than one provide details of each FC / Date of FC / Extent of Forest Land / Balance area for which FC is yet to be obtained / Status of appl For diversion of forest land
1.49	In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report
1.50	Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.
1.51	PP shall carry out survey through drone highlighting the ground reality for atleast 10 minutes
1.52	Detailed Chronology of the project starting from the first lease deed alloted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s), CGWA permissions, Power permissions, etc as per the requisites respectively to be furnished in tabular form.
1.53	The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET acrreditation) and Laboratory (NABL / MoEF & CC certification)
1.54	The compliances of ToR must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report in all the chapter,s section.

Signature Not Verified

Digitally Signed by : A R Rahul Nadh IAS
Member Secretary, SEIAA

Date: 03/04/2024

From

Thiru.L.Suresh., M.Sc.,
Joint Director/
Assistant Director(i/c),
Geology and Mining,
Tirunelveli.

To

Thiru.S.Velu,
S/o.Sudalaiyandi,
5-36, Parkkaneri Keelur,
Tiruvambalapuram,
Radhapuram Taluk,
Tirunelveli District - 627 130.

Rc.No.M2/85/2023, dated. 19.09.2023

Sir,

Sub: **Mines and Minerals** - Minor Minerals - Roughstone and Gravel - Tirunelveli District - Quarry lease application preferred by Thiru.S.Velu, S/o.Sudalaiyandi for quarrying and transportation of Roughstone and Gravel - over an extent of 8.34.40 hectares of patta lands in SF. Nos. 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk - Certain Particulars requested - for obtaining Environmental Clearance - furnished - reg.

Ref:
1. Quarry lease application preferred by Thiru.S.Velu, S/o.Sudalaiyandi, dated. 03.02.2023.
2. Precise Area Communication letter in Rc. No.M2/85/2023, dated. 21.08.2023.
3. Mining Plan Approval letter No. M2/85/2023, dated.19.09.2023.
4. Letter received from the applicant Thiru.S.Velu, S/o.Sudalaiyandi, dated.19.09.2023.

*****

Thiru.S.Velu, S/o.Sudalaiyandi, 5/36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, Tirunelveli District has applied for grant of quarry lease for quarrying Roughstone and Gravel over an extent of 8.34.40 hectares of patta land in SF. Nos. 196/2B(P) (0.15.3),

197/2B(P) (0.51.8), 195/2A(P) (3.10.3), 195/2B(P) (2.00.0) & 195/3(P) (2.57.0) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District for a period of 10 years under Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

2. Based on the recommendations of the Sub Collector, Cheranmahadevi and the Assistant Geologist of Geology and Mining, Tirunelveli precise area was communicated to Thiru.S.Velu, S/o.Sudalaiyandi for grant of quarry lease for quarrying and transportation of Roughstone and Gravel over an extent of 8.34.40 hectares of patta lands in SF. Nos. 196/2B(P) (0.15.30), 197/2B(P) (0.51.8), 195/2A(P) (3.10.3), 195/2B(P) (2.00.0) & 195/3(P) (2.57.0) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District for a period of 10 years vide reference 2nd cited.

3. The Mining Plan submitted by the lessee, Thiru.S.Velu, S/o.Sudalaiyandi for quarrying roughstone and gravel has been approved vide this office letter No.M2/85/2023, dated.19.09.2023 for obtaining Environmental Clearance as per Rule 41 and 42 of Tamil Nadu Minor Mineral Concession Rules, 1959.

4. In the reference 4th cited, Thiru.S.Velu, S/o.Sudalaiyandi has requested to furnish certain particulars such as existing / proposed / abandoned mines within a radial distance of 500 meters from the periphery of the existing mining lease hold area for obtaining

environmental clearance from the State Level Environment Impact Assessment Authority, Chennai.

5. The details of quarry leases falling within a radial distance of 500 meters from the subject leasehold area are furnished below:-

Sl. No	Name of the Lessee	Village & SF. No.	Extent - Hects	Lease status
a. Details of Abandoned Quarries				
1.	Thiru.K.Rajendran, S/o.Kaiyappan, 9C, Ittamozhi Road, Tisaiyanvilai, Tisaiyanvilai Taluk, Tirunelveli District.	Kasthurirenga puam Part - II (V) & SF. Nos. 190/2	3.85.0	Proc. No. M1/71918/2004, dt.09.05.2005 for a period of 5 years from 20.06.2005 to 19.06.2010
b. Details of Expired Quarries				
1.	Thiru.S.Rajendran, S/o.Sreedaran, 13-85/43, Pathittavillai, Chitharal Post, Kanniyakumari District.	Kasthurirenga puam Part - II (V) & SF. Nos. 181/1A (P)	2.45.48	Proc. No M1/12755/2016, dt. 04.04.2018 for a period of 5 years, 17.04.2018 to 16.04.2023
2.	Thiru.C.Sugu, S/o. Chellappan, residing at No. 12-1B, Vellancode, Chitharal Post, Kanniyakumari District	Kasthurirenga puam Part - II (V) & SF. Nos. 193 (P)	1.26.25	Proc. No M1/12757/2016, dt. 04.04.2018 for a period of 5 years, 17.04.2018 to 16.04.2023

c. Present Proposed Quarries				
1.	Thiru.S.Velu, S/o.Sudalaiyandi, 5/36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, Tirunelveli District.	Kasthurirengapuram Part-II (V), SF. Nos. 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P)	8.34.40	Instant proposal
d. Existing quarry				
1.	Thiru.S.Rajendran, S/o.Sreedaran, 13-85/43, Pathittavillai, Chitharal Post, Kanniyakumari District.	Kasthurirengapuram Part - II (V), SF. Nos. 191/1(P) & 194/1(P)	4.98.56	Proc. No. M1/27169/2018, dt.13.09.2021 for a period of 5 Years, 20.10.2021 to 19.10.2026

Joint Director/
Assistant Director(i/c),
Geology and Mining,
Tirunelveli.

From

Thiru.L.Suresh., M.Sc.,
Joint Director/
Assistant Director(i/c),
Geology and Mining,
Tirunelveli.

To

Thiru.S.Velu,
S/o.Sudalaiyandi,
5-36, Parkkaneri Keelur,
Tiruvambalapuram,
Radhapuram Taluk,
Tirunelveli District - 627 130.

Rc.No.M2/85/2023 dated.19.09.2023

Sir,

Sub: **Mines and Minerals** - Minor Minerals - Roughstone and Gravel - Tirunelveli District - Quarry lease application preferred by Thiru.S.Velu, S/o.Sudalaiyandi for quarrying and transportation of Roughstone and Gravel - over an extent of 8.34.40 hectares of patta lands in SF. Nos. 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk - precise area communicated - Mining plan submitted - Approval accorded - Reg.

Ref : 1. Quarry lease application preferred by Thiru.S.Velu, S/o.Sudalaiyandi, dated. 03.02.2023.

2. Precise Area Communication letter in Rc. No.M2/85/2023, dated. 21.08.2023.

3. Letter received from the applicant Thiru.S.Velu, S/o.Sudalaiyandi, dated.19.09.2023.

*****

Thiru.S.Velu, S/o.Sudalaiyandi, 5/36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, Tirunelveli District has applied for grant of quarry lease for quarrying Roughstone and Gravel over an extent of 8.34.40 hectares of patta land in SF. Nos. 196/2B(P) (0.15.3), 197/2B(P) (0.51.8), 195/2A(P) (3.10.3), 195/2B(P) (2.00.0) & 195/3(P) (2.57.0) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk,

Tirunelveli District for a period of 10 years under Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

2. Based on the recommendations of the Sub Collector, Cheranmahadevi and the Assistant Geologist of Geology and Mining, Tirunelveli precise area was communicated to Thiru.S.Velu, S/o.Sudalaiyandi for grant of quarry lease for quarrying and transportation of Roughstone and Gravel over an extent of 8.34.40 hectares of patta lands in SF. Nos. 196/2B(P) (0.15.30), 197/2B(P) (0.51.8), 195/2A(P) (3.10.3), 195/2B(P) (2.00.0) & 195/3(P) (2.57.0) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District for a period of 10 years vide reference 2nd cited.

3. In response to the precise area communicated, the applicant has submitted three copies of draft Mining Plan duly prepared by a Qualified Person and requested for approval of the same vide reference 3rd cited.

4. The draft Mining Plan submitted in respect of the precise area communicated have been verified with reference to field conditions. All the conditions stipulated in the precise area communicated have been incorporated in the Mining Plan. The required safety distance of 7.5 meters to the adjacent patta lands and 50 meters to the odai located on south and western side of the applied area and 50 meters

to the high tension power lines located on eastern side of the applied area have been clearly demarcated.

5. In exercise of the powers vested under sub rule (2) and (5) of Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959, I hereby approve the mining plan subject to the following conditions:-

i. The mining plan is approved without prejudice to any other order or direction from any court of contempt jurisdiction.

ii. 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.

iii. The approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.

iv. Quarrying operations should be carried out in accordance with the Approved Mining Plan.

v. The applicant has submitted a mining plan with estimated mineable reserves of 23,79,925 cbm of roughstone and 1,45,604 cbm of gravel upto a depth 57 meters below ground level. The applicant proposed to quarry a quantum of 11,90,435 cbm of roughstone for five years and 1,45,604 cbm of gravel for three years upto a depth of 57 meters in a portion of the applied area. Further, the applicant is entitled for production of 11,89,490 cbm of roughstone, 1,45,604 cbm of gravel upto a depth of 55 meters for a period of remaining five years as per the mining plan.

vi. A safety distance of 7.5 meters shall be provided for the adjacent patta lands.

vii. 50 meters safety distance shall be left and maintained to the odai located on south and western side of the applied area.

viii. 50 meters safety distance shall be maintained to the high tension power lines located on the eastern side of the applied area and the applicant should not cause any damage while carrying out quarry operations.

ix. Environmental Clearance should be obtained from the State Level Environment Impact Assessment Authority, Chennai.

6. As directed by the Joint Director/Assistant Director(i/c) of Geology and Mining, Tirunelveli in the reference 2nd cited, you are hereby requested to produce Environmental Clearance obtained from the State Level Environment Impact Assessment Authority (SEIAA), Chennai as applicable under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 for grant of quarry lease, in respect of the precise area communicated.

Encl: Approved Mining plan.

Joint Director/
Assistant Director(i/c),
Geology and Mining,
Tirunelveli.

19/9/23

MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR KASTHURIRENGAPURAM PART-II ROUGH STONE & 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	:	8.34.40Ha
S.F.NOS.	:	196/2B (P), 197/2B (P), 195/2A (P), 195/2B (P) & 195/3 (P)
VILLAGE	:	KASTHURIRENGAPURAM PART- II
TALUK	:	TISAIYANVILAI
DISTRICT	:	TIRUNELVELI
STATE	:	TAMIL NADU

FOR

APPLICANT

Thiru. S. Velu,

S/o. Sudalaiyandi,
No. 5/36, Parkkaneri Keelur,
Tiruvambalapuram, Radhapuram,
Tirunelveli District – 627 130,
Tamil Nadu State.

PREPARED BY

M. Santhoshkumar, M.Sc.,
Qualified Person
(As per Rule 15(I)(a) and (I)(b) of MCR, 2016)

No.17, Advaitha Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: 94422 78601 & 94433 56539
E-Mail: infogeoexploration@gmail.com

S. Velu,
S/o. Sudalaiyandi,
No. 5/36, Parkkaneri Keelur,
Tiruvambalapuram, Radhapuram,
Tirunelveli District – 627 130,
Tamil Nadu State.

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Kasthurirengapuram Part-II Rough Stone & Gravel Quarry lease applied area over an extent of 8.34.40 Hectares of Patta land in S.F.Nos.196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District, Tamil Nadu State has been prepared by

M. Santhoshkumar, M.Sc.,
Qualified Person

I request to the Joint Director/Assistant Director(i/c), Department of Geology and Mining, Tirunelveli District, Tamil Nadu State to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

M. Santhoshkumar, M.Sc.,
No. 17, Advaitha Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: 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 our knowledge and consent and shall be acceptable to us and binding on me in all respects.

Signature of the Applicant

(S. Velu)

Place: Tirunelveli
Date: 23.08.2023

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

S. Velu,
S/o. Sudalaiyandi,
No. 5/36, Parkkaneri Keelur,
Tiruvambalapuram, Radhapuram,
Tirunelveli District – 627 130,
Tamil Nadu State.

DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Kasthurirengapuram Part-II Rough Stone & Gravel Quarry lease applied area over an extent of 8.34.40 Hectares of Patta land in S.F.Nos.196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli 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

(S. Velu)

Place: Tirunelveli
Date: 23.08.2023

CERTIFICATE

Certified that I am, **M. SANTHOSHKUMAR,** M.Sc., having an office at No. 17, Advaitha Ashram Road, Alagapuram, Salem District – 636 004, holding a Post Graduate Degree in Geology (M.Sc., Applied Geology) from Annamalai University, Chidambaram 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 preparing this Mining Plan and Progressive Quarry Closure Plan for Kasthurirengapuram Part-II Rough Stone & Gravel Quarry over an extent of 8.34.40 Ha of Patta Land in S.F.No. 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District, Tamil Nadu State for **Thiru. S. Velu**, S/o.Sudalaiyandi, residing at No.5/36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram, Tirunelveli District, Tamil Nadu State – 627 130. 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

M. Santhoshkumar, M.Sc.,

Place: Salem

Date: 28.08.2023

M. Santhoshkumar, M.Sc.,
No. 17, Advaitha Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: 94422 78601 & 94433 56539

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of Prepared under Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959. The preparation of Mining Plan and Progressive Quarry Closure Plan for Kasthurirengapuram Part-II Rough Stone & Gravel Quarry lease applied area over an extent of 8.34.40 Hectares of Patta lands in S.F.Nos. 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District, Tamil Nadu State has been prepared for

Thiru. S. Velu,
S/o. Sudalaiyandi,
No.5/36, Parkkaneri Keelur,
Tiruvambalapuram, Radhapuram,
Tirunelveli District – 627 130,
Tamil Nadu State.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the Joint Director/Assistant Director(i/c), Department of Geology and Mining, Tirunelveli District, Tamil Nadu State 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

M. Santhoshkumar, M.Sc.,

Place: Salem
Date: 28.08.2023

M. Santhoshkumar, M.Sc.,
No. 17, Advaitha Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: 94422 78601 & 94433 56539

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations or Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Kasthurirengapuram Part-II Rough Stone & Gravel Quarry lease applied area over an extent of 8.34.40 Hectares of Patta lands in S.F.Nos.196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District, Tamil Nadu State has been prepared for

Thiru. S. Velu,
S/o. Sudalaiyandi,
No. 5/36, Parkkaneri Keelur,
Tiruvambalapuram, Radhapuram,
Tirunelveli District – 627 130,
Tamil Nadu State.

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

M. Santhoshkumar, M.Sc.,

Place: Salem
Date: 28.08.2023

LIST OF CONTENTS

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

S. No.	Description	Page No.
1.0	Introduction and Executive Summary	1
2.0	General Information	5
3.0	Location	6
	PART-A	
4.0	Geology and Mineral Reserves	8
5.0	Mining	11
6.0	Blasting	17
7.0	Mine Drainage	19
8.0	Other Permanent Structures	19
9.0	Employment Potential & Welfare Measures	21
	PART-B	
10.0	Environment Management Plan	23
11.0	Progressive Quarry Closure Plan	31
12.0	Any Other Details Intend to Furnish by the Applicant	37

LIST OF ANNEXURES

S. No.	Description	Annex. No.
1.	Copy of Precise Area Communication	I
2.	Copy of FMB	II
3.	Copy of Village Map	III
4.	Copy of Patta	IV
5.	Copy of Adangal	V
6.	Copy of A-Register	VI
7.	Copy of Consent Document from the Pattadars	VII
8.	Copy of Sale Deed	VIII
9.	Copy of ID Proof	IX
10.	Copy of Educational Certificate of Qualified Person	X

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

LIST OF PLATES

S. No.	Description	Plate No.
1.	Location Plan	I
2.	Topo sketch of Quarry Lease Applied Area for 10km Radius	IA
3.	Environmental & Landuse Plan	IB
4.	Route Map	IC
5.	Quarry Lease Plan & Surface Plan	II
6.	Topography, Geological, Yearwise Development & Production Plan & Sections (I-V Year)	III
7.	Topography, Geological, Yearwise Development & Production Plan & Sections (VI-X Year)	III-A
8.	Progressive Quarry Closure Plan & Sections	IV
9.	Conceptual Plan & Sections	V

MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR KASTHURIRENGAPURAM PART-II ROUGH STONE AND GRAVEL QUARRY OVER AN EXTENT OF 8.34.40 Ha IN KASTHURIRENGAPURAM PART-II VILLAGE, TISAIYANVILAI TALUK, TIRUNELVELI DISTRICT, TAMIL NADU STATE.

(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. S. Velu**, S/o.Sudalaiyandi, residing at No.5/36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram, Tirunelveli District, Tamil Nadu State – 627 130.

The applicant applied for Rough stone and Gravel quarry over an extent of 8.34.40 Hectares of Patta land in S.F.Nos. 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District, Tamil Nadu State.

The application was processed by the Joint Director/Assistant Director(i/c), Department of Geology and Mining, Tirunelveli District and passed a precise area communication letter vide **Roc.No.M2/85/2023, Dated: 21.08.2023** to submit an approved Mining Plan and obtain Environmental Clearance from the SEIAA, Tamil Nadu State with the conditions to provide (Please refer Annexure No. I).

1. A safety distance of 7.5 meters shall be provided for the adjoining Patta lands.
2. 50 meters safety distance shall be left and maintained to the odai located on south and western side of the applied area.
3. 50 meters safety distance shall be maintained to the high tension power lines located on the eastern side of the applied area and the applicant should not cause any damage while carrying out quarry operations.
4. Environmental Clearance Should be obtained from the State Level Environmental Impact Assessment Authority.

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 notified by MoEF as prescribed procedure under EIA notification 2006.

In the above circumstances the applicant through his consultant is hereby preparing the Mining Plan, Environmental Management Plan and 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 State for 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 2023.

MINING PLAN APPROVED BY Assistant Director of Geology & Mining Tirunelveli

Short Notes of Mining plan:

a. Village Panchayat - Kasthurirengapuram Part-II

b. Panchayat Union - Radhapuram

c. The Geological Resources are **45,87,330m³** of Rough stone and **1,66,812m³** of Gravel in the entire area.

d. The Total Mineable Reserves are **23,79,925m³** of Rough stone, and **1,45,604m³** of Gravel formation in the entire area.

e. The proposed quantity of reserves/ (level of production) to be mined are **23,79,925m³** of Rough stone (11,90,435m³ for first five years and 11,89,490m³ for remaining five years period) for ten years and **1,45,604m³** of Gravel for three years.

f. Total extent of the lease applied area is about 8.34.40 Ha.

g. Topography of the area = The area is exhibiting plain terrain

h. Proposed Depth of mining = 57m below ground level for first five years in part of the applied area also 57m depth for second five years in the remaining area.

i. Lease Period = Ten years

j. It is a fresh lease application.

k. Method of mining / level of mechanization.

Opencast mechanized method, the quarry operation involves Wagon drilling & shallow Jack hammer drilling, Slurry & Deep hole blasting.

l. Type of machineries proposed in the quarrying operation is given below.

Excavator of 0.90m³ bucket capacity (with Rock breaker attachment),
Rock Breaker – 600kg hammer,
Jack hammers 32mm dia,
Wagon Drill machine – 110mm dia,
Trucks – 35 tons – 6 Nos.

m. No trees will be uprooted due to this quarry operation.

n. The approach road from the main road to quarry is will be constructed and maintained in good condition for the haulage of quarry materials and machineries.

APPROVED Assistant Director of Geology & Mining Tirunelveli Dist

o. There is No Export of this Rough stone and Gravel.

p. 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, archaeological importance and places of worships is marked and enclosed as Plate Nos. IA & IB.

q. The lease applied area is about 8.34.40 Ha bounded by fifteen corners; the corners are designated as 1-15 clock-wise from the Northwestern corner and the Co – ordinates for all the corners are clearly marked in the Quarry Lease Plan and Surface Plan enclosed as Plate No. II.

r. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are enclosed as Plate Nos. III, III-A & IV.

s. General conditions will not applicable for the proposed area. The area applied for 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.

t. There is no wastage anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.

u. Around 41 employees are deploying in the quarrying operation.

v. Total Cost of the project is about **Rs.5,75,98,000/-.**

w. Infrastructures around the quarry lease applied area:

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

TABLE-1

Particulars	Location	Approximate aerial distance from lease applied area
Nearest Post Office	Thiruvambalapuram	2.5km – South
Nearest School	Attukurichi	2.8km – SW
Nearest Dispensary	Radhapuram	10.0km – SW
Nearest Town	Thisayanvilai	11.2km – NE
Nearest Police Station	Radhapuram	10.0km – SW
Nearest Govt. Hospital	Radhapuram	10.0km – SW
Nearest D.S.P. Office	Valliyur	22.3km – NW
Nearest Railway Station	Valliyur	22.3km – NW
Nearest Railway Line	Tirunelveli to Nagercoil	21.0km – NW
Nearest National Highway	Tirunelveli to Kanyakumari Road (NH-44)	21.6km – NW
Nearest State Highway	Thoothukudi to Kanyakumari Road (SH-176)	3.5km – SE
Nearest Major District Road	Thisayanvilai - Udangudi (MD-479)	12.4km – NE
Nearest Airport	Tiruvananthapuram	96.7km – NW
Nearest Seaport	Thoothukudi	66.0km – NE
District Head quarters	Tirunelveli	48.5km – North

There is no National Monuments, Places of Worship, Places of Public Interest and Permanent structures situated around 300m radius from the lease applied area. The nearest Eco Sensitive Zone is Koothankulam-Kodankulam Birds Sanctuary, which is located at 22.0km on the Northern side of the lease applied area.

2.0 GENERAL INFORMATION

2.1 a) Name of the Applicant : **Thiru. S. Velu,**
S/o. Sudalaiyandi,

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

Address	:	No. 5/36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Tirunelveli District.
Pin Code	:	627 130
Mobile No	:	97508 96859
Aadhaar No	:	9981 6453 6758 (Annexure No. IX)
E-mail	:	velu15081961@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 and Gravel only.

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

The precise area communication letter was received from the Joint Director/Assistant Director(i/c), Department of Geology and Mining, Tirunelveli District vide **Roc.No.M2/85/2023, Dated: 21.08.2023** (Refer Annexure No. I).

c) Period of permission / lease to be granted:

Ten Years.

d) Name and address of the Qualified Person who preparing the Mining Plan:

Name	:	**M. Santhoshkumar,** M.Sc., Qualified Person (As per Rule 15(I)(a) and (I)(b) of MCR, 2016)
Address	:	No.17, Advaitha Ashram Road, Alagapuram, Salem District – 636 004.
Mobile	:	94422 78601 & 94433 56539
Telephone No.:		0427- 2431989
Email	:	infogeoexploration@gmail.com

(Please Refer Annexure No. X).

3.0 LOCATION

a) Details of the area with location map:

The lease applied area is located about 48.5km Southeast side of Tirunelveli Town, 11.2km Southwest side of Tisaiyanvilai Town and 4km Southeastern side of Kasthurirengapuram Village.

	43.5km		11.6km		4km	
Tirunelveli	⟶	Tisaiyanvilai	⟶	Kasthurirengapuram	⟶	Lease applied area
	Southeast		Southwest		Southeast	

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli District

Location Map of the Lease Applied area

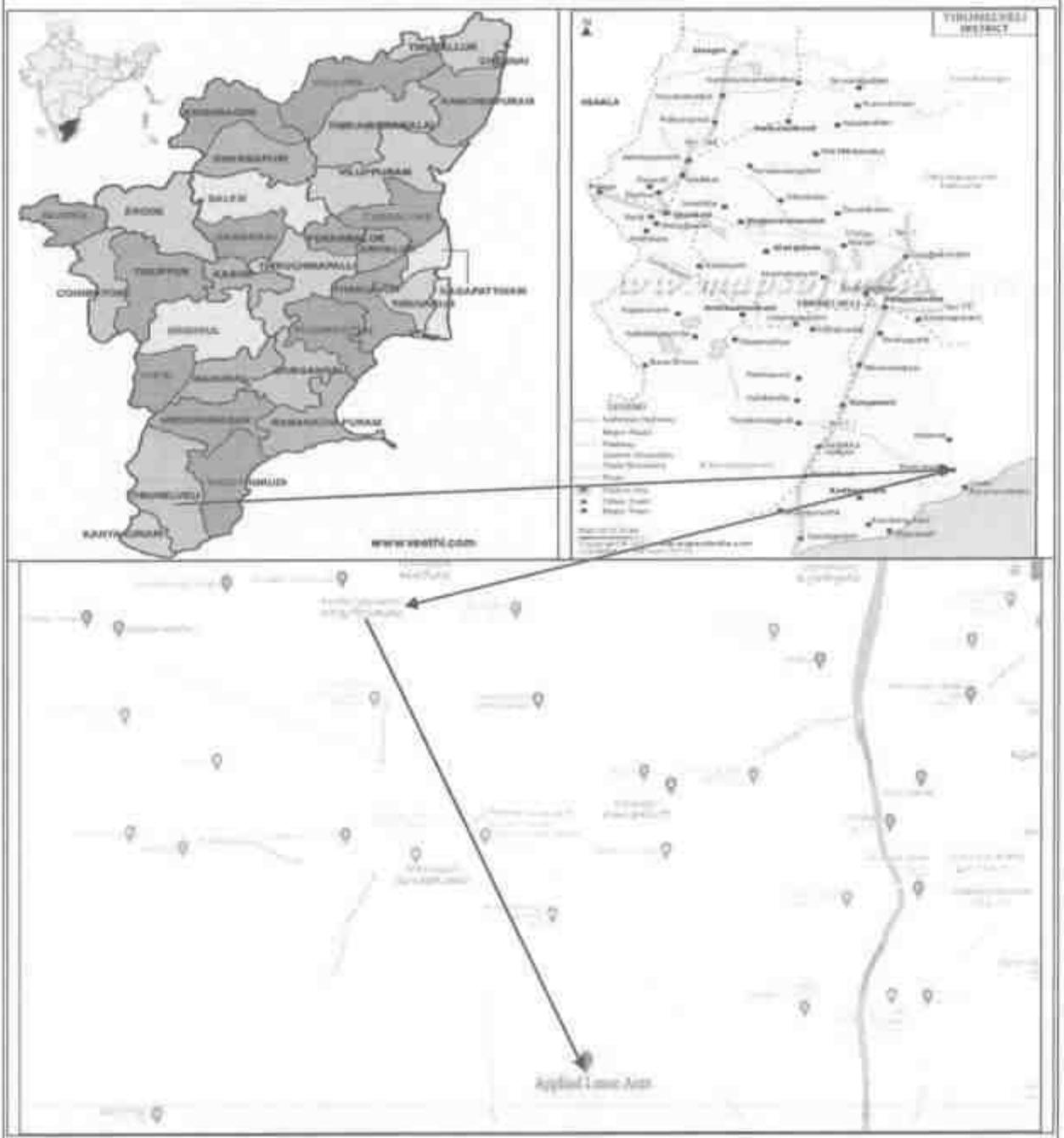


TABLE-2

District	Taluk	Village	S.F. Nos.	Area in Ha.	Patta Nos.
Tirunelveli	Tisaiyanvilai	Kasthurirengapuram Part-II	195/2A (P)	3.10.30	1722 *
			195/2B (P)	2.00.00 *	1672
			195/3 (P)	2.57.00	332
			196/2B (P)	0.15.30	1858
			197/2B (P)	0.51.80	1732
Total Extent				**8.34.40**	

MINING PLAN APPROVED Assistant Director Geology & Mining Tirunelveli Dist.

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

It is a Patta land, classified as Punsei land (Barren land) which is not fit for vegetation/ Cultivation.

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

It is a Patta lands. S.F.Nos.195/2A, 196/2B & 197/2B are registered in the name of Thiru.M.Sudalairaja, vide Patta Nos. 1722, 1858 & 1732, S.F.No.195/2B is registered in the name of Thiru. M. Sivaprasath, vide Patta No. 1672 and S.F.No.195/3 is registered in the name of Thiru.R.Rahul vide Patta No. 332. The applicant has obtained consent from the pattadars for the period of twenty years from 24.01.2023 to 23.01.2043 (Refer Annexure Nos. IV, VII & VIII).

d) Topo sheet No. with latitude and longitude:

The lease applied area falls in the Topo sheet No: **58 – H/15** Latitude between: **8° 16' 25.7953"N to 8° 16' 38.1692" N** and Longitude between: **77° 46' 35.0006" E to 77° 46' 48.0727" 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 (metal) road is situated on the southern side of the area, which is connects to the village road located at 850m on the southwestern side of the lease applied 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 is already available on the Southern side, the same will be utilized for haulage and maintained during the entire lease period.

The Nearest Railway line is Tirunelveli to Nagercoil which is located about 21.0km on the Northwestern side of the area.

PART – A

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli

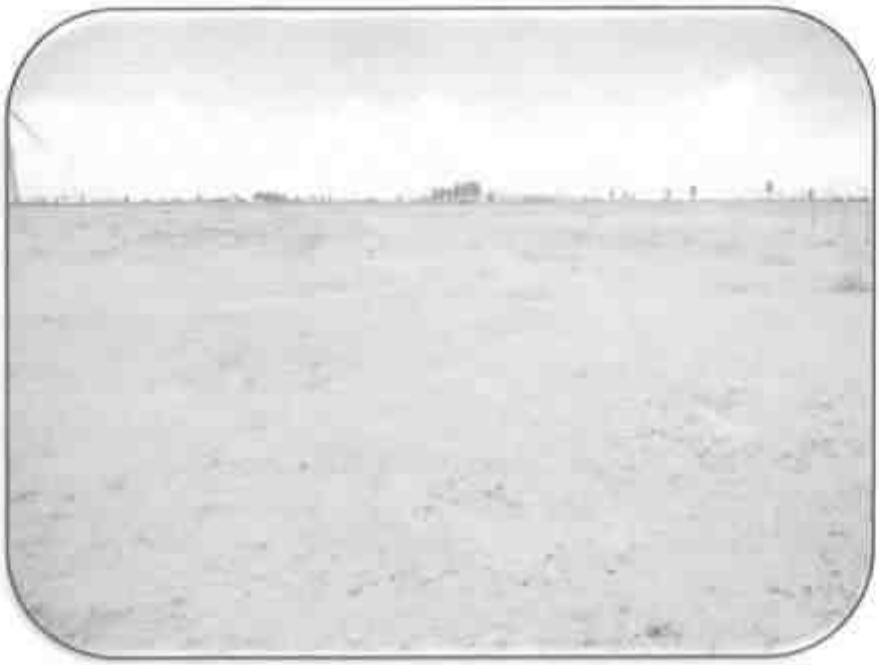
4.0 GEOLOGY AND MINERAL RESERVES

4.1 Brief description of the Topography and general Geology of the area (with plans):

The lease applied area is exhibiting plain terrain. The area has gentle sloping towards South side and altitude of the area is 100m above from Mean Sea Level. The area is covered by 2m thickness of Gravel followed by Massive Charnockite which is clearly inferred from the nearby existing quarry pits.

The Water table is found at a depth of 75m. Average annual rainfall is about 985mm.

Topographical View of 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 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:

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 Dept, 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 Tirunelveli 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 nearby existing quarry pits.

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 four sections have been drawn, one section is drawn along the vertically as (X-Y) Length wise and other three cross sections are drawn horizontally as (A-B), (C-D) & (E-F) Width wise to cover the maximum area considered for lease upto 57m depth.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone (Charnockite) deposit has been prepared in the scale of 1:1000 (please refer the Geological plan and sections Plate Nos. III & III-A). As the sale of Rough stone are in terms of cubic metres (Volume) only and not in terms of tonnage.

Estimation of Geological Resources (Plate Nos. III & III-A):

The Geological Resources of Rough Stone and Gravel are calculated up to a maximum depth of 57m [2m Gravel + 55m Rough stone] below ground level. The total **Geological Resources are calculated by sectional method**. The total geological resources are given below:

TABLE–3

GEOLOGICAL RESOURCES						
Section	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Rough stone (m^3) 100%**	**Gravel (m^3)**
XY-AB	I	70	222	2	-	31080
	II	70	222	5	77700	-
	III	70	222	5	77700	-
	IV	70	222	5	77700	-
	V	70	222	5	77700	-
	VI	70	222	5	77700	-
	VII	70	222	5	77700	-
	VIII	70	222	5	77700	-
	IX	70	222	5	77700	-
	X	70	222	5	77700	-
	XI	70	222	5	77700	-
	XII	70	222	5	77700	-
Total					**854700**	**31080**

Assistant Director of Geology & Mining Tirunelveli Dt

	XY-CD	I	162	268	2	-	86832
		II	162	268	5	217080	-
		III	162	268	5	217080	-
		IV	162	268	5	217080	-
		V	162	268	5	217080	-
		VI	162	268	5	217080	-
		VII	162	268	5	217080	-
		VIII	162	268	5	217080	-
		IX	162	268	5	217080	-
		X	162	268	5	217080	-
		XI	162	268	5	217080	-
		XII	162	268	5	217080	-
	Total					**2387880**	**86832**
	XY-EF	I	150	163	2	-	48900
		II	150	163	5	122250	-
		III	150	163	5	122250	-
		IV	150	163	5	122250	-
		V	150	163	5	122250	-
		VI	150	163	5	122250	-
		VII	150	163	5	122250	-
		VIII	150	163	5	122250	-
		IX	150	163	5	122250	-
		X	150	163	5	122250	-
		XI	150	163	5	122250	-
		XII	150	163	5	122250	-
	Total					**1344750**	**48900**
	Grand Total					**4587330**	**166812**

The Geological Resources of Gravel : **1,66,812m³**

The Geological Resources of Rough Stone : **45,87,330m³**

Estimation of Mineable Reserves:

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

TABLE-4

MINEABLE RESERVES						
Section	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Rough stone (m^3) 100%**	**Gravel (m^3)**
XY-AB	I	61	205	2	-	25010
	II	58	199	5	57710	-
	III	53	189	5	50085	-
	IV	48	178	5	42720	-
	V	43	168	5	36120	-
	VI	38	158	5	30020	-
	VII	33	148	5	24420	-
	VIII	28	138	5	19320	-
	IX	23	128	5	14720	-
	X	18	118	5	10620	-
	XI	13	108	5	7020	-
	XII	8	98	5	3920	-
Total					**296675**	**25010**

XY-CD	I	162	246	2	-	79704
	II	162	236	5	191160	-
	III	162	223	5	180630	-
	IV	162	209	5	169290	-
	V	162	197	5	159570	-
	VI	162	184	5	149040	-
	VII	162	172	5	139320	-
	VIII	162	159	5	128790	-
	IX	162	147	5	119070	-
	X	162	134	5	108540	-
	XI	162	122	5	98820	-
	XII	162	109	5	88290	-
Total					**1532520**	**79704**
XY-EF	I	141	145	2	-	40890
	II	138	138	5	95220	-
	III	133	127	5	84455	-
	IV	128	117	5	74880	-
	V	123	106	5	65190	-
	VI	118	95	5	56050	-
	VII	113	84	5	47460	-
	VIII	108	74	5	39960	-
	IX	103	63	5	32445	-
	X	98	52	5	25480	-
	XI	88	41	5	18040	-
	XII	77	30	5	11550	-
Total					**550730**	**40890**
Grand Total					**2379925**	**145604**

The mineable reserves have been computed as **23,79,925**m³ of Rough stone at the rate of 100% recovery and **1,45,604m³** of Gravel upto a depth of 57m below ground level.

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) is available with Director General of Mines Safety. If the applicant/lessee intends to modify the dimensions of benches, relaxation and permission are available with Director General of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961. In such a scenario if there is any drastic change in the Resources and Reserves a modified plan will be submitted to the concerned authority for necessary relaxation, clearance and permission. The relaxation will be applied and obtained after the execution of lease deed / commencement of quarry operation.

5.2. Mode of working (mechanized, semi mechanized, manual):

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

The quarry operation involves wagon deep hole drilling, shallow Jack hammer drilling, slurry explosives in blasting, excavation, loading and transportation of Rough stone to the needy crusher.

MINING PLAN APPROVED by Assistant Director of Geology & Mining Tiruneiveli Dist

MINING PLAN APPROVED By Assistant Director Geology & Mining Tirunelveli Dist

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 wagon deep hole & jack hammer 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 5.0 meter vertical bench the 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 in the form of Gravel, the Gravel will be directly loaded into Trucks for the filling and levelling of low-lying areas, this will be done only after obtaining permission and paying necessary seigniorage fees to the Government. The excavated rough stone will be directly loaded into trucks to the needy customers. The Composite year wise Development and production plan and sections indicating the pit lay out and green belt development are shown in Plate Nos. III & III-A.

Year wise Development and Production

TABLE–5

FIRST FIVE YEARWISE PRODUCTION DETAILS							
Year	**Section**	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Rough stone (m^3) 100%**	**Gravel (m^3)**
I	XY-AB	I	61	205	2	-	25010
		II	58	199	5	57710	-
		III	53	189	5	50085	-
		IV	48	178	5	42720	-
		V	43	168	5	36120	-
		VI	17	158	5	13430	-
	XY-CD	I	44	246	2	-	21648
		II	17	236	5	20060	-
		III	11	223	5	12265	-
		IV	6	209	5	6270	-
	Total					**238660**	**46658**
II	XY-AB	VI	21	158	5	16590	-
	XY-CD	I	98	246	2	-	48216
		II	43	236	5	50740	-
		III	43	223	5	47945	-
		IV	43	209	5	44935	-
		V	43	197	5	42355	-
		VI	38	184	5	34960	-
	Totr'					**237525**	**48216**

III	XY-CD	I	20	246	2		9840	
		II	56	236	5	66080	-	
		III	57	223	5	63555	-	
		IV	57	209	5	59565	-	
		V	58	197	5	57130	-	
	XY-EF	I	141	145	2		40890	
	Total					**240330**	**50730**	
IV	XY-CD	VI	58	184	5	53360	-	
		VII	91	172	5	78260	-	
		VIII	86	159	5	68370	-	
	XY-AB	VII	33	148	5	24420	-	
		VIII	28	138	5	19320	-	
	Total					**243730**		
V	XY-AB	IX	23	128	5	14720	-	
		X	18	118	5	10620	-	
		XI	13	108	5	7020	-	
		XII	8	98	5	3920	-	
	XY-CD	IX	81	147	5	59535	-	
		X	75	134	5	50250	-	
		XI	70	122	5	42700	-	
		XII	65	109	5	35425	-	
	Total					**224190**		
Grand Total						**1190435**	**145604**	

The Recoverable reserves have been computed as **11,90,435m³** of Rough stone at 100% recovery for first five years, and **1,45,604m³** of Gravel for first three years upto a depth of 57m below ground level (R.L.100.0m to R.L.43.0m) in a portion of the applied area.

TABLE-5A

NEXT FIVE YEARWISE PRODUCTION DETAILS

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Rough stone (m^3) 100%
VI	XY-CD	II	46	236	5	54280
		III	51	223	5	56865
	XY-EF	II	138	138	5	95220
		III	50	127	5	31750
	Total					**238115**
VII	XY-EF	III	83	127	5	52705
		IV	128	117	5	74880
	XY-CD	IV	56	209	5	58520
		V	61	197	5	60085
	Total					**246190**
VIII	XY-CD	VI	66	184	5	60720
		VII	71	172	5	61060
	XY-EF	V	123	106	5	65190
		VI	118	95	5	56050
	Total					**243020**
IX	XY-CD	VIII	76	159	5	60420
		IX	81	147	5	59535
	XY-EF	VIII	113	84	5	47460
		VIII	108	74	5	39960
		IX	103	63	5	32445
	Total					**239820**

X	XY-CD	X	87	134	5	58290
		XI	92	122	5	56120
		XII	97	109	5	52865
	XY-EF	X	98	52	5	25480
		XI	88	41	5	18040
		XII	77	30	5	11550
	Total					**222345**
Grand Total						**1189490**

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli DT

The Recoverable reserves have been computed as **11,89,490m³** of Rough stone at 100% recovery for remaining five years upto depth of 55m below from the ground level (R.L.98.0m to R.L.43.0m).

The Recoverable reserves have been computed as **23,79,925m³** of Rough stone at the rate of 100% recovery for ten years, and **1,45,604m³** of Gravel for three years the upto a depth of 57m below ground level.

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 of Mine Safety, Chennai** region by submitting relevant documents, appropriate safety plans and its Mitigation measures.

One lorry load	=	12m³ (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed in these ten years plan period	=	23,79,925m³
Hence total Lorry loads per day	=	23,79,925m³ /12m³
	=	1,98,327Lorry loads
	=	1,98,327/10 years
	=	19,833/300 days
Rough Stone	=	**66 Lorry loads per day**

Total Gravel to be removed during first three years	=	1,45,604m³
Hence total Lorry loads per day	=	1,45,604m³/12m³
	=	12,134Lorry loads
	=	12,134/3 years
	=	4,045/300 days
Gravel	=	**13 Lorry loads per day**

Working hours = 8.00 am to 5.00 pm (with 12.00-1.00 P.M. lunch break)

MINING PLAN APPROVED By Assistant Director Geology & Mining Tirunelveli Dist

5.5. Machineries to be used:

For Mining:

The following machineries are utilized on rental basis for the development and production work at this quarry. The proposed and adopted machinery make may variable, if machinery making companies provide upgraded machines the same will be applied as per availability in market.

1. Excavator of 0.90Cbm bucket capacity (with Rock breaker attachment),
2. Wagon deep hole driller,
3. Tractor mounted compressor attached with Jackhammer (4 jack hammer capacity),
4. Drill machine - Drilling accessories (Drill rods, hose, hose clamps etc.,) Rock breaker-600kg hammer.

Illustration images of quarry Machineries

Jack hammer drilling

Portable Air compressor

Wagon driller

Excavator attached with rock breaker

a) Loading equipment:

The Rough stone will be loaded with the help of Excavator, Excavator attached with bucket will be utilized for loading.

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

b) Transportation (includes within the mine and mine to destination):

The Rough stone will be transported from the quarry pit to needy customer sites/Crushing unit by the 35 Tons capacity Trucks.

TABLE–6

I. DRILLING MACHINE:

S. No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack-Hammer	4	32	1.2m to 2.0m	Compressed air
2	Compressor	1	-	400 psi	Diesel Drive
3	Wagon Drill	2	110	60HP	TAM Rock

II. EXCAVATION & LOADING EQUIPMENT:

S. No.	Type	Nos	Capacity	Motive Power
1	Excavator with Bucket and Rock Breaker	3	300	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

S. No.	Type	Nos	Capacity	Motive Power
1	Trucks	6	35 tonnes	Diesel Drive

The above machineries are adequate to meet out the development and production schedule drawn out during this mining plan period.

5.6. Disposal of Overburden/Waste:

The overburden in the form of Gravel and, the Gravel and will be directly loaded into Trucks for the filling and levelling of low-lying areas. The excavated rough stone (100%) will be directly loaded into Trucks to the needy customers. There is no Waste anticipated during this plan period hence, 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:

MINING PLAN APPROVED By Joint Director of Geology & Mining Tirunelveli Dist

TABLE–7

First Five Years Proposed Pit Dimension	**Length in m (Max)**	**Width in m (Max)**	**Depth in m (Max)**
	365	246	57m below ground level
Ultimate Pit Dimension	**Length in m (Max)**	**Width in m (Max)**	**Depth in m (Max)**
	365	246	57m below ground level

Greenbelt has proposed on the safety zone and Panchayat roads by planting Manjadi, Murukka maram, Kattuma trees of native species. 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 Nos. III, III-A & IV.

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. After completion of quarry operation the quarried out pit will be allowed to collect the seepage and rainwater, the water storage will be kept as temporary reservoir for charging the nearby wells and to be utilize for green belt 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). The Conceptual Mining is based upon the entire ROM proposed for the life of the Mine.

6.0 BLASTING

6.1 Blasting pattern:

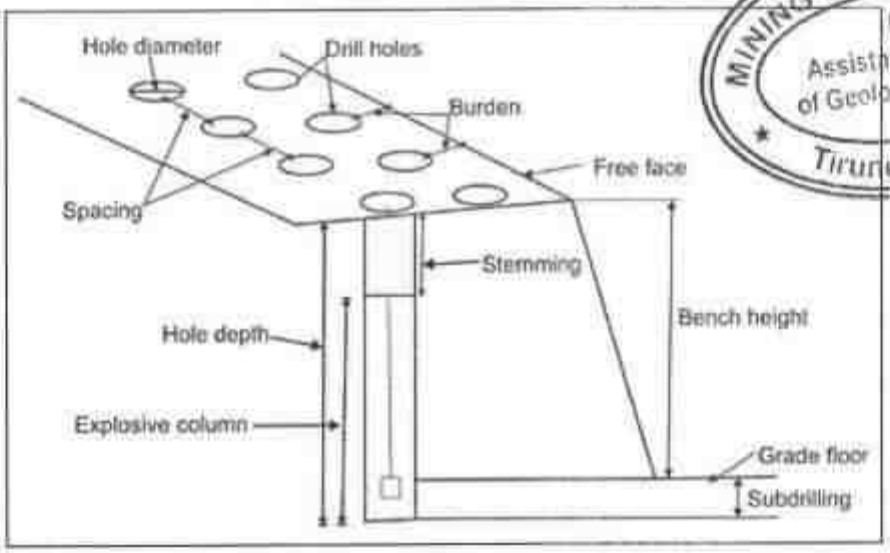
Selection of drilling pattern for blasting varies with the type and size of the drill's used, depth of hole kind of rock, quantity, rapidity of the explosives and amount of steaming. The quarrying operation will be carried out by Opencast Mechanized Method in conjunction with conventional method of mining using Wagon Drill of 110mm Dia will be proposed for primary blasting followed by jack hammer drill of 32mm Dia will be deployed for secondary fragmentation Drilling and Blasting. Besides those are noise free Eco-friendly machineries.

Wagon Drilling and deep hole blasting parameters are as follows:

Depth of Each hole	:	6.5m
Diameter of hole	:	110mm
Spacing between holes	:	2.5m
Burden for hole	:	2.0m
Inclination of holes	:	80° from horizontal
Use of delay detonators	:	Millisecond delays
Fuse	:	"Detonating" Cord
Hole pattern	:	Single row pattern

BLASTING PATTERN DRAWING

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist



6.2 Type of explosives to be used:

85mm dia Slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of Rough stone. Deep hole drilling and blasting is proposed.

6.3 Measures proposed to minimize ground vibration due to blasting:

Shallow depth jackhammer and wagon deep hole drilling & blasting are proposed to be quarry with minimum use of explosives mainly to give shattering effect in Rough stone for easy excavation and 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	= 14 Holes
Yield	= 2,064 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 344 Kg-Slurry explosives
Charge/ hole	= 25 Kg
Blasting at day time only	= 12.00 – 12.30 P.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 having the valid Blaster certificate. He will blast holes in the quarry site. After the completion of Blasting the explosive Agencies will take it out back the remaining quantity of Explosives. The magazine is available at the quarry site to temporarily store the explosives. The Competent Qualified Statutory personnels of the Company will maintain the records of Explosives as per the Indian Explosives Act.

MINING PLAN APPROVED
Assistant Director
of Geology & Mines
Tirunelveli District

7.0 MINE DRAINAGE

7.1 Depth of water table (based on nearby wells and water bodies):

The Water Table in the area is 75m, which is observed from the nearby existing private boreholes. The lease area is fully covered by Massive Charnockite formation. Hence, the Ground Water problem will not arise. If water seepage may occur due to the fracture, the same will be used for Greenbelt. Anyhow, Garland drain will be constructed all along the boundary to prevent surface run-off water entering into the quarry.

TABLE–8

Type	Distance & Direction	Location
Bore Well	880m Southeastern side	08°16'09.07"N 77°47'04.61"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 Greenbelt 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)

S. No.	Salient Features Present around site	Prescribed safety distance	If any present within Prescribed distance it's actual distance and direction from the area
8.1	Railways, Highways	50m	None of the above situated within 50m radius.
			Nearest National Highway – Tirunelveli to Kanyakumari Road (NH-44) – 21.6km – NW
			Nearest State Highway – Thoothukudi to Kanyakumari Road (SH-176) – 3.5km – SE
			Nearest Major District – Thisayanvilai - Udangudi Road (MD-479) – 12.4km – NE

8.2	Water Bodies (River, Pond, Lake, Odai, Canal)	50m	Odai is passing about 63.9m & 82.1m on the western side of the lease applied area. Hence is no River, Pond, Lake, Odai, Canal located within 50m radius of the lease applied area.
8.3	Village Road	10m	No village road is passing within 10m radius on the lease applied area.
8.4	Habitation / Village Archaeological / historical monuments Places of worships	300m	There is no approved habitation / Archaeological / historical monuments and place of worships within 300m radius from the lease applied area (Refer Plate No I-B).
8.5	Housing area, EB line (HT & LT Line)	50m	HT line is passing on the eastern side of the lease applied area hence a 50m safety distance has been provided. LT Line is passing about more than 50m away on the Northern side of the lease applied area. There is no other Housing area, EB line (HT & LT Line) within the radius of 50m from the lease applied area.
8.6	Adjacent Patta lands / Govt. Land	7.5m/10m	<table><tr><th>Direction</th><th>Classification</th><th>Safety Distance</th></tr><tr><td>North</td><td>Patta land</td><td>7.5m</td></tr><tr><td>East</td><td>Patta land / HT Line</td><td>50m</td></tr><tr><td>South</td><td>Patta land</td><td>7.5m</td></tr><tr><td>West</td><td>Patta Land</td><td>7.5m</td></tr></table> (Refer Plate No. II).
8.7	Boundaries of the permitted area	7.5m/10m	The boundaries of the permitted areas are as follows: North -S.F.Nos.197/2B (P), 196/2B (P), 196/2A, 195/2A (P), 195/3 (P) East - S.F.No.195/3(P) South - S.F.No.194 West - 195/2A (P), 195/2B (P) & 197/2B (P) (Refer Plate No. II).
8.8	Reserve forest	60m	There is no reserved forest / forest / social forest / wild life sanctuary etc., within 60m radius of the lease applied area. (Refer Plate No. IA and IB).

8.9	Protected area / ECO sensitive area/ Wild Life Sanctuary	10km	There is no ECO sensitive Zone/ Wild Life Sanctuary/ Critically Polluted Area/ HAZ/ CRZ located within 10km radius of the area. (Refer Plate No. 11).

MINING PLAN APPROVED BY Deputy Director of Geology & Mining Tirunelveli Dist

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
Mines Mate	:	1
Blaster	:	1
Excavator – Operator	:	3
Truck Drivers	:	6
Wagon Drill Operator	:	2
Jack-Hammer Operator	:	8

b. Semi-skilled:

Security	:	4

c. Unskilled:

Labour & Helper	:	6
Co-operator and Cleaner	:	9
Total	**:**	**41**

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 Thiruvambalapuram which is located about 2.5km on the southern side of the lease applied area.

b) Sanitary Facilities:

Hygienic modern Sanitary Facilities will be constructed in the safety area as semi-permanent structure and it will be maintained periodically.

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

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 Radhapuram located at a distance of 10km on the Southwestern 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

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

10.0 ENVIRONMENT MANAGEMENT PLAN

10.1 Existing Land use pattern:

The quarry lease applied area is exhibiting plain terrain. The area is a dry barren land devoid of Agriculture and Habitations. The lease applied area has utilized only for quarry operation in earlier.

LAND USE TABLE–9

Description	Present area (Ha)
Quarrying Pit	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Un-utilized Area	8.34.40
Grand Total	**8.34.40**

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. During rainy season the water table in the adjacent area may raise up. The subject area is a hard batholithic formation hence, the water table will not encounter from adjacent lands.

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:

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

TABLE–10

List of Flora

S. No.	Name of the plant (Scientific)	Family Name	Common Name	Habit*	Picture
1.	Borassus flabellifer	Arecaceae	Panai	Tree	
2.	Aloe vera	*Liliaceae*	Kathalai	Herb	
3.	*Azadirachta indica*	*Meliaceae*	Neem, Vembu	Tree	
4.	*Cocos nucifera*	*Arecaceae*	Coconut, Thennai	Tree	
5.	*Opuntia vulgaris*	*Cactaceae*	Sappattukkalli	Shurb	

List of Fauna

S. No.	Scientific Name	Common Name	Picture
1.	*Calotes versicolor*	Garden Lizard	
2.	*Dicrurus longicaudatus*	Grey Drongo	
3.	*Bosindicus*	Cow	
4.	*Ardeolagrayii*	Pond heron	
5.	*Papilio demoleus*	Lime butterfly	
6.	*Passer domesticus*	House sparrow	

10.4 Climatic Conditions:

The area receives rainfall of about 985mm/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.

MINING PLAN APPROVED
Assistant Director
of Geology
Tirunelveli Dist

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–11

S. No.	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Kashthurirengapuram	4.0km – Northwest	3,100
2.	Thiruvambalapuram	2.5km – South	3,500
3.	Urumankulam	4.4km – Northwest	4,900

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Thisayanvilai located at a distance of 11.2km on the Northeastern 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:

- Compaction, gradation and drainage on both sides for haulage road.
- Fixed water sprinkling arrangements by own water tankers.
- Muffle blasting on overburden a waste to control fly rocks during blasting.
- Enforcing speed limits of 20km/hr within quarry area.
- Regular monitoring of exhaust fumes as per RTO norms.
- All personnel protective equipment like Nose-mask, earplug/ muffs will be provided to the Workers.
- Vegetations will be formed on the non-quarrying area.

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.

- Proper maintenance at done with regular interval by the Oiling and greasing for the machineries and vehicles to control the Source of noise during operation and transportation.
- NONEL blasting will be practiced to control Noise, ground vibration and fly rocks for removal of Overburden and Waste rocks.
- Transporting vehicles are enforcing the speed limits of 20km/hr within quarry area to reduce Noise level.
- The drivers will be strictly instructed to running the vehicle during the transportation not exceed 40km per hour from despatch to destination.
- All personnel protective equipment like earplug/ muffs will be provided to the Workers.
- 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.
- Sentries with flags & whistle will posted in village road junction and populated area to control and regulate traffic.

Deep holes of 110mm diameter and maximum depth of 6.5m 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 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%).

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tiruchirappalli Dist

	Green belt development on around the quarried out benches during first three years of this mining plan period (2000 sapling x Rs.200/- per sapling)	Rs.4,00,000/-
	Approach road and nearby village road during first year of this mining plan period (200 sapling x Rs.200/- per sapling)	Rs.40,000/-
	Total Project Cost	**Rs.5,57,08,000/-**

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/-**

Description	**Amount (Rs.)**
A. Operational Cost	**5,57,08,000/-**
B. EMP Cost	**7,60,000/-**
Total Project Cost (A+ B)	**5,64,68,000/-**
The applicant indents to involve corporate environment responsibilities (CER) activity like Books to the library, Water Purifier, plantation and Sanitary Facilities to the Attukurichi Govt. School at 2.0% from the total project cost. The Cost would be around **Rs. 11,30,000/-.**	**11,30,000/-**
Total Cost	**5,75,98,000/-**

The Total cost would be around five crore seventy five lakhs and ninety eight thousand only.

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist.

11.0 PROGRESSIVE QUARRY CLOSURE PLAN

11.1 Introduction:

The Progressive Quarry Closure Plan for Kasthurirengapuram Part-II Rough Stone and Gravel Quarry lease applied area over an extent of 8.34.40 Hectares of Patta lands in S.F.Nos.196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District, Tamil Nadu State has been prepared for **Thiru.S.Velu**, S/o. Sudalaiyandi, residing at No.5/36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram, Tirunelveli District, Tamil Nadu State – 627 130.

11.2 Present Land use pattern:

LAND USE TABLE–14

Description	Present area (Ha)
Quarrying Pit	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Unutilized Area	8.34.40
Grand Total	**8.34.40**

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) is available with Director General of Mines Safety. If the applicant/lessee intends to modify the dimensions of benches, relaxation and permission are available with Director General of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961. In such a scenario if there is any drastic change in the Resources and Reserves a modified plan will be submitted to the concerned authority for necessary relaxation, clearance and permission. The relaxation will be applied and obtained after the execution of lease deed / commencement of quarry operation.

11.4 Mineral Processing Operations:

The quarried out Rough stone will be transported by the 35tons capacity Trucks to the needy crushers. Splitting of rock mass of considerable volume from the parent rock mass by wagon deep hole & jack hammer 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.

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

11.6 Statutory obligations:

The applicant ensures to comply all the conditions stipulated in the precise area communication letter before the execution of lease deed 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.

Name	:	**M. Santhoshkumar, M.Sc.,** Qualified Person
Address	:	No.17, Advaitha Ashram Road, Alagapuram, Salem – 636 004.
Mobile	:	+91 94422 78601 & 94433 56539
Telephone No.	:	0427- 2431989

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 ensuing scheme of mining or Final Mine Closure Plan.

11.9 Closure Plan:

(i) Mined Out Land:

At the end of mining plan period, about 7.30.47ha of area will be mined out. Land use at various stages is given in the table below.

LAND USE TABLE–15

Description	Present area in (ha)	Area required during the first five years of plan period (ha)	Area at the end of lease period (ha)
Quarrying Pit	Nil	7.30.47	7.30.47
Infrastructure	Nil	0.02.00	0.02.00
Roads	Nil	0.02.00	0.05.00
Green Belt	Nil	0.59.59	0.93.56
Unutilized Area	8.34.40	0.40.34	0.03.37
Grand Total	**8.34.40**	**8.34.40**	**8.34.40**

The Greenbelt Development will be formed in around the quarried out top benches, approach road and nearby village road.

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

(ii) Water quality management:

Following control measures will be adopted for controlling water pollution:

- Construction of Garland drain with 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 generated during the proposed plan period. The entire quarried out Rough stone and Gravel is utilized (100%). Hence, waste management does not arise.

(v) Disposal of mining machinery:

All the Machineries will be purchased fresh, the same will be maintained in good condition during entire life of quarry. After completion of quarry operation all purchased machineries will be utilized another quarry area or sold out to the 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 un-authorized 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.

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments 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 and proper signal by siren alarm will be given 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.
- Installation of CCTV cameras in the quarry and entrance of the quarry.
- Monitoring of Quarrying operation by external agency as directed by authorities.

(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 Greenbelt Development will be formed in around the quarried out top benches, approach road and nearby village road.

Environmental Monitoring Cell:

A dedicated team nominated by the mine manager or Agent will monitor and maintain the environmental compliances of the quarry as per the approved Environment Management Plan and report the Compliance to the Mine Manager half yearly.

Disaster Management Cell:

The Competent Qualified Statutory managers appointed by the lessee as per the Director of Mines Safety will be responsible for Disaster Management. It care of any eventualities his mobile number will be displayed and he will take all the precautions and safety measures as per Mines and Minerals (Development and Regulations) Act, 1957.

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

(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.

MINING PLAN APPROVED By Assistant Director Dept. of Mines & Geology

(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, cost is assessed as given below:

LAND USE TABLE–16

ACTIVITY		YEARS										RATE	COST (Rs./-)
		I	II	III	IV	V	VI	VII	VIII	IX	X		
Plantation under safety zone	Nos	400	400	400	400	400	200	200	200	200	200	@200 Rs Per sapling	6,00,000
	Cost	80000	80000	80000	80000	80000	40000	40000	40000	40000	40000		
Plantation in quarried out top bench	Nos	667	667	666	-	-	-	-	-	-	-		4,00,000
	Cost	133400	133400	133200	-	-	-	-	-	-	-		
Approach road and nearby village road	Nos	200	-	-	-	-	-	-	-	-	-		40,000
Barbed Wire Fencing (In Mtrs) 1320 Mtrs		3,96,000	-	-	-	-	-	-	-	-	-	@300 Rs Per Meter	3,96,000
Garland Drain (In Mtrs) 1270 Mtrs		3,81,000	-	-	-	-	-	-	-	-	-	@300 Rs Per Meter	3,81,000
TOTAL													18,17,000

MINING PLAN APPROVED By Regional Joint Director of Geology & Mining Tirunelveli Dist

12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

This Mining plan for Rough stone (Charnockite) and Gravel are under Rules 8 & 12 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 and modified after scrutiny comments as per the guidelines of the Concerned Department and Authorities.

I hereby ensure that the information provided is correct to best of my knowledge and experience, some of the information contained in this report has been provided by external sources and by the applicant and is presented as the form as submitted by the applicant. The information is not intended to serve as legal advice related to the individual situation. I do not owe and specifically disclaim any liability resulting from the use during the course of quarrying operations after the grant of lease. The document may be scrutinized by the competent authority before approval.

Prepared by

M. Santhoshkumar, M.Sc.,
Qualified Person
(As per Rule 15(I)(a) and (I)(b) of MCR, 2016)

Place: Salem
Date: 28.08.2023

DONATE RED
SPREAD GREEN
SAVE BLUE

This Mining Plan is approved Subject to the Conditions / Stipulation indicated in the Mining Plan Approval
Lettter Roc.No. M2/85/2023
Dated 19.09.2022

Regional Joint Director / Assistant Director (I/C)
Geology and Mining
Tirunelveli

19/9/2023

ANNEXURE 1

From

Thiru.L.Suresh.,
Joint Director/
Assistant Director (i/c),
Geology and Mining,
Tirunelveli.

To

Thiru.S.Velu,
S/o.Sudalaiyandi,
5-36, Parkkaneri Keelur,
Tiruvambalapuram,
Radhapuram Taluk,
Tirunelveli District - 627 130.

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

Roc.No.M2/85/2023 **Dated.21.08.2023**

Sir,

Sub: **Mines and Quarries** - Minor Minerals - Tirunelveli District - Quarry lease application preferred by Thiru.S.Velu, S/o.Sudalaiyandi for quarrying roughstone and gravel over an extent of 8.34.40 hectares of patta lands in SF. Nos. 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk - Precise area communicated - Approved Mining Plan - Called for - Reg.

Ref:
1. Quarry lease application preferred by Thiru.S.Velu, S/o.Sudalaiyandi, dated. 03.02.2023.
2. The Sub Collector, Cheranmahadevi letter Rc. No.B4/1000/2023, dated. 10.07.2023.
3. Inspection report of the Assistant Geologist of Geology and Mining, Tirunelveli, dated. 02.08.2023.

******

Thiru.S.Velu, S/o.Sudalaiyandi, 5/36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, Tirunelveli District has applied for grant of quarry lease for quarrying Roughstone and Gravel over an extent of 8.34.40 hectares of patta land in SF. Nos. 196/2B(P) (0.15.3), 197/2B(P) (0.51.8), 195/2A(P) (3.10.3), 195/2B(P) (2.00.0) & 195/3(P)

(2.57.0) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District for a period of 10 years under Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

2. The Sub Collector, Cheranmahadevi and the Assistant Geologist of Geology and Mining, Tirunelveli has furnished their reports in the reference 2nd and 3rd cited respectively and recommended for grant of quarry lease in the applied area subject to certain conditions.

3. Based on the recommendations of the Sub Collector, Cheranmahadevi and the Assistant Geologist of Geology and Mining, Tirunelveli the application preferred by Thiru.S.Velu, S/o.Sudalaiyandi for grant of quarry lease for quarrying roughstone and gravel in the subject area is considered for grant for a period of 10 years and precise area is hereby communicated over an extent of 8.34.40 hectares of patta land in SF. Nos. 196/2B(P) (0.15.30), 197/2B(P) (0.51.8), 195/2A(P) (3.10.3), 195/2B(P) (2.00.0) & 195/3(P) (2.57.0) of Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tiruenlveli under Rule 19 of the Tamil Nadu Mineral Concession Rule 1959 and communicated to the applicant as per the power conferred under amended Rule 41(4) Tamil Nadu Minor Mineral Concession Rules, 1959 subject to following condition.

i. A Safety distance of 7.5 meters shall be provided for the adjoining patta lands.

ii. 50 meters safety distance shall be left and maintained to the odai located on south and western side of the applied area.

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

iii. 50 meters safety distance shall be maintained to the high tension power lines located on the eastern side of the applied area and the applicant should not cause any damage while carrying out quarry operations.

iv. Environmental Clearance should be obtained from the State Level Environment Impact Assessment Authority.

4. In view of the above, you are hereby directed to submit mining plan duly prepared by a Recognized Qualified Person in respect of the precise area communicated for approval of the Joint Director/Assistant Director (i/c) of Geology and Mining, Tirunelveli within a period of 90 days from the date of receipt of this letter as required under rule 41 (5) of Tamil Nadu Minor Mineral Concession Rules, 1959.

5. You are further directed to produce Approved Mining Plan and Environmental Clearance obtained from the State Level Impact Assessment Authority (SEIAA) as required under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 for grant of quarry lease for quarrying Roughstone and Gravel in respect of the precise area communicated.

Joint Director/
Assistant Director(i/c),
Geology and Mining,
Tirunelveli.

Copy to:

The Chairman
State Level Environmental
Impact Assessment Authority,
Chennai.

21/8/13

ANNEXURE II

மாவட்டம் : திருநெல்வேலி

வட்டம் : ஸ்ரீ ஸ்ரீ நாயகம்

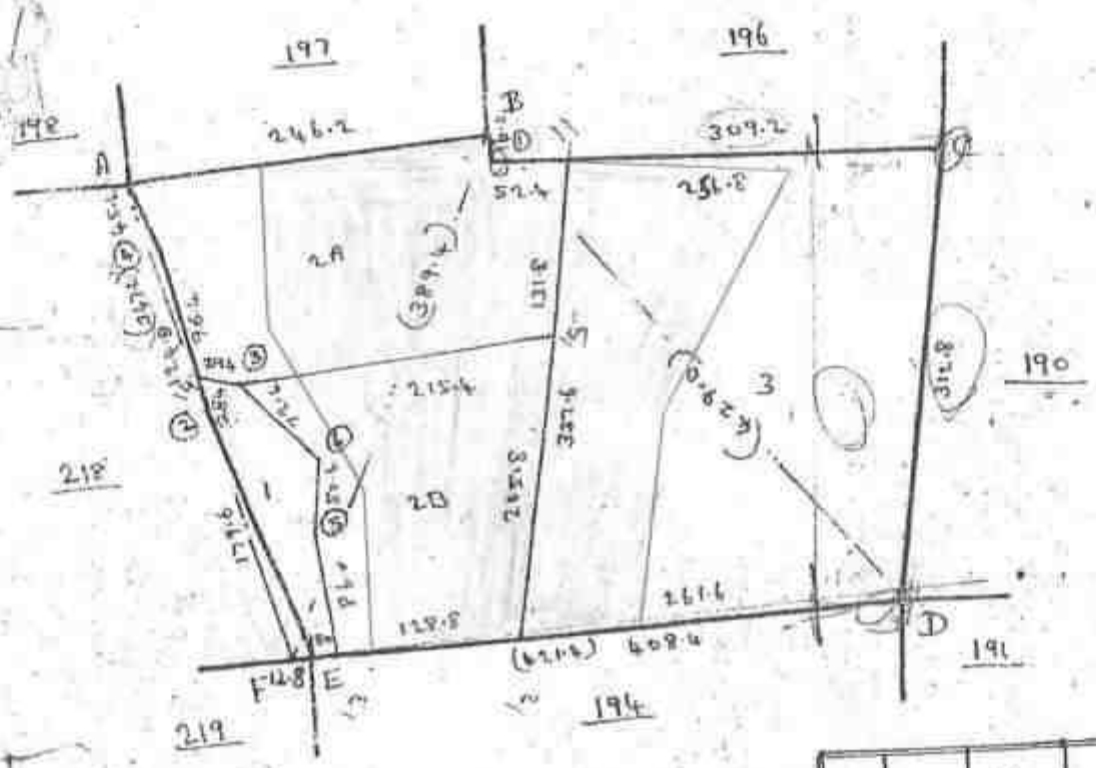
புல எண் 195

பரப்பு: ஹெக்டேர்

திராமம்

15 ஏர். 91 ம

MINING PLAN ... By Assistant Director of Geology & Mining Tirunelveli Dist



True copy

31/01/23

ஸ்ரீ ஸ்ரீவாக அலுவலர்
ஸ்தூரிரெங்கபுரம் பகுதி-2
சேரன்விளை வட்டம்.

		B					A		
		389.4					347.2		
							7.13	2.0	4
6	30.6	137.0					191.6	23.8	3
5	14.4	88.8					177.0	line	2
		5.4	11.4	E			F		
		F					C		
							309.2		
							0.2	16.0	1
							B		

Applied Area-

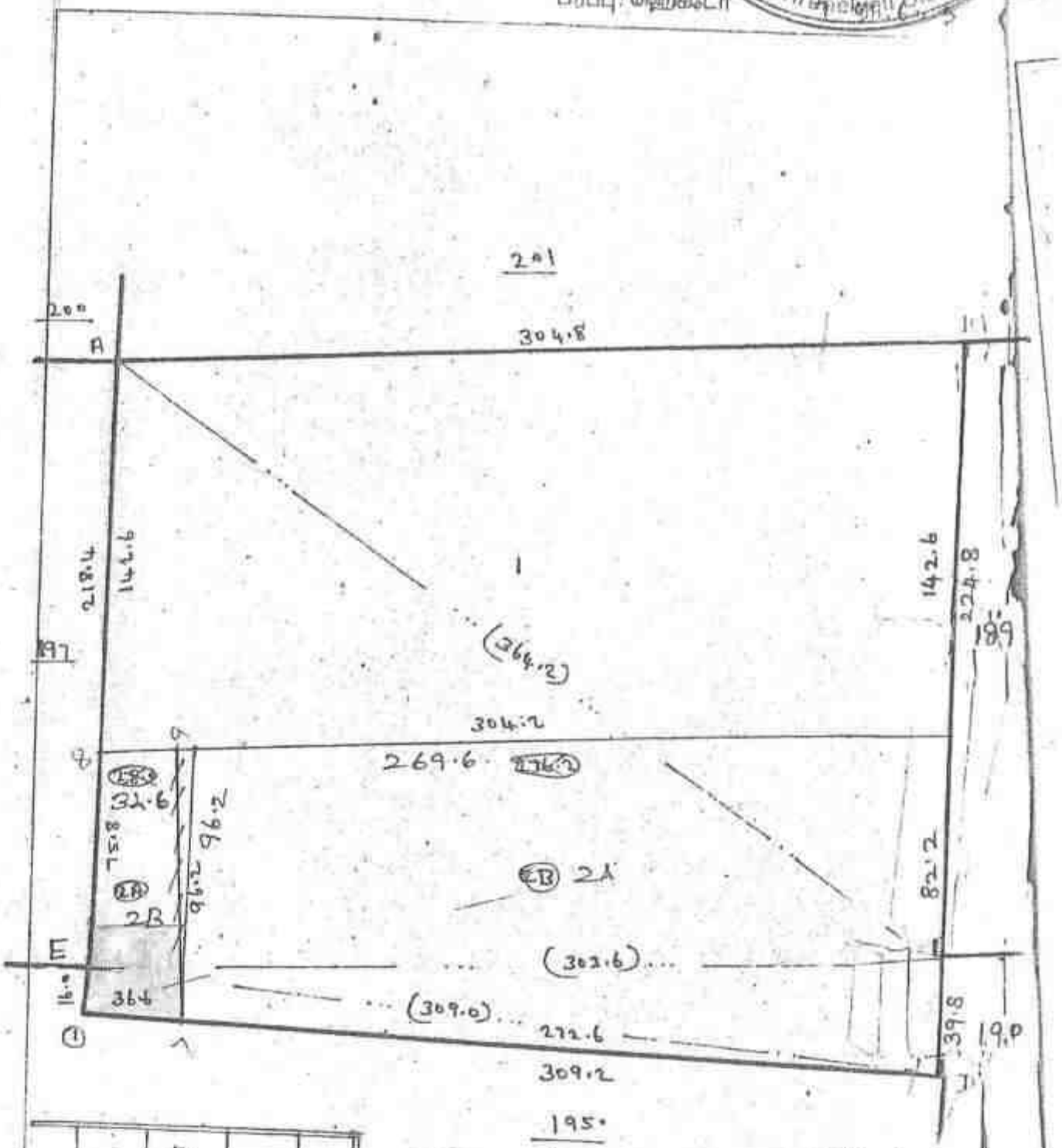
வட்டம் : திருநெல்வேலி

வட்டம் : இராதாபுரம்

புல எண் 196

பரப்பு: ஹெக்டேர்

MINING PLAN APPROVED
Assistant Director
of Geology & Mining
Tirunelveli Dist



		D		
		309.0		
		22	16.0	1
		E		

New S.D 2A, 2B are plotted by me as per Tk/80/619/1432 dt - 19-1-2023

(True copy)

கிராம நிர்வாக அலுவலர்
12, கஸ்தூ ... பகுதி-2
திசையன்விளை வட்டம்.

Lease Applied Area-

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

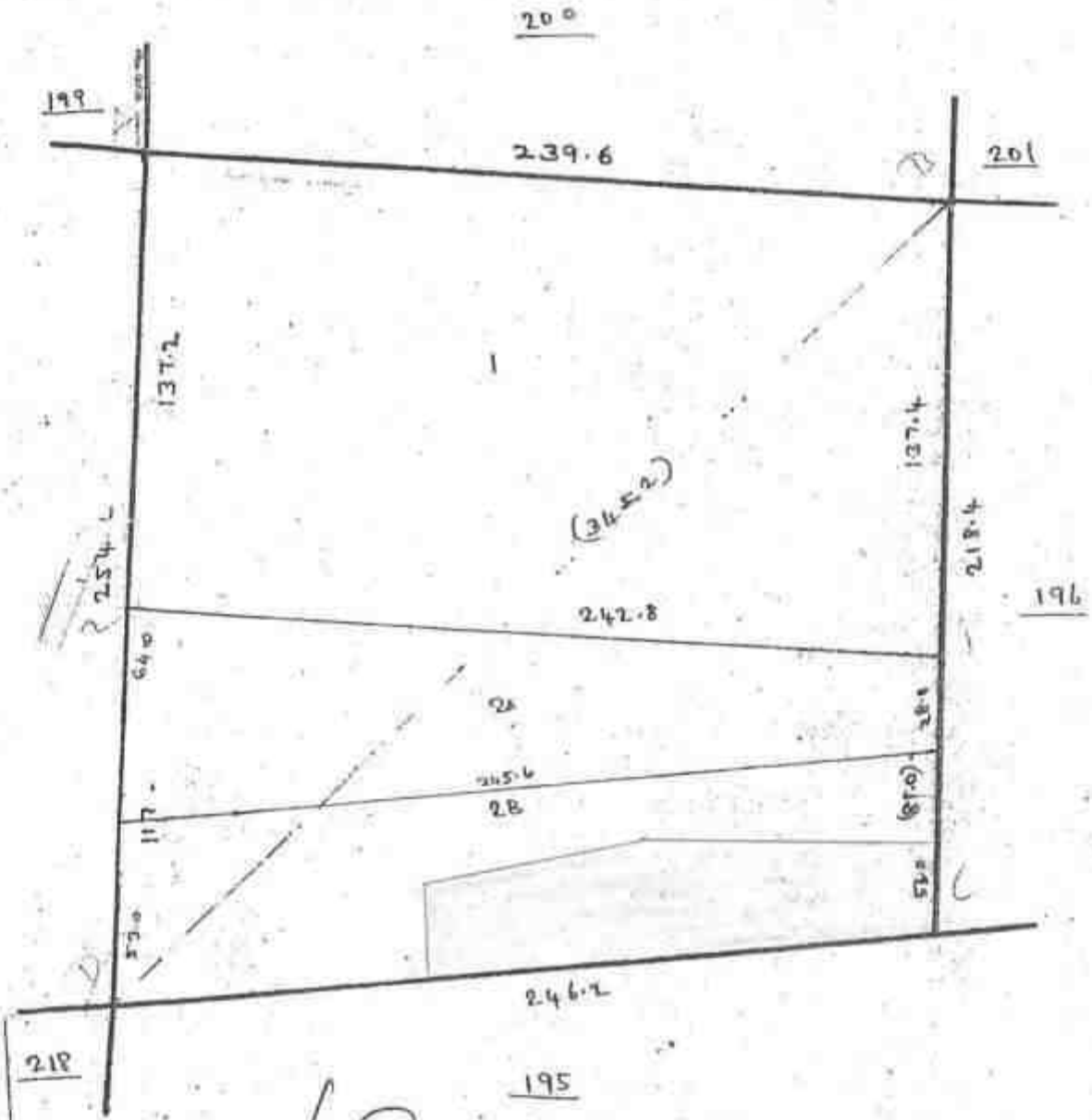
மாவட்டம் : திருநெல்வேலி

கிராமம் பெயர் : கல்லூரிரெ

வட்டம் : திருவேலாயுதம்

புல எண். 197

பரப்பு: ஹெக்டேர் 5 ஏர் 74.0



True copy
31/01/23

கிராம நிர்வாக அலுவலர்
12, கஸ்தூரிரெங்கபுரம் பகுதி-2
திசையன்விளை வட்டம்.

மரவு செய்தவர்: ... = 2000 மி.மீ.

என் ... 11-10-85

Lease Applied Area-

ANNEXURE III

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

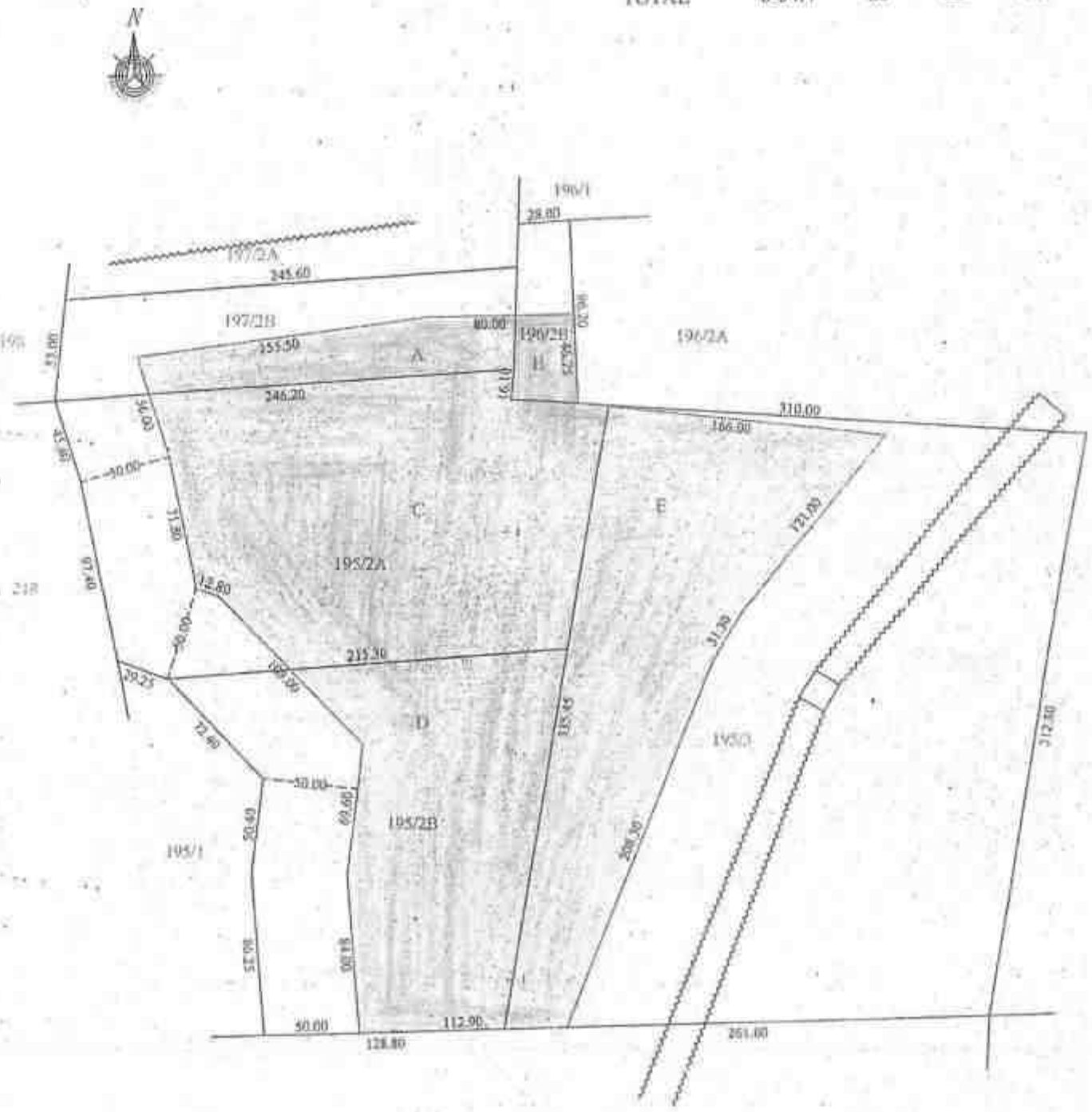
DISTRICT : TIRUNELVELI

TALUK : THISAYANVILAI

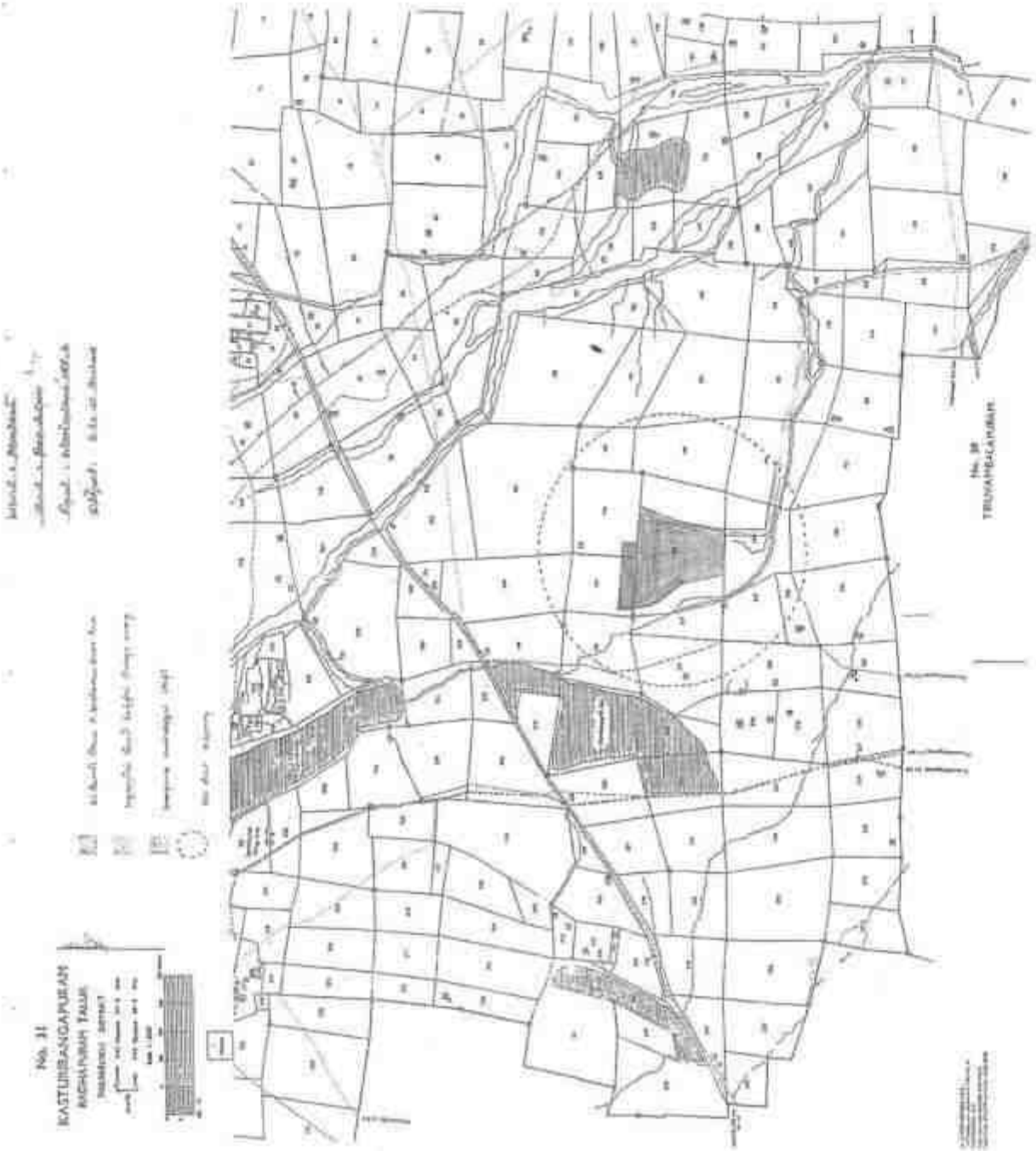
VILLAGE : KASTHURI RENGAPURAM PART-2

ALL DIMENSIONS ARE IN METER

SURVEY NO	SUB NO	EXTENT ARE	ACRES	CENTS	Sq.LINK
197/2B	A	0-51.8	01	28	000
196/2B	B	0-15.3	00	37	800
195/2A	C	3-10.3	07	66	500
195/2B	D	2-00.0	04	94	000
195/3	E	2-57.0	06	35	700
	TOTAL	8-34.4	20	62	000



MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist



Lease Applied Area-

ANNEXURE IV

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருநெல்வேலி

வட்டம் : திசையன்விளை

வருவாய் கிராமம் : கஸ்தூரிரெங்கபுரம் பகுதி-2

பட்டா எண் : 1722

உரிமையாளர்கள் பெயர்

1. மணி மகன் கடலையாண்டி

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	நீர்வரி	பரப்பு	நீர்வரி	பரப்பு	நீர்வரி	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
195	2A	3 - 79.00	2.34	--	--	--	--	2019/0103/29/192996---05-11-2019
		3 - 79.00	2.34					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை நாங்கள் https://eservices.tn.gov.in என்ற இணைய தளத்தில் 29/16/312/01722/140282 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 30-01-2023 அன்று 08:58:08 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. மைப்போன் கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

தமிழக அரசு

வருவாய்த் துறை

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

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

மாவட்டம் : திருநெல்வேலி

வட்டம் : நிலையன்வினை

வருவாய் கிராமம் : கஸ்தூரிரெங்கபுரம் பகுதி-2

பட்டா எண் : 1672

உரிமையாளர்கள் பெயர்

1. மோகனன் மகன் சிவசிரசாத

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	
195	2B	2 - 96.50	1.83	--	--	--	--	2018/0103/29/129427---03-09-2018
		2 - 96.50	1.83					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்ட வை. இவற்றை தாங்கள் https://eservices.tn.gov.in என்ற இணைய தளத்தில் 29/16/312/01672/140286 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 30-01-2023 அன்று 08:58:44 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கலாம்

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருநெல்வேலி வட்டம் : திசையன்விளை

வருவாய் கிராமம் : கஸ்தூரிரெங்கபுரம் பகுதி-2 பட்டா எண் : 332

உரிமையாளர்கள் பெயர்

1. இராஜேந்திரன் , மதன் , ராகுல்

புல எண்	உட்பிரிவு	புன்செய்		தன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	
195	3	8 - 42.00	5.20	--	--	--	--	2020/0103/29/225630---02-03-2020
		8 - 42.00	5.20					

குறிப்பு2 :

1. மேற்கண்ட தகவல்/ சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் 29/16/312/00332/160288 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இந்த நகல்கள் 30-01-2023 அன்று 08:59:29 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி மென்பொருளில்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

தமிழக அரசு

வருவாய்த் துறை

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

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

மாவட்டம் : திருநெல்வேலி

வட்டம் : திசையன்விளை

வருவாய் கிராமம் : கஸ்தூரிரெங்கபுரம் பகுதி-2

பட்டா எண் : 1858

உரிமையாளர்கள் பெயர்

1. மணி மகன் சுடலைராஜா

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	
196	2B	0 - 33.50	0.30	--	--	--	--	2022/0105/29/237858-2023/29/16/000042SD -- 19-01-2023
		0 - 33.50	0.30					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **29/16/312/01858/140242** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 19-01-2023 அன்று 04:54:10 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

தமிழக அரசு

அருவாய்த் துறை

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

மாவட்டம் : திருநெல்வேலி

வட்டம் : திசையன்விளை

வருவாய் கிராமம் : கஸ்தூரிரெங்கபுரம் பகுதி-2

பட்டா எண் : 1732

உரிமையாளர்கள் பெயர்

1. மணி மகன் கடலை ராஜா

புல எண்	உட்பிரிவு	புன்செய்		தன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	
197	2B	1 - 30.75	1.30	--	--	--	--	2019/0105/29/110126--2019/29/16/000003SD -- 23-12-2019
		1 - 30.75	1.30					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் https://eservices.tn.gov.in என்ற இணைய தளத்தில் 29/16/312/01732/140283 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 30-01-2023 அன்று 08:57:20 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

ANNEXURE V

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

1432 ஆம் பசலியில் [illegible] மாவட்டம் [illegible]

நில வரித் திட்டத்தின்படி புலன்களின் விபரம்.						சாகுபடி யாளரின் பெயர்.					
நில அளவை எண்.	உட்பிரிவு எண்.	பரப்பு.	தீர்வை.	ஒரு போகம் அல்லது இரு போகம்.	கைப்பற்று [illegible] பெயரும் எண்ணும் அல்லது அனுபோக தாரருடைய பெயர்.	நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளதா.	எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் அறுவடை செய்யப்பட்டது.	பயிரின் பெயர்.	பயிரான / அறுவடையான பரப்பு.	உண்மையான பாய்ச்சல் ஆதாரம்.	விளைச்சல் அளவு விழுக்காடு.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
196	2B	0835	0.30	1858	[illegible]		—	—	—	—	—
197	2R	13075	1.30	1732	[illegible]		—	—	—	—	—
195	2A	3770	2.84	1722	[illegible]		—	—	—	—	—
195	2B	2960	1.83	1672	[illegible]		—	—	—	—	—
195	3	8400	5.20	332	[illegible]		—	—	—	—	—

உண்மையான

[illegible] 21/01/23

கிராம நிர்வாக அலுவலர்
12, கஸ்தூரிரெங்கபுரம் பகுதி-2
திசையன்விளை வட்டம்.

380/30-R.F. III-A-10-23,00,000 Cps,-GBP-Mdu.

ANNEXURE VI

1	2	3	4	5	6	7	8	9	10	11	12
							ரூ. பை.	ஹெக்டேர்	ரூ. பை.		
1	194-1	ஈ	பு	...	8-5	7	0 62	5 20·5	3 21	543 த. பஸ்லும் அம்மாள்.	
2	-2	ஈ	புஉ	...	...	...	...	0 88·0	...	...	தொடர்.
3	-3	ஏ	பு	...	8-5	7	0 62	1 47·5	0 91	211 மா. சுப்பையா கோனார்.	
								7 56·0	4 12		
1	195-1	ஈ	புஉ	...	...	...	...	0 73·5	...	...	தொடர்.
2A	-2A	ஐ	பு	...	8-5	7	0 62	3 79·0	2 34	427 எம். ஜி. அசோக் குமார் மற்றும் மூன்று பேர்களும். *	
2B	-2B	ஈ	பு	...	8-5	7	0 62	2 96·5	1 83	905 மு. சாகுல் அமீது மரைக்காயர்(1), மு. முகைதீன் ஆச்சி அம்மாள்(2)	
3	-3	ஏ	பு	...	8-5	7	0 62	8 42·0	5 20	694 அ. மிக்கேல் நாயகம்.	
								15 91·0	9 37		
1	196-1	ஐ	பு	...	8-5	7	0 62	4 34·0	2 68	427 எம். ஜி. அசோக் குமார் மற்றும் மூன்று பேர்களும். *	
2	-2	ஐ	பு	...	8-5	7	0 62	3 26·5	2 02	905 மு. சாகுல் அமீது மரைக்காயர்(1), மு. முகைதீன் ஆச்சி அம்மாள்(2)	
								7 60·5	4 70		
1	197-1	ஈ	பு	...	8-5	7	0 62	3 30·5	2 04	427 எம். ஜி. அசோக் குமார் மற்றும் மூன்று பேர்களும். *	
	-2	ஐ	பு	...	8-5	7	0 62	2 42·5	1 51	905 மு. சாகுல் அமீது மரைக்காயர்(1), மு. முகைதீன் ஆச்சி அம்மாள்(2)	
								5 74·0	3 55		
	198-1	ஈ	பு	.	8-5	7	0 62	0 11·0	0 07	517 கு. நபியர் பீவியம்மாள்.	
	2	ஈ	புஉ	...	...	...	...	0 02·0	...	...	தொடர்.

* விவரப்பட்டியலைப் பார்க்கவும்

கிராம நிர்வாக அலுவலர்
12. கல்தூரிரெங்கபுரம் பகுதி-2
திசையன்விளை வட்டம்.

வட்டம்: திசையன்விளை

இனம்: கஸ்தூரி ரங்கபுரம் 2

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

196/2A	ரு.4	2-93.00	1.90	1047. அடுமைப்பன் (ஏ)
2B	ரு.4	0-33.50	0.30	1858. கடலைநாகா
		3-26.50	2.20	(ரூ 0.18 பைசா)

As per Th/8A/619/143
dt: 19-1-202

/ உண்மை நகல் /

31/01/23

சிராம நிர்வாக அலுவலர்
12, கஸ்தூரிரெங்கபுரம் பகுதி-2
திசையன்விளை வட்டம்.

ANNEXURE VII

அலுவலா எண் 311/2023

TP/141478255/2023

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

सत्यमेव जयते

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU

AU 485578

க. [illegible] சேகரன்
முத்திரை [illegible]
[illegible]புரம்.
ஆர்.டிஸ். 19956/71
நாள் : 24.01.2023

S. வேலு
பார்க்கனேரி கீழூர்

குத்தகை பத்திரம்

2023 இரண்டாயிரத்து இருபத்து மூன்றாம் வருடம் ஜனவரி மாதம் 24 இருபத்து நான்காம் தேதி திருநெல்வேலி மாவட்டம் இராதாபுரம் வட்டம் திருவம்பலபுரம் கிராமம், திருவம்பலபுரம் அஞ்சல் கணக்கன்குளம் வடக்கு தெரு கதவுஎண் 12-66 என்ற முகவரியில் வசிக்கும் மணி அவர்கள் குமாரர் சுடலைராஜா (ஆதார் அட்டை எண் -4927 9470 1784) (அலைபேசி எண் -99766 64132) 1வது பார்ட்டியாகவும்

M. Sudalairaja
1வது பார்ட்டி

2வது பார்ட்டி

1 புத்தகம் 2023 வது வருடத்தில் 311 ம் ஆவணம் 19 நாள்கள் கொண்டது 1 வது நாள்
பதிவு அலுவலர்

भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

सत्यमेव जयते

INDIA NON JUDICIAL

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

தமிழ்நாடு तमिलनाडु TAMILNADU

AU 485579

சு. இராஜசேகரன்
முத்திரை ... பிற்பனையாளர்
... புரம்.
ஆர்.டிஸ். 19556/71
நாள் : 24.01.2023

2019

S.வேலு
பார்க்கனேரி கீழவூர்

மேற்படி திருவம்பலபுரம் கிராமம், திருவம்பலபுரம் அஞ்சல், பார்க்கனேரி கீழவூர், மெயின் ரோடு, கதவுஎண் 5/36 என்ற முகவரியில் வசிக்கும் கடலையாண்டி அவர்கள் குமாரர் S.வேலு (ஆதார் அட்டை எண் - 9981 6453 6758) (அலைபேசி எண்- 97508 96859) 2வது பார்ட்டியாகவும் சேர்ந்து எழுதிக் கொண்ட குத்தகை பத்திரம்.

M. Subbiraja
1வது பார்ட்டி

2வது பார்ட்டி

1 புத்தகம் 2023 வது வருடத்தில் 311 ம் ஆவணம் 19 தான்கள் கொண்டது 2 வது தாள்
பதிவு அலுவலர்

भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

सत्यमेव जयते

INDIA NON JUDICIAL

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

தமிழ்நாடு तमिलनाडु TAMILNADU AU 485580

சு. இராஜசேகரன்
முத்திரைத்தாள் விற்பனையாளர்
இராதாபுரம்.
ஆர்.மு.எ. 10956/71
நாள் : 24.01.2023

S. வேலு
பார்க்கணேரி கீழகுர்

இதனடியில் கண்ட சொத்துக்கள் நம்மில் 1வது பார்ட்டிக்கு அவரும் R.A.G.மைக்கேல் அவர்களும் சேர்ந்து இராதாபுரம் சார் பதிவாளர் அலுவலக 3056/2019 நம்பராக பதிவு செய்து எழுதிக்கொண்ட பரிவர்த்தனை பத்திரம் மூலமாயும் V.S.யோவான் அவர்களால் மேற்படி அலுவலக 3054/2019 நம்பராகவும் மேரி ஆன்லற் அவர்களால் மேற்படி அலுவலக 2062/2018 நம்பராகவும் பதிவு செய்து எழுதிக் கொடுக்கப்பட்ட கிரையப் பத்திரங்கள் மூலமாயும் பாத்தியப்பட்டும் நம்மில் 1வது

M. Sudhakiraja
1வது பார்ட்டி

S. [illegible]
2வது பார்ட்டி

1 புத்தகம் 2023 வது வருடத்தில் 311 ம் ஆவணம்
19 நாள்கள் கொண்டது 3 வது தாள்
பதிவு அலுவலர்

भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

सत्यमेव जयते

INDIA NON JUDICIAL

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

தமிழ்நாடு तमिलनाडु TAMILNADU AU 485581

சு. இராஜசேகரன்
முக்கிய ... பேரனையாளர்
... ரம்.
... 19956/71
நாள் : 24.01.2023

S. வேலு
பார்க்கணி கீழ்வு

பார்ட்டியின் பெயரால் 1722 நம்பர் 1047 நம்பர் மற்றும் 1732 நம்பர் கணினி பட்டாக்கள் பெற்றும் நம்மில் 1வது பார்ட்டியின் அனுபோகத்திலும் ஆளுகையிலும் இருந்து வருவதை நம்மில் 2வது பார்ட்டி கல் குவாரி நடத்த குத்தகைக்கு கேட்டு 1வது பார்ட்டியும் சம்மதித்து நாம் இரு பார்ட்டிகளும் கீழ்கண்ட நிபந்தனைகளுக்கு உட்பட்டு நாம் பார்ட்டிகளும் சேர்ந்து இந்த குத்தகை ஒப்பந்த பத்திரம் எழுதிக்கொண்டோம். ஆகையால் அந்தப்படி நாம் பார்ட்டிகளும் நடந்து கொள்ள வேண்டியது.

N. Sudhakar
1வது பார்ட்டி

2வது பார்ட்டி

1 புத்தகம் 2023 வது வருடத்தில் 311 ம் ஆவணம் 19 நாள்கள் கொண்டது 4 வது நாள்
பதிவு அலுவலர்

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

सत्यमेव जयते

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU

AU 485582

2019

க. [illegible]சேகரன்
[illegible]ப்பனையானா
[illegible]ம்.
[illegible]. 19956/71
நாள் : 24.01.2023

S. வேலு
பார்க்கனேரி கீழ்ஆர்

நிபந்தனைகள் :

1. இந்த குத்தகை ஆவணம் 20 வருடங்கள் அமுலில் இருக்கும்.

2. இந்த குத்தகைக்கு முன்பணம் கொடுக்கவோ வாங்கவோ இல்லை.

3. குத்தகை பெறுபவர் வருடம் ஒன்றுக்கு வாடகை ரூ.13500/- (ரூபாய் பதிமூன்றாயிரத்து ஐநூறு) வீதம் குத்தகை கொடுப்பதற்கு கொடுத்து ரசீது பெற்றுக்கொள்ளவேண்டும். இந்த குத்தகையின் 20 ஆண்டு கால மொத்த குத்தகை தொகை ரூ.270000/- (ரூபாய் இரண்டு லட்சத்து எழுபதாயிரம்) ஆகும்.

M. [illegible]
1வது பார்ட்டி

புத்தகம் 2023 வது வருடத்தில் 311 ம் ஆவணம்
19 நாள்கள் கொண்டது 5 வது நாள்
பதிவு அலுவலர்

S. [illegible]
2வது பார்ட்டி

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Virudhunagar

4. இந்த குத்தகை 24.01.2023 தேதியிலிருந்து 23.01.2043 தேதி வரை உள்ள 20 வருட காலத்திற்கு கீழ்கண்ட தபசில் சொத்துக்களை குத்தகை பெறுபவர் கைவசம் வைத்து அனுபவித்து அதில் கல் குவாரி தொழிலுக்குத் தேவையான கல் ஜல்லி மற்றும் கிராவல் மண் ஆகியவற்றை அரசு அனுமதி பெற்று கல்குவாரி அமைத்து அரசு அனுமதிக்கும் காலம் வரை விதிகளுக்கு உட்பட்டு குவாரி தொழில் செய்துகொள்ளலாம். மேலும் அரசு விதிகளை மீறியும் அரசு விதிகளுக்கு புறம்பாகவும் தொழில் செய்யக்கூடாது.

5. குத்தகை பெறுபவரும் குத்தகை பெறுபவரின் அனுமதி பெறுபவரும் குத்தகை சொத்துக்களை எந்தவித தடங்கல் இன்றி அனுபவித்துக்கொள்ளலாம்.

6. குத்தகை பெறுபவரும் குத்தகை பெறுபவரின் தேவைகளுக்கு ஏற்ப விண்ணப்பிக்க குத்தகை பெறுபவருக்கு உரிமை உண்டு. விண்ணப்பங்களுக்கு குத்தகை கொடுப்பவர் அனுமதி தேவையில்லை.

7. குத்தகை கொடுப்பவருக்கு குத்தகை தரும் சொத்துக்கள் உள்பட தன் சொத்துக்களுக்கு வெளியாரிடம் உள்ள வழித்தடம் போன்ற உரிமைகள் குத்தகை பெறுபவருக்கு உண்டு.

8. இந்த குத்தகை ஆவணத்தை பரஸ்பரம் தனிப்பட்டு குத்தகை பெறுபவரோ குத்தகை கொடுப்பவரோ ரத்து செய்ய உரிமை இல்லை.

9. குத்தகை கொடுப்பவர் தபசில் சொத்துக்களுக்கு உண்டான நில தீர்வைகளையும் வரிகளையும் செலுத்திக்கொள்ளவேண்டும்.

10. மேற்படி குத்தகை காலம் முடிந்தவுடன் குத்தகை பெறுபவர் தபசில் சொத்தை குத்தகை கொடுப்பவரிடம் ஒப்படைத்து விட வேண்டியது.

11. குத்தகை பெறுபவர் குத்தகைக்கு பெறும் நிலத்தை தவிர மீதமுள்ள நிலத்தில் எவ்விதமான ஆக்கிரமிப்பும் செய்யக்கூடாது.

12. குத்தகை பெறுபவர் குவாரி நடத்தும்போது தேவைப்படும் மின்சாரத்தை அவர் தன் பெயரிலேயே மின்இணைப்பு பெற்று அதற்குரிய மின்கட்டணத்தை செலுத்திக் கொள்ளவேண்டும்.

13. குத்தகை பெறுபவர் குவாரி நடத்தும்போது ஏதேனும் விபத்து ஏற்பட நேரிட்டால் அதற்கு குத்தகை பெறுபவரே பொறுப்பாகும். அதில் குத்தகை கொடுப்பவருக்கு சம்பந்தம் இல்லை.

M. Sudhakaran
1வது பார்ட்டி

S. [illegible]
2வது பார்ட்டி

1 புரட்டாசி 2023 வது ஆண்டு 31 ம் ஆவணம்
19 ரூபாய் கொண்டது 6 வது தாள்
பதிவு அலுவலர்

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

சொத்து விபரம்

திருநெல்வேலி பதிவு மாவட்டம் இராதாபுரம் சார் பதிவு மாவட்டம் இராதாபுரம் ஊராட்சி ஒன்றியம் கஸ்தூரிரெங்கபுரம் ஊராட்சி கஸ்தூரிரெங்கபுரம் கிராமம் பகுதி-II அயன் புஞ்சை சர்வே நம்பர் 195(2A) ஹெக்.3.79.00க்கு ஏக்கர் 9 செண்டு 36 பூராவும்.

எல்கை

வடக்கு	-	சர்வே 197 நிலமும் சர்வே 196 நிலமும்
மேற்கு	-	சர்வே 218 நிலம்
தெற்கு	-	சர்வே 195(1) நிலமும் சர்வே 195(2B) நிலமும்
கிழக்கு	-	சர்வே 195(3) நிலமும் சர்வே 196 நிலமுமானது.

2) சர்வே நம்பர் 196(2) நூற்று தொண்ணூற்று ஆறு (உட்பிரிவு இரண்டு) ஹெக்.3.26.5 (ஏக்கர் 8 செண்டு 6)ல் மேற்கடைய ஹெக்.0.33.50 (செண்டு 82) பூராவும்.

மால் (வ) சர்வே 196(1) நிலம் (மே) சர்வே 197 நிலமும் சர்வே 195(2A) நிலமும் (தெ) சர்வே 195(2A) நிலம் (கி) கண்ணாம்பாள் வகையரா நிலமுமானது.

மேற்படி நிலம் ரீசர்வேப்படி சர்வே 196(2A) ஹெக்.0.33.50 (செண்டு 82) என ஆகியுள்ளது.

M. Sokkiraj
1வது பார்ட்டி

2வது பார்ட்டி

1 புத்தகம் 2023 வது வருடத்தில் 311 ம் ஆவணம்
19 தான்கள் கொண்டது 7 வது தான்
பதிவு அலுவலர்

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

3) சர்வே நம்பர் 197(2B) ஹெக்.1.30.75க்கு ஏக்கர் 3 செண்டு 23 பூராவும்.

எல்கை

வடக்கு	-	சர்வே 197(2A) நிலம்
மேற்கு	-	சர்வே 198 நிலம்
தெற்கு	-	சர்வே 195(2A) நிலம்
கிழக்கு	-	சர்வே 196(2A) நிலமுமானது.

இது ரீசர்வேக்கு முன் 197(2)ல் இருந்தது.

ஆக மொத்தம் ஹெக்.5.43.25க்கு ஏக்கர் 13 செண்டு 41 ஆகிறது.

M. Sudalai Raj
1வது பார்ட்டி

2வது பார்ட்டி

சாட்சிகள் :

1. C.R.R.

(C.ராபின் ராஜ் S/o. செல்லப்பன், கதவு எண் 7-133, வெட்டுக்காட்டுவிளை, ஆற்றூர், விளவங்கோடு வட்டம்) (ஆதார் அட்டை எண் - 5282 6321 7810) (அலைபேசி எண்- 73736 32753)

2. M. J.

(வினுகுமார் S/o. மணி, கதவு எண் 5/6-164, அயகோடு, மலவிளை, பனங்காலவிளை, விளவங்கோடு வட்டம்) (ஆதார் அட்டை எண்- 4044 1253 2968) (அலைபேசி எண்- 99432 38824)

ஆவணம் தட்டச்சு செய்து தயாரித்தவர் க. சேதுமுருகன்

க. சேதுமுருகன்,
189/6 கீழரத வீதி,
இராதாபுரம் 627111,
திருநெல்வேலி மாவட்டம்,
கைபேசி எண் 98437 25123,
மாவட்ட உரிமம் எண் பி878/திலி/93 நாள் 21.01.2019.

1 புத்தகம் 2023 வது வருடத்தில் 31 ம் ஆவணம் 19 தாள்கள் கொண்டது 8 வது தாள்
பதிவு அலுவலர்

R/ராதாபுரம்/புத்தகம்-1/311/2023

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

1899ம் ஆண்டு இந்திய முத்திரைச் சட்டம் 42வது பிரிவின் கீழான சான்று

2023ம் ஆண்டு வரிசை எண் 181

பார்க்கனேரி கீழவூர், திருநெல்வேலி, தமிழ்நாடு, இந்தியா, 627115-ல் வசிக்கும் திரு வேலு என்பவரிடமிருந்து ₹ 200/- (ரூபாய் இருநூறு மட்டும்) இந்த ஆவணத்திற்காக இந்திய முத்திரைச் சட்டம் 41வது பிரிவின் படி குறைவாயிருந்த முத்திரைக் கட்டணம் வசூலிக்கப்பட்டது என நான் இதன் மூலம் சான்றளிக்கிறேன்

சார்பதிவாளர் : ராதாபுரம்
நாள் 24/01/2023

சார்பதிவாளர் மற்றும் இந்திய முத்திரைச் சட்டம் பிரிவு 41ன் படி ஆட்சியர்

2023 ஆம் ஆண்டு ஜனவரி மாதம் 24ம் தேதி பி.ப. 02:22 மணியளவில் ராதாபுரம் சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 3,030/- செலுத்தியவர்.

இடது பெருவிரல்	கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி.	
எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்	M. Sudalairaja. "சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் UKC:02239515d7e963f2cd4eff959acfcf752140af (Details from UIDAI : Sudalairaja C/O: Mani, 01-04-1990, xxxxxxxx1784)	
எழுதி வாங்கியதாக ஒப்புக் கொண்டவர் இடது பெருவிரல்	"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது ஒப்பீட்டு எண் UKC:1429128736188286a2e4096a7aa4f07db0c410d (Details from UIDAI : Sudalairaja C/O: Mani, 01-01-1988, xxxxxxxx1784)	

R/ராதாபுரம்/புத்தகம்-1/311/2023

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

23 ஆம் ஆண்டு ஜனவரி மாதம் 24ம் நாள்

முருகன் சி
சார்பதிவாளர்
ராதாபுரம்

R/ராதாபுரம்/புத்தகம்-1/311/2023 எண்ணாகப் பதிவு செய்யப்பட்டது

நாள்: 24/01/2023
ராதாபுரம்

முருகன் சி
சார்பதிவாளர்

1 புத்தகம் 2023 வது வருடத்தில் 311 ம் அவணம்
19 நாள்கள் கொண்டது 10 வது நாள்

பதிவு அலுவலர்

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

சொத்தானது நீர்நிலை பகுதியில் அமையப் பெறவில்லை என்பதற்கான சான்று/உறுதிமொழி (Declaration) (நீதிபேராணை எண் 22163/2018ல் வழங்கப்பட்ட தீர்ப்புரையை காண்க)

இந்த ஆவணத்தில் கண்ட சொத்தானது நீர்நிலைகள், நீர்வழிப்பாதைகள், நீர்பிடிப்பு பகுதிகளில் கட்டுப்படவில்லை என சான்றளிக்கிறோம். மேலும் இதனில் தங்களுக்கு தவறான தகவல் அல்லது சான்று அளிக்கப்பட்டதாக பின்னாளில் கண்டுபிடிக்கப்பட்டால் அதனால் நான்/நாங்கள் சட்ட பூர்வ நடவடிக்கைகளுக்கு உட்படுத்தப்படுவோம் என்பதையும் அறிவேன்/அறிவோம்.

ஆவணத்தை எழுதிக் கொடுப்பவர்களின் கையொப்பம்

ஆவணத்தை எழுதிப் பெறுபவர்களின் கையொப்பம்

1 புத்தகம் 2023 வது வருடத்திய 311 ம் ஆவணம்
19 தான்கள் கொண்டது 11 வது தான்
பதிவு அலுவலர்

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருநெல்வேலி வட்டம் : இசையன்விளை

வருவாய் கிராமம் : கஸ்தூரிரெங்கபுரம் பகுதி-2 பட்டா

எண் : 1722

உரிமையாளர்கள் பெயர்

1. மணி மகன் சுடலைராஜா

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	
195	2A	3 - 79.00	2.34	--	--	--	--	2019/0103/29/192996----05-11-2019
		3 - 79.00	2.34					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **29/16/312/01722/140282** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 24-01-2023 அன்று 10:17:09 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

M. Sudalairaja

S. [illegible]

1 புதூரம் 2023 வது ஆண்டு 31 ம் தேதி 19 தாசில்தார் கோவில்பட்டி 12 வது நாள் பதிவு அலுவலர்

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருநெல்வேலி

வட்டம் : திசையன்விளை

வருவாய் கிராமம் : கஸ்தூரிரெங்கபுரம் பகுதி-2

பட்டா எண் : 1047

உரிமையாளர்கள் பெயர்

1.	சேசுஅந்தோணி அருளப்பன்	மகன்	சிலுவை அருளப்பன் செபஸ்டின்	-
2.	மாடசாமி	மனைவி	கண்ணாம்பாள்	-
3.	ஆர்.ஏ.ஜி. மைக்கேல்	மகன்	எம்.சி.அசோக்குமார்	-
4.	ஆர்.ஏ.ஜி. மைக்கேல்	மகன்	எம்.சி. அஜித்குமார்	-
5.	ஆர்.ஏ.ஜி. மைக்கேல்	மகன்	எம்.சி.ஆனந்த் குமார்	-

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	
196	2A	2 - 93.00	1.90	--	--	--	--	2022/0105 /29/237858--2023 /29/16/000042SD -- 19-01-2023
		2 - 93.00	1.90					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **29/16/312/01047/140232** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 24-01-2023 அன்று 10:17:52 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

M. Sudabirap

S. [illegible]

1 புத்தகம் 2023 வது வருடத்தில் 511 ம் ஆண்டு 19 பார்க்கள் கொண்டது 13 வது நாள்

பதிவு அலுவலர்

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருநெல்வேலி

வட்டம் : திசையன்விளை

வருவாய் இராமம் : கஸ்தூரிரெங்கபுரம் பகுதி-2

பட்டா

எண் : 1732

உரிமையாளர்கள் பெயர்

1. மணி மகன் கடலை ராஜா

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	
197	2B	1 - 30.75	1.30	--	--	--	--	2019/0105 /29/110126--2019 /29/16/000003SD -- 23-12-2019
		1 - 30.75	1.30					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நில விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **29/16/312/01732/140283** என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 24-01-2023 அன்று 10:44:40 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

M. [illegible]

1 புத்தகம் 2023 வரு நகலத்தில் 31 ம் ஆண்டு 19 தாசில் கோட்டு 14 வது தாள்

பதிவு அலுவலர்

94 A

ict : Tirunelveli

uk : Thisayanvilai

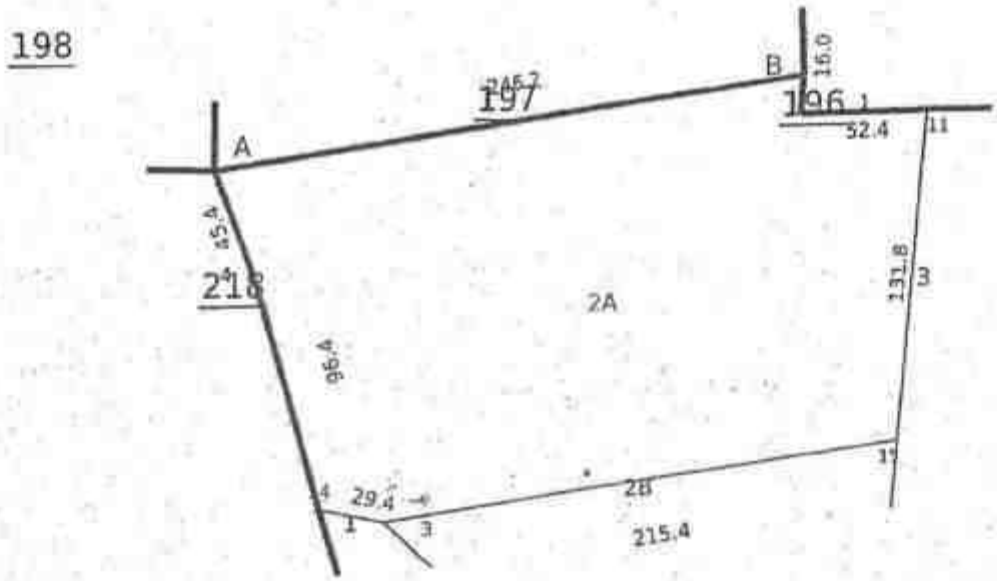
Village : Kasthuri Rengapuram Part2 [312]

Survey No : 195/2A

Area : Hect 03 Ares 79.00

Scale : 1 : 2575

MINING PLAN APPROVED by Assistant Director of Geology & Mining Tirunelveli Dist



M. Subbairaja.

1 புத்தகம் 2023 வது வருடத்தில் 311 ம் ஆவணம் 19 நாள்கள் கொண்டது 15 வது தாள்

பதிவு அலுவலர்

Date of Issue: 12-01-2023 14:44:20

240 fv.1

Survey and Settlement Department, Government of TamilNadu

...t : Tirunelveli

...uk : Thisayanvilai

...llage : Kasthuri Rengapuram Part2 [312]

Survey No : 196

Area : Hect 07 Ares 60.50By

Scale : 1 : 2524

MINING PLAN APPROVED
Assistant Director of Geology & Mining
Tirunelveli Dist

M. Sudalairaja

1 புத்தகம் 2023 ஆண்டு ஆவணம் 311 ம் ஆவணம்
19 தாள்கள் கொண்டது 16 வது தாள்
பதிவு அலுவலர்

Date of Issue: 12-01-2023 14:45:59

240 fv.1

Survey and Settlement Department, Government of TamilNadu

ict : Tirunelveli

uk : Thisayanvilai

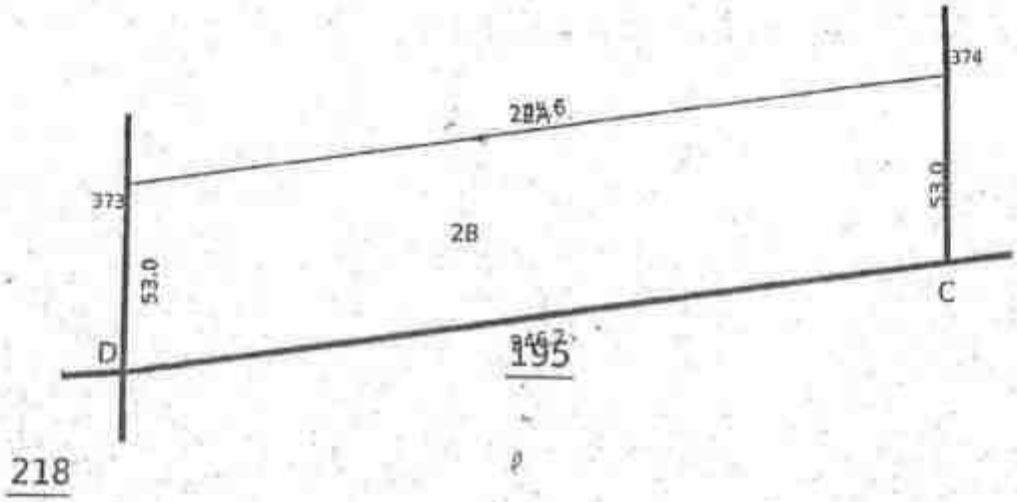
Village : Kasthuri Rengapuram Part2 [312]

Survey No : 197/2B

Area : Hect 01 Ares 29.75

Scale : 1 : 1882

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist



M. Sudakar

1 பத்தகம் 2023 ஆண்டு ஜனவரி 311 ம் அலையாம் 19 நாள்கள் கொண்டது 12 ஆண்டு தான்

பதிவு அலுவலர்

Date of Issue: 12-01-2023 14:43:32

260 fv.3

Survey and Settlement Department, Government of TamilNadu

[redacted]

வேலு
VELU
பிறந்த நாள்/DOB :
01-01-1958
ஆண் / Male

9981 6453 6758

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

S. [illegible]

[redacted]

முகவரி: தந்தை / தாய் பெயர்
கடலையாண்டி, 5/34,
பார்க்கனேரிகீழூர்,
திருவம்பலாபுரம், இராதாபுரம்,
திருநெல்வேலி, தமிழ் நாடு,
627130

Address: S/O: Sudalaiyandi
5/34, PARKKANERIKEELUR,
Tiruvambalapuram,
Radhapuram, Tirunelveli,
Tamil Nadu, 627130

MINING PLAN APPROVED
Assistant Director
of Geology & Mining
Tirunelveli Dist

[redacted]

Sudalairaja

[redacted] - DOB 01/04/1993
[redacted] - Male

4927 9470 1784

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

M. Sudalairaja

[redacted]

Unique Identification Authority of India

Address: S/O Mani, 12/36,
NORTHTREET
KANAKKANKULAM,
Tiruvambalapuram,
Tiruvambalapuram,
Tirunelveli, Tamil Nadu,
627130

4927 9470 1784

1 புத்தகம் 2023 வது வருடத்தில் 311 ம் ஆவணம்
19 நாள்கள் கொண்டது 18 வது நாள்

பதிவு அலுவலர்

4044 1253 2968
ஆதார் - சாதாரண மனிதனின் அதிகாரம்

PLAN APPROVED
Assistant Director
of Geology & Mining
TAYACODE
4044 1253 2968

5282 6321 7810

5282 6321 7810

ஆவண எண் 315/2023

TP/141464003/2023

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

सत्यमेव जयते

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU AU 485583

சு. இராஜசேகரன்
வழக்கு ... ஆய்வாளர்
... நாடுபுரம்.
ஆ.ப.எண். 1096/21
நாள்: 24.01.2023

ஒவ்வு
பார்வகனோ கீழ்ஜூர்

குத்தகை பத்திரம்

2023 இரண்டாயிரத்து இருபத்து மூன்றாம் வருடம் ஜனவரி மாதம் 24 இருபத்து நான்காம் தேதி கன்னியாகுமரி மாவட்டம் விளவங்கோடு வட்டம் சிதரால் அம்பலகடை, இடவழிக்கரை, ராமவிலாசம் வீடு, கதவு எண் -4/28A என்ற முகவரியில் வசிக்கும் மோகனன் அவர்கள் குமாரர் சிவபிரசாத் (ஆதார் அட்டை எண் - 6319 0338 1065) (அலைபேசி எண்-88702 73143) 1வது பார்ட்டியாகவும்

1வது பார்ட்டி

1 பத்தகம் 2023 வது வருடத்திற்கு 315 ம் ஆவணம் 13 நாள்கள் கொண்டது 1 வது நாள்
பதிவு அலுவலர்

2வது பார்ட்டி

...NG PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

सत्यमेव जयते

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU AU 485584

சு. [illegible]சேகரன்
முத்தி[illegible]ற்பனையாளர்
[illegible]ரம்.
ஆர்.டிஸ். 19956/71
நாள் : 24.01.2023

S. வேலு
பார்க்கனேரி கீழவூர்

திருநெல்வேலி மாவட்டம், இராதாபுரம் வட்டம், திருவம்பலபுரம் கிராமம், திருவம்பலபுரம் அஞ்சல், பார்க்கனேரி கீழவூர், மெயின் ரோடு, கதவுஎண் 5/36 என்ற முகவரியில் வசிக்கும் சுடலையாண்டி அவர்கள் குமாரர் S.வேலு (ஆதார் அட்டை எண் - 9981 6453 6758) (அலைபேசி எண்- 97508 96859) 2வது பார்ட்டியாகவும் சேர்ந்து எழுதிக் கொண்ட குத்தகை பத்திரம்.

1வது பார்ட்டி

1 புத்தகம் 2023 வது வருடத்தில் 315 ம் ஆவணம் 13 தாள்கள் கொண்டது 2 வது தாள்
பதிவு அலுவலர்

2வது பார்ட்டி

भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

सत्यमेव जयते

INDIA NON JUDICIAL

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

தமிழ்நாடு तमिलनाडु TAMILNADU

AU 485585

சு. இராஜசேகரன்
முத்திரைத்தாள் விற்பனையாளர்
இராதாபுரம்.
ஆர்.மல்.19956/71
நாள் : 24.01.2023

2019

இதனடியில் கண்ட சொத்துக்கள் நம்மில் 1வது பார்ட்டிக்கு ஷெர்லின் அவர்களால் இராதாபுரம் சார் பதிவாளர் அலுவலக 2554/2018 நம்பராக பதிவு செய்து எழுதிக் கொடுக்கப்பட்ட கிரையப் பத்திரம் மூலமாய் பாத்தியப்பட்டும் நம்மில் 1வது பார்ட்டியின் பெயரால் 1672 நம்பர் கணினி பட்டா பெற்றும் நம்மில் 1வது பார்ட்டியின் அனுபோகத்திலும் ஆளுகையிலும் இருந்து வருவதை நம்மில் 2வது பார்ட்டி கல் குவாரி நடத்த குத்தகைக்கு கேட்டு 1வது பார்ட்டியும் சம்மதித்து நாம் இரு பார்ட்டிகளும் கீழ்கண்ட நிபந்தனைகளுக்கு உட்பட்டு நாம் பார்ட்டிகளும் சேர்ந்து இந்த குத்தகை ஒப்பந்த பத்திரம் எழுதிக்கொண்டோம். ஆகையால் அந்தப்படி நாம் பார்ட்டிகளும் நடந்து கொள்ள வேண்டியது.

1வது பார்ட்டி

1 பக்கம் 2023 வது வருடத்தில் 3/5 ம் ஆவணம் 13 தான்கள் கொண்டது 3 வது தான்
பதிவு அலுவலர்

2வது பார்ட்டி

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

நிபந்தனைகள் :

1. இந்த குத்தகை ஆவணம் 20 வருடங்கள் அமுலில் இருக்கும்.

2. இந்த குத்தகைக்கு முன்பணம் கொடுக்கவோ வாங்கவோ இல்லை.

3. குத்தகை பெறுபவர் வருடம் ஒன்றுக்கு வாடகை ரூ.7500/- (ரூபாய் ஏழாயிரத்து ஐநூறு) வீதம் குத்தகை கொடுப்பதற்கு கொடுத்து ரசீது பெற்றுக்கொள்ளவேண்டும். இந்த குத்தகையின் 20 ஆண்டு கால மொத்த குத்தகை தொகை ரூ.150000/- (ரூபாய் ஒரு லட்சத்து ஐம்பதாயிரம்) ஆகும்.

4. இந்த குத்தகை 24.01.2023 தேதியிலிருந்து 23.01.2043 தேதி வரை உள்ள 20 வருட காலத்திற்கு கீழ்கண்ட தபசில் சொத்துக்களை குத்தகை பெறுபவர் கைவசம் வைத்து அனுபவித்து அதில் கல் குவாரி தொழிலுக்குத் தேவையான கல் ஜல்லி மற்றும் கிராவல் மண் ஆகியவற்றை அரசு அனுமதி பெற்று கல்குவாரி அமைத்து அரசு அனுமதிக்கும் காலம் வரை விதிகளுக்கு உட்பட்டு குவாரி தொழில் செய்துகொள்ளலாம். மேலும் அரசு விதிகளை மீறியும் அரசு விதிகளுக்கு புறம்பாகவும் தொழில் செய்யக்கூடாது.

5. குத்தகை பெறுபவரும் குத்தகை பெறுபவரின் அனுமதி பெறுபவரும் குத்தகை சொத்துக்களை எந்தவித தடங்கல் இன்றி அனுபவித்துக்கொள்ளலாம்.

6. குத்தகை பெறுபவரும் குத்தகை பெறுபவரின் தேவைகளுக்கு ஏற்ப விண்ணப்பிக்க குத்தகை பெறுபவருக்கு உரிமை உண்டு. விண்ணப்பங்களுக்கு குத்தகை கொடுப்பவர் அனுமதி தேவையில்லை.

1வது பார்ட்டி

1 புத்தகம் 2023 வது வருடத்தில் 315 ம் ஆவணம்
13 தான்கள் கொண்டது 4 வது தாள்
பதிவு அலுவலர்

2வது பார்ட்டி

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

7. குத்தகை கொடுப்பவருக்கு குத்தகை தரும் சொத்துக்கள் உள்பட தன் சொத்துக்களுக்கு வெளியாரிடம் உள்ள வழித்தடம் போன்ற உரிமைகள் குத்தகை பெறுபவருக்கு உண்டு.

8. இந்த குத்தகை ஆவணத்தை பரஸ்பரம் தனிப்பட்டு குத்தகை பெறுபவரோ குத்தகை கொடுப்பவரோ ரத்து செய்ய உரிமை இல்லை.

9. குத்தகை கொடுப்பவர் தபசில் சொத்துக்களுக்கு உண்டான நில தீர்வைகளையும் வரிகளையும் செலுத்திக்கொள்ளவேண்டும்.

10. மேற்படி குத்தகை காலம் முடிந்தவுடன் குத்தகை பெறுபவர் தபசில் சொத்தை குத்தகை கொடுப்பவரிடம் ஒப்படைத்து விட வேண்டியது.

11. குத்தகை பெறுபவர் குத்தகைக்கு பெறும் நிலத்தை தவிர மீதமுள்ள நிலத்தில் எவ்விதமான ஆக்கிரமிப்பும் செய்யக்கூடாது.

12. குத்தகை பெறுபவர் குவாரி நடத்தும்போது தேவைப்படும் மின்சாரத்தை அவர் தன் பெயரிலேயே மின்இணைப்பு பெற்று அதற்குரிய மின்கட்டணத்தை செலுத்திக் கொள்ளவேண்டும்.

13. குத்தகை பெறுபவர் குவாரி நடத்தும்போது ஏதேனும் விபத்து ஏற்பட நேரிட்டால் அதற்கு குத்தகை பெறுபவரே பொறுப்பாகும். அதில் குத்தகை கொடுப்பவருக்கு சம்பந்தம் இல்லை.

1 புத்தகம் 2023 வது வருடத்தில் 315 ம் ஆவணம்
13 தாள்கள் கொண்டது 5 வது தாள்
பதிவு அலுவலர்

1வது பார்ட்டி

2வது பார்ட்டி

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

சொத்து விபரம்

திருநெல்வேலி பதிவு மாவட்டம் இராதாபுரம் சார் பதிவு மாவட்டம் இராதாபுரம் ஊராட்சி ஒன்றியம் கஸ்தூரிரெங்கபுரம் ஊராட்சி கஸ்தூரிரெங்கபுரம் கிராமம் பகுதி – II அயன் புஞ்சை சர்வே நம்பர் 195(2B) நூற்று தொண்ணூற்று ஐந்து (உட்பிரிவு இரண்டு பி) ஹெக்.2.96.50க்கு சமமான ஏக்கர் 7 செண்டு 32 பூராவும்.

மால் (வ) சர்வே 195/2A நிலம் (மே) சர்வே 195/1 நிலம் (தெ) சர்வே 194 நிலம் (கி) சர்வே 195/3 நிலமுமானது.

1வது பார்ட்டி

2வது பார்ட்டி

சாட்சிகள் :

1. M. Sudakiraja.

(சுடலைராஜா S/o. மணி, கதவு எண் 12-66, வடக்கு தெரு, கணக்கன்குளம், திருவம்பலபுரம் கிராமம்) (ஆதார் அட்டை எண் -4927 9470 1784) (அலைபேசி எண் -99766 64132)

2. M.Y.

(வினுகுமார் S/o. மணி, கதவு எண் 5/6-164, அயகோடு, மலவிளை, பனங்காலவிளை, விளவங்கோடு வட்டம்) (ஆதார் அட்டை எண்- 4044 1253 2968) (அலைபேசி எண்- 99432 38824)

ஆவணம் தட்டச்சு செய்து தயாரித்தவர் க. சேதுமுருகன்

க. சேதுமுருகன்,
189/6 கீழரத வீதி,
இராதாபுரம் 627111,
திருநெல்வேலி மாவட்டம்,
கைபேசி எண் 98437 25123,
மாவட்ட உரிமம் எண் பி878/திலி/93 நாள் 21.01.2019.

1 புத்தகம் 2023 வது வருடத்தில் 315 ம் ஆவணம் 13 நாள்கள் கொண்டது 6 வது நாள்
பதிவு அலுவலர்

R/ராதாபுரம்/புத்தகம்-1/315/2023

MINING PLAN APPROVED
Assistant Director
of Geology & Mining
Tirunelveli Dist

ஆம் ஆண்டு ஜனவரி மாதம் 24ம் நேதி பி.ப. 02:27 மணியளவில் ராதாபுரம் சார்பதிவாளர் அலுவலகத்தின் தாக்கல் அய்து கட்டணம் ₹ 1,740/- செலுத்தியவர்

இடது பெருவிரல்	கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி	
எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்	"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது ஒப்பீட்டு எண் : UKC:612594b96b4e68b9ec46d3876f587b9ba44d00 (Details from UIDAI : Siva Prasad Mohanan S/O: Muhanan, 29-05-1989, xxxxxxxx1065)	
எழுதி வாங்கியதாக ஒப்புக் கொண்டவர் இடது பெருவிரல்	"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது ஒப்பீட்டு எண் : UKC:9304481a747111a42c4886aed0099af77e8c2b (Details from UIDAI : VELU S/O: Sudalaiyandi, 01-01-1958, xxxxxxxx8768)	

2023 ஆம் ஆண்டு ஜனவரி மாதம் 24ம் நாள்

முருகன் சி
சார்பதிவாளர்
ராதாபுரம்

1 புத்தகம் 2023 வது வருடத்தில் 315ம் ஆவணம்
13 தாள்கள் கொண்டது 7 வது தாள்
பதிவு அலுவலர்

R/ராதாபுரம்/புத்தகம்-1/315/2023

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

ராதாபுரம்/புத்தகம்-1/315/2023 எண்ணாகப் பதிவு செய்யப்பட்டது

தான் 24/01/2023
ராதாபுரம்

முருகன் சி
சார்பதிவாளர்

1 புத்தகம் 2023 வது வருடத்தில் 315 ம் ஆவணம்
13 தான்கள் கொண்டது 8 வது தான்
பதிவு அலுவலர்

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

சொத்தானது நீர்நிலை பகுதியில் அமையப் பெறவில்லை என்பதற்கான சான்று/உறுதிமொழி (Declaration) (நீதிபேராணை எண் 22163/2018ல் வழங்கப்பட்ட தீர்ப்புரையை காண்க)

இந்த ஆவணத்தில் கண்ட சொத்தானது நீர்நிலைகள், நீர்வழிப்பாதைகள், நீர்பிடிப்பு பகுதிகளில் கட்டுப்படவில்லை என சான்றளிக்கிறோம். மேலும் இதனில் தங்களுக்கு தவறான தகவல் அல்லது சான்று அளிக்கப்பட்டதாக பின்னாளில் கண்டுபிடிக்கப்பட்டால் அதனால் நான்/நாங்கள் சட்ட பூர்வ நடவடிக்கைகளுக்கு உட்படுத்தப்படுவோம் என்பதையும் அறிவேன்/அறிவோம்.

ஆவணத்தை எழுதிக் கொடுப்பவர்களின் கையொப்பம்

ஆவணத்தை எழுதிப் பெறுபவர்களின் கையொப்பம்

1 புத்தகம் 2022 வது வருடத்தில் 315 ம் ஆவணம் 13 தாள்கள் கொண்டது 9 வது தாள்
பதிவு அலுவலர்

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருநெல்வேலி

வட்டம் : திசையன்விளை

வருவாய் கிராமம் : கஸ்தூரிரெங்கபுரம் பகுதி-2

பட்டா

எண் : 1672

உரிமையாளர்கள் பெயர்

1. மோகனன் மகன் சிவபிரசாத்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	நீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
195	2B	2 - 96.50	1.83	--	--	--	--	2018/0103 /29/129427--- -- 03-09-2018
		2 - 96.50	1.83					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **29/16/312/01672/140286** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 24-01-2023 அன்று 10:16:29 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

1 புத்தகம் 2023 ரூ 315.00 கூபனுக்கு 15 நாள்கள் கொண்டது 10 ரூ நாள்

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist.

ict : Tirunelveli

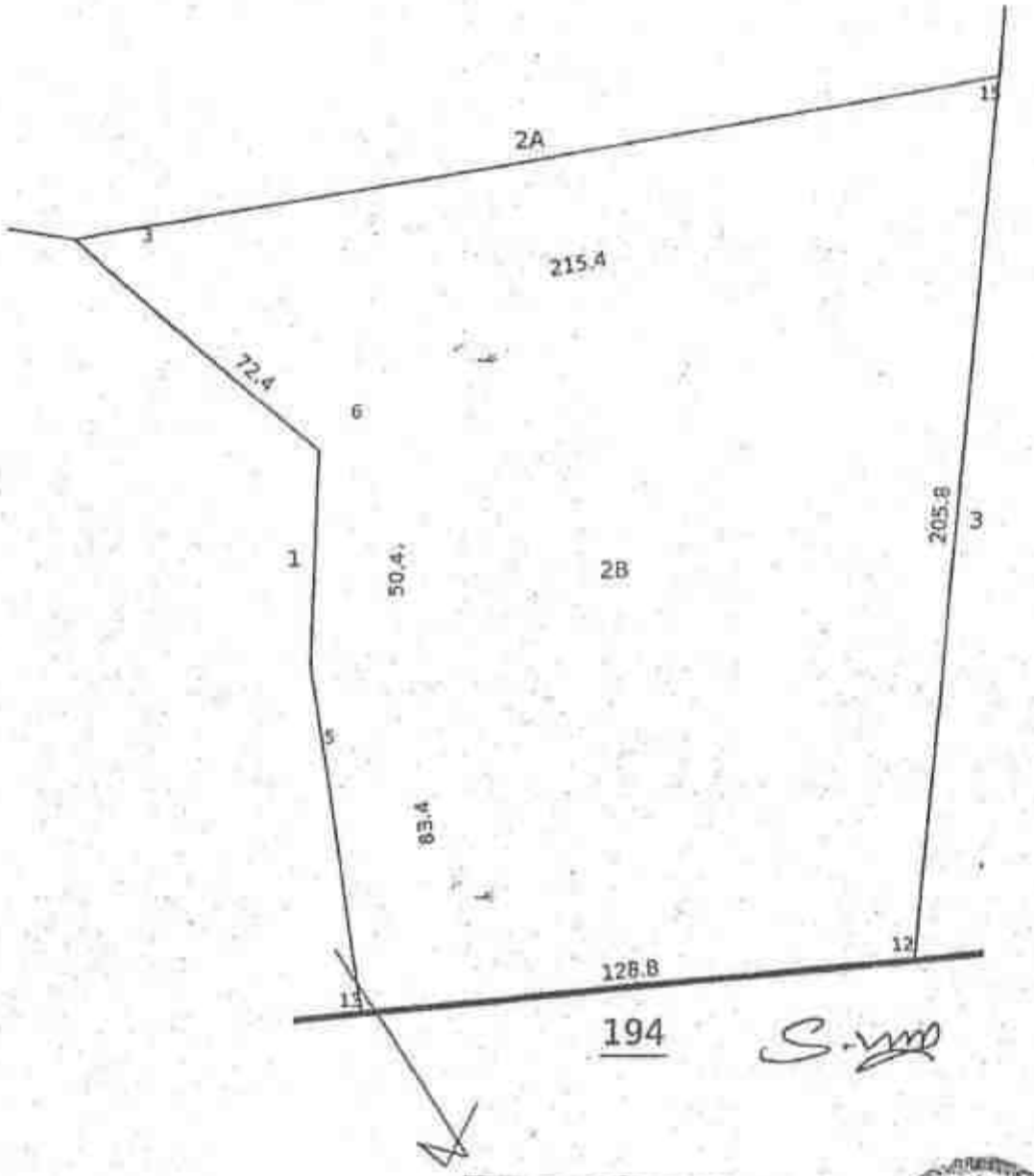
uk : Thisayanvilai

illage : Kasthuri Rengapuram Part2 [312]

Survey No : 195/2B

Area : Hect 02 Ares 96.50

Scale : 1 : 1495



1 பத்தகம் 2023 வரு வருடத்திய 315 ம் ஆவணம்
13 தான்கள் கொண்டது 11 வரு தாள்
பதிவு அலுவலர்

Date of Issue: 24-01-2023 11:03:08

240 fv.1

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist.

6319 0338 1065

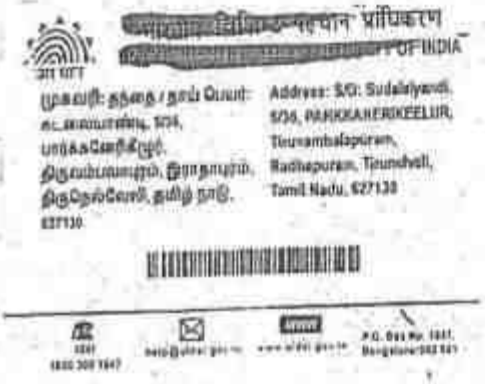
मेरा आधार, मेरी पहचान

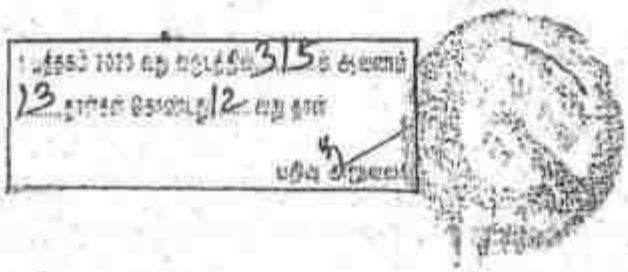
9981 6453 6758

आधार - साधारण मानवीय अधिकार

6319 0338 1065

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





[redacted]

விநுதமார் மணி
Vinukumar Mani
பிறந்தவருடம் / Year of Birth : 1992
ஆண்பால் / Male

4044 1253 2968

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

M. S.

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

[redacted]

ஆதார்
முகவரி
S/O மணி, 5/6-164,
பனங்காலவிளை, மலவிளை,
அயக்கோடு, செருபன்றார்,
கன்னியாகுமரி, கல்குளம், தமிழ்
நாடு, 629161

Address:
S/O. Mani, 5/6-164,
PANANKALAVILAI, MALAVILAI
AYACODE, Cherupallur,
Kanniyakumari, Kalkulam, Tamil
Nadu, 629161

4044 1253 2968

[redacted]

Government of India
Sudalairaja

Male
M. Sudalairaja

4927 9470 1784

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

[redacted]

Unique Identification Authority of India

Address: S/O. Mani, 12/66,
NORTHTREET,
KANAKKANKULAM,
Tiruvambalapuram,
Tiruvambalapuram,
Tirunelveli, Tamil Nadu,
627130

4927 9470 1784

S. Vinu

1 புத்தகம் 2022 வது வருடத்தில் 315 ம் அலுவலக
13 ஜாமீன் கொண்டது 13 வது தான்
பதிவு அலுவலர்

TP/141457682/2023

भारतीय गैर न्यायिक INDIA NON JUDICIAL

भारत

एक हजार रुपये ONE THOUSAND RUPEES

रु.1000 Rs.1000

INDIA

Assistant Director of Geology & Mining Tirunelveli Dist

தமிழ்நாடு तमिलनाडु TAMILNADU

BC 814224

சு. இராஜசேகரன்
முத்திரை தாள் விற்பனையாளர்
சிவகாசிபுரம்.
ஆ.எ.மு. 19956/71
நாள்: 24.01.2023

குத்தகை பத்திரம்

2023 இரண்டாயிரத்து இருபத்து மூன்றாம் வருடம் ஜனவரி மாதம் 24 இருபத்து நான்காம் தேதி கன்னியாகுமரி மாவட்டம், விளவங்கோடு வட்டம், சிதறால்-629 151, பத்திட்டாவிளவீடு, கதவு எண் 13-85 என்ற முகவரியில் வசிக்கும் S.ராஜேந்திரன் அவர்கள் குமாரர் ராகுல் (ஆதார் அட்டை எண் - 4716 5108 6793) (அலைபேசி எண்-6369770072) 1வது பார்ட்டியாகவும்

1வது பார்ட்டி

1 பத்திரம் 2023 வது வருடத்தில் 312 ம் ஆவணம் 16 நாள்கள் கொண்டது 1 வது நாள்
பதிவு அலுவலர்

2வது பார்ட்டி

भारतीय गैर न्यायिक INDIA NON JUDICIAL

भारत

एक हजार रुपये ONE THOUSAND RUPEES

रु.1000 Rs.1000

INDIA

தமிழ்நாடு तमिलनाडु TAMILNADU BC 814225

சு. இராஜசேகரன்
முத்திரை விற்பனையாளர்
இராதாபுரம்.
Cell No. 19956/71
நாள் : 24.01.2023

S.வேலு
பார்க்கனேரி கீழவூர்

திருநெல்வேலி மாவட்டம், இராதாபுரம் வட்டம், திருவம்பலபுரம் கிராமம், திருவம்பலபுரம் அஞ்சல், பார்க்கனேரி கீழவூர், மெயின் ரோடு, கதவுஎண் 5/36 என்ற முகவரியில் வசிக்கும் சுடலையாண்டி அவர்கள் குமாரர் S.வேலு (ஆதார் அட்டை எண் - 9981 6453 6758) (அலைபேசி எண்- 97508 96859) 2வது பார்ட்டியாகவும் சேர்ந்து எழுதிக் கொண்ட குத்தகை பத்திரம்.

1வது பார்ட்டி

1 புத்தகம் 2023 வது வருடத்தில் 3/2 ஆவணம் 14 நாள்கள் கொண்டது 2 வது நாள்
பதிவு அலுவலர்

2வது பார்ட்டி

भारतीय गैर न्यायिक INDIA NON JUDICIAL

भारत

एक हजार रुपये ONE THOUSAND RUPEES

रु.1000 Rs.1000

INDIA

தமிழ்நாடு तमिलनाडु TAMILNADU

BC 814226

சு. இராஜசேகரன்
[illegible] பதிவாளர்
[illegible]புரம்.
[illegible] 19956/71
நாள் : 24-01-2023

இதனடியில் கண்ட சொத்துக்கள் நம்மில் 1வது பார்ட்டிக்கு ஜானுமதி அவர்களால் இராதாபுரம் சார் பதிவாளர் அலுவலக 2113/2018 நம்பராகவும் மேரி ஆன்லற் அவர்களால் மேற்படி அலுவலக 418/2020 நம்பராகவும் பதிவு செய்து எழுதிக் கொடுக்கப்பட்ட கிரையப் பத்திரங்கள் மூலமாயும் பாத்தியப்பட்டும் நம்மில் 1வது பார்ட்டியின் பெயரால் 332 நம்பர் கணினி பட்டா பெற்றும் நம்மில் 1வது பார்ட்டியின் அனுபோகத்திலும் ஆளுகையிலும்

1வது பார்ட்டி

1 புத்தகம் 2023 வது வருடத்தில் 312 ம் ஆவணம்
16 நாள்கள் கொண்டது 3 வது நாள்
பதிவு அலுவலர்

2வது பார்ட்டி

தமிழ்நாடு தமிலநாடு TAMILNADU

BC 814227

இருந்து வருவதை நம்மில் 2வது பார்ட்டி கல் குவாரி நடத்த குத்தகைக்கு கேட்டு 1வது பார்ட்டியும் சம்மதித்து நாம் இரு பார்ட்டிகளும் கீழ்கண்ட நிபந்தனைகளுக்கு உட்பட்டு நாம் பார்ட்டிகளும் சேர்ந்து இந்த குத்தகை ஒப்பந்த பத்திரம் எழுதிக்கொண்டோம். ஆகையால் அந்தப்படி நாம் பார்ட்டிகளும் நடந்து கொள்ள வேண்டியது.

1வது பார்ட்டி

2வது பார்ட்டி

நிபந்தனைகள் :

1. இந்த குத்தகை ஆவணம் 20 வருடங்கள் அமுலில் இருக்கும்.

2. இந்த குத்தகைக்கு முன்பணம் கொடுக்கவோ வாங்கவோ இல்லை.

3. குத்தகை பெறுபவர் வருடம் ஒன்றுக்கு வாடகை ரூ.21000/- (ரூபாய் இருபத்து ஒன்றாயிரம்) வீதம் குத்தகை கொடுப்பதற்கு கொடுத்து ரசீது பெற்றுக்கொள்ளவேண்டும். இந்த குத்தகையின் 20 ஆண்டு கால மொத்த குத்தகை தொகை ரூ.420000/- (ரூபாய் நான்கு லட்சத்து இருபதாயிரம்) ஆகும்.

4. இந்த குத்தகை 24.01.2023 தேதியிலிருந்து 23.01.2043 தேதி வரை உள்ள 20 வருட காலத்திற்கு கீழ்கண்ட தபசில் சொத்துக்களை குத்தகை பெறுபவர் கைவசம் வைத்து அனுபவித்து அதில் கல் குவாரி தொழிலுக்குத் தேவையான கல் ஜல்லி மற்றும் கிராவல் மண் ஆகியவற்றை அரசு அனுமதி பெற்று கல்குவாரி அமைத்து அரசு அனுமதிக்கும் காலம் வரை விதிகளுக்கு உட்பட்டு குவாரி தொழில் செய்துகொள்ளலாம். மேலும் அரசு விதிகளை மீறியும் அரசு விதிகளுக்கு புறம்பாகவும் தொழில் செய்யக்கூடாது.

5. குத்தகை பெறுபவரும் குத்தகை பெறுபவரின் அனுமதி பெறுபவரும் குத்தகை சொத்துக்களை எந்தவித தடங்கல் இன்றி அனுபவித்துக்கொள்ளலாம்.

6. குத்தகை பெறுபவரும் குத்தகை பெறுபவரின் தேவைகளுக்கு ஏற்ப விண்ணப்பிக்க குத்தகை பெறுபவருக்கு உரிமை உண்டு. விண்ணப்பங்களுக்கு குத்தகை கொடுப்பவர் அனுமதி தேவையில்லை.

Rahul

1வது பார்ட்டி

2வது பார்ட்டி

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

7. குத்தகை கொடுப்பவருக்கு குத்தகை தரும் சொத்துக்கள் உள்பட தன் சொத்துக்களுக்கு வெளியாரிடம் உள்ள வழித்தடம் போன்ற உரிமைகள் குத்தகை பெறுபவருக்கு உண்டு.

8. இந்த குத்தகை ஆவணத்தை பரஸ்பரம் தனிப்பட்டு குத்தகை பெறுபவரோ குத்தகை கொடுப்பவரோ ரத்து செய்ய உரிமை இல்லை.

9. குத்தகை கொடுப்பவர் தபசில் சொத்துக்களுக்கு உண்டான நில தீர்வைகளையும் வரிகளையும் செலுத்திக்கொள்ளவேண்டும்.

10. மேற்படி குத்தகை காலம் முடிந்தவுடன் குத்தகை பெறுபவர் தபசில் சொத்தை குத்தகை கொடுப்பவரிடம் ஒப்படைத்து விட வேண்டியது.

11. குத்தகை பெறுபவர் குத்தகைக்கு பெறும் நிலத்தை தவிர மீதமுள்ள நிலத்தில் எவ்விதமான ஆக்கிரமிப்பும் செய்யக்கூடாது.

12. குத்தகை பெறுபவர் குவாரி நடத்தும்போது தேவைப்படும் மின்சாரத்தை அவர் தன் பெயரிலேயே மின்இணைப்பு பெற்று அதற்குரிய மின்கட்டணத்தை செலுத்திக் கொள்ளவேண்டும்.

13. குத்தகை பெறுபவர் குவாரி நடத்தும்போது ஏதேனும் விபத்து ஏற்பட நேரிட்டால் அதற்கு குத்தகை பெறுபவரே பொறுப்பாகும். அதில் குத்தகை கொடுப்பவருக்கு சம்பந்தம் இல்லை.

1 புத்தகம் 2023 வது வருடத்தில் 312 ஆவணம்
14 தாள்கள் கொண்டது 6 வது தாள்
பதிவு அலுவலர்

1வது பார்ட்டி

2வது பார்ட்டி

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist.

சொத்து விபரம்

திருநெல்வேலி பதிவு மாவட்டம் இராதாபுரம் சார் பதிவு மாவட்டம் இராதாபுரம் ஊராட்சி ஒன்றியம் கஸ்தூரிரெங்கபுரம் ஊராட்சி கஸ்தூரிரெங்கபுரம் கிராமம் பகுதி – II அயன் புஞ்சை சர்வே நம்பர் 195(3) நூற்று தொண்ணூற்று ஐந்து (உட்பிரிவு முன்று) ஹெக்.8.42.00க்கு சமமான ஏக்கர் 20 செண்டு 80ம் பூராவும்.

மேற்படி ஏக்கர் 20 செண்டு 80க்கு எல்லை

(வடக்கு) சர்வே 196 நிலம்

(மேற்கு) சர்வே 195(2A) நிலமும் சர்வே 195(2B) நிலமும்

(தெற்கு) சர்வே 194 நிலம்

(கிழக்கு) சர்வே 190 நிலமுமானது.

1வது பார்ட்டி

2வது பார்ட்டி

சாட்சிகள் :

1. M. Sudalai ராஜா

(கடலைராஜா S/o. மணி, கதவு எண் 12-66, வடக்கு தெரு, கணக்கன்குளம், திருவம்பலபுரம் கிராமம்) (ஆதார் அட்டை எண் -4927 9470 1784) (அலைபேசி எண் -99766 64132)

2. M. L.

(விஜுகுமார் S/o. மணி, கதவு எண் 5/6-164, அய்யகோடு, மலவிளை, பனங்காலவிளை, விளவங்கோடு வட்டம்) (ஆதார் அட்டை எண்- 4044 1253 2968) (அலைபேசி எண்- 99432 38824)

ஆவணம் தட்டச்சு செய்து தயாரித்தவர் க. சேதுமுருகன்

க. சேதுமுருகன்,
189/6 கீழரத வீதி,
இராதாபுரம் 627111,
திருநெல்வேலி மாவட்டம்,
கைபேசி எண் 98437 25123,
மாவட்ட உரிமம் எண் மி878/திலி/93 நாள் 21.01.2019.

1 புத்தகம் 2023 வது வருடத்தில் 318 ஆவணம்
16 நாள்கள் கொண்டது 7 வது நாள்
பதிவு

R/ராதாபுரம்/புத்தகம்-1/312/2023

1899ம் ஆண்டு இந்திய முத்திரைச் சட்டம் 42வது பிரிவின் கீழான சான்று

2023ம் ஆண்டு வரிசை எண் 182

பார்க்கனேரி கீழூர், திருநெல்வேலி, தமிழ்நாடு, இந்தியா, 627115-ல் வசிக்கும் திரு. வேலு என்பவரிடமிருந்து ₹ 200/- (ரூபாய் இருநூறு மட்டும்) இந்த ஆவணத்திற்காக இந்திய முத்திரைச் சட்டம் 41வது பிரிவின் படி குறைவாயிருந்த முத்திரைக் கட்டணம் வசூலிக்கப்பட்டது என நான் இதன் மூலம் சான்றளிக்கிறேன்.

சார்பதிவாளர் : ராதாபுரம்
நாள் 24/01/2023

சார்பதிவாளர் மற்றும் இந்திய முத்திரைச் சட்டம் பிரிவு 41ன் படி ஆட்சியர்

2023 ஆம் ஆண்டு ஜனவரி மாதம் 24ம் தேதி பி.ப. 02:30 மணியளவில் ராதாபுரம் சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 4,440/- செலுத்தியவர்.

இடது பெருவிரல்

கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி

எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்

"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:7494408e42c93c8820439e83b9f9ec2fb505f5
(Details from UIDAI : Rahul R P C/O: Rajendran S, 01-09-1995, xxxxxxxx6793)

எழுதி வாங்கியதாக ஒப்புக் கொண்டவர்
இடது பெருவிரல்

"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:[illegible]
(Details from UIDAI : Velu [illegible], 01-[illegible] 1958, xxxxxxxx6758)

ஈ/ராதாபுரம்/புத்தகம்-1/312/2023

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

ஆம் ஆண்டு ஜனவரி மாதம் 24ம் நாள்

முருகன் சி
சார்பதிவாளர்
ராதாபுரம்

ஈ/ராதாபுரம்/புத்தகம்-1/312/2023 எண்ணாகப் பதிவு செய்யப்பட்டது

நாள்: 24/01/2023
ராதாபுரம்

முருகன் சி
சார்பதிவாளர்

1 புத்தகம் 2023 வது மருத்தில் 312 ம் ஆவணம்
14 நாள்கள் கொண்டது 9 வது நாள்

பதிவு அலுவலர்

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

சொத்தானது நீர்நிலை பகுதியில் அமையப் பெறவில்லை என்பதற்கான சான்று/உறுதிமொழி (Declaration) (நீதிபேராணை எண் 22163/2018ல் வழங்கப்பட்ட தீர்ப்புரையை காண்க)

இந்த ஆவணத்தில் கண்ட சொத்தானது நீர்நிலைகள், நீர்வழிப்பாதைகள், நீர்பிடிப்பு பகுதிகளில் கட்டுப்படவில்லை என சான்றளிக்கிறோம். மேலும் இதனில் தங்களுக்கு தவறான தகவல் அல்லது சான்று அளிக்கப்பட்டதாக பின்னாளில் கண்டுபிடிக்கப்பட்டால் அதனால் நான்/நாங்கள் சட்ட பூர்வ நடவடிக்கைகளுக்கு உட்படுத்தப்படுவோம் என்பதையும் அறிவேன்/அறிவோம்.

ஆவணத்தை எழுதிக் கொடுப்பவர்களின் கையொப்பம்

ஆவணத்தை எழுதிப் பெறுபவர்களின் கையொப்பம்

1 புத்தகம் 2023 வது அகுடத்தில் 312 ம் ஆவணம்
14 நாள்கள் கொண்டது 10 வது நாள்
பதிவு அலுவலர்

தமிழக அரசு

வருவாய்த் துறை

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

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

மாவட்டம் : திருநெல்வேலி

வட்டம் : திசையன்விளை

வருவாய் கிராமம் : கஸ்தூரிரெங்கபுரம் பகுதி-2

பட்டா எண் : 332

உரிமையாளர்கள் பெயர்

1. இராஜேந்திரன் மகன் ராகுல்

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	
195	3	8 - 42.00	5.20	--	--	--	--	2020/0103/29/225630---02-03-2020
		8 - 42.00	5.20					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **29/16/312/00332/160288** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 24-01-2023 அன்று 10:15:40 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

Rahul

S. [illegible]

1 ஜூன் 2023 வரை செல்லுபடியாகும்

14 நாள் கால அவகாசம்

பதிவு அதிகாரி

1 of 1

1/24/2023

: Tirunelveli

k : Thisayanvilai

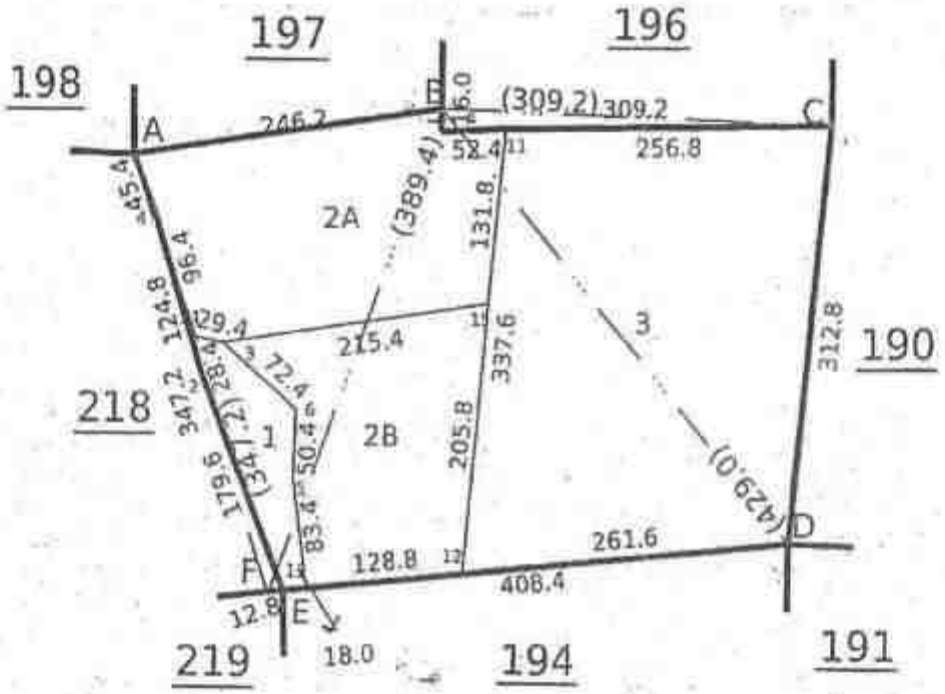
llage : Kasthuri Rengapuram Part2 [312]

Survey No. : 195

Area : Hect 15 Ares 91.00

Scale : 1 : 4767

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist



Date of Issue: 12-01-2023 14:48:08

240 fv.1

Survey and Settlement Department, Government of TamilNadu

ராகுல் ஆர் பி
Rahul R P
பிறந்த நாள்/DOB: 01/09/1995
ஆண்/ MALE

4716 5108 6793
VID : 9157 6720 9434 3093
எனது ஆதார், எனது அடையாளம்

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Dist

[redacted]

முகவரி:
[illegible]
தமிழ் நாடு - 629151

Address:
C/O: Rajendran S, 6-45 B, KKM HOUSE,
PIRAVANKOTTU VILAI, VELLAMCODE,
CHITHARAL, Vilavancode, Kanyakumari,
Tamil Nadu - 629151

4716 5108 6793
VID : 9157 6720 9434 3093

[redacted]

வேலு
VELU
பிறந்த நாள்/DOB :
01-01-1958
ஆண் / Male

9981 6453 6758

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

Rahul

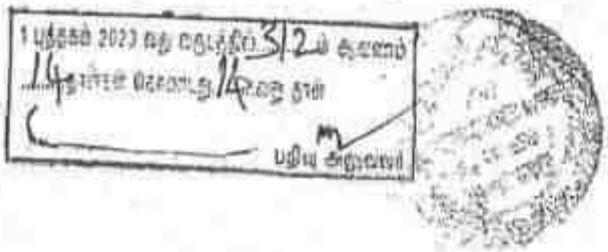
[redacted]

முகவரி: தந்தை / தாய் பெயர்:
கடலையாண்டி, 5/36,
பார்க்கனேரிகீழூர்,
திருவம்பலபுரம், இராதாபுரம்,
திருநெல்வேலி, தமிழ் நாடு,
627130

Address:-S/O: Sudalaiyandi,
5/36, PARKKANERIKEELUR,
Tiruvambalapuram,
Radhapuram, Tirunelveli,
Tamil Nadu, 627130

S. [illegible]

1 புத்தகம் 2023 வது வருடத்தில் 3/2 ன் ஆவணம்
14 நாள்கள் கொண்டது 13 வது தாள்
பதிவு அலுவலர்



[redacted]

விழுகுமார் மணி
Vinukumar Mani
பிறந்தவருடம் / Year of Birth 1962
ஆண்டாம் / Male

4044 1253 2968

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

M.Y.

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

[redacted]

ஆதார்
முகவரி
S/O மணி, 5/6-164,
பனங்காவிளை, மலவிளை,
அயிகோடு, செருபாலூர்,
கன்னியாகுமரி, கல்குளம் தமிழ்
நாடு, 629161

Address
S/O Mani, 5/6-164,
PANANKALAVILAI, MALAVILAI,
AYACODE, Cherupallur,
Kanniyakumari, Kalkulam, Tamil
Nadu, 629161

4044 1253 2968

[redacted]

சுடலைராஜா
Sudalairaja

பிறந்த நாள் / DOB 01/04/1990
ஆண்டாம் / Male

M. Sudalairaja

4927 9470 1784

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

Rahul

[redacted]

ஆதார்
Unique Identification Authority of India

முகவரி: தந்தை / தாய் பெயர் மணி
[illegible]
[illegible]
[illegible]

Address: S/O Mani, 12/65
NORTHTREET,
KANAKKANKULAM,
Tiruvambalapuram,
Tiruvambalapuram,
Tirunelveli, Tamil Nadu,
627130

4927 9470 1784

S. [illegible]

1 புத்தகம் 2023 வது வருடத்தில் 3/2 ம் ஆவணம்
14 தாள்கள் கொண்டது 14 வது தாள்
பதிவு அலுவலர்

S. [illegible]

(7) 3054/2019 TP/70050436/2019 42A

भारतीय गैर न्यायिक INDIA NON JUDICIAL

भारत

MINING PLAN APPROVED By Assistant Director of Geology & Mining

रु.5000 Rs.5000

पाँच हजार रुपये FIVE THOUSAND RUPEES

सत्यमेव जयते

INDIA

தமிழ்நாடு तमिलनाडु TAMILNADU 9.8.19 V 621427

சு. இராஜசேகரன்
மத்திரைத்தாள் விற்பனையாளர்
இராதாபுரம்
தா.மு.எ. 19956/71

சுடலைராஜா
கணக்கன்குளம்

கிரையம் ரூ.90450க்கு

2019 இரண்டாயிரத்து பத்தொன்பதாம் வருடம் ஆகஸ்ட் மாதம் 9 ஒன்பதாம் தேதி திருநெல்வேலி மாவட்டம் இராதாபுரம் வட்டம் திருவம்பலபுரம் கிராமம் கூத்தன்குளி அஞ்சல் கூத்தன்குளி கீழத்தெரு நிர் 4/46A என்ற முகவரியில் வசிக்கும் சேசு அந்தோணி அருளப்பன் அவர்கள் குமாரர் J.சிலுவை அருளப்பன் செபஸ்டின் என்பவருக்காக மேற்படியாரிடமிருந்து இராதாபுரம் சார் பதிவாளர் அலுவலக 4 புத்தகம் 150/2012 நம்பராகப் பதிவு செய்யப்பட்ட ஜெனரல்பவர் பெற்ற ஏஜென்ட் நிலமையில் மட்டிலும் மேற்படி கூத்தன்குளி ஊரிலிருந்து மேற்படி திருவம்பலபுரம் தெற்கு தெரு 1/160 என்ற முகவரியில் வசிக்கும் V.சந்தகுரூஸ் அவர்கள் குமாரர் **V.S.**யோவான் (வாக்காளர் அட்டை எண்-CDR1141670/14-12-2000/ திருநெல்வேலி) ஆகிய நான்

V.S. யோவான்
எழுதிக்கொடுப்பவர்
(ஜெனரல் பவர் ஏஜென்ட்)

M. Sudakiraja.
எழுதிவாங்குபவர்

3054
15 தான்கள் கொண்டது
1 வது தாள்

भारतीय गैर न्यायिक INDIA NON JUDICIAL

भारत

MINING PLAN APPROVED By Assistant Director of Geology & Mining

एक हजार रुपये ONE THOUSAND RUPEES

रु.1000 Rs.1000

सत्यमेव जयते

INDIA

தமிழ்நாடு तमिलनाडु TAMILNADU 9.8.19 AX 816064

சு. இராஜசேகரன்
மத்திரைத்தாள் விற்பனையாளர்
இராதாபுரம்
ஆர்.டிஸ். 19956/71

சுடலைராஜா
கணக்கன்குளம்.

மேற்படி இராதாபுரம் வட்டம் திருவம்பலபுரம் கிராமம், திருவம்பலபுரம் அஞ்சல் கணக்கன்குளம் வடக்கு தெரு கதவுஎண் 12-66 என்ற முகவரியில் வசிக்கும் மணி அவர்கள் குமாரர் சுடலைராஜா (ஓட்டுநர் உரிமம் எண்- TN72V20120002287/18-04-2012/ வள்ளியூர்) (அலைபேசி எண் -99766 64132) அவர்களுக்கு எழுதிக் கொடுத்த கிரையப்பத்திரம்.

1 பத்தரம் [illegible] 3054 ம் ஆவணம்
15 தான்கள் கொண்டது
2 வது தாள்
[illegible]

V.S. [illegible]
எழுதிக்கொடுப்பவர்
(ஜெனரல் பவர் ஏஜென்ட்)

M. Sudalairaja
எழுதிவாங்குபவர்

भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

रु. 100

ONE HUNDRED RUPEES

भारत INDIA

INDIA NON JUDICIAL

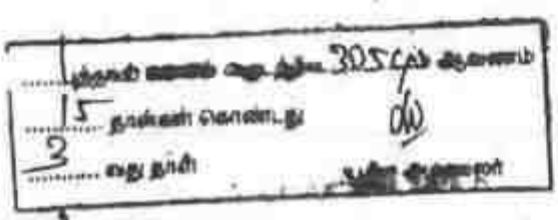
Assistant Director of Geology & Mining

தமிழ்நாடு तमिलनाडु TAMILNADU 9.8.19 BV 565337

சு. இராஜசேகரன்
முத்திரைத்தாள் விற்பனையாளர்
இராதாபுரம்
ஆர்.மக். 19956/71

சுடலைராஜா
கணக்கன்குளம்

இதன் தபசில் கண்ட சொத்து மேற்படி J.சிலுவை அருளப்பன் செபஸ்டின் அவர்களுக்கு ஜோஸ்ராணி (1) ஜான் கென்னடி (2) தமிழ் செல்வி (3) மேரி ஸ்டெல்லாபாய் (4) பேர்களாலும் இராதாபுரம் சார் பதிவாளர் அலுவலக 9536/ 2011 நம்பராகப் பதிவு செய்யப்பட்ட கிரையப் பத்திர மூலமாய் பாத்திப்பட்டும் அவர் பெயரால் 1047 கணிணி பட்டா பெற்றும் மேற்படியாரின் அனுபோகத்திலும் ஆளுகையிலும் இருந்து வருவதை மேற்படியாரிடமிருந்து ஜெனரல் பவர் பெற்ற



[illegible] 305 ரூ ஆவணம்
15 தான்கள் கொண்டது
3 வது தாள்

V.S. [illegible]
எழுதிக்கொடுப்பவர்
(ஜெனரல் பவர் ஏஜென்ட்)

M. Sudalai [illegible]
எழுதிவாங்குபவர்

भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

रु. 100

ONE HUNDRED RUPEES

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU 9.8.19 BV 565338

சு. இராஜசேகரன்
முத்திரைத்தாள் விற்பனையாளர்
இராதாபுரம்
ஆர்.முஸ். 19956/7

சுடலைராஜா
கணக்கன்குளம்

ஏஜென்ட் நிலமையில் இதன் தபசில் கண்ட சொத்தை மட்டும் நான் இதன் மூலமாய் உங்களுக்கு ரூ.90450க்கு கிரையம் செய்து தந்து மேற்படி சொத்தையும் இதுமுதல் உங்களது அனுபோகத்திலும் ஆளுகையிலும் விட்டுத்தந்து பட்டா புள்ளியையும் மாற்றித்தந்து விட்டபடியால் இதுமுதல் இதன் தபசில் கண்ட சொத்தை நீங்களே அடைந்து சர்வ சுதந்தரத்துடன் கிரையப் பாத்திபமாய் அனுபவித்துக் கொள்ள வேண்டியது.

புத்தகம் மலைக் கூடு ஆண்டு 3054 ஆவணம்
15 நான்கள் கொண்டது
4 வது தாள்
பதிர் அலுவலர்

V.C. [illegible]
எழுதிக்கொடுப்பவர்
(ஜெனரல் பவர் ஏஜென்ட்)

M. Sudalaiyaji
எழுதிவாங்குபவர்

भारतीय गैर न्यायिक

एक सौ रुपये Rs. 100

रु. 100 ONE HUNDRED RUPEES

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU 9.8.19 BV 565339

சு. இராஜசேகரன்
முத்திரைத்தாள் விற்பனையாளர்
இராதாபுரம்
ஆர்.மு.எ. 19956/71

சுடலைராஜா
கணக்கன்குளம்

கிரையச் சொத்தைப் பொறுத்து முன் வில்லங்கம் விவகாரம் ஏதுமில்லை என்று உறுதியாகச் சொல்லுகிறேன். அப்படி ஏதேனும் வில்லங்கம் விவகாரம் ஏற்பட்டு உங்களுக்கு நஷ்டம் ஏற்படுமாயின் அந்நஷ்டத்தை மேற்படி J.சிலுவை அருளப்பன் செபஸ்டின் என்பவரும் அவரின் இதர சொத்துக்களும் அவரின் வாரீசுகளும் பொறுப்பாகியும் தீர்த்தும் தந்து கொள்வார்கள் என இதன் மூலமாய் உறுதியாக சொல்லுகிறேன்.

பணப்பற்று விபரம் ரூ.90450/- ரூபாய் தொண்ணூறாயிரத்து நானூற்று ஐம்பதும் மேற்படி J.சிலுவை அருளப்பன் செபஸ்டின் என்பவருடைய அவசிய செலவுக்காக நான் ரொக்கமாக பெற்று செலுத்தியிருக்கிறபடி பற்றுச் சரி.

புத்தகம் வரைக்கு ஆண்டு 3054 ஆணைம்
15 நாள்கள் கொண்டது
5 வது நாள்

V.S. பேரவன்
எழுதிக்கொடுப்பவர்
(ஜெனரல் பவர் ஏஜென்ட்)

Sudalai Raja
எழுதிவாங்குபவர்

भारतीय गैर न्यायिक

भारत

पचास रुपये

रु.50

FIFTY RUPEES

Rs.50

INDIA

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU 9.8.19 AV 424137

SRS

சு. இராஜசேகரன்
பத்திரைத்தாள் விற்பனையாளர்
இராதாபுரம்
ஆர்.டிஸ். 19956/71

சுடலைராஜா
கணக்கன்குளம்.

சொத்து விபரம்

திருநெல்வேலி பதிவு மாவட்டம் இராதாபுரம் சார் பதிவு மாவட்டம் கஸ்தூரிரெங்கபுரம் கிராமம் பகுதி-II அயன் புஞ்சை சர்வே நம்பர் 196(2) நூற்று தொண்ணூற்று ஆறு (உட்பிரிவு இரண்டு) ஹெக்.3.26.5 (ஏக்கர் 8 செண்டு 6)ல் மேற்கடைய ஹெக்.0.33.5 (செண்டு 82) பூராவும். மால் மால் (வ) சர்வே 196(1) நிலம் (மே) எழுதிவாங்குபவர் நிலம் (தெ) எழுதிவாங்குபவர் நிலம் (கி) கண்ணாம்பாள் வகையரா நிலமுமானது.

...புத்தகம் ... 3054 ... ஆவணம்
15 ...
6 ...

V.S. ...
எழுதிக்கொடுப்பவர்
(ஜெனரல் பவர் ஏஜென்ட்)

M. Sudalairaja
எழுதிவாங்குபவர்

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist.

மேற்படி ஜெனரல் பவர் அமுலில் இருந்து வருகின்றது. அது இத்துடன் தரப்பட்டுள்ளது. மேற்படி ஜெனரல் பவர் எழுதிக் கொடுத்தவர் உயிரோடு இருந்து வருகிறார் என இதன் மூலம் உறுதியாக சொல்லுகிறேன்.

மார்க்கட் விலைப்படி மதிப்பு ரூ.90450 பெறும்.

V.C. [illegible]
எழுதிக்கொடுப்பவர்
(ஜெனரல் பவர் ஏஜெண்ட்)
சாட்சிகள்

M. Sudalaiyandi
எழுதிவாங்குபவர்

1) S. [illegible]

(வேலு S/o.சுடலையாண்டி, கதவு எண் 5/36, பார்க்கனேரி கீழவூர், திருவம்பலபுரம்)
(ஓட்டுநர் உரிமம் எண்-TN72V20100002710/10-06-2010/வள்ளியூர்)

2) [illegible]

(முகம்மது அலி S/o.ஜெகனாத் அலி, கதவு எண் 10/116, தெற்கு தெரு, தோட்டாவிளை, திருவம்பலபுரம்) (ஓட்டுநர் உரிமம் எண்-TN72V20120001206/24-02-2012/ வள்ளியூர்)

இந்த ஆவணம் தயாரித்தவர்

V. Kallakannu

V. KALLAKANNU, B.Com., B.L.,
Advocate
M.S.No. 2045 (2009)
Vallioor - 627 117

[illegible] 3054 ஆவணம்
15 [illegible]
7 [illegible]
[illegible] எழுத்தர்

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tuticorin Dist.

R/ராதாபுரம்/புத்தகம்-1/3054/2019

2019 ஆம் ஆண்டு ஆகஸ்ட் மாதம் 09ம் தேதி பி.ப 05:44 மணியளவில் ராதாபுரம் சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 3,855/- செலுத்தியவர்

இடது பெருவிரல்	— M. Sudakirraj கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி
எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்	— V.S. [illegible] கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி
எழுதி வாங்கியதாக ஒப்புக் கொண்டவர் இடது பெருவிரல்	— M. Sudakirraj கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி

இன்னாரென்று நிரூபித்தவர்கள்

1. [signature] திரு முகம்மது அலி த/பெ ஜெகனாத் அலி 10/116 தெற்கு தெரு, தோட்டாவிளை, திருவம்பலபுரம், இராதாபுரம், திருநெல்வேலி, தமிழ்நாடு, இந்தியா, 627130

2. [signature] திரு வேலு த/பெ சுடலையாண்டி தேவர் 5/36 பார்க்கனேரி கீழவூர், திருவம்பலபுரம், இராதாபுரம், திருநெல்வேலி, தமிழ்நாடு, இந்தியா, 627130

2019 ஆம் ஆண்டு ஆகஸ்ட் மாதம் 9ம் நாள்

[signature]
லதா பொ
சார்பதிவாளர்
ராதாபுரம்

1 புத்தகம் [illegible] 3054 ம் ஆவணம்
15 தாள்கள் கொண்டது
8 வது தாள்
[signature]
பதிவு அலுவலர்

134 A

R/ராதாபுரம்/புத்தகம்-1/3054/2019

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist.

R/ராதாபுரம்/புத்தகம்-1/3054/2019 எண்ணாகப் பதிவு செய்யப்பட்டது

நாள். 09/08/2019
ராதாபுரம்

லதா பொ
சார்பதிவாளர்

1 புத்தகம் [illegible] 2054 ம் இடவகையா
15 தாள்கள் கொண்டது
9 வது தாள்
2/2
[illegible]

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tiruvallur Dist

தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருநெல்வேலி வட்டம் :
திசையன்விளை
வருவாய் கிராமம் : கஸ்தூரிரெங்கபுரம் பகுதி-2 பட்டா
எண் : 1047

உரிமையாளர்கள் பெயர்

1. சேகஅருதோணி அருளப்பன மகன சிலுவை அருளப்பன் செபஸ்டின -

		நன்செய		புன்செய		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
புல எண்	உட்பிரிவு	ஹெக - ஏர்	ரூ - பை	ஹெக - ஏர்	ரூ - பை	ஹெக - ஏர்	ரூ - பை
196	2	--	--	3 - 26.50	2.02	--	--
				3 - 26.50	2.02		

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் **29/16/312/01047/140232** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 08-08-2019 அன்று 07:22:23 PM நேரத்தில் அச்சடிக்கப்பட்டது
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

V.S. [illegible]

M. Sudakairaja

...பற்றாகள் [illegible] 205 [illegible] ஆணைம்
...15 தான்கள் கொண்டது
...10 வது தாள் [illegible]

08.08.19 7:22 PM

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

LIFE CERTIFICATE FOR THE PURPOSE OF REGISTRATION OF DOCUMENTS BASED ON POWER OF ATTORNEY

Doc. No: 9536/2015.

Registered at Melaypalam Sub Registrar Office,

9/8/15

MEDICAL OFFICER,
GOVT. PRIMARY HEALTH CENTRE
VADAKKANKULAM-627 116.

J. Silvai

J. Silvai Signature of the individual Silvai Arulappan Debasticon

Certified that the individual named Shri/Smt.Ms. S/o address

Sh. Anthony Arulappan, 4/46A, Thrivangalapuram

Koothankuli.

Who has signed in my presence and whose photo has been attested by me, is alive, as on this date. (9/8/15)

Name:	9/8/15.
Designation of Registered Medical Practitioner with Registered no./ 'A' group officer	Reg no: 72790. MEDICAL OFFICER, GOVT. PRIMARY HEALTH CENTRE VADAKKANKULAM-627 116

Seal/No. of Regd.

Practitioner /'A' Group officer

Place:	Vadakkankulam
Date: (in words)	Nine / August / 2015.

V. S. [illegible]

M. Sudalairaja

[illegible] 2054 [illegible]
15 [illegible]
11 [illegible]

ELECTION COMMISSION OF INDIA
IDENTITY CARD
இந்தியத் தேர்தல் ஆணையம்
வாக்காளர் அடையாள அட்டை
CDR1141670

Elector's Name : Yovan
வாக்காளர் பெயர் : யோவான்
Father's Name : Santhakurus
தந்தை பெயர் : சந்தகுருஸ்
Sex / பாலினம் : Male / ஆண்
Age as on 1.1.1999
1.1.1999 அன்று வயது : 31

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

Address : 32
Block 3 Kootthankuzhi nadu street
Kootthangkuzhi(P)
Koothangkuzhi
TIRUNELVELI - 627104

முகவரி 32
பிளாக்-3 கூத்தங்குழி நடுத்தெரு
கூத்தங்குழி (ஊ)
கூத்தங்குழி
திருநெல்வேலி 627104

Facsimile Signature of Electoral Registration Officer
வாக்காளர் பதிவு அதிகாரியின் கையொப்ப முத்திரை
For 223 - Radhapuram
Assembly Constituency
223 - இராதாபுரம்
சட்டமன்ற தொகுதி

Place : TIRUNELVELI
இடம் : திருநெல்வேலி
Date / நாள் : 14/12/2000

This card may be used as an Identity Card
under different Government Schemes

CHERANMAHADEV

இந்த அட்டையை அரசின் பல்வேறு திட்டங்களின்
[illegible] 147/ 1342

1 புத்தகம் [illegible] 3054 ம் ஆவணம்
15 தான்கள் கொண்டது
[illegible] வது தாள்
[illegible]

V.S. யோவான் 12/

M. Sudalairaja

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

India Driving Licence(Tamilnadu)
Form 7
DOI 18/04/2012

D.L.No : TN72V20120002287
Name : SUDALAI RAJA M
S.D.W of MANI THEVAR
Address
12/66, KANNANKULAM
THIRUVAMBALAPURAM
RADHAPURAM TK 627111
Temp Addr
RASI MOTOR DRIVING SCHOOL
D.O.B 01/04/1990 B.G

Punishments

End.No. :TN72V//0000812/2015 22/12/2015 2:43:50 PM

Licensed to drive throughout India, vehicles of the following descriptions
M/CYCL. WG 18/04/2012 TN72V LMV-TRANS. 18/04/2012 TN72V

Non-Transport Veh.Valid upto **17/04/2032**
Transport Veh. Valid Upto **21/12/2018**

Authorised to Drive Transport Vehicle vide Badge No.
00812/2015 Dt.22/12/2015 TN72V

M. S. Raja
Signature/L.T.I
of the Holder

22/12/15
Asst.Licensing Authority
UNIT OFFICE VALLIOOR

V.S. [illegible]

M. Sudalairaja

3054
15
13

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist.

India Driving Licence(Tamil Nadu)

TN NT

TN72V 2010 0002710

Date of Issue
10-06-2010

Validity
08-09-2022

Nationality
INDIA

Date of Birth
15-08-1961

Blood Group
A+

Name
VELU THEVAR S

Father's Name
SUDALAIYANDI THEVAR

TN72V 2010 0002710

MCWOG
10-06-2010
TN72V

Mobile No ******4132

Badge No NIL

Badge Dt.

Endorsement Date
09-09-2017

Endorsement No
TN72V/DLR/0005600/2017

OD TN

Form 7 Rule 16(2)

Present Address
5/36,
PARKKANERI KEELUR,
TIRUVAMBALAPURAM
(PART),TIRUNELVELI,627130

Permanent Address
5/36,
PARKKANERI KEELUR,
TIRUVAMBALAPURAM
(PART),TIRUNELVELI,627130

Holder's Signature

Assistant Licensing Authority
UNIT OFFICE VALLIYUR

V.S. [illegible]

M. Sudalaiyandi

1 [illegible] 3054 [illegible]
15 [illegible]
14 [illegible]

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

India Driving Licence(Tamilnadu)

Form 5 DOI 24/02/2012

DL No. TN72V20120001206
Name MOHAMED ALI J
S/D/W/O JEGANATHALI
Address
10-116,SOUTH STREET
THOTTAVILAI
THIRUVAMBALAPURAM,RADHAPURAM TK 627
Temp Addr
VIJAY DRIVING SCHOOL
DOB 25/05/1976 B.G.

Endorsement

Licensed to drive throughout India vehicles of the following descriptions
M/CYCL WG-24/02/2012 TN72V LMV-NT 24/02/2012 TN72V

Non-Transport Veh Valid upto **24/05/2026**

V.S. மோகன்

M. Sudalairaja

1 ... 305/- ...
15 ... 15 ...

ANNEXURE IX

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

VELU S

SUDALAIYANDI THEVAR

15/08/1961

Permanent Account Number
AZMPV2566P

Signature

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

भारत सरकार
GOVERNMENT OF INDIA

வேலு
VELU

பிறந்த நாள்/DOB :
01-01-1958
ஆண் / Male

9981 6453 6758

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

आधार

भारतीय विशिष्ट पहचान प्राधिकरण
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

முகவரி: தந்தை / தாய் பெயர்:
சுடலையாண்டி, 5/36,
பார்க்கனேரிகீழூர்,
திருவம்பலாபுரம், இராதாபுரம்,
திருநெல்வேலி, தமிழ் நாடு,
627130

Address: S/O: Sudalaiyandi,
5/36, PARKKANERIKEELUR,
Tiruvambalapuram,
Radhapuram, Tirunelveli,
Tamil Nadu, 627130

1947
1800 300 1947

help@uidai.gov.in

www.uidai.gov.in

P.O. Box No. 1947,
Bengaluru-560 001

ANNEXURE X

அண்ணாமலைப் பல்கலைக்கழகம்

ANNAMALAI UNIVERSITY

அறிவியற்புலம்
FACULTY OF SCIENCE

Reg. No. 080752

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

மே, 2010 இல் நடத்திய தேர்வுகளில் **பயன்பாட்டு நிலத்தியல்** பிரிவில் **சந்தோஷ்குமார் ம** கூடுதல் மதிப்புப்புள்ளிகள் 10.00 க்கு சராசரியாக 7.04 பெற்று **முதல் வகுப்பில்** தேர்ச்சியடைந்து முறையாக அமைக்கப்பெற்ற தேர்வுக்குழுவினர் சான்றளித்தபடி, **அறிவியல் நிறைஞர்** பட்டம் பெறுவதற்கு உரியவர் ஆகின்றார் என **அண்ணாமலைப் பல்கலைக்கழக ஆளவை** இதன்வழி அறிவிக்கின்றது.

The Senate of the **ANNAMALAI UNIVERSITY** hereby makes known that **SANTHOSHKUMAR M** has been admitted to the Degree of **MASTER OF SCIENCE in APPLIED GEOLOGY,** he/she having secured **OGPA** of **7.04** out of **10.00** been certified by duly appointed Examiners at the Examination held in **MAY,2010** to be qualified to receive the same and that he/she was placed in **FIRST CLASS.**

பல்கலைக்கழக முத்திரை பெறுகின்றது
Given under the seal of the University

அண்ணாமலைநகர்
Annamalainagar

நாள்:
Dated: 06/10/2010

துணை தேர்வாணையர் (கல்விசார்ந்த)
Dy. Controller of Examinations (Academic)

Dr.M.Rathinasabapathi
பதிவாளர்
Registrar

Dr.M.Ramanathan
துணை வேந்தர்
Vice-Chancellor

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

GOVERNMENT OF INDIA
MINISTRY OF LABOUR AND EMPLOYMENT DIRECTORATE GENERAL OF MINES SAFETY

Certificate of Practical Experience granted by the Manager to a Candidate for a Manager's/ Surveyor's/ Mining foreman/ Mining Mate/ Blasters certificate of competency examination under Metalliferous Mines Regulation, 1961.

I, M.S.Pavel being the Manager of K.Pitchampatti Multicolor Granite Mine belong to M/s. Anupkumar Lohia do hereby certify that **Thiru. M.santhoshkumar** son of **Thiu. R.Mathiyazhagan** (whose signature is appended) worked in the above mine from 10.07.2012 to 31.07.2018. 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.

M.S. Pavel

(Signature with date and official seal)

(Mines Manager 1st class)

MANAGER (MINES)
MULTICOLOUR GRANITE MINE
K. PITCHAMPATTI,
KARUR - TALUK & DIST.

M. Santhoshkumar

(Signature of Candidate)

State the name of the mineral works: Multi Colour Granite

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tiruchirappalli Dist.

S. No.	Particulars of Practical experience (a)	Place of Experience (b) Opencast	Period of Practical experience (c)		Total Experience (e)		
			From	To	Yrs.	Months	Days
1.	As a trainee in drilling operation	Open cast	10.07.2012	24.10.2013	01	03	16
2.	As a trainee in deep hole blasting operation	Open cast	25.10.2013	31.12.2014	01	02	07
3	Production incharge quality control and Supervisor of Earth moving Mining Machinery	Open cast	01.01.2015	31.07.2018	03	07	00
GRAND TOTAL					**06**	**00**	**23**
In words : Six years twenty three days							

In below ground working	In open cast working	In all
Nil	Average monthly output 250m^3	250m^3
Nil	Average daily employment 25Nos	25Nos

Note: The average employment is less because this is mechanized mines having deep hole drilling, blasting and Heavy Earth Moving Machineries operation.

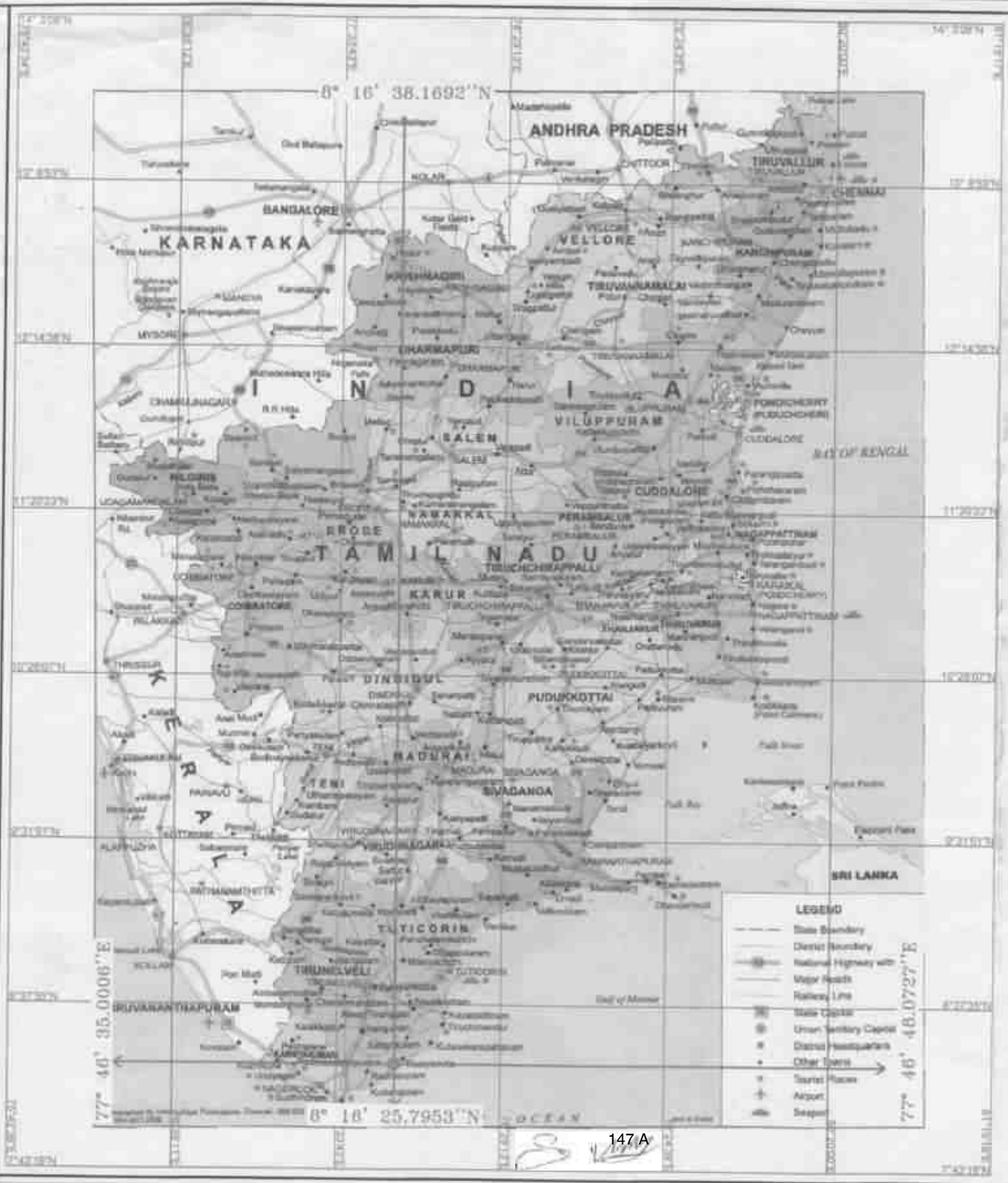
M. Santhosh

(Signature of Candidate)

M.S.

(Signature with date and official seal)

(Mines Manager 1st class)
MANAGER (MINES)
MULTICOLOUR GRANITE MINE
K. PITCHAMPATTI,
KARUR - TALUK & DIST.



N

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

PLATE NO:1

DATE OF SURVEY : 25.08.2023

APPLICANT:

THIRU.S.VELU,
S/O.SUDALAIYANDI,
5-36,PARKKANERI KEELUR,
TIRUVAMBALAPURAM,
RADHAPURAM TALUK,
TIRUNELVELI-627 130.

LOCATION OF QUARRY

LEASE APPLIED AREA:

S.F.NO	: 196/2B(P),197/2B(P), 195/2A(P),195/2B(P) & 195/3(P).
EXTENT	: 8.34.40 HA.
VILLAGE	: KASTHURIRENGAPURAM PART-II.
TALUK	: TISAIYANVILAI.
DISTRICT	: TIRUNELVELI.
STATE	: TAMIL NADU.

INDEX

Q. L.A. AREA : ●

TOPO SHEET NO. : 58 H/15

LATITUDE :8° 16' 25.7953''N to 8° 16' 38.1692''N

LONGITUDE :77° 46' 35.0006''E to 77° 46' 48.0727''E

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 LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

M.SANTHOSHKUMAR,M.Sc.
QUALIFIED PERSON
Under Rule 15(1)(a)and(b)of MCR,2016

PLATE NO:I-A

DATE OF SURVEY : 25.08.2023

APPLICANT:

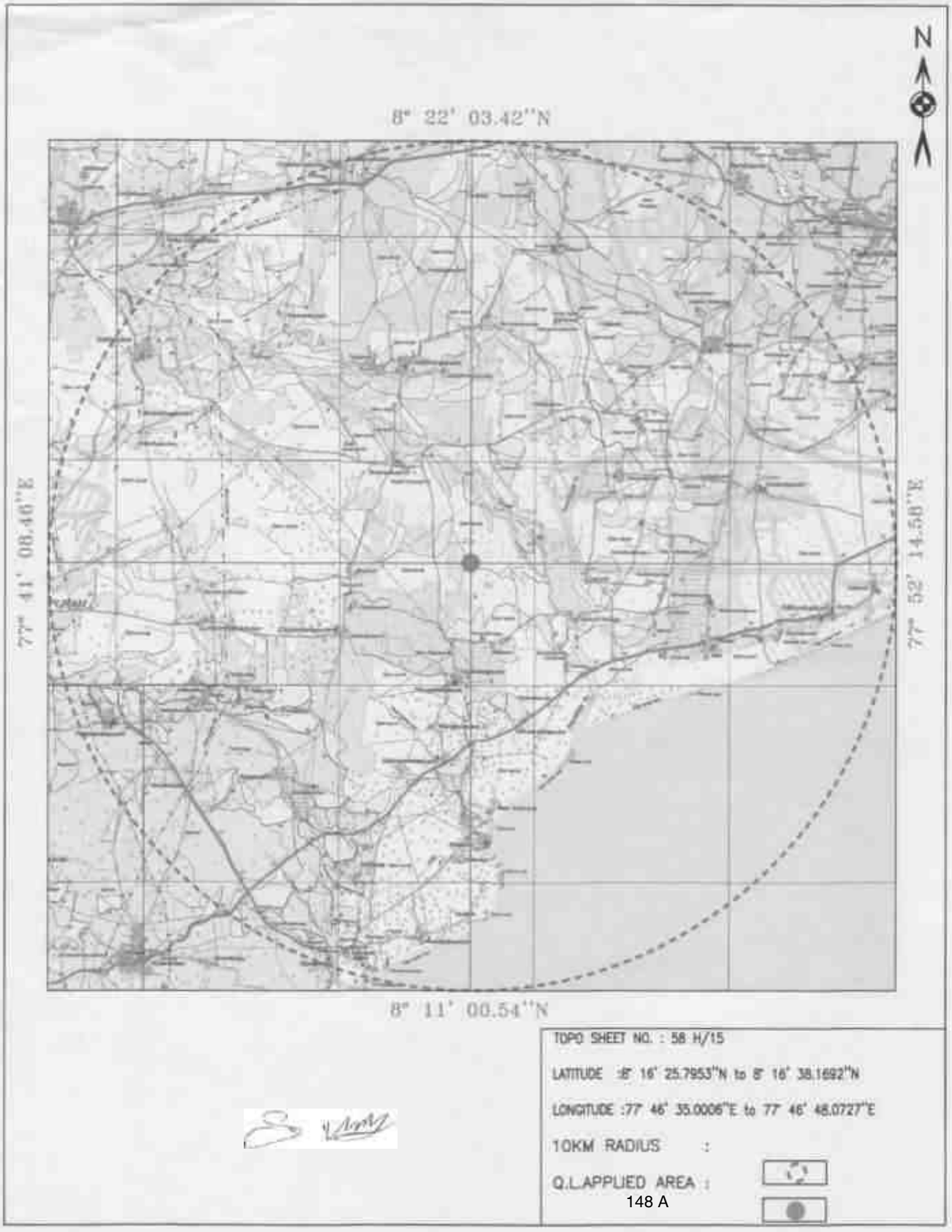
THIRU.S.VELU,
S/O.SUDALAIYANDI,
5-36,PARKKANERI KEELUR,
TIRUVAMBALAPURAM,
RADHAPURAM TALUK,
TIRUNELVELI-627 130.

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NO	: 196/2B(P),197/2B(P), 195/2A(P),195/2B(P) & 195/3(P).
EXTENT	: 8.34.40 HA.
VILLAGE	: KASTHURIRENGAPURAM PART-II,
TALUK	: TISAIYANVILAI,
DISTRICT	: TIRUNELVELI,
STATE	: TAMIL NADU.

INDEX



TOPO SHEET NO. : 58 H/15

LATITUDE :8° 16' 25.7953"N to 8° 16' 38.1692"N

LONGITUDE :77° 46' 35.0006"E to 77° 46' 48.0727"E

10KM RADIUS :

Q.L.APPLIED AREA :

148 A

TOPO SKETCH OF QUARRY LEASE APPLIED AREA FOR 10Km RADIUS

SCALE– 1:100000

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 LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

M. SANTHOSHKUMAR,M.Sc.,
QUALIFIED PERSON
Under Rule 13(1)(a)and(b)of MCR,2015

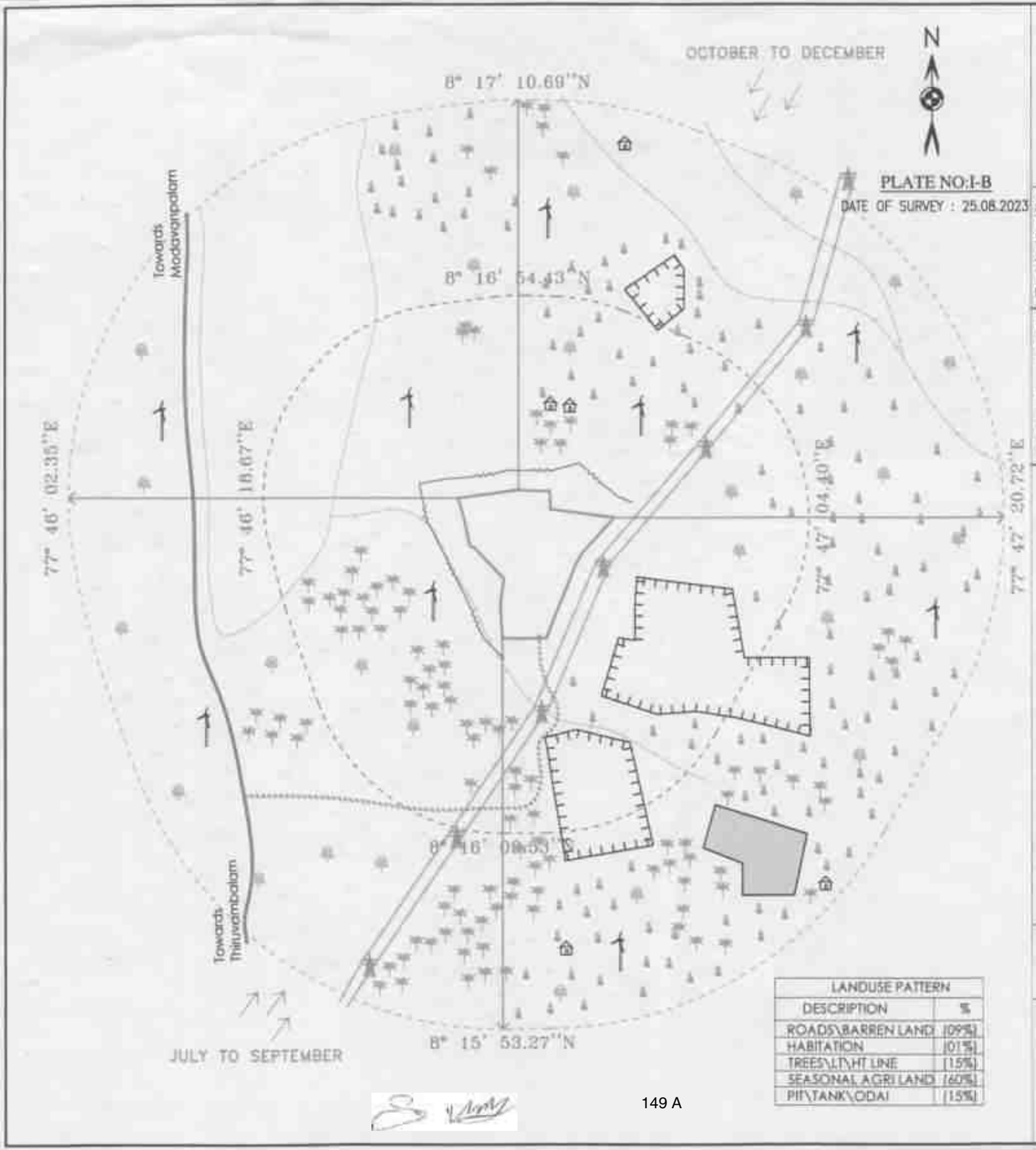


PLATE NO:I-B

DATE OF SURVEY : 25.08.2023

LANDUSE PATTERN	
DESCRIPTION	%
ROADS\BARREN LAND	(09%)
HABITATION	(01%)
TREES\LT\HT LINE	(15%)
SEASONAL AGRI LAND	(60%)
PIT\TANK\ODAI	(15%)

1Km Radius :

500m Radius :

Q.L.Applied Area :

TOPO SHEET NO. : 58 H/15

LATITUDE :8° 16' 25.79[illegible]

LONGITUDE :77° 46' [illegible] to 77° 46' 48.0727"E

MINING PLAN APPROVED
Assistant Director of Geology & Mining
Tirunelveli Dist

APPLICANT:
THIRU.S.VELU,
S/O.SUDALAIYANDI,
5-36,PARKKANERI KEELUR,
TIRUVAMBALAPURAM,
RADHAPURAM TALUK,TIRUNELVELI-627 130.

LOCATION OF QUARRY
LEASE APPLIED AREA:

S.F.NO	: 196/2B(P),197/2B(P), 195/2A(P),195/2B(P)& 195/3(P).
EXTENT	: 8.34.40 HA.
VILLAGE	: KASTHURIRENGAPURAM PART-II.
TALUK	: TISAIYANVILAI.
DISTRICT	: TIRUNELVELI.

INDEX

- APPROACH ROAD
- VILLAGE ROAD
- HABITATION
- TREES
- SEASONAL AGRICULTURAL LAND
- PIT
- WIND DIRECTION
- ODAI
- TANK
- LOW TENSION LINE
- HT LINE
- CRISHER PLANT
- BARREN LAND

ENVIRONMENTAL AND LANDUSE PLAN (FOR 1Km RADIUS)

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 LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

M. SANTHOSHKUMAR,M.Sc.,
QUALIFIED PERSON
Under Rule 15(1)(a)and(b)of MCR,2016

PLATE NO:I-C

DATE OF SURVEY: 15.06.2023

APPLICANT:

THIRU.S.VELU,
S/O.SUDALAIYANDI,
5-36,PARKKANERIKEELUR,
TIRUVAMBALAPURAM,
RADHAPURAM TALUK,TIRUNELVELI-627 130.

By
Assistant Director
Geology & Mining
Tirunelveli Dist.

LOCATION OF QUARRY

LEASE APPLIED AREA:

S.F.NO	: 196/2B(P),197/2B(P), 195/2A(P),195/2B(P) & 195/3(P),
EXTENT	: 8.34.40 HA.
VILLAGE	: KASTHURIRENGAPURAM PART-II,
TALUK	: TISAIYANVILAI,
DISTRICT	: TIRUNELVELI.

INDEX

Q.L.APPLIED AREA

VILLAGE ROAD

TANK

APPROACH ROAD

ROUTE MAP

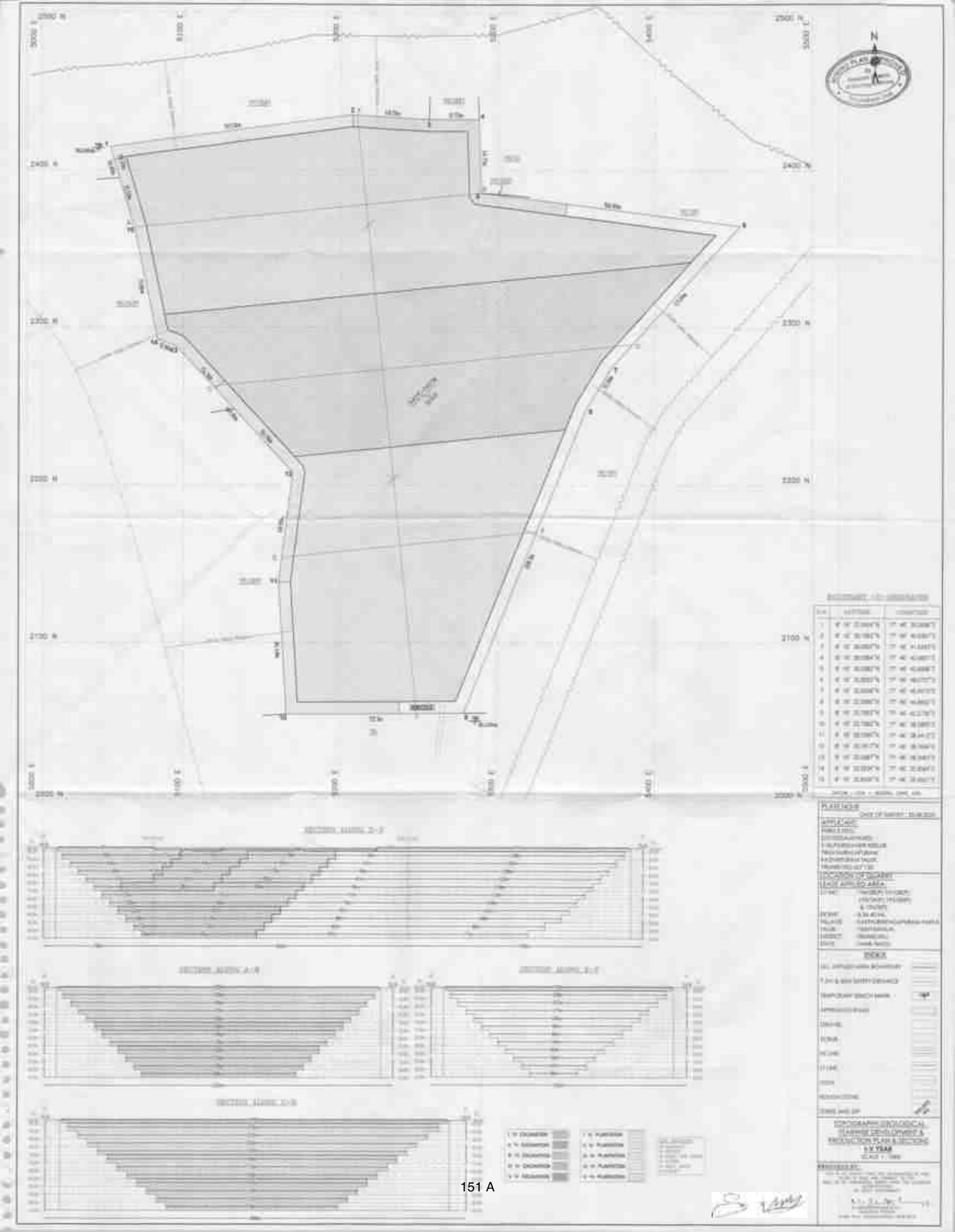
Not To Scale

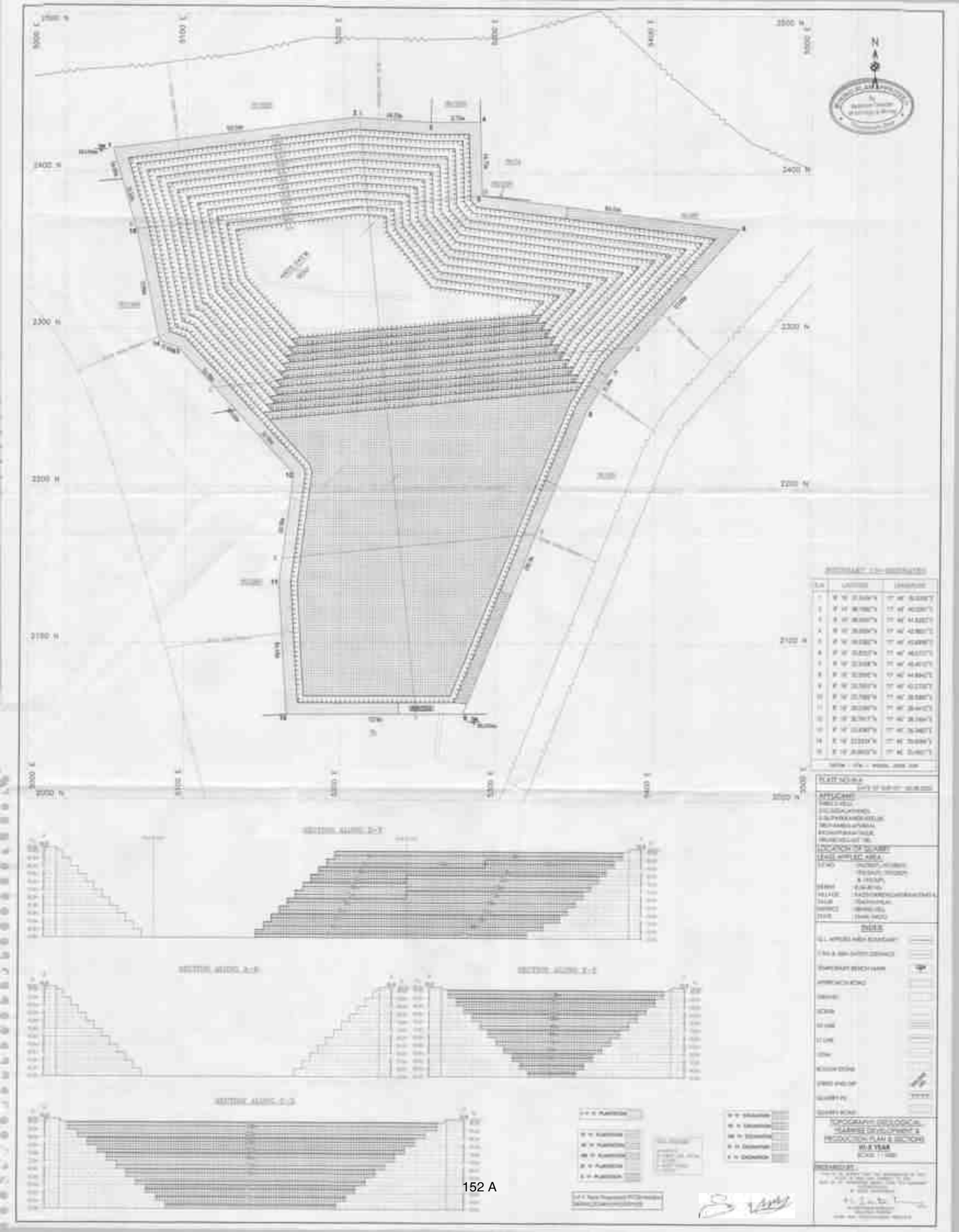
PREPARED BY :

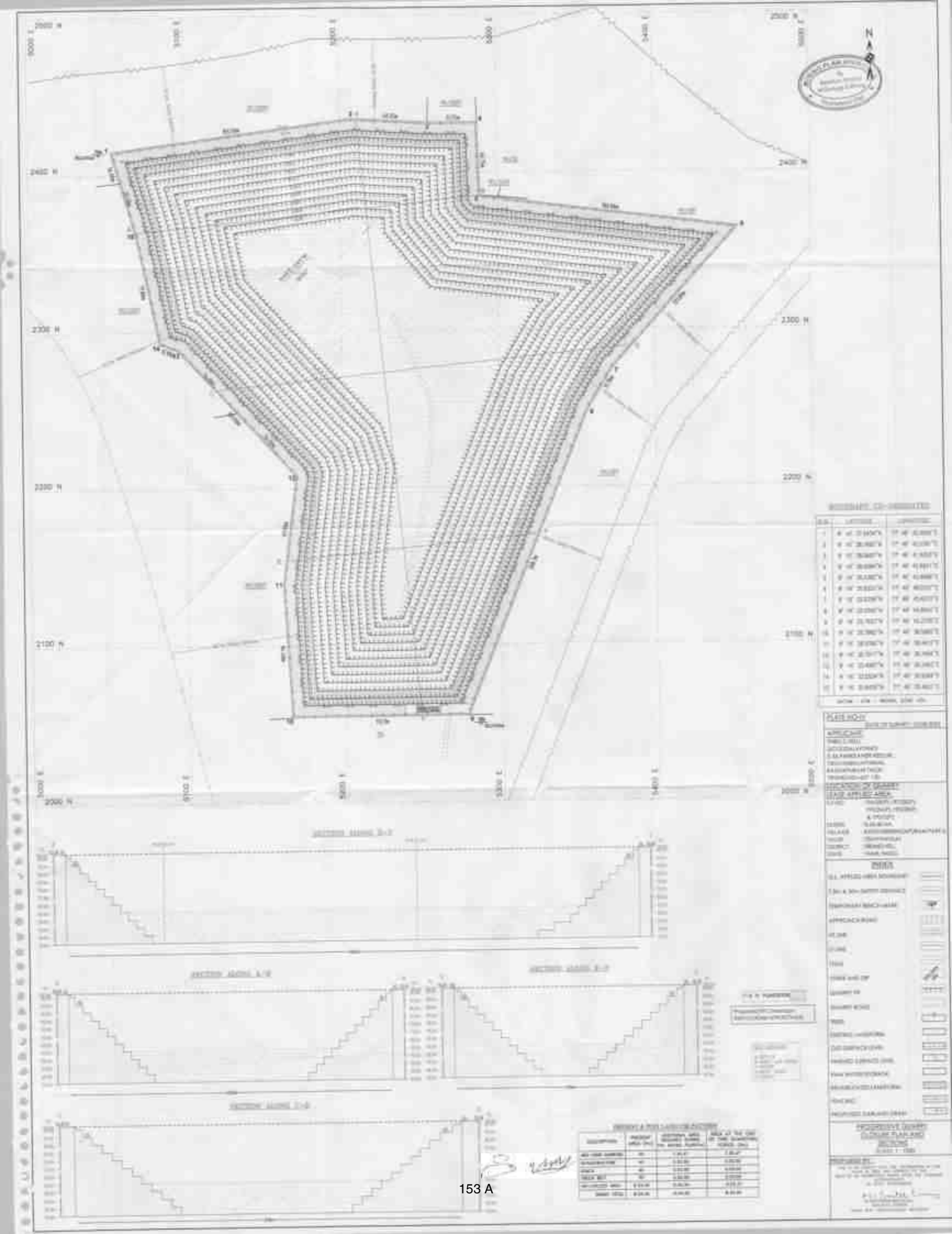
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

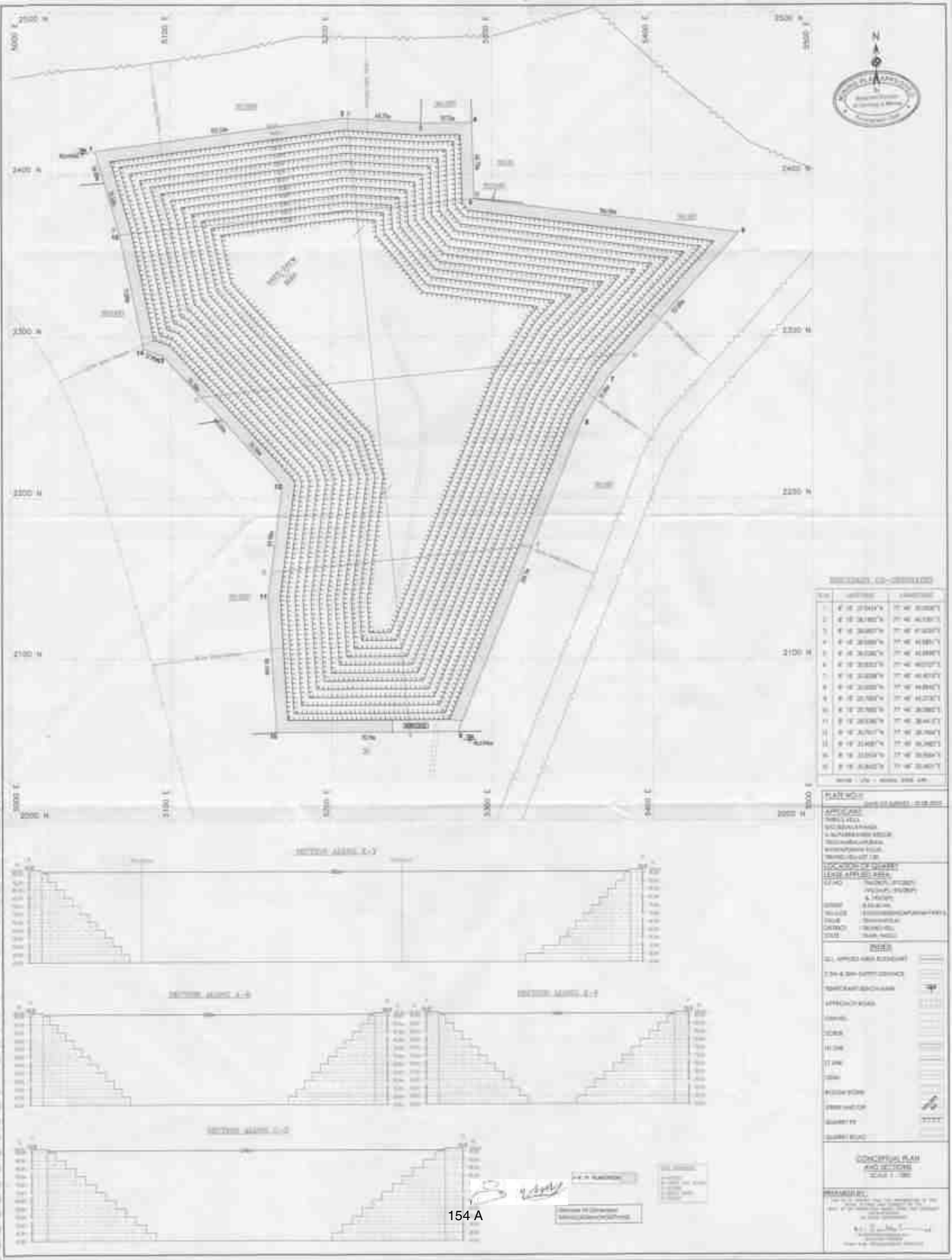
M.SANTHOSHKUMAR,M.Sc.,
QUALIFIED PERSON
Under Rule 15(1)(a)and(k)of MCR,2016

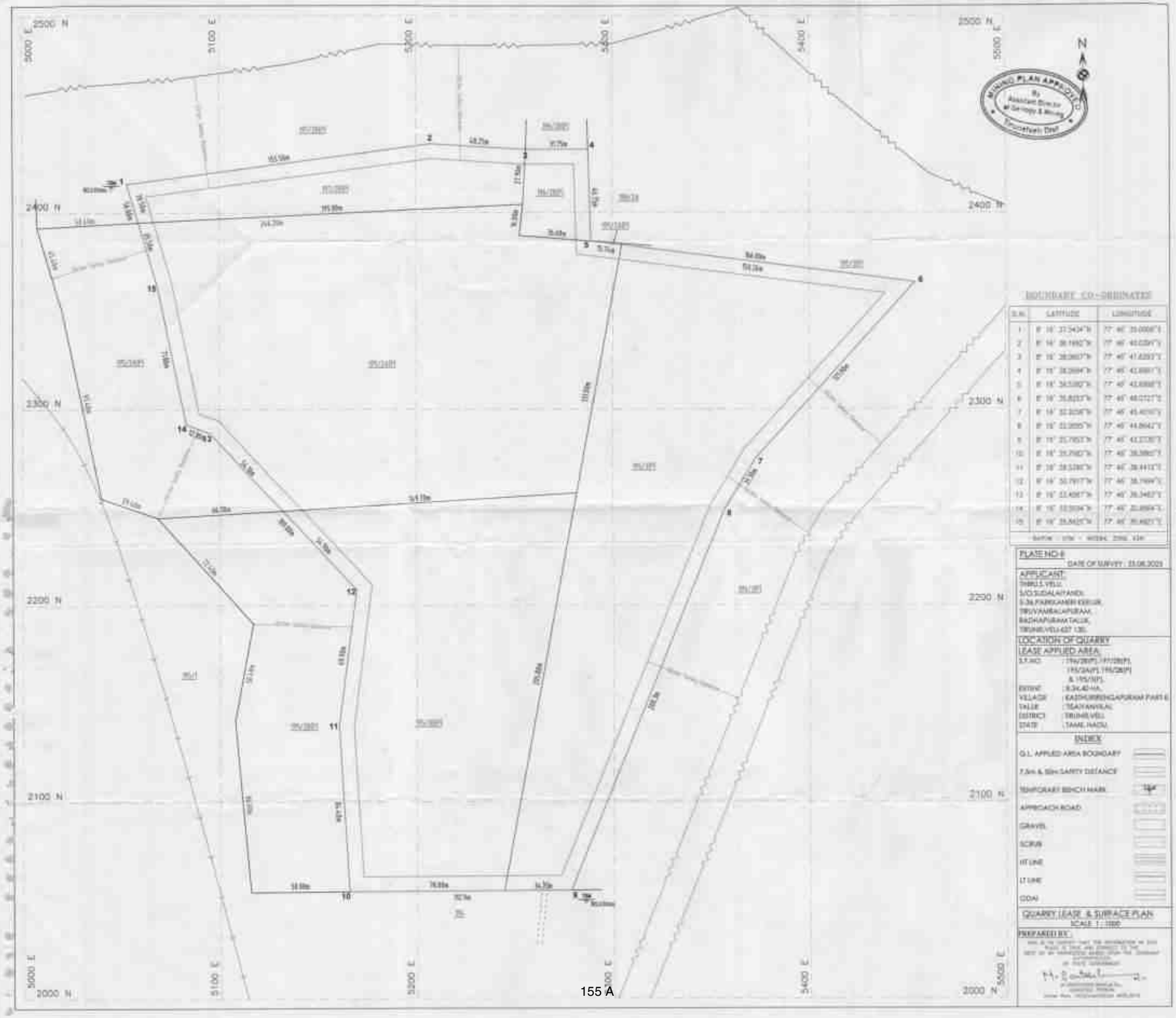
150 A



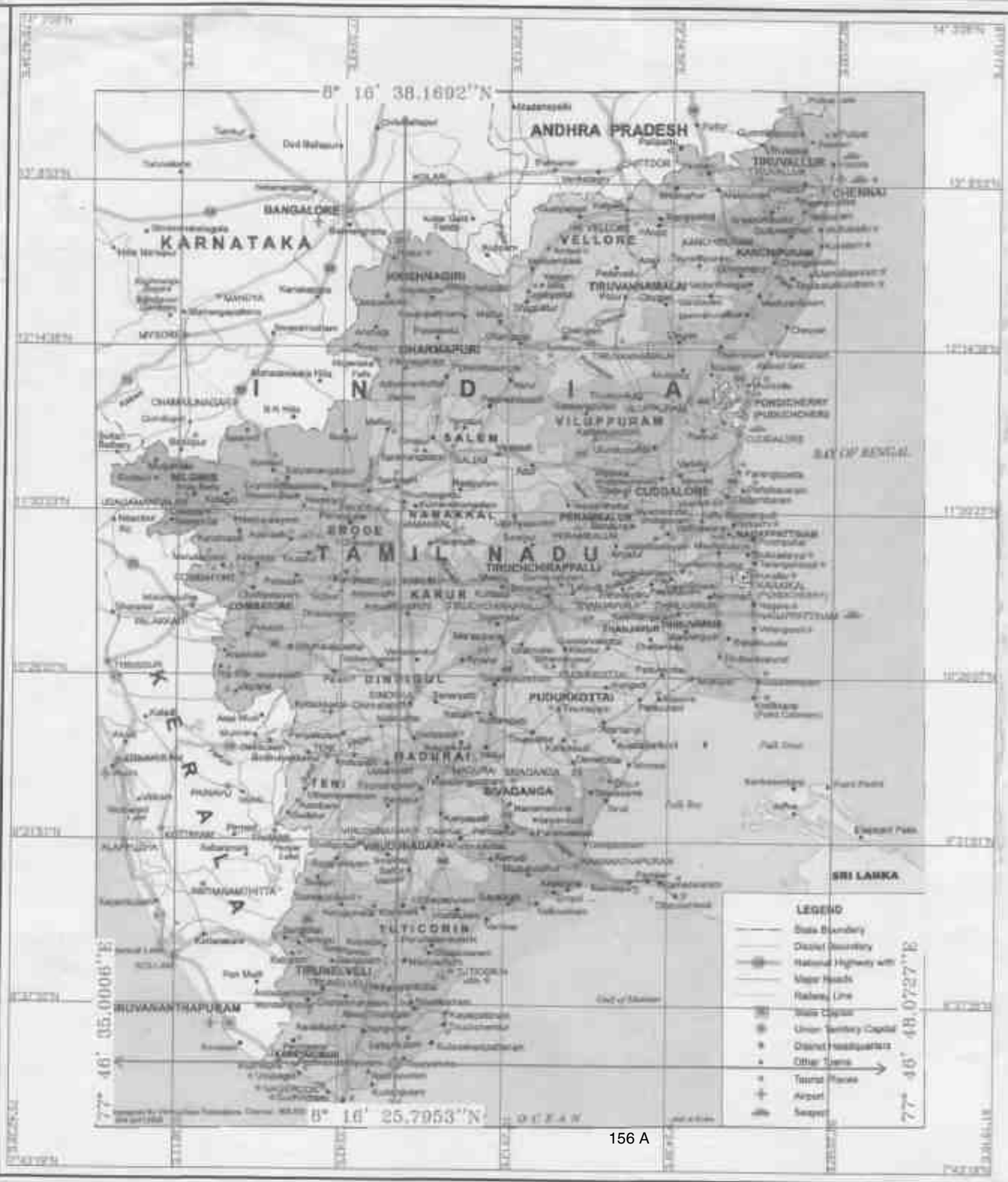








2500 N
2400 N
2300 N
2200 N
2100 N
2000 N
5000 E
5100 E
5200 E
5300 E
5400 E
5500 E
N
MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist
BOUNDARY CO-ORDINATES
S.N.
LATITUDE
LONGITUDE
PLATE NO-II
DATE OF SURVEY : 23.08.2023
APPLICANT:
THIRU.S.VELU,
S/O.SUDALAIYANDI,
S.36,PARIKANER KEELUR,
TIRUVAMBALAPURAM,
RADHAPURAM TALUK,
TIRUNELVELI-627 130.
LOCATION OF QUARRY
LEASE APPLIED AREA
S.F.NO. : 196/2B(P),197/2B(P),
195/2A(P),195/2B(P)
& 195/5(P).
EXTENT : 8.34.40 HA.
VILLAGE : KASTHURIRENGAPURAM PART-II
TALUK : TEAIYANVILAI
DISTRICT : TIRUNELVELI
STATE : TAMIL NADU
INDEX
G.L. APPLIED AREA BOUNDARY
7.5m & 50m SAFETY DISTANCE
TEMPORARY BENCH MARK
APPROACH ROAD
GRAVEL
SCRUB
HT LINE
LT LINE
COAL
QUARRY LEASE & SURFACE PLAN
SCALE 1 : 1000
PREPARED BY:



N

MINING PLAN APPROVED
By
Assistant Director
of Geology & Mining
Tirunelveli Dist

PLATE NO:I

DATE OF SURVEY : 25.08.2023

APPLICANT:

THIRU.S.VELU.
S/O.SUDALAIYANDI.
S-36,PARKKANERI KEELUR.
TIRUVAMBALAPURAM.
RADHAPURAM TALUK.
TIRUNELVELI-627 130.

LOCATION OF QUARRY

LEASE APPLIED AREA:

S.F.NO	: 196/2B(P),197/2B(P), 195/2A(P),195/2B(P) & 195/3(P).
EXTENT	: 8.34.40 HA.
VILLAGE	: KASTHURIRENGAPURAM PART-II.
TALUK	: TISAIYANVILAI.
DISTRICT	: TIRUNELVELI.
STATE	: TAMIL NADU.

INDEX

Q. L.A. AREA : ●

TOPO SHEET NO. : 58 H/15

LATITUDE :8° 16' 25.7953"N to 8° 16' 38.1692"N

LONGITUDE :77° 46' 35.0006"E to 77° 46' 48.0727"E

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 LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

M. SANTHI CHIRUMAR,M.Sc.,
QUALIFIED PERSON
Under Rule 10(2)(c)(iii)(b)(iv) MCR,2018

TOPO SHEET NO. : 58 K/15

LATITUDE :8° 16' 25.7953"N to 8° 16' 38.1692"N

LONGITUDE :77° 46' 35.0006"E to 77° 46' 48.0727"E

10KM RADIUS :

Q.L.APPLIED AREA :

PLATE NO:I-A

DATE OF SURVEY : 25.08.2023

APPLICANT:
THIRU.S.VELU,
S/O.SUDALAIYANDI,
5-36,PARKKANERI KEELUR,
TIRUVAMBALAPURAM,
RADHAPURAM TALUK,
TIRUNELVELI-627 130.

MINING PLAN APPROVED By Assistant Director of Geology & Mining Tirunelveli Dist

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NO	: 196/2B(P),197/2B(P), 195/2A(P),195/2B(P) & 195/3(P).
EXTENT	: 8.34.40 HA.
VILLAGE	: KASTHURIRENGAPURAM PART-II.
TALUK	: TISAIYANVILAI.
DISTRICT	: TIRUNELVELI.
STATE	: TAMIL NADU.

INDEX

CONVENTIONAL SYMBOLS

TOPO SKETCH OF QUARRY LEASE APPLIED AREA FOR 10Km RADIUS

SCALE - 1:100000

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 LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

M. SANTHESHKUMAR,M.Sc.,
QUALIFIED PERSON
Under Rule 13(1)(c)and(k)of MCR,2016

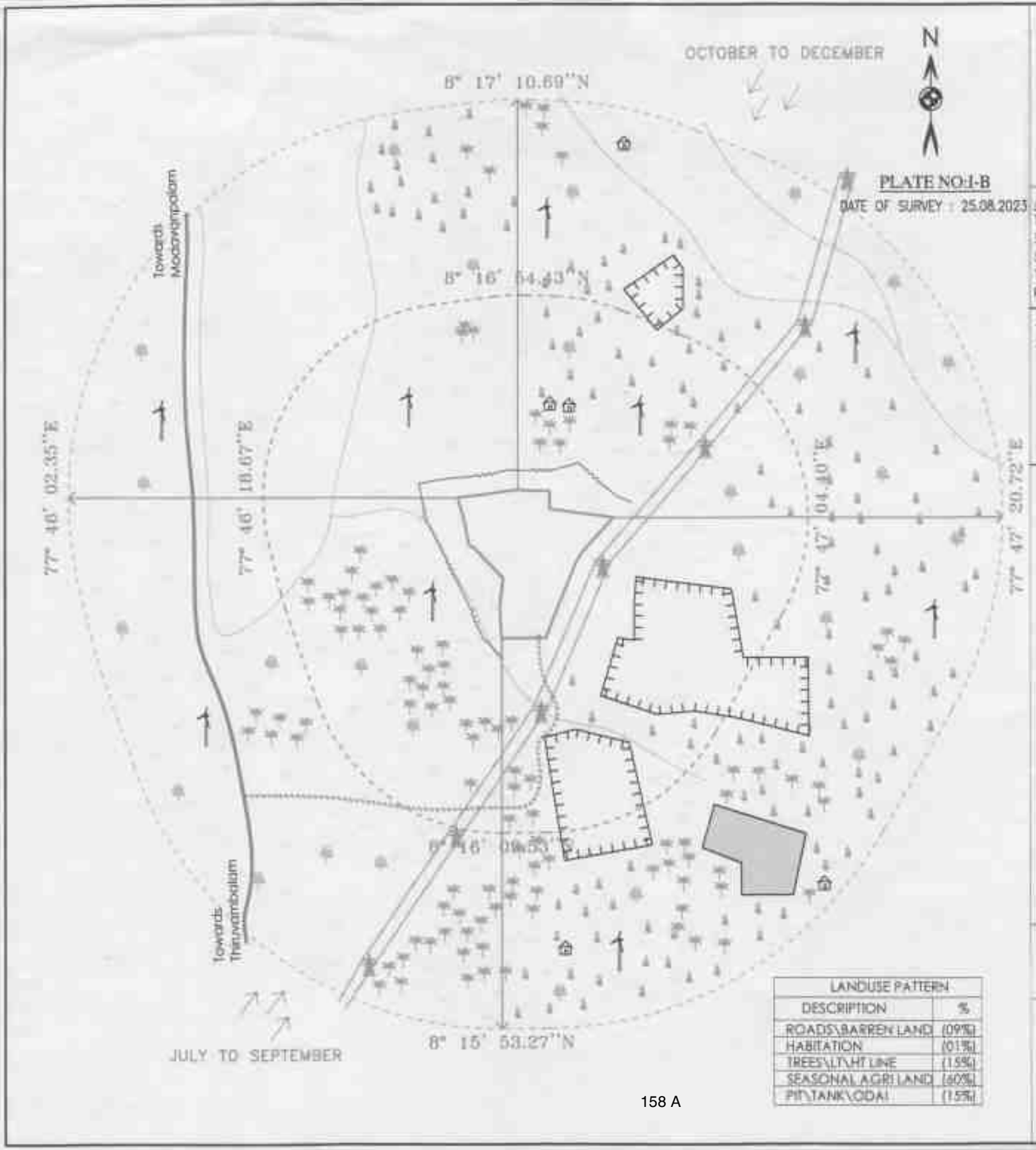


PLATE NO:I-B

DATE OF SURVEY : 25.08.2023

LANDUSE PATTERN	
DESCRIPTION	%
ROADS\BARREN LAND	(09%)
HABITATION	(01%)
TREES\LT\HT LINE	(15%)
SEASONAL AGRI LAND	(60%)
PIT\TANK\ODAI	(15%)

1Km Radius :

500m Radius :

Q.L.Applied Area :

TOPO SHEET NO. : 58 H/15

LATITUDE : 8° 16' 25.70"N to 8° 16' 48.07"N

LONGITUDE : 77° 46' 43.03"E to 77° 46' 48.07"E

MINING PLAN APPROVED
Assistant Director
of Geology & Mining
Tirunelveli Dist

APPLICANT:

THIRU.S.VELU,
S/O.SUDALAIYANDI,
5-36,PARKKANERI KEEZHU,
TIRUVAMBALAPURAM,
RADHAPURAM TALUK,TIRUNELVELI-627 130.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NO : 196/2B(P),197/2B(P), 195/2A(P),195/2B(P)& 195/3(P),
EXTENT : 8.34.40 HA.
VILLAGE : KASTHURIRENGAPURAM PART-II,
TALUK : TISAIYANVILAI
DISTRICT : TIRUNELVELI.

INDEX

- APPROACH ROAD
- VILLAGE ROAD
- HABITATION
- TREES
- SEASONAL AGRICULTURAL LAND
- PIT
- WIND DIRECTION
- ODAI
- TANK
- LOW TENSION LINE
- HT LINE
- CRISHER PLANT
- BARREN LAND

ENVIRONMENTAL AND LANDUSE PLAN (FOR 1Km RADIUS)

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 LEASEHOLD AUTHENTICATED BY STATE GOVERNMENT

M. SANTHOSHKUMAR,M.Sc.,
QUALIFIED PERSON
Under Rule 10(2)(e) of MCR,2018

PLATE NO:I-C

DATE OF SURVEY: 25.08.2023

APPLICANT

THIRU.S.VELU,
S/O.S.UDAIYANDI,
5-36,PARKKANERI KEELUR,
TIRUVAMBALAPURAM,
RADHAPURAM TALUK,TIRUNELVELI-627 130.

LOCATION OF QUARRY

LEASE APPLIED AREA:

S.F.NO	: 196/2B(P),197/2B(P), 195/2A(P),195/2B(P) & 195/3(P),
EXTENT	: 8.34.40 HA.
VILLAGE	: KASTHURIRENGAPURAM PART-II.
TALUK	: TISAIYANVILAI.
DISTRICT	: TIRUNELVELI.

INDEX

- Q.L.APPLIED AREA
- VILLAGE ROAD
- TANK
- APPROACH ROAD

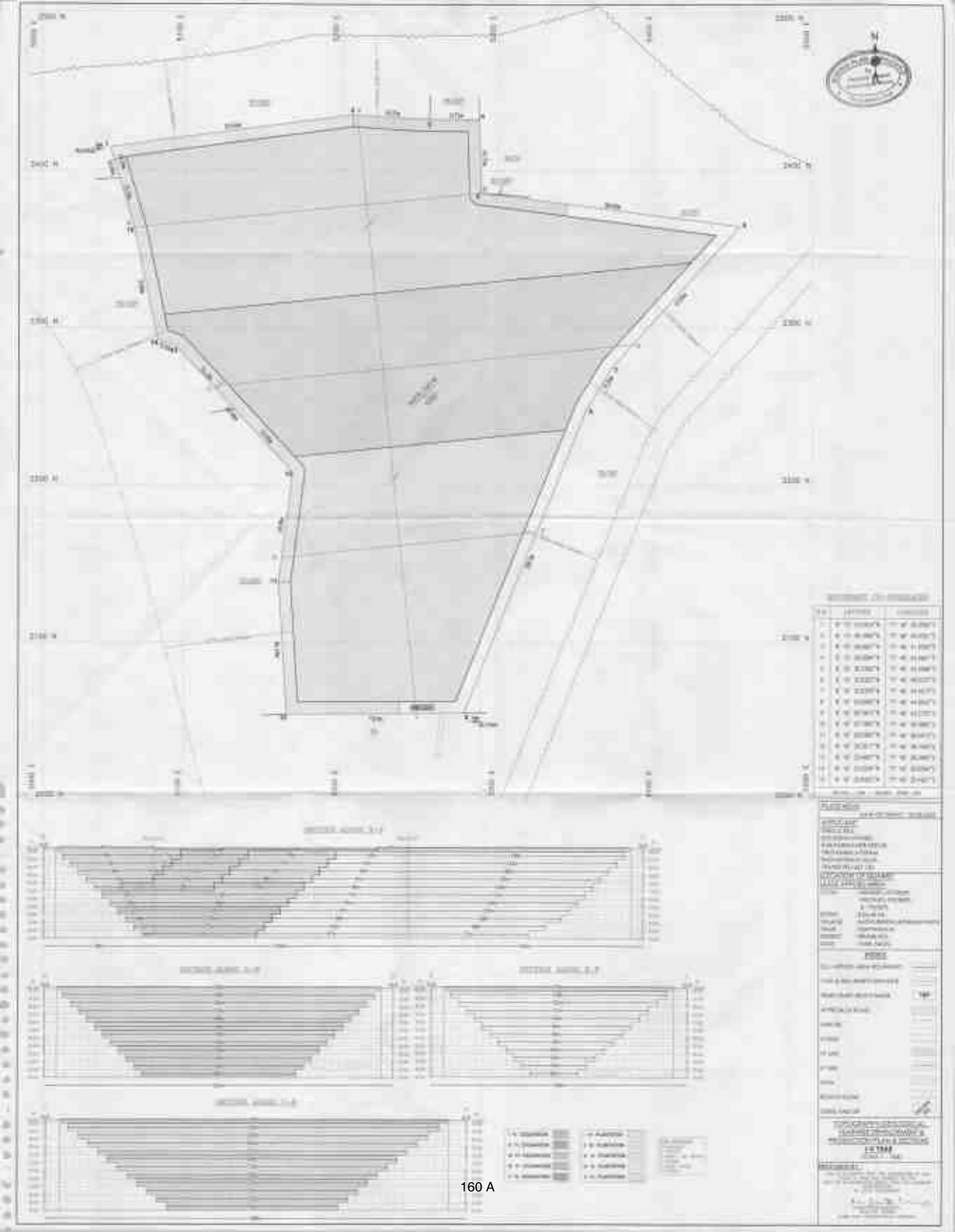
ROUTE MAP

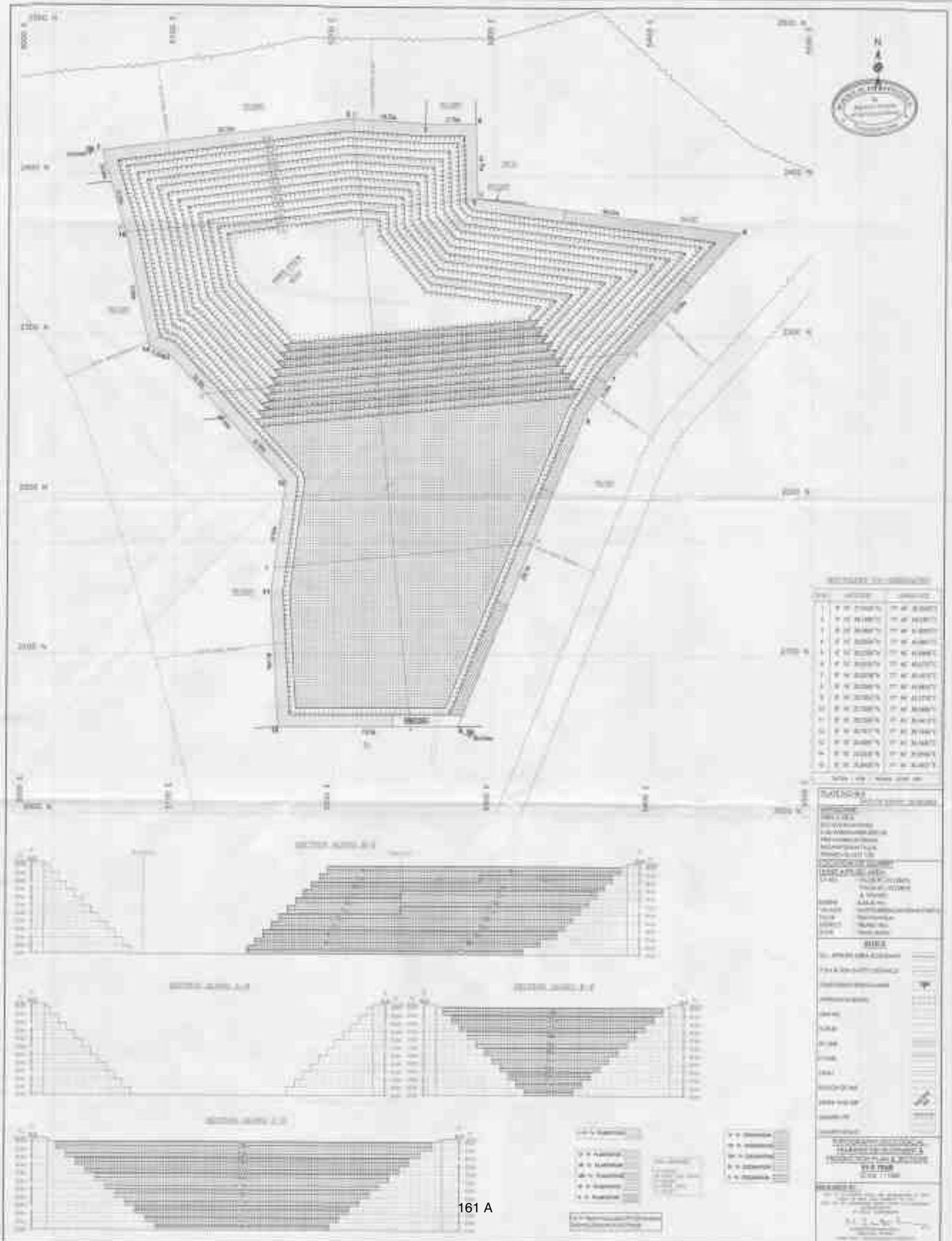
Not To Scale

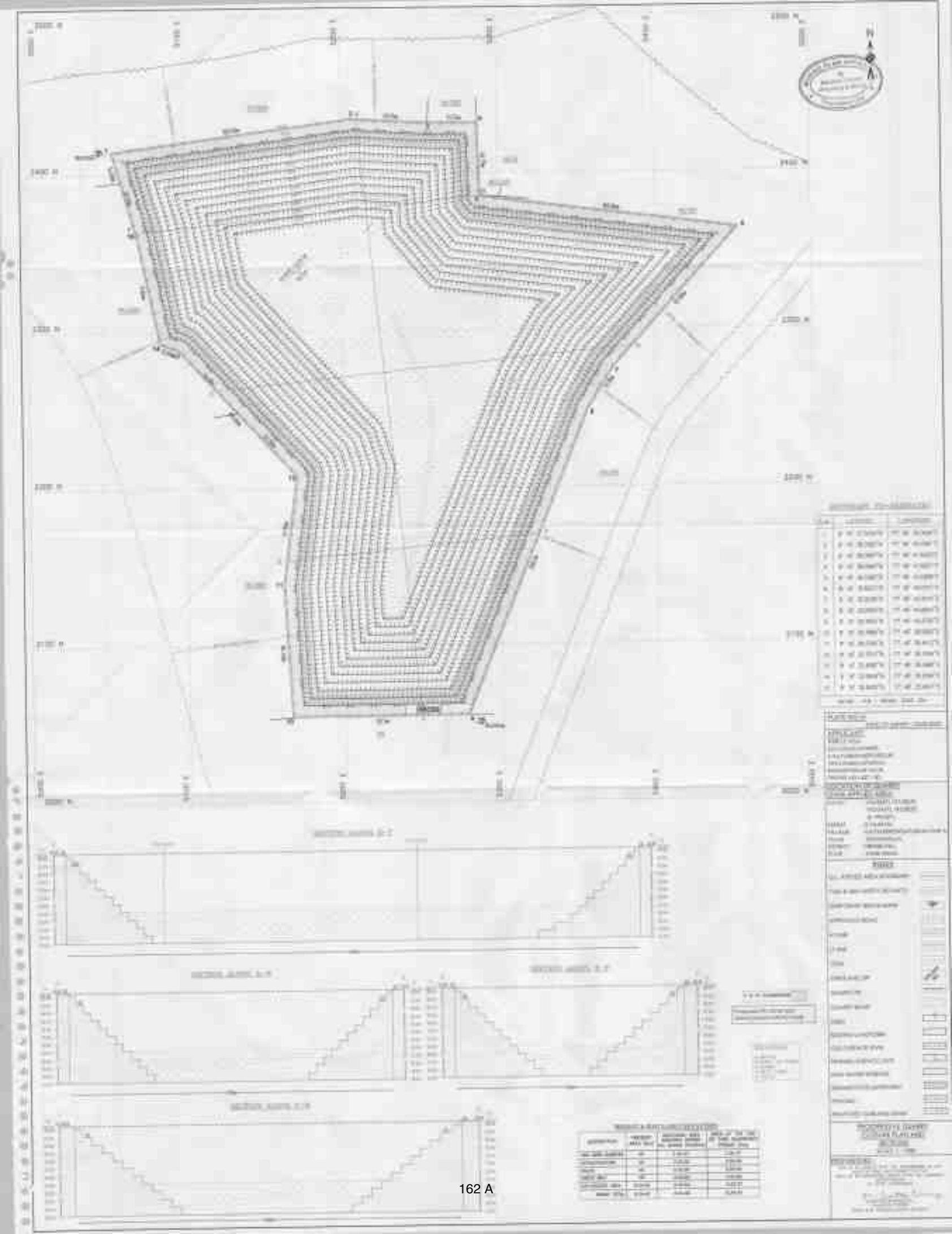
PREPARED BY :

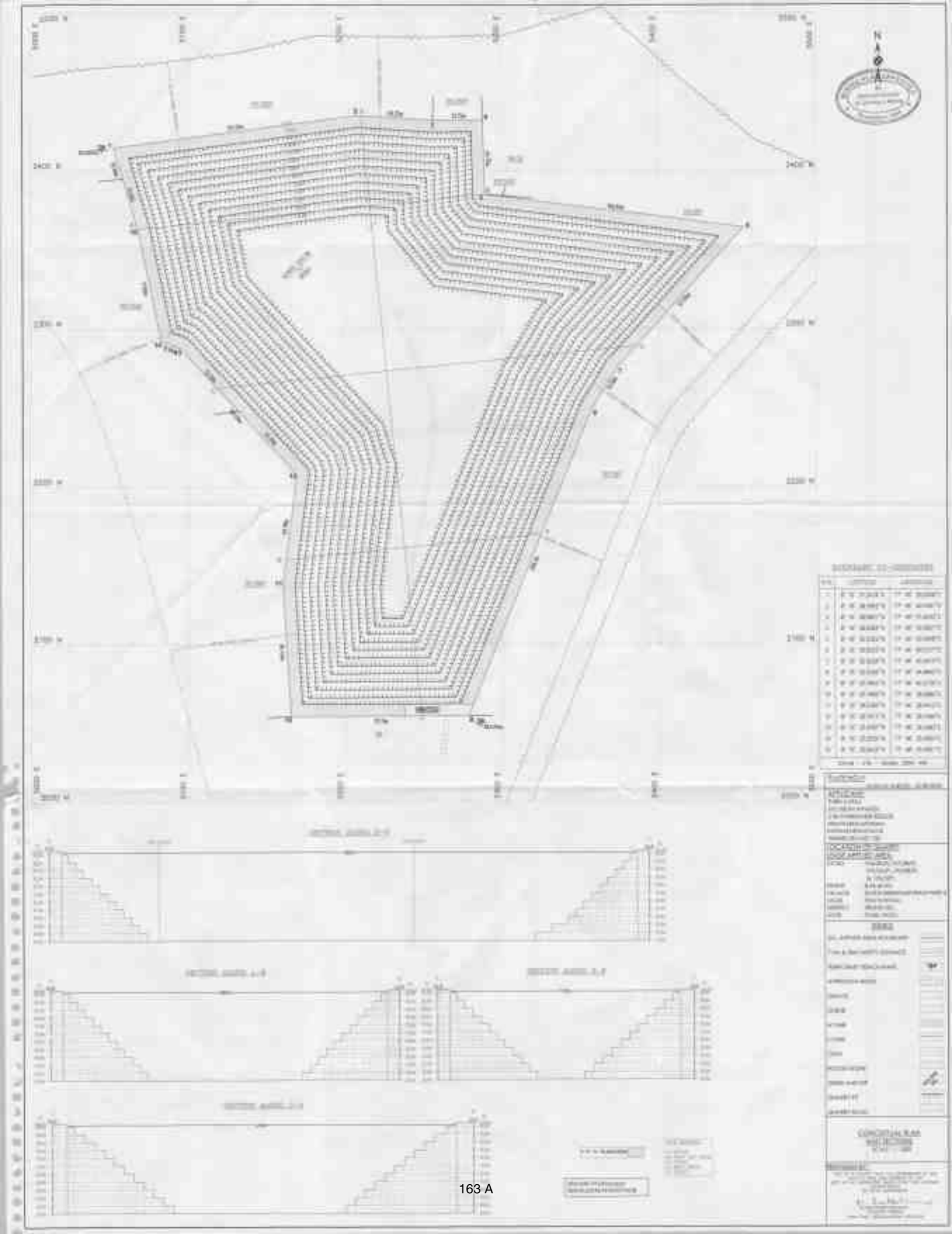
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP AUTHENTICATED BY STATE GOVERNMENT

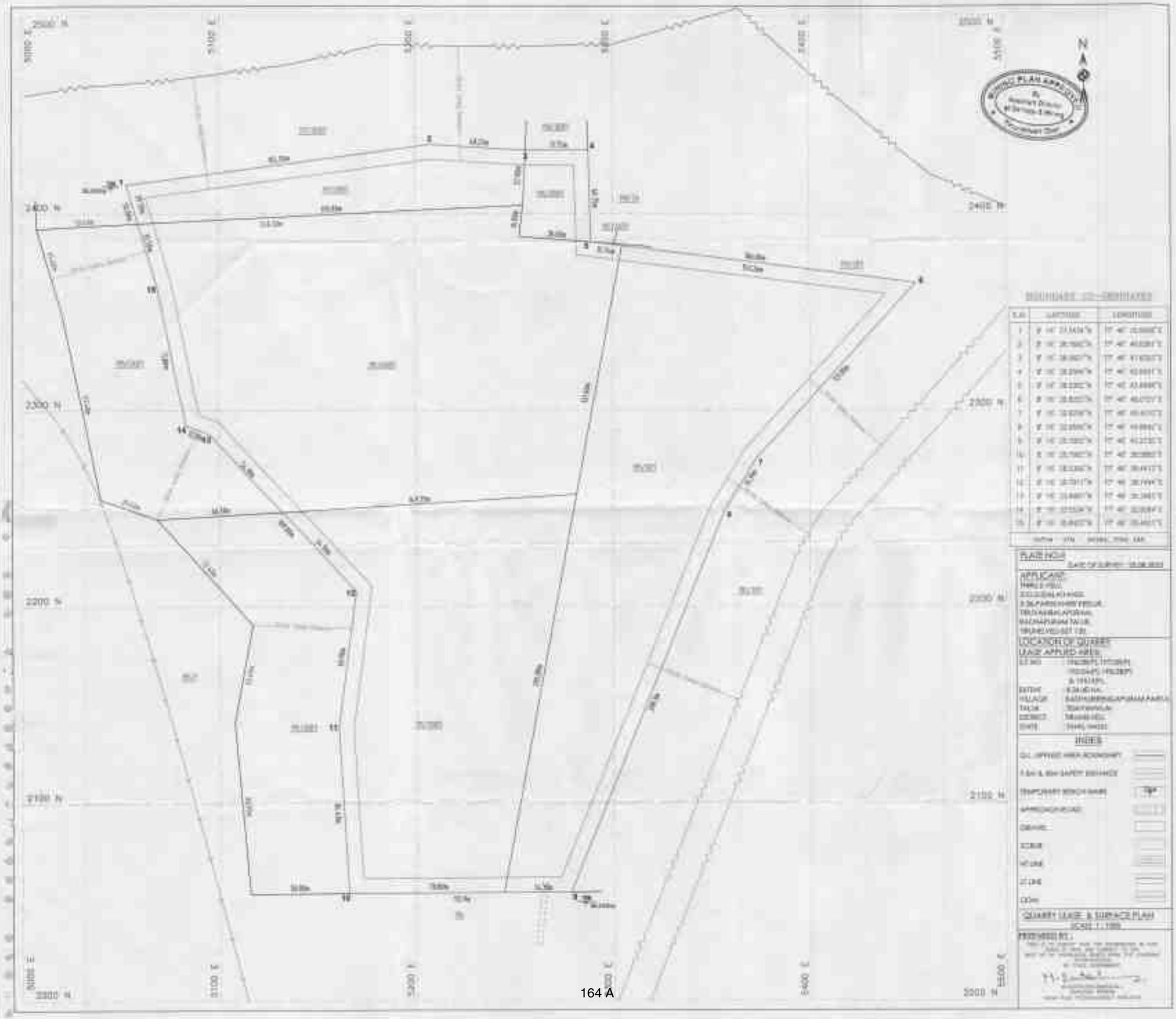
M.SANTHOSHKUMAR,M.Sc.,
QUALIFIED PERSON
Under Rule 15(1)(c)and(b)of MCR,2016










N
2500 N
2400 N
2300 N
2200 N
2100 N
2000 N
3000 E
3100 E
3200 E
3300 E
3400 E
3500 E
BOUNDARY CO-ORDINATES
PLAN NO:
APPLICANT
LOCATION OF QUARRY
LEASE APPLIED AREA
INDEX
QUARRY LEASE & SURFACE PLAN

HYDROGEOLOGICAL REPORT FOR

Rough Stone and Gravel Quarry Over an Extent of 8.34.40 Ha of Patta lands in S.F.Nos. 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P),

Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District, Tamil Nadu State.

165 A

HYDROGEOLOGICAL REPORT FOR KASTHURIRENGAPURAM PART-II ROUGH STONE AND GRAVEL QUARRY

1. INTRODUCTION

Applicant Name and Address Details

Applicant Name	:	**Thiru. S. Velu**
Address	:	S/o. Sudalaiyandi, No. 5/36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram, Tirunelveli District.

Study Area Details

Land Classifications	:	Patta Land
Survey No	:	196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P)
Extent in Heaters	:	8.34.40Ha
Village	:	Kasthurirengapuram Part - II
Taluk	:	Tisaiyanvilai
District	:	Tiruvnelveli

The applicant requires detailed information on Ground Water Occurrences at Proposed Project Site is 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.

166 A

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

Location

The investigated site falls in the Toposheet No: 58 – H/15 Latitude between 8° 16' 25.7953"N to 8° 16' 38.1692" N and Longitude between 77° 46' 35.0006" E to 77° 46' 48.0727" E on WGS datum-1984.

GEOMORPHOLOGY

Tirunelveli district is bordered by Western Ghats (Ridge and valley complex) in the West. A major part of the district constitutes a plain terrain with a gentle slope toward East and Southeast, except for the hilly terrain in the west the general elevation of the area varies from less than 10 to 1408 m amsl (Tulukkaparai hill range)

The prominent geomorphic units identified in the district is Structural Hill, Bazada Zone, Valley Fill, Flood Plain, Pediment, Shallow buried pediment, Deep buried pediment and Coastal Plain.

SOILS

Soils in the area have been classified into i) Deep Red soil ii)Red Sandy Soil. iii)Block Cotton Soil. iv)Saline Coastal Alluvium, and v) River Alluvium. Major partsof the area are covered by Deep Red soil and are found in Sivakasi, Tenkasi, Senkottai and Sankarankoil blocks and it is suitable for cultivating coconut and palmyrah trees. Red sandy soil also in reddish yellow in colour and are found in Nanguneri, Ambasamudram, and Radhapuram blocks and it is suitable for cultivating groundnut, millets and pulses etc., The Block Cotton Soil is found in Tirunelveli, Palayankottai and Sankarankoil blocks, and it is suitable for cultivating Paddy, Ragi, and Cholam etc., The Saline Coastal Alluvium are dark grey to deep brown in colourand spread over the Nanguneri and Radhapuram blocks. The River alluvial soils occur along the river courses of Tamrabarani and Chittar River covering in the blocks Tirunelveli and Palayankottai and it is suitable for cultivating Groundnut, Chillies and Cumbu.

RAINFALL AND CLIMATE

The district receives the rain under the influence of both southwest and northeastmonsoons. The northeast monsoon chiefly contributes to the rainfall in the district. Rainfall data from IMD stations over the period 1901-2000 were utilized and a perusal of the data shows that the normal annual rainfall over the district is 879 mm. It is the maximum around Senkottai, Sankarankoil and all along the coast and it decreases towards inland. The areas around Ambasamudram, Tirunelveli and Kadayanallur receive minimum rainfall.

The district enjoys a Sub tropical climate. The period from May to June is generallyhot and dry. The weather is pleasant during the period from December to January. The relative humidity is on an average between 79 and 84%. The mean minimum temperature is 22.9°C and means maximum daily temperature is 33.5°C respectively.

4. GEOLOGY

RegionalGeology of Tirunelveli district

Southern Granulite Terrain (SGT) of Tamil Nadu lying south of Palaghat-Cauvery shear zone has been divided into two major tectonic blocks by the Madurai block andNagercoil-Trivandrum Block in the south. It is separated by WNW-ESE trending Achankovil-Tambaraparani Lineament. Tirunelveli and Thothukudi are significantly the only districts in the state to witness the geology and structure of both the blocks.

Tirunelveli district represents a well-developed lithopackage of meta-sedimentary sequence inter banded with charnockite Group of rocks. The rock types exposed are of quartzite, calc-granulite, garnet-biotite-sillimanite gneiss, garnet quartzo-feldspathic gneiss and garnetbiotite- cordierite gneiss belonging to Khondalite Group of rock. Charnockite and pyroxene granulite are the Charnockite Group. Hornblende-biotite gneiss belongs to Migmatitic Complex. Besides, basic intrusive (pyroxenite) and acid intrusive (granite) are noticed. The younger intrusive are represented by pegmatite and quartz veins. Evidence of development of incipient / patchy charnockite along the shear plane is noticed in the district along the Western Ghat high hills.

Tirunelveli and Madurai district the major band of crystalline limestone with lenses of calc-gneiss and calc-ganulite associated with gneisses and quartzite bands to the north of Talaiyuttu around Seliyanur-Nellaitiruttu in Tirunelveli district. Tungsten upto 600 ppm has been recorded in crystalline limestone from the area. A Calc tufa occurrence in the areas of Uttumalai and Reddiyarpatti shows 35% of CaO and is restricted to a few patches with total areal extent of 2.85 Sq.km.

Stratigraphic Sequence of Tirunelveli District

Recent-SubRecent		Soil and alluvium, calcrete
		Quartz and pegmatite vein
		Incipient charnockite
700-550 Ma	Younger intrusive	Acidic intrusive – Granite Basic intrusive (Pyroxenite, Ultramafic/mafic rocks)
2200-2550 Ma	Migmatite Group	Hornblende-biotite gneiss
2600 Ma	Charnockite Group	Meta gabbro (older Intrusive) Charnockite Pyroxene granulite
	Khondalite Group	Garnet-biotite-quartzofeldspathic gneiss, Garnet-biotite gneiss Garnet –biotite –Sillimanite gneiss ± cordierite gneiss, Crystalline limestone, Calc granulite Quartzite.

Tirunelveli district, bulk of crystalline limestone for cement industry comes from Ramayyanpatti, TalaiyuttuandPandapalli village. Limestone and kankar deposit near Vijayapatti in the district. Gypsum associated with kankar is reported from a few localities in the saltpans, located along the east coast between Veppalodai and Ayyanapuram in the district. Minor graphite occurrences are located in KurinjankulamandPalakottaiHill. Rough stone (mostly charnockite and Hbl-bt gneiss) are majorly concentrated in Alangulam, Radhapuram, Nanguneri, Manur and SankarankovilTaluks in the district.

Rich deposits of garnet and ilmenite sand occurs along the coast part of RadhapuramTaluk, in Tirunelvelidistrict. Vijayapatti, Kuttankuzhi and Idindakarai areas show notable garnet and ilmenitesands occurrences. Red garnet sand occurs significantly along Nambiarriver. The main sources of the heavy minerals are found to garnetiferrousquartzo-feldspathic gneiss and garnet biotitesillimanite gneiss of Khondalite Group of rocks.

5. 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:

$$R = Rs * L/A \text{ (in Ohm)}$$

Where Rs is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

$$R = dV/I \text{ (Ohm)}$$

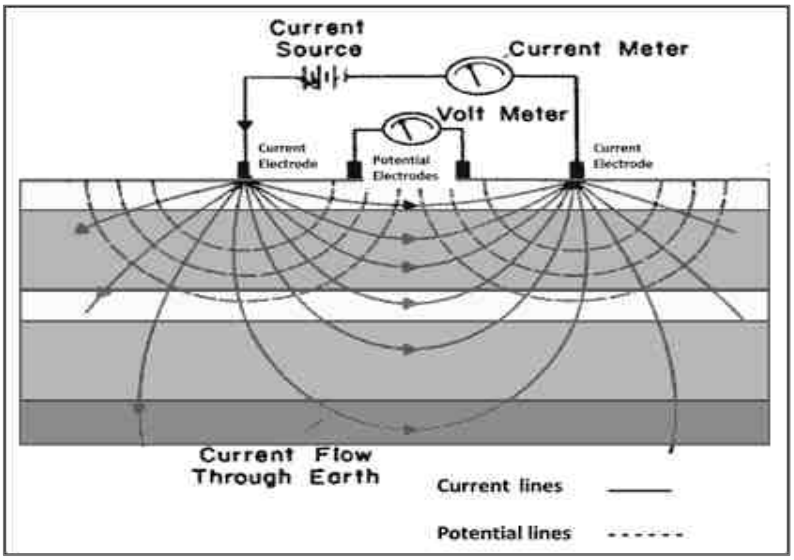
Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

$$Rs = (A/L) * (dV/I) \text{ (in Ohm m)}$$

Vertical Electrical Sounding (VES)

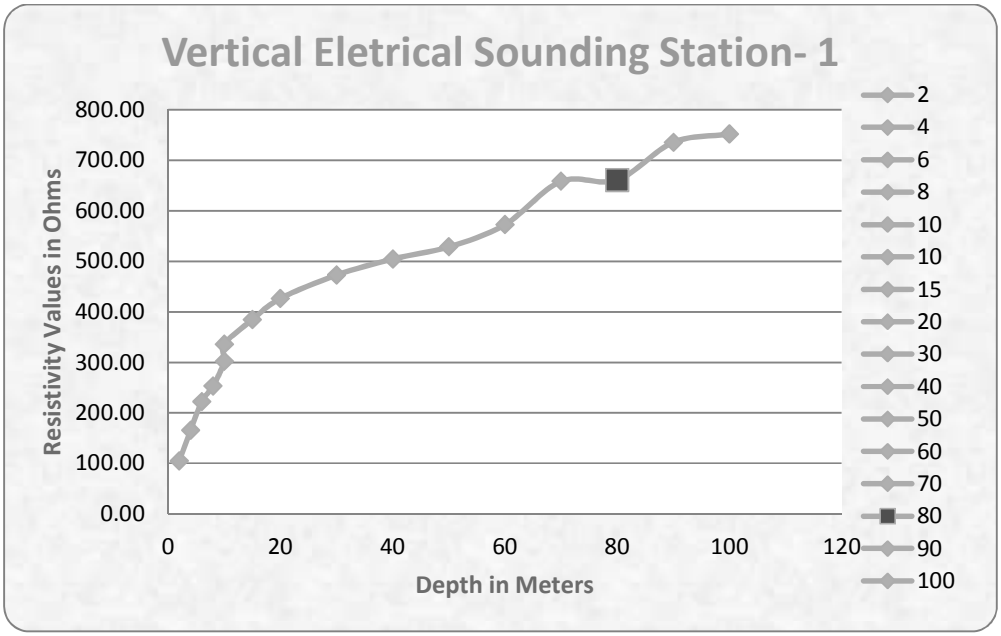
When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, 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 method



Vertical Electrical Sounding and Graphs

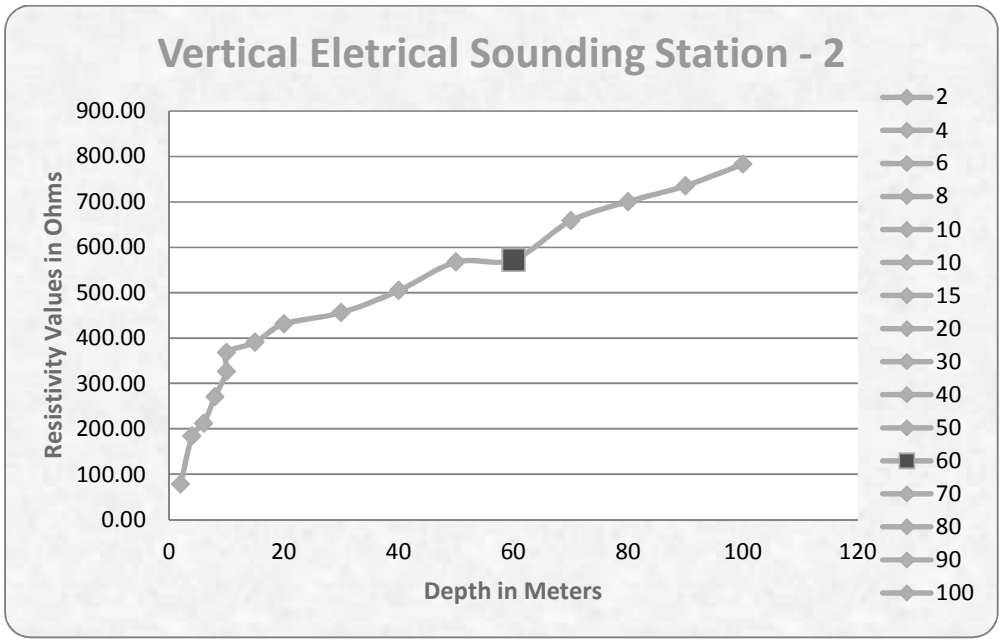
Vertical Electrical Sounding Station - 1					
GPS Coordinates - 8°16'25.97"N 77°46'42.18"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms [R]	Apparent Resistance in Ohms
1	2	1	4.71	22.26	104.84
2	4	1	23.55	7.02	165.32
3	6	1	54.95	4.04	222.00
4	8	1	98.91	2.56	253.21
5	10	1	155.45	1.94	301.57
6	10	5	23.55	14.26	335.82
7	15	5	62.80	6.12	384.34
8	20	5	117.75	3.62	426.26
9	30	5	274.75	1.72	472.57
10	40	5	494.55	1.02	504.44
11	50	5	777.15	0.68	528.46
12	60	5	1122.55	0.51	572.50
13	70	5	1530.75	0.43	658.22
14	80	5	2001.75	0.33	660.58
15	90	5	2535.55	0.29	735.31
16	100	5	3132.15	0.24	751.72



♦ Above the Vertical electrical sounding graphs purple color is major fracture zone

173 A

Vertical Electrical Sounding Station - 2					
GPS Coordinates - 8°16'30.86"N 77°46'44.15"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms [R]	Apparent Resistance in Ohms
1	2	1	4.71	16.56	78.00
2	4	1	23.55	7.82	184.16
3	6	1	54.95	3.86	212.11
4	8	1	98.91	2.74	271.01
5	10	1	155.45	2.10	326.45
6	10	5	23.55	15.63	368.09
7	15	5	62.80	6.22	390.62
8	20	5	117.75	3.66	430.97
9	30	5	274.75	1.66	456.09
10	40	5	494.55	1.02	504.44
11	50	5	777.15	0.73	567.32
12	60	5	1122.55	0.51	572.50
13	70	5	1530.75	0.43	658.22
14	80	5	2001.75	0.35	700.61
15	90	5	2535.55	0.29	735.31
16	100	5	3132.15	0.25	783.04



♦ Above the Vertical electrical sounding graphs purple color is major fracture zone

6. Conclusion

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have moderate groundwater potential.Wheretheminor fractures are observed hence, shallow aquifers are expected about 55m to 60m BGL and Productive aquifers are expected between 75m to 80mdepth. The ultimate pit limit as per the approved mining plan depth is 57m below ground level, 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, Advaitha Ashram Road,
Alagapuram, Salem – 636 004, Tamil Nadu
Mobile: +91 - 94433 56539
E-Mail: ifogeoexploration@gmail.com

175 A

//வருவாய் மற்றும் பேரிடர் மேலாண்மைத் துறை//

அனுப்புநர் :

திரு.எஸ்.முருகன்.எம்.ஏ.பி.எஸ்சி.,
வருவாய் வட்டாட்சியர்,
திசையன்விளை.

பெறுநர் :

சார் ஆட்சியர்,
சேரன்மகாதேவி.

ந.க.அ1/ 683/2023 நாள்: 21.04.2023.

அய்யா,

பொருள் :	கனிமமும் சுரங்கமும் : திருநெல்வேலி மாவட்டம், திசையன்விளை வட்டம் - கஸ்தூரிரங்கபுரம் பகுதி-II கிராமம் புன்செய் புல எண்கள் 196/2B(P) 197/2B(P) 195/2A(P)-195/2B(P) & 195/3(P) ஆகிய புல எண்களில் கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க குத்தகை உரிமம் வழங்கக் கோரி திரு.வேலு த/பெ. சுடலையாண்டி என்பவர் விண்ணப்பித்ததின் அடிப்படையில் பிரேரணை சமர்ப்பிக்க கேட்டல் தொடர்பாக
பார்வை	1. திருநெல்வேலி புவியியல் மற்றும் சுரங்கத்துறை அலுவலரின் ந.க.எம்2/85/2023 நாள் : 03.02.2023. 2. திசையன்விளை வருவாய் ஆ0 ய்வாளர் அறிக்கை நாள்: 13.03.2023.

திருநெல்வேலி மாவட்டம், திசையன்விளை வட்டம் கஸ்தூரிரங்கபுரம் பகுதி-II கிராமம் புன்செய் புல எண்களான 196/2B(P) 197/2B(P) 195/2A(P)-195/2B(P) & 195/3(P) ஆகிய புல எண்களில் கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க குத்தகை உரிமம் வழங்கக் கோரி திரு.வேலு த/பெ. சுடலையாண்டி என்பவர் விண்ணப்பித்ததின் அடிப்படையில் பிரேரணை சமர்ப்பிக்க கேட்டல் தொடர்பாக திசையன்விளை வருவாய் ஆய்வாளர், கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராம நிர்வாக அலுவலர் மற்றும் வட்ட சார் ஆய்வாளர் சகிதம் புலத் தணிக்கை செய்து எனது அறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

பிரஸ்தாப புலம் அமைவிடம்

பிரஸ்தாப இடமானது, திசையன்விளை வட்டம் கஸ்தூரிரங்கபுரம் பகுதி-II கிராம புன்செய் புல எண்கள் 196/2B(P) (0.51.8), 197/2B(P) (0.15.31), 195/2A(P) (3.10.3), 195/2B(P) (2.00.0) & 195/3(P) (2.57.0) ஆகிய புல எண்களின் மொத்த விஸ்தீரணம் 8.34.40 ஹெக்டேர் பரப்பில் மேற்படி இடமானது இராமன்குடி முதல் இராதாபுரம் செல்லும் சாலைக்கு வலதுபுறம் அமைந்துள்ளது.

கிராம கணக்கு

மனுதாரர் குத்தகை உரிமம் கோரியுள்ள புலஎண்கள் கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராம கணக்கின்படி ஏ கிராமம் புஞ்சை சர்வே எண்கள் பின்வருமாறு தாக்கலாகியுள்ளது.

வ.எண்	சர்வே எண்	பட்டா எண்	விஸ்தீரணம்	பட்டாதாரர் பெயர்
1	196/2B	1858	0.33.50	சுடலைராஜா
2	197/2B	1732	13.07.5	சுடலைராஜா
3	195/2A	1722	3.79.0	சுடலைராஜா
4	195/2B	1672	2.96.50	சிவபிரசாத்
5	195/3	332	8.42.00	ராகுல்

நான்குமால் எல்லைகை:

வ.எண்	சர்வே எண்	வடக்கு	தெற்கு	கிழக்கு	மேற்கு
1	196/2B	196/1	195	196/2A	197
2	197/2B	197/2B part	195	196	198
3	195/2A	196,197	195/2B	195/3	195/2A Part
4	195/2B	195/2A	194	195/1	195/2B Part
5	195/3	196	194	195/3 Part	195/2A,2B

உரிமை ஆவணம்

பிரஸ்தாப சொத்தானது, மணி குமாரர் திரு.சுடலைராஜா என்பவருக்கு இராதாபுரம் சார் பதிவாளர் அலுவலகம் ஆவண எண்கள் 3056/2019, 3054/2019, 2062/2018 மற்றும் 2554/2018 ன்படி பாத்தியப்பட்டு, ஆவண எண் 311/2023 ன்படி சுடலையாண்டி மகன் திரு.வேலு என்பவர் குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார். மேலும் திரு. ராஜேந்திரன் குமாரர் ராகுல் என்பவருக்கு ஆவண எண் 2113/18 மற்றும் 418/2020 ன்படி பாத்தியப்பட்டு, ஆவண எண் 312/2023-ன் படி சுடலையாண்டி மகன் திரு.வேலு என்பவருடன் குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார். மேலும் ஆவண எண் 315/2023ன்படி மோகனன் குமாரர் சிவபிரசாத் என்பவருக்கு ஷ சார் பதிவாளர் அலுவலகம் ஆவண எண் 2554/2018-ன் மூலம் பாத்தியப்பட்டு, ஷ சொத்தினை மனுதாரருடன் 20 வருடங்களுக்கு குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார். அதாவது குத்தகையானது 24.01.2023 முதல் 23.01.2043 வரை உள்ள காலம் ஆகும்.

குத்தகை ஒப்பந்தம்

பிரஸ்தாப சொத்தினை மனுதாரர் பின்வருமாறு குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார்.

வ.எண்	ஆவண எண்	குத்தகை ஒப்பந்தம்	குத்தகை காலம்
1	311/2023	திருநெல்வேலி மாவட்டம் ராதாபுரம் வட்டம் சார் பதிவாளர் அலுவலகம் திரு.மணி குமாரர் சுடலைராஜா என்பவரிடமிருந்து சுடலையாண்டி மகன் திரு.வேலு	24.01.2023 முதல் 23.01.2043

2	312/2023	திருநெல்வேலி மாவட்டம் ராதாபுரம் வட்டம் சார் பதிவாளர் அலுவலகம் திரு. ராஜேந்திரன் குமாரர் ராகுல் என்பவரிடமிருந்து சுடலையாண்டி மகன் திரு.வேலு	24.01.2023 முதல் 23.01.2043
3	315/2023	திருநெல்வேலி மாவட்டம் ராதாபுரம் வட்டம் சார் பதிவாளர் அலுவலகம் மோகனன் குமாரர் சிவபிரசாத் என்பவரிடமிருந்து சுடலையாண்டி மகன் திரு.வேலு	24.01.2023 முதல் 23.01.2043

பாதை வசதி

பிரஸ்தாப இடத்திற்கு ஸ்ரீதரன் மகன் ராஜேந்திரன் என்பவரிடமிருந்து சுடலையாண்டி மகன் திருவேலு என்பவர் ஷ கிராமம் புஞ்சை சர்வே எண்191/1 மற்றும் 181/1ன் வழியாக பாதை பாத்தியதைக்காக பதிவு செய்யப்படாத ஆவணம் மூலம் 09.01.2023 அன்று ஒப்பந்தம் ஏற்படுத்தியுள்ளார்.

"அ" பதிவேடு

திசையன்விளை வட்டம் கஸ்தூரிரங்கபுரம் பகுதி-II கிராமம் புஞ்சை புல எண் 195/2A பட்டா எண். 427 எம்.சி.அசோக்குமார் மற்றும் மூன்று பேர்களும், புல எண். 196/2 பட்டா எண். 905 சாகுல் அமீது மரைக்காயர் -1, முகைதீன் ஆச்சியம்மாள் -2, புல எண்.197/1 பட்டா எண். 427 எம்.சி.அசோக்குமார் மற்றும் மூன்று பேர்களும், புல எண். 196/2A பட்டா எண். 1047 2.93.00 அருளப்பன், 196/2B பட்டா எண். 1858, பட்டா எண். 1047 0.33.50 சுடலைராஜா 197/2B ர.பு பட்டா எண். 1858 1.30.75 பட்டா எண். 1732 சுடலைராஜா என்று "அ " பதிவேட்டில் பதிவாகி உள்ளது.

"அ1 விளம்பரம்"

திசையன்விளை வட்டம் - கஸ்தூரிரங்கபுரம் கிராமம் பகுதி - (II) புன்செய் புல எண்கள் 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P), & 195/3(P) ஆகிய புல எண்களில் கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க குத்தகை உரிமம் வழங்கக் கோரி திரு.வேலு த/பெ. சுடலையாண்டி என்பவர் அனுமதி கோரியுள்ளது தொடர்பாக, ஏதேனும் ஆட்சேபணை இருந்தால் 15 தினங்களுக்குள் பொது மக்கள் தெரிவிக்கலாம் என்று 18.02.2023 அன்று மேற்படி கிராமத்தில் விளம்பரம் செய்யப்பட்டதில் நாளது தேதி வரை எவ்வித ஆட்சேபணையும் பெறப்படவில்லை.

பொது மக்கள் வாக்குமூலம்

திசையன்விளை வட்டம் - கஸ்தூரிரங்கபுரம் கிராமம் பகுதி -2 புன்செய் புல எண்கள் 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P), & 195/3(P) ஆகிய புல எண்களில் கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க குத்தகை உரிமம் வழங்கக் கோரி திரு.வேலு த/பெ. சுடலையாண்டி என்பவர் அனுமதி கோரியுள்ளது தொடர்பாக

மேற்படி கிராம மக்கள் கோரி எந்தவித ஆட்சேபனை ஏதுமில்லை என்று வாக்குமூலத்தில் கையொப்பமிட்டுள்ளார்.

வில்லங்க சான்று

பிரஸ்தாப சொத்திற்கு 1975 02 ஜனவரி முதல் 29 ஜனவரி 2023 வரை வில்லங்க சான்றினை பரிசீலனை செய்ததில் ஷ சொத்தின் மீது எந்த வில்லங்கமும் இல்லை என்பது தெரியவருகிறது.

பிரஸ்தாப இடமானது கீழ்க்கண்ட இனங்களால் பாதிக்கப்படவில்லை என்பது புலத்தணிக்கையின் மூலம் தெரியவருகிறது.

1. பிரஸ்தாப இடத்தில் இருந்து 300 தொலைவில் எவ்வித குடியிருப்பும் இல்லை.
2. இருப்புப்பாதை, மின் இணைப்புகள், ஓடை, குளம் போன்றவை 50 மீ தொலைவில் இல்லை.
3. PACL நிறுவனத்தின் நிலம் ஏதுமில்லை.
4. 500 மீட்டர் சுற்றளவில் கோயில், மசூதி, புராதான சின்னங்கள், நினைவுச் சின்னங்கள், இடுகாடு போன்றவை ஏதும் இல்லை.
5. குத்தகை ஆவணம் பதிவு செய்யப்பட்டது ஆகும்.
6. மனுதாரருக்கு உரிமை தொடர்பான ஆவணம் உள்ளது.
7. பிரஸ்தாப புலமானது தடையாணை புத்தகத்தில் இடம் பெறவில்லை.
8. அ1 விளம்பரம் மற்றும் பொதுமக்கள் வாக்குமூலம் பெறப்பட்டுள்ளது.
9. பிரஸ்தாப புல எண்கள் வருவாய் வசூல் சட்டத்தின் கீழ் இல்லை.
10. பிரஸ்தாப புலத்தின் அருகில் பாதுகாக்கப்பட்ட வனப்பகுதிகள்/மான் சரணாலயம் ஏதும் இல்லை.
11. பிரஸ்தாப புலத்தில் நிலவியல் ஓடைகள் நீர்நிலைகள் ஏதும் இல்லை.
12. பிரஸ்தாப புலமானது வன உயிரின சரணாலயம் தேசிய பூங்கா மற்றும் சூழலியல் அதிர்வு தாங்கு மண்டலத்திற்கு உட்படவில்லை.

இவ்வினத்தில் விசாரணை மற்றும் ஆவணங்களின் அடிப்படையில் திசையன்விளை வட்டம் கஸ்தூரிரங்கபுரம் பகுதி -2 கிராமத்தில் உள்ள புஞ்சை புல எண்கள் 196/2B(P) 197/2B(P) 195/2A(P)- 195/2B(P) & 195/3(P) ஆகியவற்றில் கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க திரு.வேலு த/பெ. கடனலையாண்டி என்பவருக்கு குத்தகை உரிமம் வழங்க பரிந்துரை செய்கிறேன் என அறிக்கை செய்துள்ளார்.

மேலும் இத்துடன், கிராம கணக்கு நகல்கள், அ1 விளம்பரம், பொதுமக்கள் வாக்குமூலம் மற்றும் விசாரணை ஆவணங்கள் ஆகியவற்றை இணைத்து அனுப்பியுள்ளேன் என்பதை பணிவுடன் தெரிவித்துக் கொள்கிறேன்.

இணைப்பு : மேற்க்கண்டவாறு

வருவாய் வட்டாட்சியர்,
திசையன்விளை.

21/4/23

தலப்பார்வை

வட்டம் : திசையன்விளை

கிராமம் : கஸ்தூரிரெங்கபுரம் பகுதி-2

புல எண் : 196/2B(P) 197/2B(P) 195/2A(P)- 195/2B(P) & 195/3(P) .

நாள் : 03.04.2023

திருநெல்வேலி மாவட்டம், திசையன்விளை வட்டம் கஸ்தூரிரங்கபுரம் பகுதி-II கிராமம் புன்செய் புல எண்களான 196/2B(P) 197/2B(P) 195/2A(P)- 195/2B(P) & 195/3(P) ஆகிய புல எண்களில் கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க குத்தகை உரிமம் வழங்கக் கோரி திரு.வேலு த/பெ. சுடலையாண்டி என்பவர் விண்ணப்பித்ததின் அடிப்படையில் பிரேரணை சமர்ப்பிக்க கேட்டல் தொடர்பாக திசையன்விளை வருவாய் ஆய்வாளர், கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராம நிர்வாக அலுவலர் மற்றும் வட்ட சார் ஆய்வாளர் சகிதம் புலத் தணிக்கை செய்து எனது அறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பிக்கிறேன்.

பிரஸ்தாப புலம் அமைவிடம்

பிரஸ்தாப இடமானது, திசையன்விளை வட்டம் கஸ்தூரிரங்கபுரம் பகுதி-II கிராம புன்செய் புல எண்கள் 196/2B(P) (0.51.8), 197/2B(P) (0.15.31), 195/2A(P) (3.10.3), 195/2B(P) (2.00.0) & 195/3(P) (2.57.0) ஆகிய புல எண்களின் மொத்த விஸ்தீரணம் 8.34.40 ஹெக்டேர் பரப்பில் மேற்படி இடமானது இராமன்குடி முதல் இராதாபுரம் செல்லும் சாலைக்கு வலதுபுறம் அமைந்துள்ளது.

கிராம கணக்கு

மனுதாரர் குத்தகை உரிமம் கோரியுள்ள புலஎண்கள் கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராம கணக்கின்படி ஷ கிராமம் புஞ்சை சர்வே எண்கள் பின்வருமாறு தாக்கலாகியுள்ளது.

வ.எண்	சர்வே எண்	பட்டா எண்	விஸ்தீரணம்	பட்டாதாரர் பெயர்
1	196/2B	1858	0.33.50	சுடலைராஜா
2	197/2B	1732	13.07.5	சுடலைராஜா
3	195/2A	1722	2.96.50	சுடலைராஜா
4	195/2B	1672	3.79.00	சிவபிரசாத்
5	195/3	332	8.42.00	ராகுல்

நான்குமால் எல்லைகள்:

வ.எண்	புல எண்	வடக்கு	தெற்கு	கிழக்கு	மேற்கு
1	196/2B	196/1	195	196/2A	197
2	197/2B	197/2B part	195	196	198
3	195/2A	196,197	195/2B	195/3	195/2A Part
4	195/2B	195/2A	194	195/1	195/2B Part
5	195/3	196	194	195/3 Part	195/2A,2B

உரிமை ஆவணம்

பிரஸ்தாப சொத்தானது, மணி குமாரர் திரு.சுடலைராஜா என்பவருக்கு இராதாபுரம் சார் பதிவாளர் அலுவலகம் ஆவண எண்கள் 3056/2019, 3054/2019, 2062/2018 மற்றும் 2554/2018 ன்படி பாத்தியப்பட்டு, ஆவண எண் 311/2023 ன்படி சுடலையாண்டி மகன் திரு.வேலு என்பவர் குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார். மேலும் திரு. ராஜேந்திரன் குமாரர் ராகுல் என்பவருக்கு ஆவண எண் 2113/18 மற்றும் 418/2020 ன்படி பாத்தியப்பட்டு, ஆவண எண் 312/2023-ன் படி சுடலையாண்டி மகன் திரு.வேலு என்பவருடன் குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார். மேலும் ஆவண எண் 315/2023ன்படி மோகனன் குமாரர் சிவபிரசாத் என்பவருக்கு ஷ சார் பதிவாளர் அலுவலகம் ஆவண எண் 2554/2018-ன் மூலம் பாத்தியப்பட்டு, ஷ சொத்தினை மனுதாருடன் 20 வருடங்களுக்கு குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார். அதாவது குத்தகையானது 24.01.2023 முதல் 23.01.2043 வரை உள்ள காலம் ஆகும்.

குத்தகை ஒப்பந்தம்

பிரஸ்தாப சொத்தினை மனுதாரர் பின்வருமாறு குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார்.

வ.எண்	ஆவண எண்	குத்தகை ஒப்பந்தம்	குத்தகை காலம்
1	311/2023	திருநெல்வேலி மாவட்டம் ராதாபுரம் வட்டம் சார் பதிவாளர் அலுவலகம் திரு.மணி குமாரர் சுடலைராஜா என்பவரிடமிருந்து சுடலையாண்டி மகன் திரு.வேலு	24.01.2023 முதல் 23.01.2043
2	312/2023	திருநெல்வேலி மாவட்டம் ராதாபுரம் வட்டம் சார் பதிவாளர் அலுவலகம் திரு. ராஜேந்திரன் குமாரர் ராகுல் என்பவரிடமிருந்து சுடலையாண்டி மகன் திரு.வேலு	24.01.2023 முதல் 23.01.2043
3	315/2023	திருநெல்வேலி மாவட்டம் ராதாபுரம் வட்டம் சார் பதிவாளர் அலுவலகம் மோகனன் குமாரர் சிவபிரசாத் என்பவரிடமிருந்து சுடலையாண்டி மகன் திரு.வேலு	24.01.2023 முதல் 23.01.2043

பாதை வசதி

பிரஸ்தாப இடத்திற்கு ஸ்ரீதரன் மகன் ராஜேந்திரன் என்பவரிடமிருந்து சுடலையாண்டி மகன் திருவேலு என்பவர் ஷ கிராமம் புஞ்சை சர்வே எண்191/1 மற்றும் 181/1ன் வழியாக பாதை பாத்தியதைக்காக பதிவு செய்யப்படாத ஆவணம் மூலம் 09.01.2023 அன்று ஒப்பந்தம் ஏற்படுத்தியுள்ளார்.

"அ" பதிவேடு

திசையன்விளை வட்டம் கஸ்தூரிரங்கபுரம் பகுதி-II கிராமம் புஞ்சை புல எண் 195/2A பட்டா எண். 427 எம்.சி.அசோக்குமார் மற்றும் மூன்று பேர்களும், புல எண். 196/2 பட்டா எண். 905 சாகுல் அமீது மரைக்காயர் -1, முகைதீன் ஆச்சியம்மாள் -2, புல எண்.197/1 பட்டா எண். 427 எம்.சி.அசோக்குமார் மற்றும் மூன்று பேர்களும், புல எண். 196/2A பட்டா எண். 1047 2.93.00 அருளப்பன், 196/2B பட்டா எண். 1858, பட்டா எண். 1047 0.33.50 சுடலைராஜா 197/2B ர.பு பட்டா எண். 1858 1.30.75 பட்டா எண். 1732 சுடலைராஜா என்று "அ " பதிவேட்டில் பதிவாகி உள்ளது.

"அ1 விளம்பரம்"

திசையன்விளை வட்டம் - கஸ்தூரிரங்கபுரம் கிராமம் பகுதி - (II) புன்செய் புல எண்கள் 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P), & 195/3(P) ஆகிய புல எண்களில் கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க குத்தகை உரிமம் வழங்கக் கோரி திரு.வேலு த/பெ. சுடலையாண்டி என்பவர் அனுமதி கோரியுள்ளது தொடர்பாக, ஏதேனும் ஆட்சேபணை இருந்தால் 15 தினங்களுக்குள் பொது மக்கள் தெரிவிக்கலாம் என்று 18.02.2023 அன்று மேற்படி கிராமத்தில் விளம்பரம் செய்யப்பட்டதில் நாளது தேதி வரை எவ்வித ஆட்சேபணையும் பெறப்படவில்லை.

பொது மக்கள் வாக்குமூலம்

திசையன்விளை வட்டம் - கஸ்தூரிரங்கபுரம் கிராமம் பகுதி -2 புன்செய் புல எண்கள் 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P), & 195/3(P) ஆகிய புல எண்களில் கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க குத்தகை உரிமம் வழங்கக் கோரி திரு.வேலு த/பெ. சுடலையாண்டி என்பவர் அனுமதி கோரியுள்ளது தொடர்பாக மேற்படி கிராம மக்கள் கோரி எந்தவித ஆட்சேபனை ஏதுமில்லை என்று வாக்குமூலத்தில் கையொப்பமிட்டுள்ளார்.

வில்லங்க சான்று:

பிரஸ்தாப சொத்திற்கு 1975 02 ஜனவரி முதல் 29 ஜனவரி 2023 வரை வில்லங்க சான்றினை பரிசீலனை செய்ததில் ஷ சொத்தின் மீது எந்த வில்லங்கமும் இல்லை என்பது தெரியவருகிறது.

பிரஸ்தாப இடமானது கீழ்க்கண்ட இனங்களால் பாதிக்கப்படவில்லை என்பது புலத்தணிக்கையின் மூலம் தெரியவருகிறது.

1. பிரஸ்தாப இடத்தில் இருந்து 300 தொலைவில் எவ்வித குடியிருப்பும் இல்லை.
2. இருப்புப்பாதை, மின் இணைப்புகள், ஓடை, குளம் போன்றவை 50 மீ தொலைவில் இல்லை.
3. PACL நிறுவனத்தின் நிலம் ஏதுமில்லை.
4. 500 மீட்டர் சுற்றளவில் கோயில், மசூதி, புராதான சின்னங்கள், நினைவுச் சின்னங்கள், இடுகாடு போன்றவை ஏதும் இல்லை.
5. குத்தகை ஆவணம் பதிவு செய்யப்பட்டது ஆகும்.
6. மனுதாரருக்கு உரிமை தொடர்பான ஆவணம் உள்ளது.
7. பிரஸ்தாப புலமானது தடையாணை புத்தகத்தில் இடம் பெறவில்லை.
8. அ1 விளம்பரம் மற்றும் பொதுமக்கள் வாக்குமூலம் பெறப்பட்டுள்ளது.
9. பிரஸ்தாப புல எண்கள் வருவாய் வதூல் சட்டத்தின் கீழ் இல்லை.
10. பிரஸ்தாப புலத்தின் அருகில் பாதுகாக்கப்பட்ட வனப்பகுதிகள்/மான் சரணாலயம் ஏதும் இல்லை.
11. பிரஸ்தாப புலத்தில் நிலவியல் ஓடைகள் நீர்நிலைகள் ஏதும் இல்லை.
12. பிரஸ்தாப புலமானது வன உயிரின சரணாலயம் தேசிய பூங்கா மற்றும் சூழலியல் அதிர்வு தாங்கு மண்டலத்திற்கு உட்படவில்லை.

இவ்வினத்தில் விசாரணை மற்றும் ஆவணங்களின் அடிப்படையில் திசையன்விளை வட்டம் கஸ்தூரிரங்கபுரம் பகுதி -2 கிராமத்தில் உள்ள புஞ்சை புல எண்கள் 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P) ஆகியவற்றில் கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க திரு.வேலு த/பெ. சுடலையாண்டி என்பவருக்கு குத்தகை உரிமம் வழங்க பரிந்துரை செய்து சேரன்மகாதேவி சார் ஆட்சியருக்கு கடித வரைவு தயார் செய்து வைக்கவும்.

வட்டாட்சியர்
திசையன்விளை

//வருவாய்த் துறை//

அனுப்புநர்:
திரு. முகம்மது ஷபீ ஆலம், இ.ஆ.ப.,
சார்ஆட்சியர்,
சேரன்மகாதேவி.

பெறுநர்:
மாவட்ட ஆட்சித் தலைவர்,
திருநெல்வேலி.

ந.க. ஆ4/1000/2023, நாள்: 10.07.2023.

அய்யா,

பொருள்: கனிமமும் சுரங்கமும் - திருநெல்வேலி மாவட்டம் - திசையன்விளை வட்டம் - கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராமம் - புல எண்கள். 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P)-ல் மொத்த விஸ்தீரணம் 8.34.40 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க குத்தகை உரிமம் வழங்க கோரி திரு. S. வேலு த/பெ. சுடலையாண்டி என்பவர் விண்ணப்பம் செய்துள்ளது - அறிக்கை அனுப்புதல் - தொடர்பாக.

பார்வை:
1. திருநெல்வேலி மாவட்ட ஆட்சித்தலைவர் அவர்களின் கடித எண் ந.க.எம்2/85/2023 நாள்: 03.02.2023.
2. திசையன்விளை வட்டாட்சியரின் அறிக்கை எண். அ1/683/2023, நாள். 21.04.2023, 17.05.2023 மற்றும் 06.06.2023.

திருநெல்வேலி மாவட்டம் திசையன்விளை வட்டம் கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராமம் புல எண்கள். 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P)-ல் மொத்த விஸ்தீரணம் 8.34.40 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க குத்தகை உரிமம் வழங்க கோரி திரு. S. வேலு த/பெ. சுடலையாண்டி என்பவர் விண்ணப்பம் செய்துள்ளது தொடர்பாக பின்வருமாறு அறிக்கை செய்கிறேன்.

அமைவிடம்

பிரஸ்தாப புலமானது திசையன்விளை வட்டம் கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராம புன்செய் புல எண்கள் 196/2B (P) (0.15.30), 197/2B (P) (0.51.80), 195/2A(P) (3.10.30) , 195/2B(P) (2.00.0) & 195/3(P) (2.57.0) ஆகிய புல எண்களின் மொத்த விஸ்தீரணம் 8.34.40 ஹெக்டேர் பரப்பில் குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ளார். மேற்படி இடமானது இராமன்குடி முதல் இராதாபுரம் செல்லும் சாலைக்கு வலதுபுறம் அமைந்துள்ளது.

கிராம கணக்கு

மனுதாரர் குத்தகை உரிமம் கோரியுள்ள புல எண்கள் கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராம கணக்கின்படி கிராமம் புஞ்சை சர்வே எண்கள் பின்வருமாறு தாக்காலாகியுள்ளது.

வ.எண்	சர்வே எண்	பட்டா எண்	விஸ்தீரணம்	பட்டாதாரர் பெயர்
1	196/2B	1858	0.33.50	சுடலை ராஜா
2	197/2B	1732	1.30.75	சுடலை ராஜா
3	195/2A	1722	3.79.0	சுடலை ராஜா
4	195/2B	1672	2.96.50	சிவபிரசாத்
5	195/3	332	8.42.00	ராகுல்

நான்குமால் எல்கை :

வ. எண்	சர்வே. எண்	வடக்கு	தெற்கு	கிழக்கு	மேற்கு
1	196/2B	196/2B Part	195	196/2A	197
2	197/2B	197/2B Part	195	196	198
3	195/2A	196,197	195/2B	195/3	195/2A Part
4	195/2B	195/2A	194	195/3	195/2B Part
5	195/3	196	194	195/3 Part	195/2A,2B

புல எண்கள். 196/2B, 197/2B மற்றும் 195/2A நிலமானது மணி அவர்களின் குமாரர் திரு.சுடலை ராஜா என்பவருக்கு இராதாபுரம் சார் பதிவாளர் அலுவலகம் ஆவண எண்கள் 3056/2019, 3054/2019 மற்றும் 2062/2018-ன்படி பாத்தியப்பட்டு ஆவண எண் 311/2023-ன்படி சுடலையாண்டி மகன் திரு.வேலு என்பவர் குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார்.

புல எண். 195/3 ஆனது திரு.ராஜேந்திரன் அவர்களின் குமாரர் திரு. ராகுல் என்பவருக்கு ஆவண எண் 2113/18 மற்றும் 418/2020 ன்படி பாத்தியப்பட்டு இராதாபுரம் சார் பதிவாளர் அலுவலக ஆவண எண் 312/2023 ன்படி சுடலையாண்டி மகன் திரு.வேலு என்பவருடன் குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார்.

புல எண். 195/2B ஆனது திரு. மோகனன் அவர்களின் குமாரரர் திரு. சிவபிரசாத் என்பவருக்கு ஆவண எண் 2554/2018-ன்படி பாத்தியப்பட்டு இராதாபுரம் சார் பதிவாளர் அலுவலக ஆவண எண். 315/2023ன்படி சுடலையாண்டி மகன் திரு. வேலு என்பவருக்கு குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார். குத்தகை காலம் 24.01.2023 முதல் 23.01.243 வரை ஆகும்.

குத்தகை ஒப்பந்தம்

பிரஸ்தாப சொத்தினை மனுதாரர் பின்வருமாறு குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார்.

வ. எண்	ஆவண எண்	குத்தகை ஒப்பந்தம்	குத்தகை காலம்
1	311/2023	இராதாபுரம் சார் பதிவாளர் அலுவலகம் திரு.மணி அவர்களின் குமாரர் சுடலைராஜா என்பவரிடமிருந்து சுடலையாண்டி மகன் திரு.வேலு என்பவர் குத்தகை ஒப்பந்தம் செய்துள்ளார்.	24.01.2023 முதல் 23.01.2043
2	312/2023	இராதாபுரம் சார் பதிவாளர் அலுவலகம் திரு.ராஜேந்திரன் அவர்களின் குமாரர் ராகுல் என்பவரிடமிருந்து சுடலையாண்டி மகன் திரு.வேலு என்பவர் குத்தகை ஒப்பந்தம் செய்துள்ளார்.	24.01.2023 முதல் 23.01.2043
3	315/2023	இராதாபுரம் சார் பதிவாளர் அலுவலகம் திரு.மோகனன் அவர்களின் குமாரர் சிவபிரசாத் என்பவரிடமிருந்து சுடலையாண்டி மகன் திரு.வேலு என்பவர் குத்தகை ஒப்பந்தம் செய்துள்ளார்.	24.01.2023 முதல் 23.01.2043

கிராம கணக்கு

திசையன்விளை வட்டம் கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராமம் புஞ்சை புல எண் 195/2 பட்டா எண் 427 எம்.சி.அசோக்குமார் மற்றும் மூன்று பேர்களும், புல எண் 196/2 பட்டா எண் 905 சாகுல் அமீது மரைக்காயர்-1 முகைதீன் ஆச்சியம்மாள்-2 புல எண் 197/1 பட்டா எண் 427 எம்.சி அசோக்குமார் மற்றும் மூன்று பேர்களும், புல எண் 196/2A பட்டா எண் 1047 2.93.00 அருளப்பன் (வ), 196/2B பட்டா எண் 1858 சுடலை ராஜா என "அ" பதிவேட்டில் பதிவாகி உள்ளது

அ 1 விளம்பரம்

பிரஸ்தாப புலத்தில் குவாரி அமைப்பது தொடர்பாக 18.02.2023 அன்று மேற்படி கிராமத்தில் விளம்பரம் செய்யப்பட்டதில் நாளது தேதி வரை எவ்வித ஆட்சேபனையும் பெறப்படவில்லை.

பொது மக்கள் வாக்குமூலம்

பிரஸ்தாப புலத்தில் குவாரி அமைப்பது தொடர்பாக கிராம மக்களிடம் ஆட்சேபனை ஏதுமில்லை. மேலும் பிரஸ்தாப புலத்திற்கு அருகில் உள்ள பட்டாதாரர்கள் சம்மத வாக்குமூலம் அளித்துள்ளனர்.

வில்லங்க சான்று

பிரஸ்தாப சொத்திற்கு 1975 02 ஜனவரி முதல் 29 ஜனவரி 2023 வரை வில்லங்க சான்றினை பரிசீலனை செய்ததில் சொத்தின் மீது எந்த வில்லங்கமும் இல்லை

குடியிருப்பு

பிரஸ்தாப இடத்தில் இருந்து 300 தொலைவில் எவ்வித குடியிருப்பும் இல்லை

இருப்புப்பாதை / மின்இணைப்புகள்

பிரஸ்தாப புலத்திற்கு அருகில் இருப்புப்பாதைகள் ஏதும் இல்லை. உயர்மின் அழுத்த கம்பியில் இருந்து 50 மீ தொலைவு பாதுகாப்பு இடைவெளி விடப்பட்டுள்ளது.

PACL பட்டியல்

PACL நிறுவனத்திற்கு சொந்தமான நிலங்களின் பட்டியலில் இடம்பெறவில்லை.

புராதான சின்னங்கள்

பிரஸ்தாப புலத்தில் இருந்து 500 மீட்டர் சுற்றளவில் கோயில் மசூதி,புராதான சின்னங்கள், நினைவுச்சின்னங்கள் இடுகாடு போன்றவை ஏதும் இல்லை.

தடையாணை புத்தகம்

பிரஸ்தாப புலமானது தடையாணை புத்தகத்தில் இடம் பெறவில்லை

பாதுகாக்கப்பட்ட வனப்பகுதி

பிரஸ்தாப புலத்தின் அருகில் பாதுகாக்கப்பட்ட வனப்பகுதிகள்/மான் சரணாலயம் ஏதும் இல்லை.

நீர்நிலைகள்:

பிரஸ்தாப புலத்தில் நிலவியல் ஓடைகள், நீர்நிலைகள் ஏதும் இல்லை.

குழலியல் அதிர்வு தாங்கு மண்டலம்

பிரஸ்தாப புலமானது வன உயிரின சரணாலயம் தேசிய பூங்கா மற்றும் சூழலியல் அதிர்வு தாங்கு மண்டலத்திற்கு உட்படவில்லை

பாதை வசதி

பிரஸ்தாப புலத்திற்கு செல்லும் வழிப்பாதை கூட்டு வரைப்படத்தில் காண்பிக்கப்பட்டவாறான 194/1B, 191/1, 181/1, 178, 177, 176, 175 மற்றும் 172 வழியாக வந்து பிரதான சாலையான இராதாபுரம் - இராமன்குடி சாலையினை அடைகிறது.

இதில் மேற்படி புல எண். 194/1B ஆனது சிவப்பிரகாசம் என்பவருக்கு பாத்தியப்பட்டதாகும். மேற்படி புல எண்ணை பாதையாக பயன்படுத்த மனுதாரர் திரு. வேலு பாதை உடன்படிக்கை செய்துள்ளார்.

புல எண்கள். 191/1, 181/1 மற்றும் 178/2A ஆகிய திரு. ராஜேந்திரன் என்பவருக்கு பாத்தியப்பட்டதாகும். மேற்படி புல எண்களை பாதையாக பயன்படுத்த மனுதாரர் திரு. வேலு பாதை பாத்தியம் உடன்படிக்கை செய்துள்ளார்.

மேற்படி புல எண்கள் வழியாக வந்து கஸ்தூரிரெங்கபுரம் - பார்க்கனேரி கிளைச்சாலை புல எண்களான 177, 176, 175/5 மற்றும் 172/1 ஆகியவற்றின் வழியாக வந்து இராதாபுரம் - இராமன்குடி பிரதான சாலையை அடைகிறது. மேற்படி கஸ்தூரிரெங்கபுரம் - பார்க்கனேரி கிளைச்சாலை ஆனது கஸ்தூரிரெங்கபுரம் ஊராட்சிக்கு பாத்தியப்பட்டதாகும். அதற்கான ஊராட்சி தீர்மான எண். 13-ன் நகல் இணைக்கப்பட்டுள்ளது.

எனவே மேற்படி திசையன்விளை வட்டம் கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராமம் புல எண்கள். 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P)-ல் மொத்த விஸ்தீரணம் 8.34.40 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க குத்தகை உரிமம் வழங்க கோரி திரு. S. வேலு த/பெ. சுடலையாண்டி என்பவருக்கு அனுமதி வழங்க பரிந்துரை செய்து அறிக்கை செய்கிறேன். இத்துடன் விசாரணை ஆவணங்கள் மற்றும் கிராம கணக்கு நகல்கள் ஆகியவற்றை இத்துடன் இணைத்து அனுப்பியுள்ளேன் என்பதை தெரிவித்துக் கொள்கிறேன்.

இணைப்பு
மேற்கண்டவாறு.

ஓம்/முகம்மது ஷபீர் ஆலம்,
சார் ஆட்சியர்,
சேரன்மகாதேவி.

/உண்மைநகல்/

சார் ஆட்சியருக்காக.
10/07/2023

10/7/23

ாகும்.

புலத்தணிக்கை குறிப்பு

வட்டம்	-	திசையன்விளை
கிராமம்	-	கஸ்தூரிரெங்கபுரம் பகுதி-2
புல எண்	-	196/2B மற்றும் பல.
நாள்.	-	25.05.2023.

திசையன்விளை வட்டம் திசையன்விளை வட்டம் கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராமம் புல எண்கள். 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P)-ல் மொத்த விஸ்தீரணம் 8.34.40 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க குத்தகை உரிமம் வழங்க கோரி திரு. S. வேலு த/பெ சுடலையாண்டி என்பவர் விண்ணப்பம் செய்துள்ளது தொடர்பாக சார்நிலை அலுவலர்களுடன் இன்று (25.05.2023) புலத்தணிக்கை மேற்கொள்ளப்பட்டது.

அமைவிடம்

பிரஸ்தாப புலமானது திசையன்விளை வட்டம் கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராம புன்செய் புல எண்கள் 196/2B (P) (0.15.30), 197/2B (P) (0.51.80), 195/2A(P) (3.10.30) , 195/2B(P) (2.00.0) & 195/3(P) (2.57.0) ஆகிய புல எண்களின் மொத்த விஸ்தீரணம் 8.34.40 ஹெக்டேர் பரப்பில் குவாரி குத்தகை உரிமம் வழங்க கோரியுள்ளார். மேற்படி இடமானது இராமன்குடி முதல் இராதாபுரம் செல்லும் சாலைக்கு வலதுபுறம் அமைந்துள்ளது.

கிராம கணக்கு

மனுதாரர் குத்தகை உரிமம் கோரியுள்ள புல எண்கள் கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராம கணக்கின்படி கிராமம் புஞ்சை சர்வே எண்கள் பின்வருமாறு தாக்காலாகியுள்ளது.

வ.எண்	சர்வே எண்	பட்டா எண்	விஸ்தீரணம்	பட்டாதாரர் பெயர்
1	196/2B	1858	0.33.50	சுடலை ராஜா
2	197/2B	1732	1.30.75	சுடலை ராஜா
3	195/2A	1722	3.79.0	சுடலை ராஜா
4	195/2B	1672	2.96.50	சிவபிரசாத்
5	195/3	332	8.42.00	ராகுல்

நான்குமால் எல்கை :

வ. எண்	சர்வே. எண்	வடக்கு	தெற்கு	கிழக்கு	மேற்கு
1	196/2B	196/2B Part	195	196/2A	197
2	197/2B	197/2B Part	195	196	198
3	195/2A	196,197	195/2B	195/3	195/2A Part
4	195/2B	195/2A	194	195/3	195/2B Part
5	195/3	196	194	195/3 Part	195/2A,2B

புல எண்கள். 196/2B, 197/2B மற்றும் 195/2A நிலமானது மணி அவர்களின் குமாரர் திரு.சுடலை ராஜா என்பவருக்கு இராதாபுரம் சார் பதிவாளர் அலுவலகம் ஆவண எண்கள் 3056/2019, 3054/2019 மற்றும் 2062/2018-ன்படி பாத்தியப்பட்டு ஆவண எண் 311/2023-ன்படி சுடலையாண்டி மகன் திரு.வேலு என்பவர் குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார்.

புல எண். 195/3 ஆனது திரு.ராஜேந்திரன் அவர்களின் குமாரர் திரு. ராகுல் என்பவருக்கு ஆவண எண் 2113/18 மற்றும் 418/2020 ன்படி பாத்தியப்பட்டு இராதாபுரம் சார் பதிவாளர் அலுவலக ஆவண எண் 312/2023 ன்படி சுடலையாண்டி மகன் திரு.வேலு என்பவருடன் குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார்.

புல எண். 195/2B ஆனது திரு. மோகனன் அவர்களின் குமாரரர் திரு. சிவபிரசாத் என்பவருக்கு ஆவண எண் 2554/2018-ன்படி பாத்தியப்பட்டு இராதாபுரம் சார் பதிவாளர் அலுவலக ஆவண எண். 315/2023ன்படி சுடலையாண்டி மகன் திரு. வேலு என்பவருக்கு குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார். குத்தகை காலம் 24.01.2023 முதல் 23.01.243 வரை ஆகும்.

குத்தகை ஒப்பந்தம்

பிரஸ்தாப சொத்தினை மனுதாரர் பின்வருமாறு குத்தகை ஒப்பந்தம் ஏற்படுத்தியுள்ளார்.

வ. எண்	ஆவண எண்	குத்தகை ஒப்பந்தம்	குத்தகை காலம்
1	311/2023	இராதாபுரம் சார் பதிவாளர் அலுவலகம் திரு.மணி அவர்களின் குமாரர் சுடலைராஜா என்பவரிடமிருந்து சுடலையாண்டி மகன் திரு.வேலு என்பவர் குத்தகை ஒப்பந்தம் செய்துள்ளார்.	24.01.2023 முதல் 23.01.2043
2	312/2023	இராதாபுரம் சார் பதிவாளர் அலுவலகம் திரு.ராஜேந்திரன் அவர்களின் குமாரர் ராகுல் என்பவரிடமிருந்து சுடலையாண்டி மகன் திரு.வேலு என்பவர் குத்தகை ஒப்பந்தம் செய்துள்ளார்.	24.01.2023 முதல் 23.01.2043
3	315/2023	இராதாபுரம் சார் பதிவாளர் அலுவலகம் திரு.மோகனன் அவர்களின் குமாரர் சிவபிரசாத் என்பவரிடமிருந்து சுடலையாண்டி மகன் திரு.வேலு என்பவர் குத்தகை ஒப்பந்தம் செய்துள்ளார்.	24.01.2023 முதல் 23.01.2043

கிராம கணக்கு

திசையன்விளை வட்டம் கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராமம் புஞ்சை புல எண் 195/2 பட்டா எண் 427 எம்.சி.அசோக்குமார் மற்றும் மூன்று பேர்களும், புல எண் 196/2 பட்டா எண் 905 சாகுல் அமீது மரைக்காயர்-1 முகைதீன் ஆச்சியம்மாள்-2 புல எண் 197/1 பட்டா எண் 427 எம்.சி அசோக்குமார் மற்றும் மூன்று பேர்களும், புல எண் 196/2A பட்டா எண் 1047 2.93.00 அருளப்பன் (வ), 196/2B பட்டா எண் 1858 சுடலை ராஜா என "அ" பதிவேட்டில் பதிவாகி உள்ளது

அ 1 விளம்பரம்

பிரஸ்தாப புலத்தில் குவாரி அமைப்பது தொடர்பாக 18.02.2023 அன்று மேற்படி கிராமத்தில் விளம்பரம் செய்யப்பட்டதில் நாளது தேதி வரை எவ்வித ஆட்சேபனையும் பெறப்படவில்லை.

பொது மக்கள் வாக்குமூலம்

பிரஸ்தாப புலத்தில் குவாரி அமைப்பது தொடர்பாக கிராம மக்களிடம் ஆட்சேபனை ஏதுமில்லை. மேலும் பிரஸ்தாப புலத்திற்கு அருகில் உள்ள பட்டாதாரர்கள் சம்மத வாக்குமூலம் அளித்துள்ளனர்.

வில்லங்க சான்று

பிரஸ்தாப சொத்திற்கு 1975 02 ஜனவரி முதல் 29 ஜனவரி 2023 வரை வில்லங்க சான்றினை பரிசீலனை செய்ததில் சொத்தின் மீது எந்த வில்லங்கமும் இல்லை

குடியிருப்பு

பிரஸ்தாப இடத்தில் இருந்து 300 தொலைவில் எவ்வித குடியிருப்பும் இல்லை

இருப்புப்பாதை / மின் இணைப்புகள்

பிரஸ்தாப புலத்திற்கு அருகில் இருப்புப்பாதைகள் ஏதும் இல்லை. உயர்மின் அழுத்த கம்பியில் இருந்து 50 மீ தொலைவு பாதுகாப்பு இடைவெளி விடப்பட்டுள்ளது.

PACL பட்டியல்

PACL நிறுவனத்திற்கு சொந்தமான நிலங்களின் பட்டியலில் இடம்பெறவில்லை.

புராதான சின்னங்கள்

பிரஸ்தாப புலத்தில் இருந்து 500 மீட்டர் சுற்றளவில் கோயில் மசூதி,புராதான சின்னங்கள், நினைவுச்சின்னங்கள் இடுகாடு போன்றவை ஏதும் இல்லை.

தடையாணை புத்தகம்

பிரஸ்தாப புலமானது தடையாணை புத்தகத்தில் இடம் பெறவில்லை

பாதுகாக்கப்பட்ட வனப்பகுதி

பிரஸ்தாப புலத்தின் அருகில் பாதுகாக்கப்பட்ட வனப்பகுதிகள்/மான் சரணாலயம் ஏதும் இல்லை.

நீர்நிலைகள்:

பிரஸ்தாப புலத்தில் நிலவியல் ஓடைகள், நீர்நிலைகள் ஏதும் இல்லை.

குழலியல் அதிர்வு தாங்கு மண்டலம்

பிரஸ்தாப புலமானது வன உயிரின சரணாலயம் தேசிய பூங்கா மற்றும் குழலியல் அதிர்வு தாங்கு மண்டலத்திற்கு உட்படவில்லை

பாதை வசதி

பிரஸ்தாப புலத்திற்கு செல்லும் வழிப்பாதை கூட்டு வரைப்படத்தில் காண்பிக்கப்பட்டவாறான 194/1B, 191/1, 181/1, 178, 177, 176, 175 மற்றும் 172 வழியாக வந்து பிரதான சாலையான இராதாபுரம் - இராமன்குடி சாலையினை அடைகிறது.

இதில் மேற்படி புல எண். 194/1B ஆனது சிவப்பிரகாசம் என்பவருக்கு பாத்தியப்பட்டதாகும். மேற்படி புல எண்ணை பாதையாக பயன்படுத்த மனுதாரர் திரு. வேலு பாதை உடன்படிக்கை செய்துள்ளார்.

புல எண்கள். 191/1, 181/1 மற்றும் 178/2A ஆகிய திரு. ராஜேந்திரன் என்பவருக்கு பாத்தியப்பட்டதாகும். மேற்படி புல எண்களை பாதையாக பயன்படுத்த மனுதாரர் திரு. வேலு பாதை பாத்தியம் உடன்படிக்கை செய்துள்ளார்.

மேற்படி புல எண்கள் வழியாக வந்து கஸ்தூரிரெங்கபுரம் - பார்க்கனேரி கிளைச்சாலை புல எண்களான 177, 176, 175/5 மற்றும் 172/1 ஆகியவற்றின் வழியாக வந்து இராதாபுரம் - இராமன்குடி பிரதான சாலையை அடைகிறது. மேற்படி கஸ்தூரிரெங்கபுரம் - பார்க்கனேரி கிளைச்சாலை ஆனது கஸ்தூரிரெங்கபுரம் ஊராட்சிக்கு பாத்தியப்பட்டதாகும். அதற்கான ஊராட்சி தீர்மான எண். 13-ன் நகல் இணைக்கப்பட்டுள்ளது.

எனவே மேற்படி திசையன்விளை வட்டம் கஸ்தூரிரெங்கபுரம் பகுதி-2 கிராமம் புல எண்கள். 196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P)-ல் மொத்த விஸ்தீரணம் 8.34.40 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க குத்தகை உரிமம் வழங்க கோரி திரு. S. வேலு த/பெ. சுடலையாண்டி என்பவருக்கு அனுமதி வழங்க பரிந்துரை செய்து அறிக்கை அனுப்பலாம்.

25.5.23

சார் ஆட்சியர்
சேரன்மகாதேவி

25/5/23

Sri Ramajayam

SRI SELVAM STORES

27, Old Kadambur Road, KAYATHAR - 628 952

✆ 04632 - 261234,
261381
Cell: 94431-61389

Date 26.10.2023

To

Thiru.S.Velu,
S/o. Sudalaiyandi,
5/36, Parkkaneri Keelur,
Tiruvambalapuram,
Radhapuram Taluk,
Tirunelveli District – 627 130

Ref. Your Letter dated

Sub: Regarding blasting work using explosives in your proposed quarry.

Sir,

We are having explosives licence in Form 22 holding No: E/SC/TN/22/746(E112263) situated in survey S.F.No. 41/1, 41/2, 41/3, 41/4, 41/5, 41/6, 41/7, 41/8, 41/9, & 42/2 Meerankulam Part II Village, Thoothukudi district. Our office function at Address – M/s. Sri Selvam Stores, No. 9, Chinnapillaiyar Koil Street, Kayathar Village, Kayathar Taluk, Thoothukudi District -628952

We are enacting 2 Explosives vans for transporting detonators and class 2 separately for our Magazine to our work site and well experienced and licensed blasters and shot firer for safe blasting work since 2 years without untoward incident.

We are willing to undertake work on contract basis at your SF.No. **196/2B(P), 197/2B(P) 195/2A(P), 195/2B(P), & 195/3(P)** (8.34.40) hectares, Kasthurirengapuram Part-II Village, Tisaiyanvilai Taluk, Tirunelveli District.

Thanking You,

For Sri Selvam Stores,

SRI SELVAM STORES 27, Old Kadambur Road, KAYATHAR

Enclosure:

1. Licence Copy

अनुज्ञप्ति प्ररूप एल.ई.-3 / LICENCE FORM LE-3

(विस्फोटक नियम, 2008 का अनुसूची V के भाग 4 के अनुच्छेद 3(क) से (घ) देखिए।)
(See article 3(a) to (d) of Part 4 of Schedule V of Explosives Rules, 2008)

(ग) उपयोग के लिए एक समय पर धारी 1,2,3,4,5,6 या 7 को पत्रिका में रखने के लिए अनुज्ञप्ति
Licence to possess not for use exceeding 1, 2, 4, 5, 6 or 7 in a magazine.

अनुज्ञप्ति सं. (Licence No.) : E/HQ/TN/22/127(133387)
वार्षिक फीस रुपए (Annual Fee Rs): 14400/-

1. Licence is hereby granted to

M/s. Sri Selvam Trading Company (अधिभोगी / Occupier : Shri K. Ananthu Narayanan), Shri K.AAnathanarayanan,Partner, 5/81, Kadambur Road, Kayathar Town Village, Thoothukudi, District-THOOTHUKKUDI, State-Tamil Nadu, Pincode - 628157

को अनुज्ञप्ति अनुदत्त की जाती है।

2. अनुज्ञप्तिधारी की प्रास्थिति | Status of licensee : Partnership Firm

3. अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमान्य है।
Licence is valid only for the following purpose. : Storage for use of **Nitrate Mixture, Safety Fuse, Detonating Fuse, Electric and/or Ordinary Detonators,** - के उपयोग के लिए

4. अनुज्ञप्ति विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमान्य है।
Licence is valid for the following kinds and quantity of explosives :

क्र. Sr. No.	नाम और विवरण Name and Description	उप-प्रभाग Sub-division	एक समय में Quantity at any one time
1.	Nitrate Mixture	0	6400 Kg
2.	Safety Fuse	0	50000 Mtrs
3.	Detonating Fuse	0	50000 Mtrs
4.	Electric and/or Ordinary Detonators	0	14000 Nos

(ख) किसी एक कलैंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (ऊपर 3(क) और (ख) के अधीन अनुज्ञप्ति के लिए) : 15 times as above.
(b) Quantity of explosives to be purchased in a calendar month (as per 3(a) and (b)) :

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञप्त परिसर की पूरी सहमति है।
The licensed premises shall conform to the following drawing(s) : रेखाचित्र क्र. (Drawing No.) E/HQ/TN/22/127(133387) दिनांक (Dated) 03/04/2006

6. अनुज्ञप्ति परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:
Survey No(s). 112, 113/1, 113/2, 117/1 & 117/2, Mill / Town / Village : **Kayathar Village, Kovilpatti** जिला (District) : **THOOTHUKKUDI**, राज्य (State) : **Tamil Nadu** पुलिस थाना (Police Station) : **Kayathar**
दूरभाष (Phone) फैक्स (Fax) पिनकोड (Pincode)

7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं।
The licensed premises consist of following facilities : **3 in the nos Explosives storage room, a lobby and a detonators storage room**

8. अनुज्ञप्ति समय – समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 (4 of 1884) और विस्फोटक नियम, 2008 के उपबंधों, इसमें और अतिरिक्त शर्तों और निम्नलिखित उपाबंधों के अधीन रहते हुए अनुदत्त की जाती है।
The licence is granted subject to the provisions of Explosives Act, 1884 (4 of 1884) as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures :

1. उपर्युक्त क्रम सं. 5 में यथा वर्णित रेखाचित्र (स्थल, निर्माणात्मक और अन्य विशिष्टियां दर्शाते हुए) Drawings (showing site, constructional and other details) as mentioned in serial No. 5 above.
2. अनुज्ञप्ति प्राधिकारी द्वारा इस अनुज्ञप्ति की शर्तों में विनिर्दिष्ट की गई शर्तें और अतिरिक्त शर्तें। Conditions and Additional Conditions of this licence specified by the licensing authority.
3. दूरी प्ररूप DE-2 | Distance Form DE-2

9. यह अनुज्ञप्ति तारीख **31 मार्च 2008** तक विधिमान्य रहेगी। This licence shall remain valid till **31st day of March 2008.**

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट रूट-VII के अधीन उपबंधित इस अनुज्ञप्ति की शर्तों का अतिक्रमण करने या यदि अनुज्ञप्त परिसर पैराग्राफ VI उससे संलग्न उपाबंधों में दी गई विशिष्टियों के अनुरूप नहीं पाए जाने पर निलंबित या रद्द की जा सकती है, जहां वह लागू हो।
This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 03/04/2006

Sd/-
मुख्य विस्फोटक नियंत्रक | Chief Controller of Explosives

Amendments :
- Amendment of Quantity of Explosives/Monthly Purchased limit dated : 03/06/2009
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 04/03/2011

नवीकरण के पृष्ठांकन के लिए स्थान
Space for Endorsement of Renewal

नवीकरण की तारीख Date of Renewal	समाप्ति की तारीख Date of Expiry	अनुज्ञप्ति प्राधिकारी के हस्ताक्षर और मुद्रा Signature of licensing authority and Stamp
02/03/2020	31/03/2024	Chief Controller of Explosives, South Zone, Chennai

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चलाने या उनका दुरुपयोग विधि के अधीन गंभीर दांडिक अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

கிராம நிர்வாக அலுவலகம்
கஸ்தூரிரெங்கபுரம் - II
நாள்: 26.10.2023

திருநெல்வேலி மாவட்டம் திசையன்விளை வட்டம் கஸ்தூரிரெங்கபுரம் பகுதி-II கிராமம் புன்செய் சர்வே எண்கள் 196/2B பரப்பு 0.33.5, 197/2B பரப்பு 1.30.75, 195/2A பரப்பு 3.79.0 முறையே பட்டா எண்கள் 1858, 1732, 1722 இல் மணி மகன் சுடலைராஜா பெயரில் உள்ளது. மேலும் புன்செய் சர்வே எண் 195/2B பரப்பு 2.96.5 ஆனது பட்டா எண் 1672 இல் மோகனன் மகன் சிவபிரசாத் என்பவர் பெயரிலும் புன்செய் சர்வே எண் 195/3 பரப்பு 8.42.0 பட்டா எண் 332 இல் இராஜேந்திரன் மகன் ராஜேந்திரன் பெயரிலும் உள்ளது. மேற்படி பட்டாதாரர்களிடமிருந்து சுடலையாண்டி மகன் வேலு என்பவர் இராதாபுரம் சார்-பதிவாளர் அலுவலக ஆவண எண்கள் 311/2023, 4024/2023, 315/2023, 312/2023 இன்படி ஒத்தகை பத்திரம் பெற்றுள்ளார். மேற்படி புல எண்களை சுற்றி 300 மீட்டர் சுற்றளவில் குடியிருப்புகள், கோவில்கள், பள்ளிக்கூடம் ஏதும் இல்லை என்ற விபரம் மாநில சுற்றுச்சூழல் மதிப்பீடு ஆணைய அலுவலக கோப்புக்கு வழங்கப்படுகிறது.

26/10/23

கிராம நிர்வாக அலுவலர்
12, கஸ்தூரிரெங்கபுரம் பகுதி-2
திசையன்விளை வட்டம்.

TOPOGRAPHICAL VIEW OF KASTHURIRENGAPURAM PART-II ROGH STONE & GRAVEL QUARRY LEASE APPLIED AREA

Name of the Applicant	:	**S. Velu,**
		S/o. Sudalaiyandi,
Address	:	No. 5/36, Parkkaneri Keelur,
		Tiruvambalapuram, Radhapuram,
		Tirunelveli District – 627 130,
		Tamil Nadu State.

Location:

S.F. Nos.	:	196/2B(P), 197/2B(P), 195/2A(P), 195/2B(P) & 195/3(P)
Extent	:	8.34.40Ha
Village	:	Kasthurirengapuram Part-II
Taluk	:	Tisaiyanvilai
District	:	Tirunelveli

Signature of the applicant

(S. Velu)

26/10/23

(Village Administrative Officer)

கிராம நிர்வாக அலுவலர்
கஸ்தூரிரெங்கபுரம் பகுதி-2
திசையன்விளை வட்டம்.

Attestation

THIRU. K.V. GIRIDHAR, I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY – TAMIL NADU
3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai-15.
Phone No. 044-24359973
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr.No.SEIAA-TN/F.No.6976/1(a)/EC.No:4675/2021 dated:05.07.2021

To

Thiru.S.Rajendran
No.13-85/43, Pathitta Villai
Chitharal post
Kanniyakumari - 629 151

Sir/Madam,

Sub: SEIAA, TN – Rough stone,Gravel, Jelly quarry lease over an extent of 4.98.56 Ha at S.F.No. 191/1(P) & 194/1B(P) of Kasthurirengapuram Part-II Village, Radhapuram Taluk, Tirunelveli District, Tamil Nadu by Thiru.S.Rajendran– issue of Environmental Clearance – Regarding.

Ref: 1. Your application submitted Terms of Reference dated: 29.07.2019

2. ToR issued by SEIAA-TN vide Lr. No. SEIAA -TN/ F.No.6976/ SEAC/TOR736/2020 dated 06.08.2020

3. Public hearing conducted on 15.12.2020. The Minutes of the Public hearing received from TNPCB vide Lr.No.T2/TN PCB/ F.26097 /T N V/ PH / 2020/ dated: 05.01.2021.

4. Online Proposal No. SIA/TN/MIN/59829/2021, dated 13.01.2021

5. Project proponent submitted EIA Report to SEIAA-TN on 13.01.2021

6. Minutes of the 200th meeting of SEAC held on 11.02.2021

7. Site Inspection on 07.03.2021

8. Minutes of the 209th SEAC meeting held on 09.04.2021.

9. Minutes of the 212th meeting of SEAC held on 04.05.2021

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

10. Minutes of the 446th Authority meeting held on 18.06.2021 & 19.01.2021

Details of Minor Mineral Activity:-

This has reference to your application 4th & 5th cited. The proposal is for obtaining Environmental Clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below.

Sl. No	Details of the proposal	Data furnished
1.	Name of the Owner/Firm	Thiru.S.Rajendran S/o. Sridharan No.13-85/43, Pathitta Villai Chitharal post Kanniyakumari - 629 151
2.	Type of quarrying (Savudu/Rough Stone/Sand/Granite)	Rough stone,Gravel, Jelly Quarry
3.	S.F No. Of the quarry site with area break-up	191/1(P) & 194/1B(P)
4.	Village in which situated	Kasthurirengapuram part-II
5.	Taluk in which situated	Radhapuram
6.	District in which situated	Tirunelveli
7.	Extent of quarry (in ha.)	4.98.56 Ha
8.	Period of quarrying proposed	5 Years
9.	Type of mining	Opencast semi Mechanized Mining.
10.	Production (Quantity in m^3)	12,29,205 cu.m of Rough Stone and 15,270 cu.m of Gravel,56,336 cu.m of weathered rock
11.	Latitude & Longitude of all corners of the quarry site	08°16'19'' N to 08°16'25" N 77°46'47" E to 77°46'58" E
12.	Topo Sheet No.	58 H/11, 12, 15 & 16
13.	ToR Issued	ToR issued by SEIAA-TN vide Lr. No. SEIAA -TN/ F.No.6976/ SEAC/TOR736/2020 dated 06.08.2020

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

14.	Public Hearing details	Public hearing conducted on 15.12.2020. The Minutes of the Public hearing received from TNPCB vide Lr.No.T2/TN PCB/ F.26097 /T N V/ PH / 2020/ dated: 05.01.2021.
15.	Man Power requirement per day:	24 Employees
16.	Precise area communication approved by the District Collector with date	Rc. No. M1/27169/2018 dated: 08.04.2019
17.	Mining Plan approved by the Deputy Director of Geology and Mining with date	Rc. No. M1/27169/2018 dated: 13.05.2019
18.	Water requirement: 1. Drinking & domestic purposes (in KLD) 2. Dust suppression & Green Belt (in KLD)	4.5 KLD 1.0 KLD Water tankers 2.5 KLD & 1.0 KLD Existing bore well
19.	Power requirement: a. Domestic Purpose b. Quarrying machineries:	TNEB 2,550 Litres of HSD for Gravel, 28,170 Litres of HSD for Weathered Rock, 6,14,603 Litres of HSD for Rough stone
20.	Depth of quarrying	65m BGL
21.	Depth of water table	58m-54m
22.	Project Cost (excluding EMP cost)	Rs. 93.94 Lakhs
23.	EMP cost	Rs. 5.10 Lakhs
24.	CER cost	Rs. 1.98 Lakhs
25.	AD mines 500m cluster letter	Rc.No.M1/27169/2018 dated: 20.05.2019
26.	VAO certificate regarding 300m radius	Letter dated:26.07.2019

Validity:

This Environmental Clearance is granted for the production in 12,29,205 cu.m of Rough Stone and 15,270 cu.m of Gravel,56,336 cu.m of weathered rock for the period of 5 Years from the date of execution of the mining lease.

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

Affidavit

The Proponent has furnished affidavit in Hundred Rupees stamp paper attested by the Notary stating that

I Thiru.S.Rajendran S/o. Sridharan No.13-85/43, Pathitta Villai Chitharal post Kanniyakumari - 629 151, solemnly declare and sincerely affirm that:

I have applied for getting Environment Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of Rough stone,Gravel, Jelly quarry lease over an extent of 4.98.56 Ha at S.F.No. 191/1(P) & 194/1B(P) of Kasthurirengapuram Part-II Village, Radhapuram Taluk, Tirunelveli District, Tamil Nadu, Tamilnadu State.

1. We swear to state and confirm that within 10km radius of the quarry site, we have applied for environmental clearance, none of the following is situated
   a. Protected areas notified under the wild life (Protection) Act, 1972
   b. Critically polluted areas as notified by the central pollution control board constituted under water (Prevention and Control of Pollution) Act 1974.
   c. Eco-Sensitive areas as identified by the Forest Dept/ State Govt
   d. Karnataka Interstate boundary is located about 6.65km on the northern sides from the proposed site.
   e. International boundaries within 10km radius from the boundary of the proposed site.
2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities in addition to CSR and EMP.

CER Activity	Project Cost (Rs) in lakhs	CER Cost 2.0% of project cost (Rs) in lakhs
Developing drinking water facilities in to Kasthurirengapuram Govt School	99.04	1.98
Total cost Allocation	**99.04**	**1.98**

3. There are quarries located within 500m radius from the periphery of our quarry.

Proposed quarries

Abandoned Quarry						
S.No	Name of the Owner	Name of the	Village and Taluk	S.F.No.	Extent in	Lease Status

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

		Mineral			Ha	
1	C.Sugu	Rough Stone	Kasthurirengapuram Part-II Village, Thisayanvilai Taluk	193(P),	3.53.0Ha	Non Operative
2	K.Rajendiran	Rough Stone	Kasthurirengapuram Part-II Village, Thisayanvilai Taluk	190/2, Rough stone	4.98.0	Non Operative
Existing Quarry						
1	S.Rajendiran	Rough Stone	Kasthurirengapuram Part-II Village, Thisayanvilai Taluk	181/1A(P) Rough stone	2.45.48	Operative
2	C.Sugu	Rough Stone	Kasthurirengapuram Part-II Village, Thisayanvilai Taluk	193(P)	1.26.25	Operative
Proposed Quarry						
1	S.Rajendiran	Rough Stone	Kasthurirengapuram Part-II Village, Thisayanvilai Taluk	191/1A(P), 194/3B Rough stone	4.98.56	Proposed
2	C.Sugu	Rough Stone	Kasthurirengapuram Part-II Village, Thisayanvilai Taluk	192(P)	3.92.7	Proposed

4. There will not be any hindrance or disturbance to the people living on enroute/nearby my quarry site while transporting the mined out materials and due to quarrying activities.
5. There are no habitations/villages located within 300m radius from the periphery of my quarry.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the labourers working in my proposed quarry.

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

200 A

8. The existing road from the main road to the quarry is in good condition and the same will be maintained and utilized for transportation of Rough Stone.
9. I will not engage any child labour in our quarry site and I aware that engaging child labour is punishable under the law.
10. All types of safety / protective equipment will be provided to all the labourers working in our quarry.
11. No permanent structures, temples etc are located within 500m radius from the periphery of my quarry.
12. The quarrying activity has not yet commenced and it will be carried out only after obtaing environmental clearance

Appraisal by SEAC:-

The proposal was placed for appraisal in this 212th meeting of SEAC held on 04.05.2021. Based on the presentation made and the documents furnished by the Project Proponent, SEAC decided to recommend the project proposal to SEIAA for grant of Environmental Clearance subject to the following conditions, in addition to standard conditions stipulated by the MoEF&CC:

1. Restricting the maximum depth of mining up to 65 m (1m of Gravel, 4m of Weathered Rock, & 60 m of rough stone) considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining and the same was accepted by the proponent. Consequently, the maximum minable quantities of 15,270 cu.m of Gravel. 56336 cu.m of Weathered Rock, & 12.29,205 cu.m of rough stone are permitted for mining over five years.
2. The proponent shall form the proper benches as per the approved mining plan during the operation of the quarry considering the hydro-geological regime of the surrounding area as well as for safe mining.
3. 3.The Proponent should install cautionary board at the entry and important locations of the mining site displaying caution notice to the public about the danger of the entering the mining lease.
4. The Project Proponent should not carry out mining below the ground water table without

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

201 A

the NoC/ permission from the Central Ground Water Authority.

5. Fugitive emission measurements should be carried out during the mining operation and the report on the same may be submitted to SEIAA once in six months.
6. The Proponent shall ensure that the Noise level is monitored during mining operation at the project site and adequate noise level reduction measures undertaken.
7. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit as per the conditions and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
8. Greenbelt needs to be developed in the periphery of the mines area so that at the closure time the trees would have grown well.
9. Ground water quality monitoring should be conducted once every six months and the report should be submitted to TNPCB.
10. After mining is completed proper leveling should be done by the Project proponent & Environmental Management Plan furnished by the Proponent should be strictly followed.
11. The Project proponent shall after ceasing mining operations. Undertake re- grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition that is fit for the growth of fodder, flora. fauna etc.
12. Proper barrier to reduce noise level dust pollution and to hold down any possible fly material (debris) should be established by providing greenbelt and/or metal sheets along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
13. The operation of the quarry should not affect the agriculture activities & water bodies near the project site and a safety distance of S0m from the water body should be left vacant without any mining activity.
14. Transportation of the quarried materials shall not cause any hindrance to the Village people or damage to the existing Village road.
15. The Project Proponent shall comply with the mining and other relevant rules and regulations wherever applicable.
16. The proponent shall develop an adequate greenbelt with native species on the periphery of the mine lease area before the commencement of the mining activity in consultation with DFO of the concerned district/agriculture.

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

202 A

17. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
18. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying operation. If the project site attracts the NBWL clearance.
19. To ensure safety measures along the boundary of the quarry site. Security guards are to be posted during the entire period of the mining operation.
20. The mine closure plan submitted by the project proponent shall be strictly followed after the lapse of the mine.
21. 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 furnish the detailed EMP mentioning all the activities as proposed in the CER and furnish the same before placing the subject to SEIAA.
22. All the condition imposed by the Deputy Director. Geology & Mining. Tirunelveli District in the mining plan approval Lr. Rc.No. Ml/ 27169/ 2018 D: 13.05.2019 and the precise area communication Lr. Rc..No. Ml/ 27169/ 2018 D: 08.04.2019 should be strictly followed.

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 446th Authority meeting held on 18.06.2021 & 19.06.2021. After detailed discussion, the Authority unanimously accepts the recommendation of SEAC and decided to grant Environmental Clearance subject to the conditions as recommended by SEAC & normal condition in addition to the following condition

1. 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 furnish the detailed EMP, mentioning all the CER activities for Rs.1.98 lakh towards developing drinking water facilities in to Kasthurirengapuram Govt. School as committed. All the CER activity shall be carried out before obtaining CTO from TNPCB.
2. As committed in the public hearing compliance, the proponent shall ensure that the Job opportunity shall be mainly given to the local public for working in the mines.

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

Part-A: Conditions to be Complied before commencing mining operations:-

1. **The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that**
   - **I. The project has been accorded Environmental Clearance.**
   - **II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.**
   - **III. Environmental Clearance may also be seen on the website of the SEIAA.**
   - **IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.**
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. **A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.**
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
14. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
15. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
17. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
18. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
19. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.
20. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
    i. Roads shall be graded to mitigate the dust emission.
    ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
21. The following measures are to be implemented to reduce Noise Pollution
    i. Proper and regular maintenance of vehicles and other equipment
    ii. Limiting time exposure of workers to excessive noise.
    iii. The workers employed shall be provided with protection equipment and earmuffs etc.
    iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.

22. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.

23. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.

24. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.

25. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.

26. The following measures are to be adopted to control erosion of dumps:-

i. Retention/ toe walls shall be provided at the foot of the dumps.

ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.

27. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous& other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.

28. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

29. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.

30. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

31. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
32. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
33. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
34. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
35. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
36. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
37. Bunds to be provided at the boundary of the project site.
38. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
39. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
40. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
41. The Project Proponent shall provide solar lighting system to the nearby villages.
42. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
43. Safety equipments to be provided to all the employees.
44. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

45. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
46. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
47. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
48. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
49. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
50. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
51. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
52. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
53. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
54. All the commitment made by the project proponent in the proposal shall be strictly followed.
55. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
56. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A. No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, O.A.No.404/ 2016 (M.A.No. 758/2016, M.A. No. 920 /2016, M.A.No.1122/2016, M.A.No. 12/2017 &

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

M.A.No.843/2017), O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).

57. All required sanitary and hygienic measures should be in place before starting construction activities and they have to be maintained throughout the construction phase.
58. The company shall stress upon the preventive aspects of occupational health.
59. A separate environment and safety management cell with qualified staff shall be set up before commissioning of construction activities and shall be retained throughout the lifetime of the industry, for implementation of the stipulated environmental safeguards.
60. A scientific site/ ecological rehabilitation and restoration plan on long term basis should be drawn to carryout restoration with native species and Bio diversity.
61. The Green/Blue plan should guide the restoration of the site. The rehabilitation/restoration plan should be submitted to SEIAA-TN within one month. If applicable.
62. The existing water bodies should not be disturbed to ensure sustainable environment for aquatic life forms.
63. The proponent should completely implement all environmental pollution control measures as detailed in the EIA report and in the additional report.
64. Avenue plantation wherever needed has to be carried out along the route for dust suppression.
65. The green belt developed for the prevention of dust pollution should not form a part of the larger green belt development envisaged in the EIA report.
66. Regular monitoring and check up for pulmonary and carcinogenic diseases to be carried out regularly, not only for the workers involved in the mines but also to the people in the villages adjoining the mines. Interaction with the Primary Health Centre & district medical officer should be on regular basis to monitor the incidence of the diseases if any and to provide suitable medical facility for the patients.
67. Monitoring of well water levels and water quality of the wells in the locations furnished in the EIA report shall be done during pre-monsoon and post monsoon period and results submitted to the Regional Office of MoEF, Chennai and SEIAA.
68. Monitoring of water quality and air quality in and around the project site in the selected monitoring points as mentioned in the EIA report shall be continued regularly involving Academic Institutions.
69. Hydro geological study including infiltration test shall be conducted by any reputed agency to estimate leachate quantity.

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

209 A

70. Regular medical check-up for mine workers and nearby residents around the project site involving community medical centre/NIMH shall be conducted.
71. As per norms, the health study should be conducted through competent/approved health organization and report submitted for one year.
72. The effective safe guard measures shall be provided to control particulate dust level in critical areas, transfer points and haul road within the mine area.
73. NOC from the State GWA for drawing ground water shall be obtained, if ground water table is intersected.
74. Green belt shall be provided as per norms of MoEF & CC, GOI, in consultation with local DFO.
75. All the recommendations made in the EIA report of the project shall be effectively implemented.
76. A booklet containing the Dos and Don'ts shall be prepared in vernacular languages for the use of the mine engineers/ managers and the workers to ensure that all necessary environmental, safety and health measures are undertaken.
77. All the environmental protection measures and safeguards as recommended in the EIA report shall be complied with.
78. Hydro geological study of the area shall be reviewed annually and report submitted to the Authority. No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the operation of the Mining activity.
79. A separate Environmental Management Cell equipped with full fledged laboratory facilities to carry out the various Environmental Management and Monitoring functions shall be set up under the control of a Senior Executive.
80. The project proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF at Chennai, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; RSPM, SO2, NOx or critical sector parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be

05 JUL 2021

MEMBER SECRETARY
SEIAA-TN

drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.

13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules.

MEMBER SECRETARY
SEIAA-TN

2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.

MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Principal Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
6. The Chairman, TNPC Board, 76, Mount Salai, Guindy, Chennai - 32.
7. The District Collector, Tirunelveli District.
8. The Commissioner of Geology and Mines, Guindy, Chennai - 32.
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.

05 JUL 2021

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004551F

Report Number: GLCS/TR/954/2024-25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/954
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
Location Name	**AN-1 – Project Area SE Corner**	**Date of Completion**	18.05.2024
Location Co-ordinates		**8°16'27.45"N 77°46'42.08"E**	

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.00	35.5	42.9	**40.62**
2	7.00	36.9	45.1	**42.70**
3	8.00	39.1	40.6	**39.91**
4	9.00	40.7	49.8	**47.29**
5	10.00	41.5	51.3	**48.72**
6	11.00	42.4	50.9	**48.46**
7	12.00	40.8	51.3	**48.66**
8	13.00	39.1	50.8	**48.07**
9	14.00	38.5	49.3	**46.64**
10	15.00	36.9	49.3	**46.53**
11	16.00	35.5	46.1	**43.45**
12	17.00	36.9	47.5	**44.85**
13	18.00	36.1	48.2	**45.45**
14	19.00	37.2	51.5	**48.65**
15	20.00	36.6	46.2	**43.64**

Global Lab and Consultancy Services LLP Laboratory Salem-636016

For Global Lab and Consultancy Services LLP

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in
TC - 6060

TEST REPORT

ULR-TC606024000004551F

Report Number: GLCS/TR/954/2024-25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/954
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
Location Name	**AN-1 – Project Area SE Corner**	**Date of Completion**	18.05.2024
Location Co-ordinates		**8°16'27.45"N 77°46'42.08"E**	

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.00	35.5	42.9	**40.62**
2	7.00	36.9	45.1	**42.70**
3	8.00	39.1	40.6	**39.91**
4	9.00	40.7	49.8	**47.29**
5	10.00	41.5	51.3	**48.72**
6	11.00	42.4	50.9	**48.46**
7	12.00	40.8	51.3	**48.66**
8	13.00	39.1	50.8	**48.07**
9	14.00	38.5	49.3	**46.64**
10	15.00	36.9	49.3	**46.53**
11	16.00	35.5	46.1	**43.45**
12	17.00	36.9	47.5	**44.85**
13	18.00	36.1	48.2	**45.45**
14	19.00	37.2	51.5	**48.65**
15	20.00	36.6	46.2	**43.64**

Global Lab and Consultancy Services LLP Laboratory Salem-636016

For Global Lab and Consultancy Services LLP

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in
TC - 6060

TEST REPORT

ULR-TC606024000004551F

Report Number: GLCS/TR/954/2024-25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***	***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***

Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/954
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
		Date of Completion	18.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.00	35.1	44.5	**41.96**
17	22.00	33.5	40.1	**37.95**
18	23.00	34.8	41.2	**39.09**
19	0.00	33.6	44.7	**42.01**
20	1.00	34.1	39.8	**37.82**
21	2.00	33.6	40.1	**37.97**
22	3.00	32.9	37.4	**35.71**
23	4.00	33.7	36.9	**35.59**
24	5.00	33.1	37.3	**35.69**
		Day Mean dB(A)		**45.35**
		Night Mean dB(A)		**37.73**
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)				**Day Time : 75 dB (A)** **Night Time : 70dB (A)**

Note: MoEFCC – Ministry of Environment Forest and Climate Change; **CPCB –** Central Pollution Control Board.

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

*******End of Report*******

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004552F

Report Number: GLCS/TR/955/2024-25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/955
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
Location Name	**AN-2 – Project Area NW Corner**	**Date of Completion**	18.05.2024
Location Co-ordinates		**8°16'37.40"N 77°46'35.93"E**	

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.30	36.5	45.1	**42.65**
2	7.30	37.9	48.5	**45.85**
3	8.30	40.5	51.2	**48.54**
4	9.30	41.9	52.5	**49.85**
5	10.30	38.8	50.5	**47.77**
6	11.30	40.5	50.6	**47.99**
7	12.30	41.8	52.6	**49.94**
8	13.30	39.5	53.5	**50.66**
9	14.30	40.7	50.7	**48.10**
10	15.30	38.5	50.9	**48.10**
11	16.30	40.9	51	**48.39**
12	17.30	39.5	48.5	**46.00**
13	18.30	38.2	50.7	**47.93**
14	19.30	36.6	47.1	**44.46**
15	20.30	38.1	49.5	**46.79**

Global Lab and Consultancy Services LLP Laboratory Salem-636016

For Global Lab and Consultancy Services LLP

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in
GLCS Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
TC - 6060

TEST REPORT

ULR-TC606024000004552F

Report Number: GLCS/TR/955/2024-25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/955
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
		Date of Completion	18.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.30	33.6	44.5	**41.83**
17	22.30	32.9	43.6	**40.94**
18	23.30	31.4	42.7	**40.00**
19	0.30	30.5	38.5	**36.13**
20	1.30	32.5	43.1	**40.45**
21	2.30	32.9	37.4	**35.71**
22	3.30	33.4	39.1	**37.12**
23	4.30	32.7	37.4	**35.66**
24	5.30	32.5	39.2	**37.03**
		Day Mean dB(A)		**47.18**
		Night Mean dB(A)		**38.32**
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)				**Day Time : 75 dB (A)** **Night Time : 70 dB (A)**

Note: MoEFCC – Ministry of Environment Forest and Climate Change; **CPCB** – Central Pollution Control Board

Global Lab and Consultancy Services LLP Laboratory Salem-636016

For Global Lab and Consultancy Services LLP

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004553F

Report Number: GLCS/TR/956/2024 -25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***	***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***

Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/956
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
Location Name	**AN3- Near Existing Quarry**	**Date of Completion**	18.05.2024
Location Co-ordinates		**8°16'19.46"N 77°46'55.39"E**	

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.15	36.5	40.1	**38.66**
2	7.15	36.1	49.5	**46.68**
3	8.15	39.5	52.8	**49.99**
4	9.15	40.8	55.1	**52.25**
5	10.15	41.7	53.6	**50.86**
6	11.15	42.6	54.7	**51.95**
7	12.15	41.9	53.8	**51.06**
8	13.15	40.8	53.6	**50.81**
9	14.15	42.5	54.5	**51.76**
10	15.15	40.8	54.6	**51.77**
11	16.15	41.9	51.1	**48.58**
12	17.15	39.5	49.8	**47.18**
13	18.15	38.4	50.9	**48.13**
14	19.15	36.3	50.1	**47.27**
15	20.15	34.5	45.6	**42.91**

Global Lab and Consultancy Services LLP Laboratory Salem-636016

For Global Lab and Consultancy Services LLP

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in
TC - 6060

TEST REPORT

ULR-TC606024000004553F

Report Number: GLCS/TR/956/2024-25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***	***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***

Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/956
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
		Date of Completion	18.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.15	33.8	45.6	**42.87**
17	22.15	34.1	39.5	**37.59**
18	23.15	34.5	40.1	**38.15**
19	0.15	33.6	39.5	**37.48**
20	1.15	33.8	36.4	**35.29**
21	2.15	33.8	38.5	**36.76**
22	3.15	32.5	38.1	**36.15**
23	4.15	33.5	39.5	**37.46**
24	5.15	32.9	37.5	**35.78**
		Day Mean dB(A)		**47.67**
		Night Mean dB(A)		**36.83**
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)				**Day Time : 75 dB (A)** **Night Time : 70 dB (A)**

Note: MoEFCC – Ministry of Environment Forest and Climate Change; **CPCB** – Central Pollution Control Board.

Global Lab and Consultancy Services LLP Laboratory Salem-636016

For Global Lab and Consultancy Services LLP

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

*****End of Report*****

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004554F

Report Number: GLCS/TR/957/2024 -25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/957
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
Location Name	**AN-4 – Mudavankumal Near School**	**Date of Completion**	18.05.2024
Location Co-ordinates		**8°17'26.10"N 77°45'58.75"E**	

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.00	37.9	50.6	**47.82**
2	7.00	38.2	52.5	**49.65**
3	8.00	39.5	50.6	**47.91**
4	9.00	40.5	51.6	**48.91**
5	10.00	41.8	52.6	**49.94**
6	11.00	39.6	52.9	**50.09**
7	12.00	38.5	49.5	**46.82**
8	13.00	40.2	51.2	**48.52**
9	14.00	39.6	50.7	**48.01**
10	15.00	38.5	52.3	**49.47**
11	16.00	41.1	50.7	**48.14**
12	17.00	38.5	49.1	**46.45**
13	18.00	36.5	50.1	**47.28**
14	19.00	35.9	46.6	**43.94**
15	20.00	37.1	47.2	**44.59**

Global Lab and Consultancy Services LLP Laboratory Salem-636016

For Global Lab and Consultancy Services LLP

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in
TC - 6060

TEST REPORT

ULR-TC606024000004554F

Report Number: GLCS/TR/957/2024-25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***	***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***

Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/957
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
		Date of Completion	18.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.00	36.6	45.9	**43.37**
17	22.00	35.9	43.8	**41.44**
18	23.00	34.9	43.3	**40.88**
19	0.00	33.6	42.1	**39.66**
20	1.00	32.8	40.6	**38.26**
21	2.00	33.7	38.5	**36.73**
22	3.00	33.2	39.3	**37.24**
23	4.00	32.6	38.5	**36.48**
24	5.00	33.1	39.2	**37.14**
		Day Mean dB(A)		**47.20**
		Night Mean dB(A)		**38.48**
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)				**Day Time : 75 dB (A)** **Night Time : 70 dB (A)**

Note: MoEFCC – Ministry of Environment Forest and Climate Change; **CPCB –** Central Pollution Control Board.

For Global Lab and Consultancy Services LLP

Laboratory

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

TC - 6060

TEST REPORT

ULR-TC606024000004555F

Report Number: GLCS/TR/958/2024 -25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/958
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
Location Name	**AN5- Kilurcheri**	**Date of Completion**	18.05.2024
Location Co-ordinates		**8°14'49.31"N 77°43'47.18"E**	

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.45	36.1	45.5	**42.96**
2	7.45	39.5	51.1	**48.38**
3	8.45	41.9	52.8	**50.13**
4	9.45	42.5	53.2	**50.54**
5	10.45	41.7	55.6	**52.76**
6	11.45	39.8	53.9	**51.06**
7	12.45	40.5	52.8	**50.04**
8	13.45	39.7	49.9	**47.29**
9	14.45	39.1	53.1	**50.26**
10	15.45	40.2	52.9	**50.12**
11	16.45	39.5	50.8	**48.10**
12	17.45	42.8	52.8	**50.20**
13	18.45	41.7	51.4	**48.83**
14	19.45	37.6	43.1	**41.17**
15	20.45	39.8	44.6	**42.83**

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004555F

Report Number: GLCS/TR/958/2024-25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***	***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***

Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/958
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
		Date of Completion	18.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.45	36.6	42.2	**40.25**
17	22.45	38.1	39.5	**39.86**
18	23.45	33.6	40.1	**37.97**
19	0.45	34.5	39.1	**37.38**
20	1.45	33.8	39.1	**37.21**
21	2.45	33.3	38.9	**36.95**
22	3.45	33.5	40.8	**38.53**
23	4.45	34.1	38.1	**36.55**
24	5.45	33.9	39.6	**37.62**
		Day Mean dB(A)		**47.81**
		Night Mean dB(A)		**37.63**
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)				**Day Time : 75 dB (A)** **Night Time : 70 dB (A)**

Note: MoEFCC – Ministry of Environment Forest and Climate Change; **CPCB** – Central Pollution Control Board.

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

TC - 6060

TEST REPORT

ULR-TC606024000004556F

Report Number: GLCS/TR/959/2024 -25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/959
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
Location Name	**AN6- Perunkulam**	**Date of Completion**	18.05.2024
Location Co-ordinates		**8°18'28.05"N 77°48'42.36"E**	

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.00	32.9	38.5	**36.55**
2	7.00	36.6	47.9	**45.20**
3	8.00	37.1	46.2	**43.69**
4	9.00	40.5	51.9	**49.19**
5	10.00	39.6	51.1	**48.39**
6	11.00	37.2	49.5	**46.74**
7	11.30	40.1	51.9	**49.17**
8	13.00	42.5	52.7	**50.09**
9	14.00	43.9	54.9	**52.22**
10	15.00	42.8	54.5	**51.77**
11	16.00	41.4	55.9	**53.04**
12	17.00	40.1	58.6	**55.65**
13	18.00	39.5	51.8	**49.04**
14	19.00	39.5	53.8	**50.95**
15	20.00	40.1	53.8	**50.97**

Global Lab and Consultancy Services LLP Laboratory Salem-636016

For Global Lab and Consultancy Services LLP

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 15 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 only 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 requesting report number and report date along with report copy.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in
TC - 6060

TEST REPORT

ULR-TC606024000004556F

Report Number: GLCS/TR/959/2024-25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/959
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
		Date of Completion	18.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.00	38.5	51.5	**48.70**
17	22.00	36.3	46.9	**44.25**
18	23.00	35.8	44.1	**41.69**
19	0.00	36.2	45.5	**42.97**
20	1.00	34.5	41.1	**38.95**
21	2.00	33.6	38.9	**37.01**
22	3.00	32.8	39.5	**37.33**
23	4.00	34.5	38.9	**37.23**
24	5.00	33.1	37.2	**35.62**
		Day Mean dB(A)		**48.83**
		Night Mean dB(A)		**40.42**
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)				**Day Time : 75 dB (A)** **Night Time : 70 dB (A)**

Note: MoEFCC – Ministry of Environment Forest and Climate Change; **CPCB** – Central Pollution Control Board.

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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 requesting report number and report date along with report copy.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004557F

Report Number: GLCS/TR/960/2024 -25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/960
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
Location Name	**AN7- Thottavilai**	**Date of Completion**	18.05.2024
Location Co-ordinates		**8°15'19.05"N 77°47'55.07"E**	

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.45	36.9	46.3	**43.76**
2	7.45	38.1	50.1	**47.36**
3	8.45	39.5	51.4	**48.66**
4	9.45	41.2	52.8	**50.08**
5	10.45	43.9	54.9	**52.22**
6	11.45	44.5	56.1	**53.38**
7	12.45	43.9	56.6	**53.82**
8	13.45	42.8	59.8	**56.88**
9	14.45	41.9	54.8	**52.01**
10	15.45	42.5	54.6	**51.85**
11	16.45	42.7	53.8	**51.11**
12	17.45	40.9	53.9	**51.10**
13	18.45	38.9	52.4	**49.58**
14	19.45	39.2	47.5	**45.09**
15	20.45	37.5	46.1	**43.65**

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP * Laboratory * Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004557F

Report Number: GLCS/TR/960/2024-25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***	***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***

Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/960
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
		Date of Completion	18.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.45	36.5	45.5	**43.00**
17	22.45	34.9	40.6	**38.62**
18	23.45	33.6	39.4	**37.40**
19	0.45	33.1	38.2	**36.36**
20	1.45	34.6	37.9	**36.56**
21	2.45	33.6	38.5	**36.71**
22	3.45	32.6	38.5	**36.48**
23	4.45	34.1	40.2	**38.14**
24	5.45	33.9	39.6	**37.62**
		Day Mean dB(A)		**48.95**
		Night Mean dB(A)		**37.88**
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)				**Day Time : 75 dB (A)** **Night Time : 70 dB (A)**

Note: MoEFCC – Ministry of Environment Forest and Climate Change; **CPCB –** Central Pollution Control Board.

Global Lab and Consultancy Services LLP Laboratory Salem-636016

For Global Lab and Consultancy Services LLP

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

*****End of Report*****

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004558F

Report Number: GLCS/TR/961/2024 -25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/961
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
Location Name	**AN8- Karaisithupudur**	**Date of Completion**	18.05.2024
Location Co-ordinates		**8°17'11.68"N 77°50'16.13"E**	

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
1	6.30	33.6	45.3	**42.57**
2	7.30	34.1	49.5	**46.61**
3	8.30	36.9	51.1	**48.25**
4	9.30	38.5	54.8	**51.89**
5	10.30	38.6	56.2	**53.26**
6	11.30	37.1	59.5	**56.51**
7	12.30	40.5	53.6	**50.80**
8	13.30	39.1	54.8	**51.91**
9	14.30	41.8	55.9	**53.06**
10	15.30	43.6	52.8	**50.28**
11	16.30	40.5	51.5	**48.82**
12	17.30	39.6	50.8	**48.11**
13	18.30	37.5	49.2	**46.47**
14	19.30	36.6	42.8	**40.72**
15	20.30	35.5	43.6	**41.48**

Global Lab and Consultancy Services LLP Laboratory Salem-636016

For Global Lab and Consultancy Services LLP

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 15 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 only 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.

BRANCH OFFICES: **CHENNAI** (Mobile : 70944 53636) & **COIMBATORE** (Mobile : 70944 54646)

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004558F

Report Number: GLCS/TR/961/2024-25 **Report Date:** 03.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***	***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha,* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***

Attention	-	**Sampling Condition**	Good - Active
TRF No	416	**Sampled by**	Laboratory
Sample Name	Noise Level Monitoring	**Sampling Method**	GLCS/SOP/N/014
Sample Description	Ambient Noise	**Sample Code**	GLCS/961
Sampling Time	Every 60 minutes	**Sample Receipt Date**	02.05.2024
Sampling Date	30.04.2024 - 01.05.2024	**Date of Analysis**	02.05.2024
		Date of Completion	18.05.2024

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.30	34.5	42.5	**40.13**
17	22.30	33.3	46.5	**43.69**
18	23.30	33.9	41.8	**39.44**
19	0.30	34.1	40.2	**38.14**
20	1.30	34.9	39.2	**37.56**
21	2.30	33.6	37.4	**35.90**
22	3.30	32.6	36.1	**34.69**
23	4.30	33.5	38.9	**36.99**
24	5.30	33.8	38.1	**36.46**
		Day Mean dB(A)		**47.92**
		Night Mean dB(A)		**38.11**
Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial)				**Day Time : 75 dB (A)** **Night Time : 70 dB (A)**

Note: MoEFCC – Ministry of Environment Forest and Climate Change; **CPCB** – Central Pollution Control Board

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

*****End of Report*****

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in
TC - 6060

TEST REPORT

ULR-TC606024000004682F

Report Number: GLCS/TR/1563/2024-25(1) **Report Date:** 10.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
TRF No	658	**Sample Quantity**	2 kg
Sample Name	Soil - 1	**Sampled by**	Laboratory
Sample Description	Lumps	**Sampling Method**	GLCS/SOP/S/014
Location Name	S1 – Project Area	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024 - 21.05.2024	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°16'29.53"N** **77°46'42.06"E**
Sample Code	GLCS / 1563		

Sl. No	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS
1	Organic Matter	GLCS/SOP/S/003 Issue No:1 2016	%	0.22
2	pH	IS 2720 PART 26:1987 (RA 2021)	-	5.6
3	Specific Electrical Conductivity	IS 14767 :2000 RA 2021	µS/cm	128
4	Available Phosphorous	GLCS/SOP/S/005 Issue No:1 2016	mg/kg	16.91
5	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006 Issue No:1 2016	mg/100g	1.45
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020 Issue No:1 2017	meq/100g	0.3

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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 requesting report number and report date along with report copy.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004682F

Report Number: GLCS/TR/1563/2024-25(1) **Report Date:** 10.06.2024

Sl. NO	TEST PARAMETER		TEST METHOD	UNITS	RESULTS
7	Exchangeable Magnesium (as Mg)		GLCS/SOP/S/021 Issue No:1 2017	meq/100g	0.1
8	Sulphate as SO_4		GLCS/SOP/S/009 Issue No:1 2016	µg/100g	10.7
9	Cation Exchange Capacity		GLCS/SOP/S/024 Issue No:1 2017	meq/100g	42.6
10	Bulk Density		GLCS/SOP/S/017 Issue No:1 2017	g/cc	1.17
11	Texture	Sand	GLCS/SOP/S/015 Issue No:1 2017	%	24.5
12		Slit	GLCS/SOP/S/015 Issue No:1 2017	%	42.11
13		Clay	GLCS/SOP/S/015 Issue No:1 2017	%	33.38
14	Water Holding Capacity		GLCS/SOP/S/016 Issue No:1 2017	%	21.0
15	Available Nitrogen as N		GLCS/SOP/S/029 Issue No:1 2016	Kg/ha	351.2
16	Chloride (as Cl) in saturation extract		GLCS/SOP/S/004 Issue No:1 2016	meq/l	6.3

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/1563/2024-25(2) **Report Date:** 10.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
TRF No	658	**Sample Quantity**	2 kg
Sample Name	Soil - 1	**Sampled by**	Laboratory
Sample Description	Lumps	**Sampling Method**	GLCS/SOP/S/014
Location Name	S1 – Project Area	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024 - 21.05.2024	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°16'29.53"N 77°46'42.06"E**
Sample Code	GLCS / 1563		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	25.0
2	Manganese as Mn	USEPA 6010D :2014	mg/kg	17.19
3	Zinc as Zn	USEPA 6010D :2014	mg/kg	8.59
4	Cadmium as Cd	USEPA 6010D :2014	mg/kg	4.56
5	Chromium as Cr	USEPA 6010D :2014	mg/kg	6.66
6	Copper as Cu	USEPA 6010D :2014	mg/kg	6.31
7	Lead as Pb	USEPA 6010D :2014	mg/kg	1.75
8	Iron as Fe	USEPA 6010D :2014	mg/kg	10.35
9	Organic Carbon	GLCS/SOP/S/003 Issue No:1 2016	%	0.12
10	Boron as B	USEPA 6010D :2014	mg/kg	0.53

For Global Lab and Consultancy Services LLP

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

Global Lab and Consultancy Services LLP Laboratory

*******End of Report*******
Page 1 of 1

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 15 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 only 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.

BRANCH OFFICES: **CHENNAI** (Mobile : 70944 53636) & **COIMBATORE** (Mobile : 70944 54646)

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in
TC - 6060

TEST REPORT

ULR-TC606024000004683F

Report Number: GLCS/TR/1564/2024-25(1) **Report Date:** 10.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***	***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***

Attention	-	**Sample Receipt Condition**	Ambient – Good
TRF No	658	**Sample Quantity**	2 kg
Sample Name	Soil - 2	**Sampled by**	Laboratory
Sample Description	Lumps	**Sampling Method**	GLCS/SOP/S/014
Location Name	S2 – Maduvankulam Near School	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024 - 21.05.2024	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°17'27.00"N 77°46'0.41"E**
Sample Code	GLCS / 1564		

Sl. No	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS
1	Organic Matter	GLCS/SOP/S/003 Issue No:1 2016	%	0.33
2	pH	IS 2720 PART 26:1987 (RA 2021)	-	6.2
3	Specific Electrical Conductivity	IS 14767 :2000 RA 2021	µS/cm	136
4	Available Phosphorous	GLCS/SOP/S/005 Issue No:1 2016	mg/kg	19.2
5	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006 Issue No:1 2016	mg/100g	1.93
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020 Issue No:1 2017	meq/100g	0.5

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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 requesting with report number and report date along with report copy.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004683F

Report Number: GLCS/TR/1564/2024-25(1) **Report Date:** 10.06.2024

SI. NO	TEST PARAMETER		TEST METHOD	UNITS	RESULTS
7	Exchangeable Magnesium (as Mg)		GLCS/SOP/S/021 Issue No:1 2017	meq/100g	0.2
8	Sulphate as SO_4		GLCS/SOP/S/009 Issue No:1 2016	µg/100g	11.2
9	Cation Exchange Capacity		GLCS/SOP/S/024 Issue No:1 2017	meq/100g	51.3
10	Bulk Density		GLCS/SOP/S/017 Issue No:1 2017	g/cc	1.30
11	Texture	Sand	GLCS/SOP/S/015 Issue No:1 2017	%	23.49
12		Slit	GLCS/SOP/S/015 Issue No:1 2017	%	42.77
13		Clay	GLCS/SOP/S/015 Issue No:1 2017	%	33.74
14	Water Holding Capacity		GLCS/SOP/S/016 Issue No:1 2017	%	28.0
15	Available Nitrogen as N		GLCS/SOP/S/029 Issue No:1 2016	Kg/ha	363.7
16	Chloride (as Cl) in saturation extract		GLCS/SOP/S/004 Issue No:1 2016	meq/l	7.0

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/1564/2024-25(2) **Report Date:** 10.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
TRF No	658	**Sample Quantity**	2 kg
Sample Name	Soil - 2	**Sampled by**	Laboratory
Sample Description	Lumps	**Sampling Method**	GLCS/SOP/S/014
Location Name	S2 – Maduvankulam Near School	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024 - 21.05.2024	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°17'27.00"N 77°46'0.41"E**
Sample Code	GLCS / 1564		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	37.0
2	Manganese as Mn	USEPA 6010D :2014	mg/kg	19.29
3	Zinc as Zn	USEPA 6010D :2014	mg/kg	4.96
4	Cadmium as Cd	USEPA 6010D :2014	mg/kg	2.89
5	Chromium as Cr	USEPA 6010D :2014	mg/kg	4.96
6	Copper as Cu	USEPA 6010D :2014	mg/kg	3.03
7	Lead as Pb	USEPA 6010D :2014	mg/kg	BDL (DL:0.5)
8	Iron as Fe	USEPA 6010D :2014	mg/kg	7.03
9	Organic Carbon	GLCS/SOP/S/003 Issue No:1 2016	%	0.19
10	Boron as B	USEPA 6010D :2014	mg/kg	BDL (DL:0.5)

Note: **BDL** – Below Detection Limit, **DL** – Detection Limit

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

*****End of Report*****
Page 1 of

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004684F

Report Number: GLCS/TR/1565/2024-25(1) **Report Date:** 10.06.2024

Issued To:		***Site Address:***	
Thiru .S.Velu, *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
TRF No	658	**Sample Quantity**	2 kg
Sample Name	Soil - 3	**Sampled by**	Laboratory
Sample Description	Lumps	**Sampling Method**	GLCS/SOP/S/014
Location Name	S3- Kilurcheri	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024 - 21.05.2024	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°14'48.65"N** **77°43'49.48"E**
Sample Code	GLCS / 1565		

Sl. No	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS
1	Organic Matter	GLCS/SOP/S/003 Issue No:1 2016	%	0.19
2	pH	IS 2720 PART 26:1987 (RA 2021)	-	4.2
3	Specific Electrical Conductivity	IS 14767 :2000 RA 2021	µS/cm	110
4	Available Phosphorous	GLCS/SOP/S/005 Issue No:1 2016	mg/kg	20.0
5	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006 Issue No:1 2016	mg/100g	1.23
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020 Issue No:1 2017	meq/100g	0.2

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

BRANCH OFFICES: CHENNAI (Mobile : 70944 53636) & **COIMBATORE** (Mobile : 70944 54646)

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004684F

Report Number: GLCS/TR/1565/2024-25(1) **Report Date:** 10.06.2024

SI. NO.	TEST PARAMETER		TEST METHOD	UNITS	RESULTS
7	Exchangeable Magnesium (as Mg)		GLCS/SOP/S/021 Issue No:1 2017	mg/kg	0.1
8	Sulphate as SO_4		GLCS/SOP/S/009 Issue No:1 2016	µg/100g	11.1
9	Cation Exchange Capacity		GLCS/SOP/S/024 Issue No:1 2017	meq/100g	38.6
10	Bulk Density		GLCS/SOP/S/017 Issue No:1 2017	g/cc	1.11
11	Texture	Sand	GLCS/SOP/S/015 Issue No:1 2017	%	26.12
12		Slit	GLCS/SOP/S/015 Issue No:1 2017	%	34.80
13		Clay	GLCS/SOP/S/015 Issue No:1 2017	%	39.08
14	Water Holding Capacity		GLCS/SOP/S/016 Issue No:1 2017	%	18.8
15	Available Nitrogen as N		GLCS/SOP/S/029 Issue No:1 2016	Kg/ha	213.2
16	Chloride (as Cl) in saturation extract		GLCS/SOP/S/004 Issue No:1 2016	meq/l	5.8

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

*******End of Report*******

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/1565/2024-25(2) **Report Date:** 10.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
TRF No	658	**Sample Quantity**	2 kg
Sample Name	Soil - 3	**Sampled by**	Laboratory
Sample Description	Lumps	**Sampling Method**	GLCS/SOP/S/014
Location Name	S3- Kilurcheri	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024 - 21.05.2024	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°14'48.65"N** **77°43'49.48"E**
Sample Code	GLCS / 1565		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	23
2	Manganese as Mn	USEPA 6010D :2014	mg/kg	13.3
3	Zinc as Zn	USEPA 6010D :2014	mg/kg	8.12
4	Cadmium as Cd	USEPA 6010D :2014	mg/kg	3.61
5	Chromium as Cr	USEPA 6010D :2014	mg/kg	6.99
6	Copper as Cu	USEPA 6010D :2014	mg/kg	5.87
7	Lead as Pb	USEPA 6010D :2014	mg/kg	BDL (DL:0.5)
8	Iron as Fe	USEPA 6010D :2014	mg/kg	11.0
9	Organic Carbon	GLCS/SOP/S/003 Issue No:1 2016	%	0.11
10	Boron as B	USEPA 6010D :2014	mg/kg	BDL (DL:0.5)

Note: BDL – Below Detection Limit, **DL** – Detection Limit.

For Global Lab and Consultancy Services LLP

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

Global Lab and Consultancy Services LLP Laboratory Salem-636016

*******End of Report*******
Page 1 of 1

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004685F

Report Number: GLCS/TR/1566/2024-25(1) **Report Date:** 10.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
TRF No	658	**Sample Quantity**	2 kg
Sample Name	Soil - 4	**Sampled by**	Laboratory
Sample Description	Lumps	**Sampling Method**	GLCS/SOP/S/014
Location Name	S4-Perunkulam	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024 - 21.05.2024	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°18'28.40"N** **77°48'41.84"E**
Sample Code	GLCS / 1566		

Sl. No	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS
1	Organic Matter	GLCS/SOP/S/003 Issue No:1 2016	%	0.22
2	pH	IS 2720 PART 26:1987 (RA 2021)	-	5.2
3	Specific Electrical Conductivity	IS 14767 :2000 RA 2021	µS/cm	120
4	Available Phosphorous	GLCS/SOP/S/005 Issue No:1 2016	mg/kg	20.9
5	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006 Issue No:1 2016	mg/100g	1.73
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020 Issue No:1 2017	meq/100g	0.3

For Global Lab and Consultancy Services LLP

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 15 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 only 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 requ[illegible]h report number and report date along with report copy.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004685F

Report Number: GLCS/TR/1566/2024-25(1) **Report Date:** 10.06.2024

SI. NO.	TEST PARAMETER		TEST METHOD	UNITS	RESULTS
7	Exchangeable Magnesium (as Mg)		GLCS/SOP/S/021 Issue No:1 2017	meq/100g	0.2
8	Sulphate as SO_4		GLCS/SOP/S/009 Issue No:1 2016	µg/100g	10.3
9	Cation Exchange Capacity		GLCS/SOP/S/024 Issue No:1 2017	meq/100g	49.0
10	Bulk Density		GLCS/SOP/S/017 Issue No:1 2017	g/cc	1.13
11	Texture	Sand	GLCS/SOP/S/015 Issue No:1 2017	%	22.87
12		Slit	GLCS/SOP/S/015 Issue No:1 2017	%	45.36
13		Clay	GLCS/SOP/S/015 Issue No:1 2017	%	31.76
14	Water Holding Capacity		GLCS/SOP/S/016 Issue No:1 2017	%	27.6
15	Available Nitrogen as N		GLCS/SOP/S/029 Issue No:1 2016	Kg/ha	326.1
16	Chloride (as Cl) in saturation extract		GLCS/SOP/S/004 Issue No:1 2016	meq/l	5.2

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

*******End of Report*******
Page 2 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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/1566/2024-25(2) **Report Date:** 10.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
TRF No	658	**Sample Quantity**	2 kg
Sample Name	Soil - 4	**Sampled by**	Laboratory
Sample Description	Lumps	**Sampling Method**	GLCS/SOP/S/014
Location Name	S4-Perunkulam	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024 - 21.05.2024	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°18'28.40"N** **77°48'41.84"E**
Sample Code	GLCS / 1566		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	29.7
2	Manganese as Mn	USEPA 6010D :2014	mg/kg	6.50
3	Zinc as Zn	USEPA 6010D :2014	mg/kg	56.23
4	Cadmium as Cd	USEPA 6010D :2014	mg/kg	3.39
5	Chromium as Cr	USEPA 6010D :2014	mg/kg	4.56
6	Copper as Cu	USEPA 6010D :2014	mg/kg	3.49
7	Lead as Pb	USEPA 6010D :2014	mg/kg	1.84
8	Iron as Fe	USEPA 6010D :2014	mg/kg	4.75
9	Organic Carbon	GLCS/SOP/S/003 Issue No:1 2016	%	0.1273
10	Boron as B	USEPA 6010D :2014	mg/kg	1.16

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

*****End of Report*****
Page 1 of 1

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

TC - 6060

TEST REPORT

ULR-TC606024000004686F

Report Number: GLCS/TR/1567/2024-25(1) **Report Date:** 10.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***	***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***

Attention	-	**Sample Receipt Condition**	Ambient – Good
TRF No	658	**Sample Quantity**	2 kg
Sample Name	Soil - 5	**Sampled by**	Laboratory
Sample Description	Lumps	**Sampling Method**	GLCS/SOP/S/014
Location Name	S5-Thottavilai	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024 - 21.05.2024	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°15'19.81"N 77°47'55.44"E**
Sample Code	GLCS / 1567		

Sl. No	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS
1	Organic Matter	GLCS/SOP/S/003 Issue No:1 2016	%	0.114
2	pH	IS 2720 PART 26:1987 (RA 2021)	-	4.6
3	Specific Electrical Conductivity	IS 14767 :2000 RA 2021	µS/cm	106
4	Available Phosphorous	GLCS/SOP/S/005 Issue No:1 2016	mg/kg	21.2
5	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006 Issue No:1 2016	mg/100g	0.87
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020 Issue No:1 2017	meq/100g	0.2

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP * Laboratory * Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004686F

Report Number: GLCS/TR/1567/2024-25(1) **Report Date:** 10.06.2024

SI. NO.	TEST PARAMETER		TEST METHOD	UNITS	RESULTS
7	Exchangeable Magnesium (as Mg)		GLCS/SOP/S/021 Issue No:1 2017	meq/100g	0.1
8	Sulphate as SO_4		GLCS/SOP/S/009 Issue No:1 2016	µg/100g	11.3
9	Cation Exchange Capacity		GLCS/SOP/S/024 Issue No:1 2017	meq/100g	39.1
10	Bulk Density		GLCS/SOP/S/017 Issue No:1 2017	g/cc	1.11
11	Texture	Sand	GLCS/SOP/S/015 Issue No:1 2017	%	25.30
12		Silt	GLCS/SOP/S/015 Issue No:1 2017	%	42.09
13		Clay	GLCS/SOP/S/015 Issue No:1 2017	%	32.61
14	Water Holding Capacity		GLCS/SOP/S/016 Issue No:1 2017	%	21.4
15	Available Nitrogen as N		GLCS/SOP/S/029 Issue No:1 2016	Kg/ha	388.6
16	Chloride (as Cl) in saturation extract		GLCS/SOP/S/004 Issue No:1 2016	meq/l	5.7

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/1567/2024-25(2) **Report Date:** 10.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
TRF No	658	**Sample Quantity**	2 kg
Sample Name	Soil - 5	**Sampled by**	Laboratory
Sample Description	Lumps	**Sampling Method**	GLCS/SOP/S/014
Location Name	S5-Thottavilai	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024 - 21.05.2024	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°15'19.81"N** **77°47'55.44"E**
Sample Code	GLCS / 1567		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	24.0
2	Manganese as Mn	USEPA 6010D :2014	mg/kg	17.32
3	Zinc as Zn	USEPA 6010D :2014	mg/kg	8.03
4	Cadmium as Cd	USEPA 6010D :2014	mg/kg	3.78
5	Chromium as Cr	USEPA 6010D :2014	mg/kg	2.99
6	Copper as Cu	USEPA 6010D :2014	mg/kg	3.46
7	Lead as Pb	USEPA 6010D :2014	mg/kg	1.26
8	Iron as Fe	USEPA 6010D :2014	mg/kg	11.18
9	Organic Carbon	GLCS/SOP/S/003 Issue No:1 2016	%	0.06
10	Boron as B	USEPA 6010D :2014	mg/kg	BDL (DL:0.5)

Note: **BDL** – Below Detection Limit, **DL** – Detection Limit

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

*****End of Report*****
Page 1 of 1

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in
TC - 6060

TEST REPORT

ULR-TC606024000004687F

Report Number: GLCS/TR/1568/2024-25(1) **Report Date:** 10.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
TRF No	658	**Sample Quantity**	2 kg
Sample Name	Soil - 6	**Sampled by**	Laboratory
Sample Description	Lumps	**Sampling Method**	GLCS/SOP/S/014
Location Name	S6-Karaisithupudur	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024 - 21.05.2024	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°17'12.11"N** **77°50'14.64"E**
Sample Code	GLCS / 1568		

Sl. No	TEST PARAMETERS	TEST METHOD	UNITS	RESULTS
1	Organic Matter	GLCS/SOP/S/003 Issue No:1 2016	%	0.18
2	pH	IS 2720 PART 26:1987 (RA 2021)	-	4.9
3	Specific Electrical Conductivity	IS 14767 :2000 RA 2021	µS/cm	119
4	Available Phosphorous	GLCS/SOP/S/005 Issue No:1 2016	mg/kg	21.5
5	Soluble Potassium (as K) in saturation extract	GLCS/SOP/S/006 Issue No:1 2016	mg/100g	1.08
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020 Issue No:1 2017	meq/100g	0.2

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

BRANCH OFFICES: CHENNAI (Mobile : 70944 53636) & **COIMBATORE** (Mobile : 70944 54646)

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004687F

Report Number: GLCS/TR/1568/2024-25(1) **Report Date:** 10.06.2024

SI. NO.	TEST PARAMETER		TEST METHOD	UNITS	RESULTS
7	Exchangeable Magnesium (as Mg)		GLCS/SOP/S/021 Issue No:1 2017	meq/100g	0.1
8	Sulphate as SO_4		GLCS/SOP/S/009 Issue No:1 2016	µg/100g	11.4
9	Cation Exchange Capacity		GLCS/SOP/S/024 Issue No:1 2017	meq/100g	36.0
10	Bulk Density		GLCS/SOP/S/017 Issue No:1 2017	g/cc	1.08
11	Texture	Sand	GLCS/SOP/S/015 Issue No:1 2017	%	24.48
12		Slit	GLCS/SOP/S/015 Issue No:1 2017	%	36.25
13		Clay	GLCS/SOP/S/015 Issue No:1 2017	%	39.27
14	Water Holding Capacity		GLCS/SOP/S/016 Issue No:1 2017	%	19.0
15	Available Nitrogen as N		GLCS/SOP/S/029 Issue No:1 2016	Kg/ha	413.9
16	Chloride (as Cl) in saturation extract		GLCS/SOP/S/004 Issue No:1 2016	meq/l	6.0

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

*******End of Report*******
Page 2 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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/1568/2024-25(2) **Report Date:** 10.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
TRF No	658	**Sample Quantity**	2 kg
Sample Name	Soil - 6	**Sampled by**	Laboratory
Sample Description	Lumps	**Sampling Method**	GLCS/SOP/S/014
Location Name	S6-Karaisithupudur	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024 - 21.05.2024	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°17'12.11"N** **77°50'14.64"E**
Sample Code	GLCS / 1568		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	22.0
2	Manganese as Mn	USEPA 6010D :2014	mg/kg	19.25
3	Zinc as Zn	USEPA 6010D :2014	mg/kg	8.75
4	Cadmium as Cd	USEPA 6010D :2014	mg/kg	2.75
5	Chromium as Cr	USEPA 6010D :2014	mg/kg	8.0
6	Copper as Cu	USEPA 6010D :2014	mg/kg	2.50
7	Lead as Pb	USEPA 6010D :2014	mg/kg	0.75
8	Iron as Fe	USEPA 6010D :2014	mg/kg	20.75
9	Organic Carbon	GLCS/SOP/S/003 Issue No:1 2016	%	0.105
10	Boron as B	USEPA 6010D :2014	mg/kg	7.0

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

*****End of Report*****
Page 1 of 1

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 15 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 only 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

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004794F

Report Number: GLCS/TR/1569/2024-25(1) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
Customer Ref No	658	**Sample Quantity**	2Liters
Sample Name	Surface Water -1	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/SOP/W/028
Sample Code	GLCS /1569	**Sample Receipt Date**	22.05.2024
Location Name	SW-1 – Tank Near Perunkulam	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024	**Date of Completion**	03.06.2024
Location Co-ordinates	**8°18'40.12"N 77°48'36.62"E**		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Odor	IS 3025 PART 5 -2018	-	Agreeable
2	pH	IS 3025 PART 11 -2022	-	7.57
3	Electrical Conductivity	IS 3025 PART 14 -2013 (RA 2019)	µS/cm	1772
4	Turbidity	IS 3025 PART 10 -2023	NTU	2
5	Total Dissolved Solids	IS 3025 PART 16 -2023	mg/l	1045
6	Total Alkalinity as $CaCO_3$	IS 3025 PART 23 -2023	mg/l	406
7	Total Hardness as $CaCO_3$	IS 3025 PART 21-2009 (RA 2019)	mg/l	412
8	Calcium as Ca	IS 3025 PART 40 -1991 (RA 2019)	mg/l	115.4

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 days from the date of reporting except in case of rogulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004794F

Report Number: GLCS/TR/1569/2024-25(1) **Report Date:** 14.06.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Magnesium as Mg	IS 3025 PART 46 -2023	mg/l	30.1
10	Chloride as Cl^-	IS 3025 PART 32-1988(RA2019)	mg/l	370.4
11	Iron as Fe	IS 3025 PART 53 - 2024	mg/l	0.25
12	Boron as B	IS 3025 PART 57 - 2021	mg/l	BDL (DL:0.1)
13	Free Residual Chlorine as Cl_2	IS 3025 PART 26 - 2021	mg/l	BDL (DL:1.0)
14	Fluoride as F	GLCS/SOP/W/015 Issue No:1 2016	mg/l	0.13
15	Manganese as Mn	IS 3025 PART 59 - 2006	mg/l	BDL (DL:0.1)
16	Nitrate as NO_3	IS 3025 PART 34 -1988(RA2019)	mg/l	BDL (DL:2.0)
17	Dissolved Oxygen	IS 3025 PART 38 -1989(RA2019)	mg/l	4.1
18	Bio-Chemical Oxygen Demand @ 27°C for 3 days	IS 3025 PART 44 -2023	mg/l	9.0
19	Ammonia as NH_3	IS 3025 PART 34 -1988(RA2019)	mg/l	BDL (DL:1.0)

Note: **BDL** – Below Detection Limit, **DL** – Detection Limit.

For Global Lab and Consultancy Services LLP

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004794F

Report Number: GLCS/TR/1569/2024-25(1) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Good
Customer Ref No	658	**Sample Quantity**	200 ml
Sample Name	Surface Water -1	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/M/SOP-05
Sample Code	GLCS /1569	**Sample Receipt Date**	22.05.2024
Location Name	SW-1 – Tank Near Perunkulam	**Date of Analysis**	28.05.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°18'40.12"N 77°48'36.62"E**

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS: 1622 – 1981(Reaffirmed 2019)	MPN/100ml	240
2	*Escherichia coli*	IS: 1622 – 1981(Reaffirmed 2019)	MPN/100ml	50

Note: MPN- Most Probable Number..

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/1569/2024-25(2) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
Customer Ref No	658	**Sample Quantity**	2Liters
Sample Name	Surface Water -1	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/SOP/W/028
Sample Code	GLCS /1569	**Sample Receipt Date**	22.05.2024
Location Name	SW-1 – Tank Near Perunkulam	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024	**Date of Completion**	03.06.2024
Location Co-ordinates	**8°18'40.12"N 77°48'36.62"E**		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS: 3025 PART 4 -2021	CU	<5
2	Total Suspended Solids	IS 3025 PART 17 -2022	mg/l	3.0
3	Phenolic Compounds	IS 3025 PART 43 Sec 1 2022	mg/l	BDL (DL:0.1)
4	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL (DL:0.05)
5	Cyanide	IS 3025 PART 27 Sec1 2021	mg/l	BDL (DL:0.02)
6	Sulphide	GLCS/SOP/W/66 Issue No:1 2022	mg/l	BDL (DL:1)
7	Copper as Cu	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
8	Mercury (Hg)	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.02)
9	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
10	Selenium	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.02)
11	Aluminium as Al	GLCS/SOP/W/62 Issue No:1 2022	mg/l	0.078
12	Lead as Pb	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
13	Zinc as Zn	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
14	Chromium	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
15	Barium as Ba	GLCS/SOP/W/62 Issue No:1 2022	mg/l	0.377
16	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
17	Arsenic as As	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.02)
18	Chemical Oxygen Demand	IS 3025 PART 58 -2023	mg/l	30.1
19	Sulphate as SO_4^{2-}	IS 3025 PART 24- Sec 1 2022	mg/l	50.6

Note : **BDL** – Below Detection Limit, **DL** – Detection Limit.

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

*******End of Report*******
Page 1 of 1

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in
GLCS Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
TC - 6060

TEST REPORT

ULR-TC606024000004795F

Report Number: GLCS/TR/1570/2024-25(1) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***	***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***

Attention	-	**Sample Receipt Condition**	Ambient – Good
Customer Ref No	658	**Sample Quantity**	2Liters
Sample Name	Surface Water -2	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/SOP/W/028
Sample Code	GLCS /1570	**Sample Receipt Date**	22.05.2024
Location Name	SW-2- Thottavillai River	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024	**Date of Completion**	03.06.2024
Location Co-ordinates	**8°15'10.78"N 77°48'9.68"E**		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Odor	IS 3025 PART 5 -2018	-	Agreeable
2	pH	IS 3025 PART 11 -2022	-	7.62
3	Electrical Conductivity	IS 3025 PART 14 -2013 (RA 2019)	µS/cm	1917
4	Turbidity	IS 3025 PART 10 -2023	NTU	3
5	Total Dissolved Solids	IS 3025 PART 16 -2023	mg/l	1131
6	Total Alkalinity as $CaCO_3$	IS 3025 PART 23 -2023	mg/l	450.2
7	Total Hardness as $CaCO_3$	IS 3025 PART 21-2009 (RA 2019)	mg/l	460
8	Calcium as Ca	IS 3025 PART 40 -1991 (RA 2019)	mg/l	109.0

For Global Lab and Consultancy Services LLP

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004795F

Report Number: GLCS/TR/1570/2024-25(1) **Report Date:** 14.06.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Magnesium as Mg	IS 3025 PART 46 -2023	mg/l	45.7
10	Chloride as Cl^-	IS 3025 PART 32-1988(RA2019)	mg/l	396.6
11	Iron as Fe	IS 3025 PART 53 - 2024	mg/l	0.20
12	Boron as B	IS 3025 PART 57 - 2021	mg/l	BDL (DL:0.1)
13	Free Residual Chlorine as Cl_2	IS 3025 PART 26 - 2021	mg/l	BDL (DL:1.0)
14	Fluoride as F	GLCS/SOP/W/015 Issue No:1 2016	mg/l	0.13
15	Manganese as Mn	IS 3025 PART 59 - 2006	mg/l	BDL (DL:0.1)
16	Nitrate as NO_3	IS 3025 PART 34 -1988(RA2019)	mg/l	BDL (DL:2.0)
17	Dissolved Oxygen	IS 3025 PART 38 -1989(RA2019)	mg/l	4.7
18	Bio-Chemical Oxygen Demand @ 27°C for 3 days	IS 3025 PART 44 -2023	mg/l	11.0
19	Ammonia as NH_3	IS 3025 PART 34 -1988(RA2019)	mg/l	BDL (DL:1.0)

Note: **BDL** – Below Detection Limit, **DL** – Detection Limit.

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004795F

Report Number: GLCS/TR/1570/2024-25(1) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Good
Customer Ref No	658	**Sample Quantity**	200 ml
Sample Name	Surface Water -2	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/M/SOP-05
Sample Code	GLCS /1570	**Date of Analysis**	22.05.2024
Location Name	SW-2- Thottavillai River	**Date of Completion**	28.05.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°15'10.78"N** **77°48'9.68"E**

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS: 1622 – 1981(Reaffirmed 2019)	MPN/100ml	170
2	Escherichia coli	IS: 1622 – 1981(Reaffirmed 2019)	MPN/100ml	30

Note: MPN- Most Probable Number.

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

*****End of Report*****

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/1570/2024-25(2) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
Customer Ref No	658	**Sample Quantity**	2Liters
Sample Name	Surface Water -2	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/SOP/W/028
Sample Code	GLCS /1570	**Sample Receipt Date**	22.05.2024
Location Name	SW-2- Thottavillai River	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024	**Date of Completion**	03.06.2024
Location Co-ordinates	**8°15'10.78"N 77°48'9.68"E**		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS: 3025 PART 4 -2021	CU	<5
2	Total Suspended Solids	IS 3025 PART 17 -2022	mg/l	4.0
3	Phenolic Compounds	IS 3025 PART 43 Sec 1 2022	mg/l	BDL (DL:0.1)
4	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL (DL:0.05)
5	Cyanide	IS 3025 PART 27 Sec1 2021	mg/l	BDL (DL:0.02)
6	Sulphide	GLCS/SOP/W/66 Issue No:1 2022	mg/l	BDL (DL:1.0)
7	Copper as Cu	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
8	Mercury (Hg)	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.02)
9	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
10	Selenium	GLCS/SOP/W/62 Issue No:1 2022	mg/l	0.164
11	Aluminium as Al	GLCS/SOP/W/62 Issue No:1 2022	mg/l	0.125
12	Lead as Pb	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
13	Zinc as Zn	GLCS/SOP/W/62 Issue No:1 2022	mg/l	0.011
14	Chromium	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
15	Barium as Ba	GLCS/SOP/W/62 Issue No:1 2022	mg/l	0.196
16	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1 2022	mg/l	0.039
17	Arsenic as As	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.02)
18	Chemical Oxygen Demand	IS 3025 PART 58 -2023	mg/l	40.1
19	Sulphate as SO_4^{-}	IS 3025 PART 24- Sec 1 2022	mg/l	38.9

Note : **BDL** – Below Detection Limit, **DL** – Detection Limit.

Global Lab and Consultancy Services LLP Laboratory Salem-636016

For Global Lab and Consultancy Services LLP

Authorised Signatory

L. SUDHAPRIYA
Technical Manager

*****End of Report*****

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004798F

Report Number: GLCS/TR/1571/2024-25(1) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
Customer Ref No	658	**Sample Quantity**	2Liters
Sample Name	Well Water -1	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/SOP/W/028
Sample Code	GLCS /1571	**Sample Receipt Date**	22.05.2024
Location Name	Near Project Area	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024	**Date of Completion**	03.06.2024
Location Co-ordinates	**8°16'42.86"N 77°46'42.80"E**		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Odor	IS 3025 PART 5 -2018	-	Agreeable
2	pH	IS 3025 PART 11 -2022	-	7.24
3	Electrical Conductivity	IS 3025 PART 14 -2013 (RA 2019)	µS/cm	1400
4	Turbidity	IS 3025 PART 10 -2023	NTU	<1
5	Total Dissolved Solids	IS 3025 PART 16 -2023	mg/l	826
6	Total Alkalinity as $CaCO_3$	IS 3025 PART 23 -2023	mg/l	289.4
7	Total Hardness as $CaCO_3$	IS 3025 PART 21-2009 (RA 2019)	mg/l	356
8	Calcium as Ca	IS 3025 PART 40 -1991 (RA 2019)	mg/l	97.7

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004798F

Report Number: GLCS/TR/1571/2024-25(1) **Report Date:** 14.06.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Magnesium as Mg	IS 3025 PART 46 -2023	mg/l	27.2
10	Chloride as Cl^-	IS 3025 PART 32-1988(RA2019)	mg/l	316.1
11	Iron as Fe	IS 3025 PART 53 - 2024	mg/l	0.17
13	Boron as B	IS 3025 PART 57 - 2021	mg/l	BDL (DL:0.1)
14	Free Residual Chlorine as Cl_2	IS 3025 PART 26 - 2021	mg/l	BDL (DL:1.0)
15	Fluoride as F	GLCS/SOP/W/015 Issue No:1 2016	mg/l	0.10
16	Manganese as Mn	IS 3025 PART 59 - 2006	mg/l	BDL (DL:0.1)
17	Nitrate as NO_3	IS 3025 PART 34 -1988(RA2019)	mg/l	BDL (DL :2.0)
18	Total Suspended Solids	IS 3025 PART 17 -2022	mg/l	<2

Note: **BDL** – Below Detection Limit, **DL** – Detection Limit.

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004798F

Report Number: GLCS/TR/1571/2024-25(1) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Good
Customer Ref No	658	**Sample Quantity**	200 ml
Sample Name	Well Water -1	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/M/SOP-05
Sample Code	GLCS /1571	**Date of Analysis**	22.05.2024
Location Name	Near Project Area	**Date of Completion**	24.05.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°16'42.86"N** **77°46'42.80"E**

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Present
2	Escherichia coli	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Absent

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/1571/2024-25(2) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
Customer Ref No	658	**Sample Quantity**	2Liters
Sample Name	Well Water -1	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/SOP/W/028
Sample Code	GLCS /1571	**Sample Receipt Date**	22.05.2024
Location Name	Near Project Area	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024	**Date of Completion**	03.06.2024
Location Co-ordinates		**8°16'42.86"N 77°46'42.80"E**	

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS: 3025 PART 4 -2021	CU	<5
2	Phenolic Compounds	IS 3025 PART 43 Sec 1 2022	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 Sec1 2021	mg/l	BDL (DL:0.02)
5	Sulphide	GLCS/SOP/W/66 Issue No:1 2022	mg/l	BDL (DL:1.0)
6	Copper as Cu	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
7	Mercury (Hg)	GLCS/SOP/W/62 Issue No:1 2022	mg/l	0.107
8	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
9	Selenium	GLCS/SOP/W/62 Issue No:1 2022	mg/l	0.020
10	Aluminium as Al	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
11	Lead as Pb	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
12	Zinc as Zn	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
13	Chromium	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
14	Barium as Ba	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
15	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
16	Arsenic as As	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.020)
17	Ammonia as NH_3	IS 3025 PART 34 -1988(RA2019)	mg/l	BDL (DL:1.0)
18	Sulphate as SO_4^-	IS 3025 PART 24- Sec 1 2022	mg/l	38.6

Note : **BDL** – Below Detection Limit, **DL** – Detection Limit.

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

*****End of Report*****
Page 1 of 1

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004799F

Report Number: GLCS/TR/1572/2024-25(1) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village,* *Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
Customer Ref No	658	**Sample Quantity**	2Liters
Sample Name	Well Water -2	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/SOP/W/028
Sample Code	GLCS /1572	**Sample Receipt Date**	22.05.2024
Location Name	WW-2-Near Kilurcheri	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024	**Date of Completion**	03.06.2024
Location Co-ordinates	**8°15'18.34"N 77°44'11.81"E**		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Odor	IS 3025 PART 5 -2018	-	Agreeable
2	pH	IS 3025 PART 11 -2022	-	7.31
3	Electrical Conductivity	IS 3025 PART 14 -2013 (RA 2019)	µS/cm	1470
4	Turbidity	IS 3025 PART 10 -2023	NTU	<1
5	Total Dissolved Solids	IS 3025 PART 16 -2023	mg/l	867
6	Total Alkalinity as $CaCO_3$	IS 3025 PART 23 -2023	mg/l	317.5
7	Total Hardness as $CaCO_3$	IS 3025 PART 21-2009 (RA 2019)	mg/l	360
8	Calcium as Ca	IS 3025 PART 40 -1991 (RA 2019)	mg/l	92.9

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP * Laboratory * Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; **Web:** www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004799F

Report Number: GLCS/TR/1572/2024-25(1) **Report Date:** 14.06.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Magnesium as Mg	IS 3025 PART 46 -2023	mg/l	31.1
10	Chloride as Cl^-	IS 3025 PART 32-1988(RA2019)	mg/l	324.2
11	Iron as Fe	IS 3025 PART 53 - 2024	mg/l	0.16
13	Boron as B	IS 3025 PART 57 - 2021	mg/l	BDL (DL:0.1)
14	Free Residual Chlorine as Cl_2	IS 3025 PART 26 - 2021	mg/l	BDL (DL:1.0)
15	Fluoride as F	GLCS/SOP/W/015 Issue No:1 2016	mg/l	0.11
16	Manganese as Mn	IS 3025 PART 59 - 2006	mg/l	BDL (DL:0.1)
17	Nitrate as NO_3	IS 3025 PART 34 -1988(RA2019)	mg/l	BDL (DL :2.0)
18	Total Suspended Solids	IS 3025 PART 17 -2022	mg/l	<2

Note: **BDL** – Below Detection Limit, **DL** – Detection Limit.

For Global Lab and Consultancy Services LLP

Authorised Signatory

L. SUDHAPRIYA
Technical Manager

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004799F

Report Number: GLCS/TR/1572/2024-25(1) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Good
Customer Ref No	658	**Sample Quantity**	200 ml
Sample Name	Well Water -2	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/M/SOP-05
Sample Code	GLCS /1572	**Date of Analysis**	22.05.2024
Location Name	WW-2-Near Kilurcheri	**Date of Completion**	24.05.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°15'18.34"N** **77°44'11.81"E**

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Present
2	Escherichia *coli*	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Absent

Global Lab and Consultancy Services LLP Laboratory Salem-636016

For Global Lab and Consultancy Services LLP

Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

*****End of Report*****

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/1572/2024-25(2) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Ambient – Good
Customer Ref No	658	**Sample Quantity**	2Liters
Sample Name	Well Water -2	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/SOP/W/028
Sample Code	GLCS /1572	**Sample Receipt Date**	22.05.2024
Location Name	WW-2-Near Kilurcheri	**Date of Analysis**	22.05.2024
Sampling Date	20.05.2024	**Date of Completion**	03.06.2024
Location Co-ordinates	**8°15'18.34"N 77°44'11.81"E**		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS: 3025 PART 4 -2021	CU	<5
2	Phenolic Compounds	IS 3025 PART 43 Sec 1 2022	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 Sec1 2021	mg/l	BDL (DL:0.02)
5	Sulphide	GLCS/SOP/W/66 Issue No:1 2022	mg/l	BDL (DL:1.0)
6	Copper as Cu	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
7	Mercury (Hg)	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.02)
8	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
9	Selenium	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.02)
10	Aluminium as Al	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
11	Lead as Pb	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
12	Zinc as Zn	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
13	Chromium	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
14	Barium as Ba	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
15	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
16	Arsenic as As	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.02)
17	Ammonia as NH_3	IS 3025 PART 34 -1988(RA2019)	mg/l	BDL (DL:1.0)
18	Sulphate as SO_4	IS 3025 PART 24- Sec 1 2022	mg/l	26.0

Note : **BDL** – Below Detection Limit, **DL** – Detection Limit.

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

Authorised Signatory

L. SUDHAPRIYA
Technical Manager

*****End of Report*****

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004796F

Report Number: GLCS/TR/1573/2024-25(1) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***	***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***

Attention	-	**Sample Receipt Condition**	Good
TRF No.	658	**Sample Quantity**	2liters
Sample Name	Borewell Water -1	**Sampled by**	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	BW-1-Near Crusher		
Sample Code	GLCS /1573	**Date of Analysis**	22.05.2024
Sample Receipt Date	22.05.2024	**Date of Completion**	03.06.2024
Location Co-ordinates	**8°16'5.31"N 77°46'57.45"E**		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Odor	IS 3025 PART 5 -2018	-	Agreeable
2	pH	IS 3025 PART 11 -2022	-	7.16
3	Electrical Conductivity	IS 3025 PART 14 -2019	µS/cm	1206
4	Turbidity	IS 3025 PART 10 -2023	NTU	<1
5	Total Dissolved Solids	IS 3025 PART 16 -2023	mg/l	711
6	Total Suspended Solids	IS 3025 PART 17 -2022	mg/l	<2

Note: BDL- Below Detection Limit, **DL-** Detection Limit.

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004796F

Report Number: GLCS/TR/1573/2024-25(1) **Report Date:** 14.06.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
8	Total Alkalinity	IS 3025 PART 23 -2023	mg/l	245.2
9	Total Hardness as $CaCO_3$	IS 3025 PART 21-2023	mg/l	324
10	Calcium as Ca	IS 3025 PART 40 -2019	mg/l	92.9
11	Magnesium as Mg	IS 3025 PART 46 -2023	mg/l	22.3
12	Chloride as Cl^-	IS 3025 PART 32-1988(RA2019)	mg/l	253.7
13	Iron as Fe	IS 3025 PART 53 - 2024	mg/l	0.11
14	Boron as B	IS 3025 PART 57 - 2021	mg/l	BDL (DL:1.0)
15	Free Residual Chlorine as Cl_2	IS 3025 PART 26 - 2021	mg/l	BDL (DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015 Issue No:1 2016	mg/l	0.11
17	Nitrate as NO_3	IS 3025 PART 34 -1988(RA2019	mg/l	BDL (DL :2.0)
18	Manganese as Mn	IS 3025 PART 59 - 2006	mg/l	BDL (DL:0.1)

Note: BDL- Below Detection Limit, **DL-** Detection Limit

For Global Lab and Consultancy Services LLP

Authorised Signatory

L. SUDHAPRIYA
Technical Manager

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004796F

Report Number: GLCS/TR/1573/2024-25(1) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Good
TRF No.	658	**Sample Quantity**	200 ml
Sample Name	Borewell Water -1	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/M/SOP-05
Sample Code	GLCS /1573	**Date of Analysis**	22.05.2024
Location	Near Project Area	**Date of Completion**	23.05.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°16'5.31"N 77°46'57.45"E**

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Absent
2	*Escherichia coli*	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Absent

Global Lab and Consultancy Services LLP Laboratory Salem-636016

For Global Lab and Consultancy Services LLP

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/1573/2024-25(2) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Good
TRF No.	658	**Sample Quantity**	2liters
Sample Name	Borewell Water -1	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/SOP/W/028
Location	Near Project Area	**Date of Analysis**	22.05.2024
Sample Code	GLCS /1573	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°16'5.31"N 77°46'57.45"E**

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS: 3025 PART 4 -2021	CU	< 5
2	Arsenic as As	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.05)
3	Ammonia (NH_3)	IS 3025 PART 34 -1988(RA2019)	mg/l	BDL (DL:1.0)
4	Zinc as Zn	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
5	Aluminium as Al	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
6	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
7	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
8	Selenium	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.02)
9	Lead as Pb	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)

Note : **BDL** – Below Detection Limit, **DL** – Detection Limit;

For Global Lab and Consultancy Services LLP

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/1573/2024-25(2) **Report Date:** 14.06.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Barium as Ba	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
11	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL (DL:0.05)
12	Cyanide	IS 3025 PART 27 Sec1 2021	mg/l	BDL (DL:0.02)
13	Phenolic Compounds	IS 3025 PART 43 Sec 1 2022	mg/l	BDQ(DL:0.1)
14	Chromium	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
15	Sulphide	GLCS/SOP/W/66 Issue N0 1 2022	mg/l	BDL (DL:1.0)
16	Copper as Cu	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
17	Mercury as Hg	GLCS/SOP/W/62 Issue No:1 2022	mg/l	0.099
18	Sulphate as SO_4^-	IS 3025 PART 24- Sec 1 2022	mg/l	23.3

Note : **BDL** – Below Detection Limit, **DL** – Detection Limit;

For Global Lab and Consultancy Services LLP

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

Global Lab and Consultancy Services LLP Laboratory Salem-636016

*******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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004797F

Report Number: GLCS/TR/1574/2024-25(1) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Good
TRF No.	658	**Sample Quantity**	2liters
Sample Name	Borewell Water - 2	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/SOP/W/028
Location	BW-2-Karaisithupudur	**Date of Analysis**	22.05.2024
Sample Code	GLCS /1574	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°17'11.49"N 77°50'16.79"E**

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Odor	IS 3025 PART 5 -2018	-	Agreeable
2	pH	IS 3025 PART 11 -2022	-	7.14
3	Electrical Conductivity	IS 3025 PART 14 -2019	µS/cm	1165
4	Turbidity	IS 3025 PART 10 -2023	NTU	<1
5	Total Dissolved Solids	IS 3025 PART 16 -2023	mg/l	687
6	Total Suspended Solids	IS 3025 PART 17 -2022	mg/l	<2

Note: BDL- Below Detection Limit, **DL-** Detection Limit.

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004797F

Report Number: GLCS/TR/1574/2024-25(1) **Report Date:** 14.06.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Total Alkalinity	IS 3025 PART 23 -2023	mg/l	273.3
8	Total Hardness as $CaCO_3$	IS 3025 PART 21-2023	mg/l	312
9	Calcium as Ca	IS 3025 PART 40 -2019	mg/l	65.7
10	Magnesium as Mg	IS 3025 PART 46 -2023	mg/l	35.9
11	Chloride as Cl^-	IS 3025 PART 32-1988(RA2019)	mg/l	223.5
12	Iron as Fe	IS 3025 PART 53 - 2024	mg/l	0.13
13	Boron as B	IS 3025 PART 57 - 2021	mg/l	BDL (DL:0.1)
14	Free Residual Chlorineas Cl_2	IS 3025 PART 26 - 2021	mg/l	BDL (DL:1.0)
15	Fluoride as F	GLCS/SOP/W/015 Issue No:1 2016	mg/l	0.12
16	Nitrate as NO_3	IS 3025 PART 34 -1988(RA2019)	mg/l	BDL (DL :2.0)
17	Manganese as Mn	IS 3025 PART 59 - 2006	mg/l	BDL (DL:0.1)

Note: BDL- Below Detection Limit, **DL-** Detection Limit

For Global Lab and Consultancy Services LLP

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem – 636 016. Tamil Nadu. India.
Phone Nos. : +91 427 2970 989 / 70944 53636
E-Mail: lab@glcs.in; Web: www.glcs.in

TC - 6060

TEST REPORT

ULR-TC606024000004797F

Report Number: GLCS/TR/1574/2024-25(1) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Good
TRF No.	658	**Sample Quantity**	200 ml
Sample Name	Borewell Water - 2	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/M/SOP-05
Sample Code	GLCS /1574	**Date of Analysis**	22.05.2024
Sample Receipt Date	22.05.2024	**Date of Completion**	23.05.2024
Location	BW-2-Karaisithupudur	**Location Co-ordinates**	**8°17'11.49"N** **77°50'16.79"E**

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Absent
2	*Escherichia coli*	IS: 15185 - 2016(Reaffirmed 2021)	Per 100ml	Absent

Global Lab and Consultancy Services LLP Laboratory Salem-636016

For Global Lab and Consultancy Services LLP

Authorised Signatory
L. DINESHKUMAR
Technical Manager-Microbiology

*****End of Report*****

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/1574/2024-25(2) **Report Date:** 14.06.2024

Issued To: ***Thiru .S.Velu,*** *S/o.Sudalaiyandi,* *5-36, Parkkaneri Keelur,* *Tiruvambalapuram,* *Radhapuram Taluk,* ***Tirunelveli District – 627 130.***		***Site Address:*** ***Rough Stone and Gravel,*** *Lease Area – 8.34.40 Ha.* *S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II- Village, Tisaiyanvilai Taluk,* ***Tirunelveli District.***	
Attention	-	**Sample Receipt Condition**	Good
TRF No.	658	**Sample Quantity**	2liters
Sample Name	Borewell Water - 2	**Sampled by**	Laboratory
Sample Description	Liquid	**Sampling Method**	GLCS/SOP/W/028
Location	BW-2-Karaisithupudur	**Date of Analysis**	22.05.2024
Sample Code	GLCS /1574	**Date of Completion**	03.06.2024
Sample Receipt Date	22.05.2024	**Location Co-ordinates**	**8°17'11.49"N 77°50'16.79"E**

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS: 3025 PART 4 -2021	CU	< 5
2	Arsenic as As	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.02)
3	Ammonia (NH_3)	IS 3025 PART 34 -1988(RA2019)	mg/l	BDL (DL:1.0)
4	Zinc as Zn	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
5	Aluminium as Al	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
6	Cadmium as Cd	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
7	Molybdenum as Mo	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
8	Selenium	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.02)
9	Lead as Pb	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)

Note : **BDL** – Below Detection Limit, **DL** – Detection Limit;

For Global Lab and Consultancy Services LLP

Global Lab and Consultancy Services LLP Laboratory Salem-636016

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 15 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 only 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.

GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY

GLOBAL LAB AND CONSULTANCY SERVICES LLP
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/1574/2024-25(2) **Report Date:** 14.06.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Barium as Ba	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
11	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL (DL:0.05)
12	Cyanide	IS 3025 PART 27 Sec1 2021	mg/l	BDL (DL:0.02)
13	Phenolic Compounds	IS 3025 PART 43 Sec 1 2022	mg/l	BDQ(DL:0.1)
14	Chromium	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
15	Sulphide	GLCS/SOP/W/66 Issue N0 1 2022	mg/l	BDL (DL:1.0)
16	Copper as Cu	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.01)
17	Mercury as Hg	GLCS/SOP/W/62 Issue No:1 2022	mg/l	BDL (DL:0.02)
18	Sulphate as SO_4^{-}	IS 3025 PART 24- Sec 1 2022	mg/l	34.0

Note : **BDL** – Below Detection Limit, **DL** – Detection Limit;

For Global Lab and Consultancy Services LLP

Authorised Signatory
L. SUDHAPRIYA
Technical Manager

Global Lab and Consultancy Services LLP Laboratory Salem-636016

*****End of Report*****

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 15 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 only 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.

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

SUMMARY REPORT

Issued To	**Thiru .S.Velu,** S/o.Sudalaiyandi, 5-36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, **Tirunelveli District – 627 130.**		
Site Location	**Rough Stone and Gravel,** Lease Area – 8.34.40 Ha. S.F.No:196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II-Village, Tisaiyanvilai Taluk, **Tirunelveli District.**		
Sampling Method	GLCS/SOP/AAQ/015	**Sample Drawn by**	Laboratory
Sample Name	Air Quality Monitoring	**Sampling Location**	AAQ1– Project Area SE Corner
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sample Code	**GLCS /12193,12218,12416, 12519,12689, 12849,124,213,388,421,541,605, 726,740,916,947,1110,1193,1339,1402,1556,1609,1799,1825,1993,2015**		
Location Coordinates	**8°16'26.24"N** **77°46'41.75"E**		
Report Date	**27.06.2024**		

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)
11.03.2024	07.00 – 07.00	39.2	19.9	5.0	26.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.03.2024	07.30 – 07.30	39.3	19.5	5.5	18.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.03.2024	08.30 – 08.30	38.2	18.3	BDL(DL:4.0)	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.03.2024	08.40 – 08.40	39.6	18.3	BDL(DL:4.0)	21.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.03.2024	08.00 -08.00	39.8	19.5	BDL(DL:4.0)	15.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.03.2024	08.10 – 08.10	35.2	17.0	6.3	16.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
01.04.2024	08.00 – 08.00	36.3	17.4	BDL(DL:4.0)	17.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
02.04.2024	08.10 – 08.10	37.6	17.4	5.3	17.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
08.04.2024	08.30 – 08.30	41.3	19.1	5.9	18.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
09.04.2024	08.40 – 08.40	40.4	18.3	5.2	18.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.04.2024	08.10 – 08.10	40.3	19.5	6.0	17.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.04.2024	08.20 – 08.20	43.2	22.0	5.3	18.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.04.2024	08.00 – 08.00	41.9	18.7	4.3	16.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.04.2024	08.10 – 08.10	39.3	17.4	BDL(DL:4.0)	16.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.04.2024	07.30 – 07.30	41.3	18.3	BDL(DL:4.0)	18.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.04.2024	07.45 – 07.45	40.6	19.5	6.0	17.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.05.2024	08.30 – 08.30	42.3	20.4	5.7	17.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.05.2024	08.40 -08.40	43.7	20.4	6.5	17.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.05.2024	08.30 – 08.30	40.6	18.3	BDL(DL:4.0)	22.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.05.2024	08.40 – 08.40	40.0	18.7	6.2	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.05.2024	07.30 – 07.30	41.3	19.5	5.6	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.05.2024	07.45 – 07.45	40.6	18.7	4.0	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.05.2024	07.30-07.30	40.6	18.3	BDL(DL:4.0)	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.05.2024	07.45-07.45	39.6	17.8	BDL(DL:4.0)	19.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
03.06.2024	08.30 – 08.30	41.6	18.7	BDL(DL:4.0)	18.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
04.06.2024	08.40 – 08.40	39.8	17.0	BDL(DL:4.0)	19.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

Global Lab and Consultancy Services LLP Laboratory

Verified by
L. SUDHAPRIYA
Technical Manager

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

SUMMARY REPORT

Issued To	**Thiru .S.Velu,** S/o.Sudalaiyandi, 5-36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, **Tirunelveli District – 627 130.**		
Site Location	**Rough Stone and Gravel,** Lease Area – 8.34.40 Ha. S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II-Village, Tisaiyanvilai Taluk, **Tirunelveli District.**		
Sampling Method	GLCS/SOP/AAQ/015	**Sample Drawn by**	Laboratory
Sample Name	Air Quality Monitoring	**Sampling Location**	AAQ1– Project Area SE Corner
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sample Code	**GLCS /12193,12218,12416, 12519,12689, 12849,124,213,388,421,541,605, 726,740,916,947,1110,1193,1339,1402,1556,1609,1799,1825,1993,2015**		
Location Coordinates	**8°16'26.24"N** **77°46'41.75"E**		
Report Date	**27.06.2024**		

Date	Period. hrs	Ni (ng/m^3)	As (ng/m^3)	C6H6 (µg/m^3)	BaP (ng/m^3)	Pb (µg/m^3)
11.03.2024	07.00 – 07.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.03.2024	07.30 – 07.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.03.2024	08.30 – 08.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.03.2024	08.40 – 08.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.03.2024	08.00 -08.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.03.2024	08.10 – 08.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.04.2024	08.00 – 08.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.04.2024	08.10 – 08.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.04.2024	08.30 – 08.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.04.2024	08.40 – 08.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.04.2024	08.10 – 08.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.04.2024	08.20 – 08.20	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.04.2024	08.00 – 08.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.04.2024	08.10 – 08.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.04.2024	07.30 – 07.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.04.2024	07.45 – 07.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.05.2024	08.30 – 08.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.05.2024	08.40 -08.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.05.2024	08.30 – 08.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.05.2024	08.40 – 08.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.05.2024	07.30 – 07.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.05.2024	07.45 – 07.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.05.2024	07.30-07.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.05.2024	07.45-07.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.06.2024	08.30 – 08.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.06.2024	08.40 – 08.40	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.

Global Lab and Consultancy Services LLP * Laboratory * Salem

Verified by
L. SUDHAPRIYA
Technical Manager

**********End of Report**********

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

SUMMARY REPORT

Issued To	**Thiru .S.Velu,** S/o.Sudalaiyandi, 5-36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, **Tirunelveli District – 627 130.**		
Site Location	**Rough Stone and Gravel,** Lease Area – 8.34.40 Ha. S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II-Village, Tisaiyanvilai Taluk, **Tirunelveli District.**		
Sampling Method	GLCS/SOP/AAQ/015	**Sample Drawn by**	Laboratory
Sample Name	Air Quality Monitoring	**Sampling Location**	AAQ 2 – Project Area NW Corner
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sample Code	**GLCS/12194, 12219, 12417, 12520, 12850, 125,214, 389,422,542,606, 727,741,917,948,1111,12690,1194,1340,1403,1557,1610,1800,1826,1994,2016**		
Location Coordinates	**8°16'36.97"N** **77°46'35.61"E**		
Report Date	**27.06.2024**		

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)
11.03.2024	07.15 – 07.15	40.3	22.0	6.0	23.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.03.2024	07.25 – 07.25	38.6	18.3	5.3	19.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.03.2024	09.00 – 09.00	39.8	19.1	4.7	18.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.03.2024	09.10 – 09.10	38.9	17.5	5.1	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.03.2024	08.30 – 08.30	40.2	19.9	5.8	19.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.03.2024	08.40 -08.40	36.1	18.3	BDL(DL:4.0)	14.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
01.04.2024	08.25 -08.25	37.8	17.9	BDL(DL:4.0)	17.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
02.04.2024	08.35 – 08.35	39.1	17.0	4.7	17.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
08.04.2024	09.00 – 09.00	44.6	21.6	6.6	19.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
09.04.2024	09.10 – 09.10	41.3	19.5	5.5	18.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.04.2024	08.50 – 08.50	41.3	19.9	4.4	18.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.04.2024	09.00 – 09.00	42.6	21.6	5.5	19.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.04.2024	08.30 – 08.30	41.6	18.3	4.8	17.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.04.2024	08.40 – 08.40	39.7	17.9	5.3	18.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.04.2024	08.10 – 08.10	40.4	17.4	5.9	18.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.04.2024	08.20 -08.20	42.9	21.2	BDL(DL:4.0)	17.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.05.2024	09.00 – 09.00	42.7	19.9	5.2	18.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.05.2024	09.10 -09.10	44.2	21.2	6.2	19.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.05.2024	09.00 – 09.00	40.1	18.7	4.8	18.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.05.2024	09.10 – 09.10	40.8	18.3	6.3	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.05.2024	08.10 – 08.10	40.1	18.3	6.1	19.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.05.2024	08.20-08.20	39.6	17.4	4.6	19.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.05.2024	08.10 – 08.10	41.3	19.1	4.8	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.05.2024	08.20-08.20	41.3	19.1	5.2	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
03.06.2024	09.00 – 09.00	41.3	18.3	5.2	18.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
04.06.2024	09.10 – 09.10	42.1	19.5	5.1	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

Global Lab and Consultancy Services LLP Laboratory Salem

Verified by
L. SUDHAPRIYA
Technical Manager

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

SUMMARY REPORT

Issued To	**Thiru .S.Velu,** S/o.Sudalaiyandi, 5-36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, **Tirunelveli District – 627 130.**		
Site Location	**Rough Stone and Gravel,** Lease Area – 8.34.40 Ha. S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II-Village, Tisaiyanvilai Taluk, **Tirunelveli District.**		
Sampling Method	GLCS/SOP/AAQ/015	**Sample Drawn by**	Laboratory
Sample Name	Air Quality Monitoring	**Sampling Location**	AAQ 3 – Near Existing Quarry
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sample Code	**GLCS/12195,12220,12418, 12521,12691, 12851, 126,215, 390,423,543,607,728,742,918,949,1112,1195,1341,1404,1558,1611,1801,1827,1995,2017**		
Location Coordinates	**8°16'19.35" N** **77°46'56.32" E**		
Report Date	**27.06.2024**		

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)
11.03.2024	07.30 – 07.30	41.5	22.4	4.6	23.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.03.2024	07.40 – 07.40	37.8	17.9	6.4	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.03.2024	09.35 – 09.35	40.6	20.0	4.5	18.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.03.2024	09.45 – 09.45	37.1	16.2	BDL(DL:4.0)	19.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.03.2024	09.15 – 09.15	39.4	19.1	5.9	18.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.03.2024	09.30 – 09.30	37.3	19.1	5.6	15.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
01.04.2024	09.00 – 09.00	35.6	16.2	4.9	18.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
02.04.2024	09.10 – 09.10	36.6	16.2	4.9	17.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
08.04.2024	09.35 – 09.35	41.6	19.9	6.6	18.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
09.04.2024	09.45 – 09.45	40.6	18.2	4.3	17.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.04.2024	09.35 – 09.35	42.1	21.2	4.6	17.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.04.2024	09.45 – 09.45	41.7	20.4	5.4	19.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.04.2024	09.15 – 09.15	41.4	17.9	4.4	18.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.04.2024	09.30 – 09.30	38.7	18.2	5.1	18.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.04.2024	08.45 – 08.45	39.9	17.8	6.1	19.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.04.2024	09.00 – 09.00	42.3	21.6	5.6	16.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.05.2024	09.45 – 09.45	43.0	21.6	4.0	19.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.05.2024	09.55 -09.55	42.8	19.9	5.8	20.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.05.2024	09.35 – 09.35	42.8	20.4	4.9	18.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.05.2024	09.45- 09.45	41.5	19.1	6.1	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.05.2024	08.45 – 08.45	42.1	20.3	5.1	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.05.2024	09.00-09.00	39.1	17.5	4.9	18.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.05.2024	08.45-08.45	42.1	20.8	5.5	19.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.05.2024	09.00 – 09.00	41.7	19.5	5.4	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
03.06.2024	09.35 – 09.35	43.6	20.8	4.9	19.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
04.06.2024	09.45 – 09.45	41.0	18.3	BDL(DL:4.0)	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

Global Lab and Consultancy Services LLP Laboratory

Verified by
L. SUDHAPRIYA
Technical Manager

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

SUMMARY REPORT

Issued To	**Thiru .S.Velu,** S/o.Sudalaiyandi, 5-36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, **Tirunelveli District – 627 130.**		
Site Location	**Rough Stone and Gravel,** Lease Area – 8.34.40 Ha. S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II-Village, Tisaiyanvilai Taluk, **Tirunelveli District.**		
Sampling Method	GLCS/SOP/AAQ/015	**Sample Drawn by**	Laboratory
Sample Name	Air Quality Monitoring	**Sampling Location**	AAQ 2 – Project Area NW Corner
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sample Code	**GLCS/12194, 12219, 12417, 12520, 12850, 125,214, 389,422,542,606, 727,741,917,948,1111,12690,1194,1340,1403,1557,1610,1800,1826,1994,2016**		
Location Coordinates	**8°16'36.97"N** **77°46'35.61"E**		
Report Date	**27.06.2024**		

Date	Period. hrs	Ni (ng/m^3)	As (ng/m^3)	C6H6 (µg/m^3)	BaP (ng/m^3)	Pb (µg/m^3)
11.03.2024	07.15 – 07.15	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.03.2024	07.25 – 07.25	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.03.2024	09.00 – 09.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.03.2024	09.10 – 09.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.03.2024	08.30 – 08.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.03.2024	08.40 -08.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.04.2024	08.25 -08.25	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.04.2024	08.35 – 08.35	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.04.2024	09.00 – 09.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.04.2024	09.10 – 09.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.04.2024	08.50 – 08.50	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.04.2024	09.00 – 09.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.04.2024	08.30 – 08.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.04:2024	08.40 – 08.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.04.2024	08.10 – 08.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.04.2024	08.20 -08.20	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.05.2024	09.00 – 09.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.05.2024	09.10 -09.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.05.2024	09.00 – 09.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.05.2024	09.10 – 09.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.05.2024	08.10 – 08.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.05.2024	08.20-08.20	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.05.2024	08.10 – 08.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.05.2024	08.20-08.20	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.06.2024	09.00 – 09.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.06.2024	09.10 – 09.10	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.

Verified by
L. SUDHAPRIYA
Technical Manager

279 A

*************End of Report*************

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

SUMMARY REPORT

Issued To	**Thiru .S.Velu,** S/o.Sudalaiyandi, 5-36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, **Tirunelveli District – 627 130.**		
Site Location	**Rough Stone and Gravel,** Lease Area – 8.34.40 Ha. S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II-Village, Tisaiyanvilai Taluk, **Tirunelveli District.**		
Sampling Method	GLCS/SOP/AAQ/015	**Sample Drawn by**	Laboratory
Sample Name	Air Quality Monitoring	**Sampling Location**	AAQ 3 – Near Existing Quarry
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sample Code	**GLCS/12195,12220,12418, 12521,12691, 12851, 126,215, 390,423,543,607,728,742,918,949,1112,1195,1341,1404,1558,1611,1801,1827,1995,2017**		
Location Coordinates	**8°16'19.35" N** **77°46'56.32" E**		
Report Date	**27.06.2024**		

Date	Period. hrs	Ni (ng/m^3)	As (ng/m^3)	C6H6 (µg/m^3)	BaP (ng/m^3)	Pb (µg/m^3)
11.03.2024	07.30 – 07.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.03.2024	07.40 – 07.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.03.2024	09.35 – 09.35	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.03.2024	09.45 – 09.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.03.2024	09.15 – 09.15	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.03.2024	09.30 – 09.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.04.2024	09.00 – 09.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.04.2024	09.10 – 09.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.04.2024	09.35 – 09.35	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.04.2024	09.45 – 09.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.04.2024	09.35 – 09.35	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.04.2024	09.45 – 09.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.04.2024	09.15 – 09.15	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.04.2024	09.30 – 09.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.04.2024	08.45 – 08.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.04.2024	09.00 – 09.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.05.2024	09.45 – 09.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.05.2024	09.55 -09.55	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.05.2024	09.35 – 09.35	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.05.2024	09.45- 09.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.05.2024	08.45 – 08.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.05.2024	09.00-09.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.05.2024	08.45-08.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.05.2024	09.00 – 09.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.06.2024	09.35 – 09.35	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.06.2024	09.45 – 09.45	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.

Global Lab and Consultancy Services LLP Laboratory

Verified by
L. SUDHAPRIYA
Technical Manager

280 A

**********End of Report**********

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

SUMMARY REPORT

Issued To	**Thiru .S.Velu,** S/o.Sudalaiyandi, 5-36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, **Tirunelveli District – 627 130.**		
Site Location	**Rough Stone and Gravel,** Lease Area – 8.34.40 Ha. S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II-Village, Tisaiyanvilai Taluk, **Tirunelveli District.**		
Sampling Method	GLCS/SOP/AAQ/015	**Sample Drawn by**	Laboratory
Sample Name	Air Quality Monitoring	**Sampling Location**	AAQ 4 – Muduvankulam Near School
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sample Code	**GLCS/12196, 12221,12419,12522, 12692,12852,127,216,391,424, 544,608,729,743,919,950,1113,1196,1342,1405,1559,1612,18021828,1996,2018**		
Location Coordinates	**8°17'26.21"N** **77°45'59.42"E**		
Report Date	**27.06.2024**		

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)
11.03.2024	07.45 – 07.45	42.8	22.8	5.1	25.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15
12.03.2024	07.55 – 07.55	38.9	18.7	4.8	18.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.03.2024	10.20 – 10.20	38.7	18.7	BDL(DL:4.0)	18.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.03.2024	10.30 – 10.30	38.3	17.9	5.4	19.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.03.2024	10.50 – 10.50	39.0	19.6	5.3	15.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.03.2024	11.00 – 11.00	37.9	19.5	BDL(DL:4.0)	15.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
01.04.2024	09.40 – 09.40	36.4	16.6	4.4	17.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
02.04.2024	09.50 – 09.50	37.6	17.9	5.1	16.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
08.04.2024	10.20 – 10.20	40.4	18.3	5.2	18.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
09.04.2024	10.30 – 10.30	42.2	20.0	5.6	16.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.04.2024	10.30 – 10.30	43.2	22.4	5.1	17.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.04.2024	10.40 – 10.40	42.2	21.2	5.9	15.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.04.2024	10.50 – 10.50	42.7	19.5	4.0	18.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.04.2024	11.00 – 11.00	42.8	21.2	4.9	18.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15
29.04.2024	09.30 – 09.30	42.8	19.1	6.2	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.04.2024	09.40 – 09.40	39.8	18.7	5.5	18.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.05.2024	10.30 – 10.30	41.6	19.1	4.6	18.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.05.2024	10.40 -10.40	41.6	18.7	5.8	19.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.05.2024	10.20 -10.20	41.9	19.5	5.7	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.05.2024	10.30 – 10.30	41.7	21.6	5.4	22.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.05.2024	09.30 – 09.30	40.6	19.9	5.5	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.05.2024	09.40-09.40	38.6	17.0	5.8	17.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.05.2024	09.30 – 09.30	40.1	19.5	5.4	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.05.2024	09.40 – 09.40	38.8	17.0	4.9	19.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
03.06.2024	10.20 - 10.20	40.5	17.4	5.3	19.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
04.06.2024	10.30 – 10.30	42.5	19.9	5.7	19.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

Global Lab and Consultancy Services LLP Laboratory

Verified by
L. SUDHAPRIYA
Technical Manager

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

SUMMARY REPORT

Issued To	**Thiru .S.Velu,** S/o.Sudalaiyandi, 5-36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, **Tirunelveli District – 627 130.**		
Site Location	**Rough Stone and Gravel,** Lease Area – 8.34.40 Ha. S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II Village, Tisaiyanvilai Taluk, **Tirunelveli District.**		
Sampling Method	GLCS/SOP/AAQ/015	**Sample Drawn by**	Laboratory
Sample Name	Air Quality Monitoring	**Sampling Location**	AAQ 4 – Muduvankulam Near School
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sample Code	**GLCS/12196, 12221,12419,12522, 12692,12852,127,216,391,424, 544,608,729,743,919,950,1113,1196,1342,1405,1559,1612,18021828,1996,2018**		
Location Coordinates	**8°17'26.21"N** **77°45'59.42"E**		
Report Date	**27.06.2024**		

Date	Period. hrs	Ni (ng/m^3)	As (ng/m^3)	C6H6 (µg/m^3)	BaP (ng/m^3)	Pb (µg/m^3)
11.03.2024	07.45 – 07.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.03.2024	07.55 – 07.55	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.03.2024	10.20 – 10.20	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.03.2024	10.30 – 10.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.03.2024	10.50 – 10.50	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.03.2024	11.00 – 11.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.04.2024	09.40 – 09.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.04.2024	09.50 – 09.50	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.04.2024	10.20 – 10.20	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.04.2024	10.30 – 10.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.04.2024	10.30 – 10.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.04.2024	10.40 – 10.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.04.2024	10.50 – 10.50	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.04.2024	11.00 – 11.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.04.2024	09.30 – 09.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.04.2024	09.40 – 09.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.05.2024	10.30 – 10.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.05.2024	10.40 -10.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.05.2024	10.20 -10.20	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.05.2024	10.30 – 10.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.05.2024	09.30 – 09.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.05.2024	09.40-09.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.05.2024	09.30 – 09.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.05.2024	09.40 – 09.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.06.2024	10.20 - 10.20	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.06.2024	10.30 – 10.30	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.

Global Lab and Consultancy Services LLP Laboratory Salem 636016

Verified by
L. SUDHAPRIYA
Technical Manager

**********End of Report**********

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

SUMMARY REPORT

Issued To	**Thiru .S.Velu,** S/o.Sudalaiyandi, 5-36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, **Tirunelveli District – 627 130.**		
Site Location	**Rough Stone and Gravel,** Lease Area – 8.34.40 Ha. S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II-Village, Tisaiyanvilai Taluk, **Tirunelveli District.**		
Sampling Method	GLCS/SOP/AAQ/015	**Sample Drawn by**	Laboratory
Sample Name	Air Quality Monitoring	**Sampling Location**	AAQ 5 - Kilurcheri
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sample Code	**GLCS/12197, 12222,12420,12523,12853,128, 217,392,425,545,609,730 ,744,920,951,1114,12693, 1197,1343,1406,1560,1613,1803,1829,1997,2019**		
Location Coordinates	**8°14'48.65"N** **77°43'47.14"E**		
Report Date	**27.06.2024**		

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)
11.03.2024	08.00 – 08.00	43.0	23.7	6.7	21.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.03.2024	08.10 – 08.10	38.2	18.3	5.2	19.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.03.2024	11.00 – 11.00	39.6	19.5	5.9	18.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.03.2024	11.15 – 11.15	37.9	16.6	5.8	17.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.03.2024	11.30 – 11.30	41.3	21.6	BDL(DL:4.0)	17.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.03.2024	11.40 – 11.40	37.7	19.5	5.1	15.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
01.04.2024	10.35 – 10.35	34.4	16.2	5.2	19.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
02.04.2024	10.45 – 10.45	36.3	16.2	5.1	16.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
08.04.2024	11.00 – 11.00	40.8	18.7	5.9	18.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
09.04.2024	11.15 – 11.15	39.8	17.4	5.8	16.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.04.2024	11.00 – 11.00	41.6	20.4	5.4	18.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.04.2024	11.15 – 11.15	42.6	21.2	6.3	15.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.04.2024	11.30 – 11.30	41.2	18.3	4.8	17.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.04.2024	11.40 – 11.40	41.6	19.1	4.9	18.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.04.2024	10.15 – 10.15	43.2	19.9	6.1	20.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.04.2024	10.25 – 10.25	41.4	20.0	7.0	18.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.05.2024	11.20 – 11.20	41.9	19.1	5.6	18.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.05.2024	11.30 – 11.30	42.1	19.5	5.9	19.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.05.2024	11.00 – 11.00	42.4	20.0	4.8	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.05.2024	11.15 – 11.15	39.8	17.4	BDL(DL:4.0)	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.05.2024	10.15 – 10.15	40.1	19.1	5.4	20.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.05.2024	10.25-10.25	42.7	20.4	BDL(DL:4.0)	19.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.05.2024	10.15 – 10.15	42.9	20.3	5.6	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.05.2024	10.25 – 10.25	39.4	17.4	5.2	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
03.06.2024	11.00 – 11.00	43.9	19.9	4.8	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
04.06.2024	11.15 – 11.15	43.1	20.4	BDL(DL:4.0)	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

Global Lab and Consultancy Services LLP Laboratory

Verified by
L. SUDHAPRIYA
Technical Manager

283 A

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

SUMMARY REPORT

Issued To	**Thiru .S.Velu,** S/o.Sudalaiyandi, 5-36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, **Tirunelveli District – 627 130.**		
Site Location	**Rough Stone and Gravel,** Lease Area – 8.34.40 Ha. S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II-Village, Tisaiyanvilai Taluk, **Tirunelveli District.**		
Sampling Method	GLCS/SOP/AAQ/015	**Sample Drawn by**	Laboratory
Sample Name	Air Quality Monitoring	**Sampling Location**	AAQ 5 - Kilurcheri
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sample Code	**GLCS/12197, 12222,12420,12523,12853,128, 217,392,425,545,609,730 ,744,920,951,1114,12693, 1197,1343,1406,1560,1613,1803,1829,1997,2019**		
Location Coordinates	**8°14'48.65"N** **77°43'47.14"E**		
Report Date	**27.06.2024**		

Date	Period. hrs	Ni (ng/m^3)	As (ng/m^3)	C6H6 (µg/m^3)	BaP (ng/m^3)	Pb (µg/m^3)
11.03.2024	08.00 – 08.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.03.2024	08.10 – 08.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.03.2024	11.00 – 11.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.03.2024	11.15 – 11.15	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.03.2024	11.30 – 11.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.03.2024	11.40 – 11.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.04.2024	10.35 – 10.35	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.04.2024	10.45 – 10.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.04.2024	11.00 – 11.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.04.2024	11.15 – 11.15	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.04.2024	11.00 – 11.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.04.2024	11.15 – 11.15	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.04.2024	11.30 – 11.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.04.2024	11.40 – 11.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.04.2024	10.15 – 10.15	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.04.2024	10.25 – 10.25	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.05.2024	11.20 – 11.20	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.05.2024	11.30 – 11.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.05.2024	11.00 – 11.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.05.2024	11.15 – 11.15	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.05.2024	10.15 – 10.15	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.05.2024	10.25-10.25	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.05.2024	10.15 – 10.15	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.05.2024	10.25 – 10.25	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.06.2024	11.00 – 11.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.06.2024	11.15 – 11.15	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.

Laboratory

Verified by
L. SUDHAPRIYA
Technical Manager

284 A

**********End of Report**********

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

SUMMARY REPORT

Issued To	**Thiru .S.Velu,** S/o.Sudalaiyandi, 5-36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, **Tirunelveli District – 627 130.**		
Site Location	**Rough Stone and Gravel,** Lease Area – 8.34.40 Ha. S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II-Village, Tisaiyanvilai Taluk, **Tirunelveli District.**		
Sampling Method	GLCS/SOP/AAQ/015	**Sample Drawn by**	Laboratory
Sample Name	Air Quality Monitoring	**Sampling Location**	AAQ 6 - Perunkulam
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sample Code	**GLCS/12198, 12223,12421, 12524,12694, 12854,129,218,393,426, 546,610,731,745,921,952,1115,1198,1344,1407,1561,1614,1804,1830,1998,2020**		
Location Coordinates	**8°18'27.88"N** **77°48'42.61"E**		
Report Date	**27.06.2024**		

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)
11.03.2024	08.15 – 08.15	44.2	24.5	5.7	23.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.03.2024	08.25 – 08.25	39.6	19.1	5.8	19.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.03.2024	11.45 – 11.45	40.1	20.4	5.2	19.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.03.2024	12.00 – 12.00	38.0	17.0	4.9	18.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.03.2024	12.20 – 12.20	40.4	20.0	6.3	17.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.03.2024	12.30 – 12.30	36.5	17.4	4.4	15.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
01.04.2024	11.15 – 11.15	34.3	16.6	4.5	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
02.04.2024	11.30 – 11.30	35.8	15.8	4.8	18.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
08.04.2024	11.45 – 11.45	40.2	17.9	6.0	16.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
09.04.2024	12.00 – 12.00	39.5	17.5	5.9	16.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.04.2024	11.45 – 11.45	39.7	18.3	5.6	18.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.04.2024	12.00 – 12.00	42.0	20.0	6.2	17.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.04.2024	12.20 – 12.20	43.2	20.8	4.2	18.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.04.2024	12.30 – 12.30	39.8	17.5	5.7	18.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.04.2024	11.00 – 11.00	43.4	20.4	5.4	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.04.2024	11.10 – 11.10	39.4	18.3	6.9	19.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.05.2024	12.00 – 12.00	41.1	19.5	6.1	19.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.05.2024	12.10 -12.10	43.5	20.4	5.71	9.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.05.2024	11.45 – 11.45	38.6	17.5	5.6	22.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.05.2024	12.00 – 12.00	41.1	19.9	6.3	20.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.05.2024	11.00 – 11.00	40.6	18.3	5.3	20.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.05.2024	11.10-11.10	39.5	17.5	5.4	19.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.05.2024	11.00 – 11.00	40.7	19.9	6.1	22.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.05.2024	11.10 – 11.10	38.2	17.0	4.8	20.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
03.06.2024	11.45 – 11.45	43.2	20.4	5.6	19.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
04.06.2024	12.00 – 12.00	42.4	19.1	6.0	19.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

Global Lab and Consultancy Services LLP Laboratory

Verified by
L. SUDHAPRIYA
Technical Manager

285 A

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

SUMMARY REPORT

Issued To	**Thiru .S.Velu,** S/o.Sudalaiyandi, 5-36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, **Tirunelveli District – 627 130.**		
Site Location	**Rough Stone and Gravel,** Lease Area – 8.34.40 Ha. S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II Village, Tisaiyanvilai Taluk, **Tirunelveli District.**		
Sampling Method	GLCS/SOP/AAQ/015	**Sample Drawn by**	Laboratory
Sample Name	Air Quality Monitoring	**Sampling Location**	AAQ 6 - Perunkulam
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sample Code	**GLCS/12198, 12223,12421, 12524,12694, 12854,129,218,393,426, 546,610,731,745,921,952,1115,1198,1344,1407,1561,1614,1804,1830,1998,2020**		
Location Coordinates	**8°18'27.88"N** **77°48'42.61"E**		
Report Date	**27.06.2024**		

Date	Period. hrs	Ni (ng/m^3)	As (ng/m^3)	C6H6 (µg/m^3)	BaP (ng/m^3)	Pb (µg/m^3)
11.03.2024	08.15 – 08.15	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.03.2024	08.25 – 08.25	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.03.2024	11.45 – 11.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.03.2024	12.00 – 12.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.03.2024	12.20 – 12.20	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.03.2024	12.30 – 12.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.04.2024	11.15 – 11.15	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.04.2024	11.30 – 11.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.04.2024	11.45 – 11.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.04.2024	12.00 – 12.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.04.2024	11.45 – 11.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.04.2024	12.00 – 12.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.04.2024	12.20 – 12.20	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.04.2024	12.30 – 12.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.04.2024	11.00 – 11.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.04.2024	11.10 – 11.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.05.2024	12.00 – 12.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.05.2024	12.10 -12.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.05.2024	11.45 – 11.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.05.2024	12.00 – 12.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.05.2024	11.00 – 11.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.05.2024	11.10-11.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.05.2024	11.00 – 11.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.05.2024	11.10 – 11.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.06.2024	11.45 – 11.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.06.2024	12.00 – 12.00	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.

Global Lab and Consultancy Services LLP Laboratory

Verified by
L. SUDHAPRIYA
Technical Manager

**********End of Report**********

286 A

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

SUMMARY REPORT

Issued To	**Thiru .S.Velu,** S/o.Sudalaiyandi, 5-36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, **Tirunelveli District – 627 130.**		
Site Location	**Rough Stone and Gravel,** Lease Area – 8.34.40 Ha. S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II-Village, Tisaiyanvilai Taluk, **Tirunelveli District.**		
Sampling Method	GLCS/SOP/AAQ/015	**Sample Drawn by**	Laboratory
Sample Name	Air Quality Monitoring	**Sampling Location**	AAQ 7 – Thottavilai
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sample Code	**GLCS/12199,12224, 12422,12525, 12695,12855,130, 219,394,427,547,611,732,746,922,953,1116,1199,1345,1408,1562,1615,1805,1831,1999,2021**		
Location Coordinates	**8°15'18.17"N** **77°47'55.08"E**		
Report Date	**27.06.2024**		

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)
11.03.2024	08.30 – 08.30	40.6	21.2	6.2	25.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
12.03.2024	08.40 – 08.40	38.4	19.9	6.0	18.9	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
18.03.2024	12.40 – 12.40	39.2	19.6	5.8	19.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
19.03.2024	12.50 – 12.50	39.6	18.7	4.2	17.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
25.03.2024	13.15 – 13.15	41.7	21.2	6.0	16.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
26.03.2024	13.30 – 13.30	36.9	18.7	5.0	15.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
01.04.2024	12.10 – 12.10	35.8	15.8	6.0	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
02.04.2024	12.20 – 12.20	37.6	17.9	5.5	18.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
08.04.2024	12.40 – 12.40	39.8	17.4	6.2	18.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
09.04.2024	12.50 – 12.50	40.7	18.7	6.4	16.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
15.04.2024	12.35 – 12.35	40.7	19.5	5.2	18.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
16.04.2024	12.45 – 12.45	40.3	19.9	7.0	18.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
22.04.2024	13.15 – 13.15	41.4	18.7	6.3	17.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
23.04.2024	13.30 – 13.30	40.4	18.7	5.9	18.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
29.04.2024	11.45 – 11.45	41.6	18.7	6.2	20.0	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
30.04.2024	12.00 -12.00	41.7	19.1	6.3	19.8	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
06.05.2024	12.45 – 12.45	41.4	20.8	5.0	18.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
07.05.2024	13.00 – 13.00	44.6	21.6	5.4	19.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
13.05.2024	12.40 – 12.40	41.0	19.5	5.5	20.5	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
14.05.2024	12.50 – 12.50	42.3	20.4	5.0	22.7	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
20.05.2024	11.45 – 11.45	39.8	17.5	6.9	21.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
21.05.2024	12.00-12.00	41.1	19.5	5.1	19.4	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
27.05.2024	11.45 – 11.45	42.8	20.3	6.4	21.2	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
28.05.2024	12.00 – 12.00	40.9	18.3	5.0	20.1	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
03.06.2024	12.40 – 12.40	42.1	19.9	5.8	19.6	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
04.06.2024	12.50 – 12.50	41.3	18.3	4.2	20.3	BDL(DL:5.0)	BDL(DL:5.0)	BDL(DL:1.15)
NAAQ* Standard		<100	<60	<80	<80	<180	<400	<4

Note: BDL: Below Detection Limit; DL: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

Laboratory

287 A

Verified by
L. SUDHAPRIYA
Technical Manager

GLOBAL LAB AND CONSULTANCY SERVICES LLP
GLCS
Committed to Precision
LABORATORY | CONSULTANCY | SUSTAINABILITY
S.F.No.92/3A2, Geetha Nagar,
Alagapuram Pudur,
Salem - 636 016. Tamil Nadu.
Phone: 0427 - 2970989 / +91 70944 53636
E-Mail: lab@glcs.in
Web: www.glcs.in

SUMMARY REPORT

Issued To	**Thiru .S.Velu,** S/o.Sudalaiyandi, 5-36, Parkkaneri Keelur, Tiruvambalapuram, Radhapuram Taluk, **Tirunelveli District – 627 130.**		
Site Location	**Rough Stone and Gravel,** Lease Area – 8.34.40 Ha. S.F.No : 196/2B (P), 197/2B(P) , 195/2A (P),195/2B(P) & 195/3(P) of Kasturirengapuram Part II Village, Tisaiyanvilai Taluk, **Tirunelveli District.**		
Sampling Method	GLCS/SOP/AAQ/015	**Sample Drawn by**	Laboratory
Sample Name	Air Quality Monitoring	**Sampling Location**	AAQ 7 – Thottavilai
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sample Code	**GLCS/12199,12224, 12422,12525, 12695,12855,130, 219,394,427,547,611,732,746,922,953,1116,1199,1345,1408,1562,1615,1805,1831,1999,2021**		
Location Coordinates	**8°15'18.17"N** **77°47'55.08"E**		
Report Date	**27.06.2024**		

Date	Period. hrs	Ni (ng/m^3)	As (ng/m^3)	C6H6 (µg/m^3)	BaP (ng/m^3)	Pb (µg/m^3)
11.03.2024	08.30 – 08.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
12.03.2024	08.40 – 08.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
18.03.2024	12.40 – 12.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
19.03.2024	12.50 – 12.50	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
25.03.2024	13.15 – 13.15	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
26.03.2024	13.30 – 13.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
01.04.2024	12.10 – 12.10	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
02.04.2024	12.20 – 12.20	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
08.04.2024	12.40 – 12.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
09.04.2024	12.50 – 12.50	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
15.04.2024	12.35 – 12.35	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
16.04.2024	12.45 – 12.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
22.04.2024	13.15 – 13.15	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
23.04.2024	13.30 – 13.30	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
29.04.2024	11.45 – 11.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
30.04.2024	12.00 -12.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
06.05.2024	12.45 – 12.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
07.05.2024	13.00 – 13.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
13.05.2024	12.40 – 12.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
14.05.2024	12.50 – 12.50	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
20.05.2024	11.45 – 11.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
21.05.2024	12.00-12.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
27.05.2024	11.45 – 11.45	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
28.05.2024	12.00 – 12.00	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
03.06.2024	12.40 – 12.40	BDL (DL:.1)	BDL (DL:1)	BDL (DL:1.0)	BDL (DL:0.5)	BDL (DL:0.01)
04.06.2024	12.50 – 12.50	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.

Global Lab and Consultancy Services LLP Laboratory

Verified by
L. SUDHAPRIYA
Technical Manager

**********End of Report**********

QUALITY COUNCIL® OF INDIA
Creating an Ecosystem for Quality

National Accreditation Board for Education and Training

Certificate of Accreditation

Geo Exploration & Mining Solutions, Salem

No. 17, Advaitha 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.