

**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 – MINOR MINERAL – CLUSTER – NON-FOREST LAND
CLUSTER EXTENT = 27.93.72 ha (5 Proposed + 6 Existing
Quarries)**

M/s. SRI BLUE METALS ROUGH STONE & GRAVEL QUARRY

Project Proponent	Proposed Project	Extent
M/s. Sri Blue Metals, Proprietor Thiru S. Gnanasekaran D.No 2/241, Kannarpalayam, Karamadai Post, Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District – 641 104	S.F.Nos: 76/1A & 76/1B (P) Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamilnadu State	5.07.22 ha

ToR obtained vide

Lr.No. SEIAA-TN/F.No.9991/SEAC/l(a)ToR-1496/2023 Dated: 22.06.2023

Environmental Consultant GEO EXPLORATION AND MINING SOLUTIONS Old No. 260-B, New No. 17, Advaitha Ashram Road, Alagapuram, Salem – 636 004, Tamil Nadu, India  Accredited for sector 1 Category ‘A’, 31 Category ‘B’ & 38 Category ‘B’  Certificate No : NABET/EIA/2225/RA 0276 Dated: 06.08.2025 Phone: 0427-2431989, Email: ifthiahmed@gmail.com, geothangam@gmail.com Web: www.gemssalem.com	Laboratory EHS 360 LABS PRIVATE LIMITED, 10/2 Ground floor, 50 th street, 7 th Avenue, Ashok Nagar, Chennai – 600 083.
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BASELINE MONITORING PERIOD - December 2022 to February 2023

PROJECT DETAILS

Proposed Quantity	:	9,67,173m ³ of Rough Stone
Proposed Depth	:	42m bgl
Total Project Cost	:	Rs.4,23,40,000/-

OCTOBER 2023

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

*PROPOSED QUARRIES					
CODE	Name of the Owner	S.F. Nos	Extent	Status	Remarks
P1	M/s. Sri Blue Metals,	76/1A & 76/1B (P)	5.07.22	Lr.No. SEIAA-TN/F.No.9991/SEAC/I(a)ToR-1496/2023 Dated: 22.06.2023	
P2	Thiru.C.N. Mani,	75	2.47.5 ha	Tor obtained vide Lr. No SEIAA TN/F.No.8709/ ToR-1084/2021 Dated: 17.03.2022	EC granted
P3	Tmt.M.Muthammal	77/2E (P),77/2F(P),& 79/1A (P)	1.82.0Ha	SEIAA-TN/F.No.8393/SEAC/ToR-973/2021 Dated: 05.07.2021	EC granted
P4	Thiru.A.Nandakumar	78/1(P), 419&420	3.46.0 Ha	Lr.No. SEIAA-TN/F.No.9011/SEAC/ToR-1161/2022 Dated: 06.06.2022	Under EC process
P5	Thiru.R.K.Palanisamy	340 (P) and 341/3 (P)	4.90.0 Ha	Lr.No. SEIAA-TN/F.No.9309/SEAC/ToR-1242/2022 Dated: 30.08.2022	Under EC process
Total			17.72.72 ha		
*EXISTING QUARRIES					
CODE	Name of the Owner	S.F. No	Extent	Status	Remarks
E-1	Thiru.S. Gnanasekaran,	77/2D (P)	1.01.2 ha	01.10.2018 to 30.09.2023	Quarry in under operation
E-2	Thiru.S.Gnanasekaran,	74/2	2.37.0 ha	28.10.2022 to 27.10.2027	Quarry in under operation
E-3	Tmt.R.Poorani,	80/1	1.27.0 ha	22.12.2018 to 21.12.2023	Quarry in under operation
E-4	Tmt.T.Kaveriammal,	77/2B	0.99.0 ha	24.12.2018 to 23.12.2023	Quarry in under operation
E-5	M/s.Technomax Building Solution India Pvt Ltd	345/3 (P)	1.45.8 Ha	26.10.2018 to 25.10.2023	Quarry in under operation
E-6	M/s. Sri Blue Metals,	77/1B & 421/2B (Part)	3.11.0 ha	14.02.2023 to 13.02.2028	Quarry in under operation
TOTAL			10.21.0 ha		
EXPIRED QUARRY					
CODE	Name of the Owner	S.F. No	Extent	Status	Remarks
EX-1	Thiru.R.K.Selvakumar	69 (P)	2.19.0 ha	07.10.2017 to 16.10.2022	-
ABANDONED QUARRY					
A-1	Tmt.K.Vidya	76/2	1.21.5	21.12.2000 to 20.12.2005	
A-2	Thiru.R.Venkatasamy	67/2	0.61.0	09.06.2003 to 08.06.2008	
TOTAL			1.82.5 ha		
TOTAL CLUSTER EXTENT*			27.93.72 Ha		

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

TERMS OF REFERENCE (ToR) COMPLIANCE

P1- M/s. Sri Blue Metals, Roughstone & Gravel quarry

Lr.No. SEIAA-TN/F.No.9991/SEAC/I(a)ToR-1496/2023 Dated: 22.06.2023

SPECIFIC CONDITIONS		
1	The proponent/consultant shall furnish an affidavit stating that no mining operations were carried out in the proposed project area after 2014.	Noted and Agreed
2	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & Water bodies nearby provided as per the approved mining plan.	Noted and agreed
3	The structures with in the radius of (i)50m.(ii)100m.(iii)200m and (iv)300m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, Factories, sheds, etc.	Noted and agreed
4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc located within I km of the proposed quarry.	Noted and agreed
5	The Proponent shall carry out Bio diversity study through reputed Institution and the same Shall be included in EIA Report.	Noted and agreed
6	Since the quarry is existing with a depth of excavation varies from 6 m to 15 m without benches of appropriate dimension (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall carry out a 'Slope Stability Assessment' studies for the existing conditions of the quarry wall by involving any of these reputed Research and Academic Institutions - CSIR-Central institute of Mining & Fuel Research (CIMFR) / Dhanbad, NIRM - Bengaluru. IIT-Madras" NIT Surathkal Dept of Mining Eng. The above studies shall spell out a slope Stability Action Plan' for the proposed quarry covering the existing condition of the quarry wall including the overall pit slope angle where the proposed depth exceeds 30 m and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.	Noted and agreed
7	If the blasting operation is to be carried out, the PP shall present a conceptual design for carrying out the NONEL initiation based controlled blasting operation including the line drilling & muffle blasting techniques and a Simulation Model indicating the anticipated Blast-induced Ground Vibration levels in the proposed quarry as stipulated by the DGMS Circular No.7 of 1997. during the EIA Proposal.	Noted and agreed
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 st Class mines manager appointed by the proponent	Noted and agreed

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.	Noted and agreed
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.	Noted and agreed
11	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines, a. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? b. Quantity of minerals mined out c. Highest production achieved in any one year d. Detail of approved depth of mining e. Actual depth of the mining achieved earlier f. Name of the person already mined in that leases area g. If EC and CTO already obtained, the copy of the same shall be submitted. h. whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	It is a Patta land, S.F.No. 76/1A is registered in the name of Thiru.P.Sidhartha Mowli and S.F.No. 76/1B (P) is registered in the name of Thiru.S.Palanisamy. The applicant has obtained consent from pattadhars.
12	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Toposheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 1 Geomorphology of the area is given in Chapter No 2 Land use pattern of the project area is tabulated in the Chapter No.2. Land use pattern of the Study area is tabulated in the Chapter No.3
13	The PP shall carry out Drone video survey covering the cluster, green belt, fencing etc.,	Drone video covering the cluster area clearly stating the extent of the operation will be submitted in the final EIA report
14	The PP shall furnish the revised manpower including the statutory & competent persons as required under the provisions of the MMR 1961 for the proposed quarry based on the volume of rock handled & area of excavation.	Noted and agreed
15	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.	Details of Geological Resources and Proposed reserves are discussed under Chapter No. 2.
16	The Project Proponent shall provide the organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act,1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and	Organization chart indicating Proposal for the appointment of Statutory officials is given in the Chapter No.7

	systematically in order to ensure safety and to protect the environment.	
17	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	Hydro-geological study considering the contour map of the water table detailing Chapter-3
18	The Proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study	Baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality, & flora/fauna including traffic/vehicular movement study to assess the cumulative impact of the proposed project on the environment is prepared as a Draft EIA EMP and will be finalized after public consultation and will be submitted as Final EIA /EMP Report.
19	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.	The Cumulative impact study due to mining operations is explained in chapter – 7
20	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Noted and agreed
21	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. 2, Table No 2.3.
22	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
23	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.
24	Description of water conservation measures proposed to be adopted for the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Mine Closure in Chapter -2

25	Impact on local transport infrastructure due to the Project should be indicated.	Transportation details mentioned in Chapter -2
26	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.	Details of the trees in the buffer zone given in Chapter No.3.
27	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	Mine closure plan is detailed in Chapter:4.
28	Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.	Noted and agreed
29	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Noted and agreed
30	The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.	Noted and agreed
31	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	Noted and agreed
32	The purpose of green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	About 2540 Nos of Saplings is proposed to plant along in safety area, Panchayat Road and village road.
33	Taller/one year old Saplings raised in appropriate size of bags preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	Noted & agreed.
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Detailed under Chapter 7,
35	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Detailed under Chapter 7,
36	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-	Occupational Health impacts chapter- 10

	placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	
37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Occupational Health impacts chapter- 10
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Details are listed in Chapter:3 and Chapter- 4
39	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No Litigation is pending
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Project benefits are detailed in chapter 7 and 8,10
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is an Proposed Lease
42	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	Noted and agreed
43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted & agreed

ADDITIONAL CONDITIONS-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.	Details in 7 salient features of quarry with existing quarry.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc..	Noted & agreed
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Noted & agreed
4	Detailed operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	Transport details in chapter-2

5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan	Noted & agreed
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Noted & agreed
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Noted & agreed
8	The committee shall furnish the Emergency Management plan within the cluster.	Details discussed in chapter 7.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Details discussed in chapter 10.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Noted & agreed
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Detailed discussed in chapter 7.
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 arca communication order issued from reputed research institutions on the following a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health' e) Agriculture, Forestry & Traditional practices. 1) Hydrothermal/Geothermal effect due to destruction in the Environment' g) Bio-geochemical processes and its foot prints including environmental stress' h) Sediment geochemistry in the surface steams.	Species Recommended for Plantation in chapter 3&10.
Agriculture & Agro-Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining Area.	Detailed discussed in chapter 4.
14	Impact on soil flora & vegetation around the project site.	Detailed discussed in chapter 4.
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	Details in Chapter 2,3 and 7
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora. fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Details in Chapter 3

17	Action should specifically suggest lbr sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted & agreed
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands. Horticulture, Agriculture and livestock.	The project area is bounded by Existing quarries on the East and west side. Proponent proposed to erect green mesh along with fencing on the South side besides, Budgetary allocation given in the Chapter No. 10.
Forest		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	Noted and agreed, there is no reserve forest and wildlife in the buffer zone.
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Ecology and Biodiversity environment deals in Chapter-3
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Ecology and Biodiversity environment deals in Chapter-3
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Anticipated Environment Impact and Mitigation measures are detailed in Chapter No.4
Water Environment		
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect ground water. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	Hydro-geological study considering the contour map of the water table detailing Chapter-3
24	Erosion Control measures.	Noted & Agreed
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby villages, water-bodies/ Rivers. & any ecological fragile areas.	Details in Chapter 2
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Details in Chapter 2 and 4 impact of bio diversity
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment by the activities.	Noted & agreed
28	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	Noted & agreed. Detailed under Chapter 3.
29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil, physical, chemical components and microbial components.	Details in Chapter 3 soil environment.
30	The Environmental impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	Nearest agriculture activity is coconut plantation located North side of the project area. Proponent erected fencing in the previous lease period. The same will be reconstructed around the quarry pits

Energy		
31	The measures taken to control Noise. Air, Water. Dust Control and steps adopted to efficiently utilize the Energy shall be furnished.	Details in Chapter 3 environmental monitoring details.
Climate Change		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control other emission and climate mitigation activities.	Details of carbon emission and mitigation activities are given int the Chapter No.4
33	The Environmental impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Details in Chapter-3 for meteorological and climate/weather data representation of graphs.
Mine Closure Plan		
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Details in Chapter 2 mine closure plan
EMP		
35	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed under Chapter 10
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	Details in Green belt development in chapter 4
Risk Assessment		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Detailed under Chapter 7
Disaster Management Plan		
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Details study 7.3 Disaster Management Plan in Chapter -7
Others		
39	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations. schools. Archaeological sites. Structures. railway lines, roads. Water bodies such as streams, odai, vaari, canal, channel. river, lake pond, tank etc.	Noted & agreed. Detailed under Chapter 4
40	As per the MoEF& CC office memorandum tr.No.22-651201 7-1A.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted and agreed
41	The project proponent shall study 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	Details of carbon emission and mitigation activities are given int the Chapter No.4

	activities, contemplated during mining may be investigated and reported.	
STANDARD TERMS OF REFERENCE		
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not applicable. The project is Not a violation category. This proposal falls under B1 Category (Cluster situation)
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	Document is enclosed along with Approved Mining Plan as Annexure Volume 1 for the respective projects.
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	Noted & agreed.
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Satellite imagery of the project area along with boundary co-ordinates is given in the Chapter No 1 Figure No .1.1 Geomorphology of the area is given in Chapter No 2 Figure No 2.10. Land use pattern of the project area is tabulated in the Chapter No.2. Table No.2.3 Land use pattern of the Study area is tabulated in the Chapter No.3 Table No 3.2
5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Map showing – Geology map of the project area covering 10km radius - Figure No. 2.11. Geomorphology of the area is given in Chapter No 2 Figure No 2.10.
6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The applied area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.
7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	The proponent has framed their Environmental Policy and the same is discussed in the Chapter No 10.1.
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an opencast quarrying operation proposed to operate in Mechanized method. The rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 90 ⁰ bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate.

		Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc., should be for the life of the mine / lease period.	Noted & agreed. The study area considered for this study is 10 km radius and all data contained in the EIA report such as waste generation etc., is for the Life of the Mine / lease period.
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3.
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given	Not Applicable. There is no waste anticipated during this quarry operation. The entire quarried out rough stone will be transported to the needy customers. No Dumps is proposed outside the lease area.
12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	Not Applicable. There is no Forest Land involved in the proposed project area. The proposed project area is a Patta land. Approved Mining Plan is enclosed as Annexure Volume 1.
13	Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not Applicable. The proposed project area does not involve any Forest Land.
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. The project doesn't attract Recognition of Forest Rights Act, 2006.
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	No Reserve Forest within the Study Area.
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	Not Applicable. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 KM of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such	Not Applicable. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.

	projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished	
18	A detailed biological study of the study area [core zone and buffer zone (10 KM radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	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. Detailed in Chapter No. 3.
19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range'.
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable. The project doesn't attract The C. R. Z. Notification, 2018.
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	Not Applicable. There are no approved habitations 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.
22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season); December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations	Baseline Data were collected for One Season Dec 2022-Feb 2023 (Winter Season) as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.

	should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	
23	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD view 9.6.1 Model. Details in Chapter No. 4.
24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Total Water Requirement for this project is given in the chapter No 2, Table No 2.13.
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Water for dust suppression, greenbelt development and domestic use will be obtained from accumulated rainwater/seepage water in mine pits. Drinking water will be sourced from the approved water vendors, No 2, Table No 2.13.
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The rain water collected in the pits after spell of rain will be used for greenbelt development and dust suppression.
27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact Studies and Mitigation Measures of Water Quality discussed in Chapter No. 4.
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The ground water table is at 70-65m below ground level. In these projects, ultimate depth is 35m Maximum from the general ground profile. It is inferred the quarrying activities in the Cumulative EIA project (Quarry) will not intersect the Ground water table.
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	Highest elevation of the project area is 355m AMSL Ultimate depth of the mine is 42m AMSL Water level in the area is 70m BGL to 65m BGL
30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.	Progressive greenbelt development plan has been prepared and discussed along with Recommended Species details are given in the Chapter 4, Table No.4.12
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on	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

	commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	proposed transportation from the project area. Details in Chapter 2.
32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease and the same has been discussed in the Chapter No.2.
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Discussed in chapter No 2.
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Details in Chapter 10.
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational health impact and details of the medical examination to the workers given in the Details in Chapter 10.
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Details in Chapter No. 4
37	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Details of Socio Economic is given in the Chapter No 3.
38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Environment Management Plan Chapter 10.
39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	Public hearing points and commitment of the project proponent will be updated in the final EIA & EMP Report.

40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No litigation is pending in any court against this project.
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Project Cost is given in the Chapter No 2, Table No 2.15.
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Detailed under Chapter 7
43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Total Water Requirement for this project is given in the chapter No 2, Table No 2.13.
44	Besides the above, the below mentioned general points are also to be followed: -	
A	Executive Summary of the EIA/EMP Report	Encloses as separate volume
B	All documents to be properly referenced with index and continuous page numbering.	All the documents are properly referenced with index and continuous page numbering.
C	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	List of Tables and source of the data collected are given properly.
D	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC / NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project	Copy of Baseline monitoring reports are enclosed with this draft as annexure
E	Where the documents provided are in a language other than English, an English translation should be provided.	Not Applicable.
F	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Questionnaire of the project will be submitted in final EIA report after complying the public hearing points.
G	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II(I) Dated: 4th August, 2009, which are available on the website of this Ministry, should be followed.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) Dated: 4th August, 2009 are followed.
H	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF & CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	There is no changes in Form-I, Mining plan and Pre-feasibility report for all the projects.
I	As per the circular no. J-11011/618/2010-IA. II(I) Dated: 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	Not applicable.
J	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 1 Figure No .1.1 Geomorphology of the area is given in Chapter No 2 Figure No 2.10.

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1. INTRODUCTION

1.0 PREAMBLE

Rough Stone is the major requirement for construction industry. The proposed project is categorized under category “B1” Activity 1(a) (mining lease area falls in the cluster, Total extent of the quarries within 500m radius is < 5ha). This EIA Report is prepared for **M/s. Sri Blue Metals Rough Stone and Gravel Quarry** over an extent of 5.07.22 ha at Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District and Tamil Nadu State, Total Extent of the proposed and existing quarries falls in the cluster category is 27.93.72 ha, the Environmental impact assessment study carried out considering these quarry and Environmental Management plan is prepared individually for this project.

The proponent has obtained necessary statutory clearances from the Department of Geology and Mining, Coimbatore District, Tamil Nadu (Statutory Clearance Documents are enclosed along with Mining plan as Annexure Volume 1).

Proponent applied for ToR for Environmental Clearance to SEIAA, Tamil Nadu and obtained ToR vide letter no. SEIAA-TN/F.No.9991/SEAC/l(a)ToR-1496/2023 Dated: 22.06.2023 for carrying out EIA and EMP studies.

The proponent has engaged M/s. Geo Exploration and Mining Solutions, Salem, Tamil Nadu for carrying out EIA / EMP Study. The Baseline Monitoring study has been carried out during post-monsoon season (December 2022 to February 2023).

Environmental Impact Assessment (EIA) study is a process, used to identify the Environmental, Social and Economic impacts of a project prior to decision-making. EIA systematically examines both beneficial and adverse consequences of the proposed project and ensure that these impacts are considered during the project designing.

1.1 PURPOSE OF THE REPORT

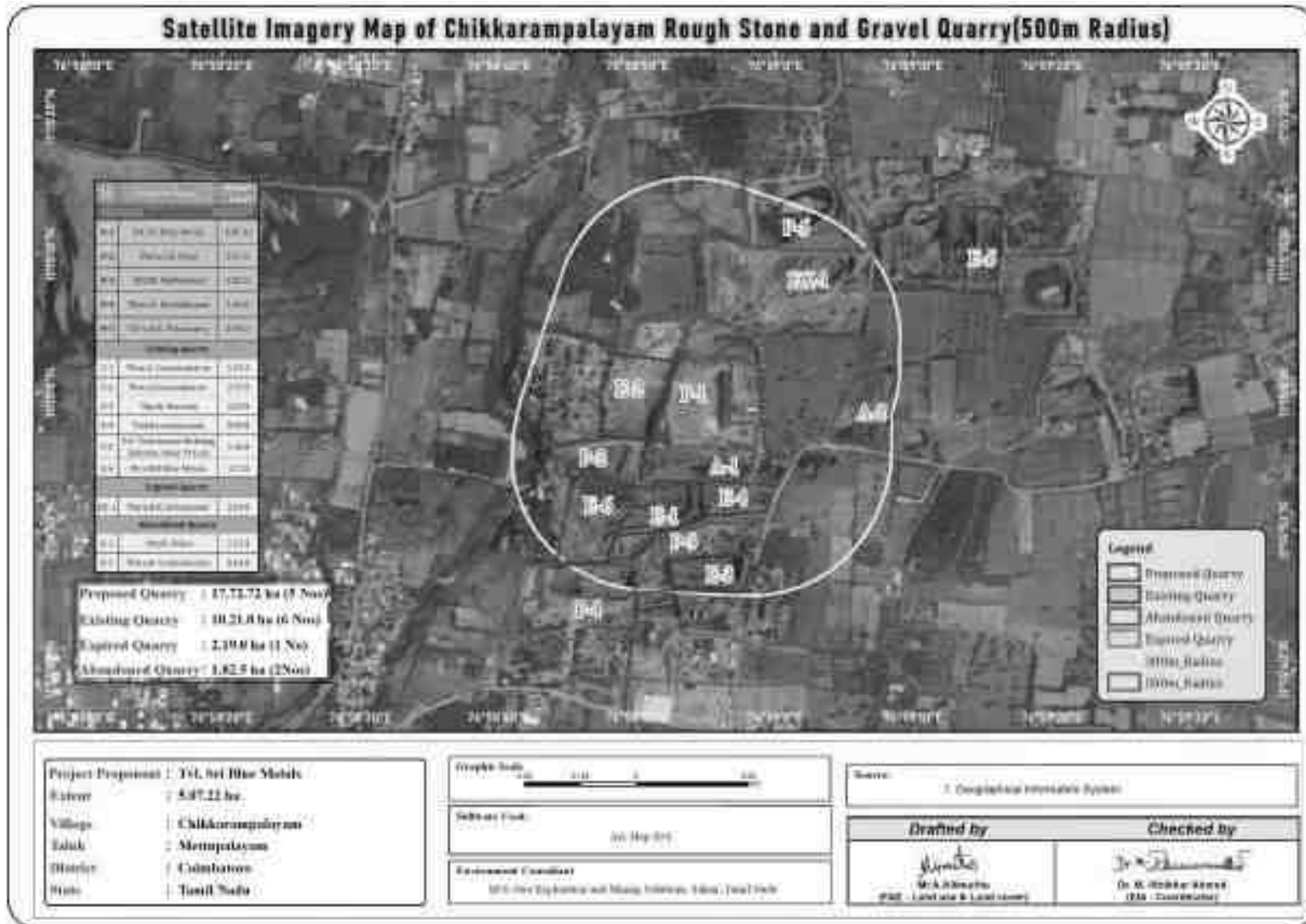
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 3977 (E) of 14th August 2018, Mining Projects are classified under two categories i.e. A (> 100 Ha) and B (\leq 100 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.

“Final EIA EMP Report is prepared on the basis of ToR Obtained and Outcome of Public Hearing carried out Dated: 26.07.2022 for the grant of Environmental Clearance from SEIAA, Tamil Nadu”

FIGURE 1.1 SATELLITE IMAGERY CLUSTER QUARRIES



1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

1.2.1 Identification of Project

- The proponent applied for Rough Stone and Gravel Quarry Lease Dated: 30.03.2022
- Precise Area Communication Letter was issued by the District Collector, Coimbatore R.C. No: 311/Mines/2022, Dated: 29.12.2022.
- The Mining Plan was prepared by Recognized Qualified Person and approved by Assistant Director, Geology and Mining, Coimbatore District, vide R.C.No: 311/Mines/2022 Dated: 06.03.2023.
- 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/425793/2023 Dated: 12.04.2023
- The proposal was placed in 382nd SEAC meeting held on 09.06.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 632nd SEIAA meeting held on 21.06.2023 & 22.06.2023 and issued ToR vide Letter No SEIAA-TN/F.No.9991/SEAC/I(a)ToR-1496/2023 Dated: 22.06.2023

TABLE 1.1: SALIENT FEATURES OF THE PROPOSED PROJECT

Name of the Project	M/s. Sri Blue Metals Rough stone and Gravel quarry
S.F. No.	76/1A & 76/1B (P)
Extent	5.07.22 ha
Land Type	Patta Land
Village Taluk and District	Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District

Source: Approved Mining Plan

1.2.2 Identification of Project Proponent

TABLE 1.2: DETAILS OF PROJECT PROPONENT

Name of the Project Proponent	M/s. Sri Blue Metals
Address	Proprietor Thiru S. Gnanasekaran D.No. 2/241, Kannarpalayam, Karamadai Post, Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District – 641 104
Mobile	+91 98422 04259, 97867 96039
Status	Proprietorship

Source: Approved Mining Plan.

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 for Drilling & Slurry Explosive during blasting. Hydraulic Excavator and tippers are used for Loading and transportation. Rock Breakers are deployed to avoid secondary blasting.

TABLE 1.3: BRIEF DESCRIPTION OF THE PROJECT

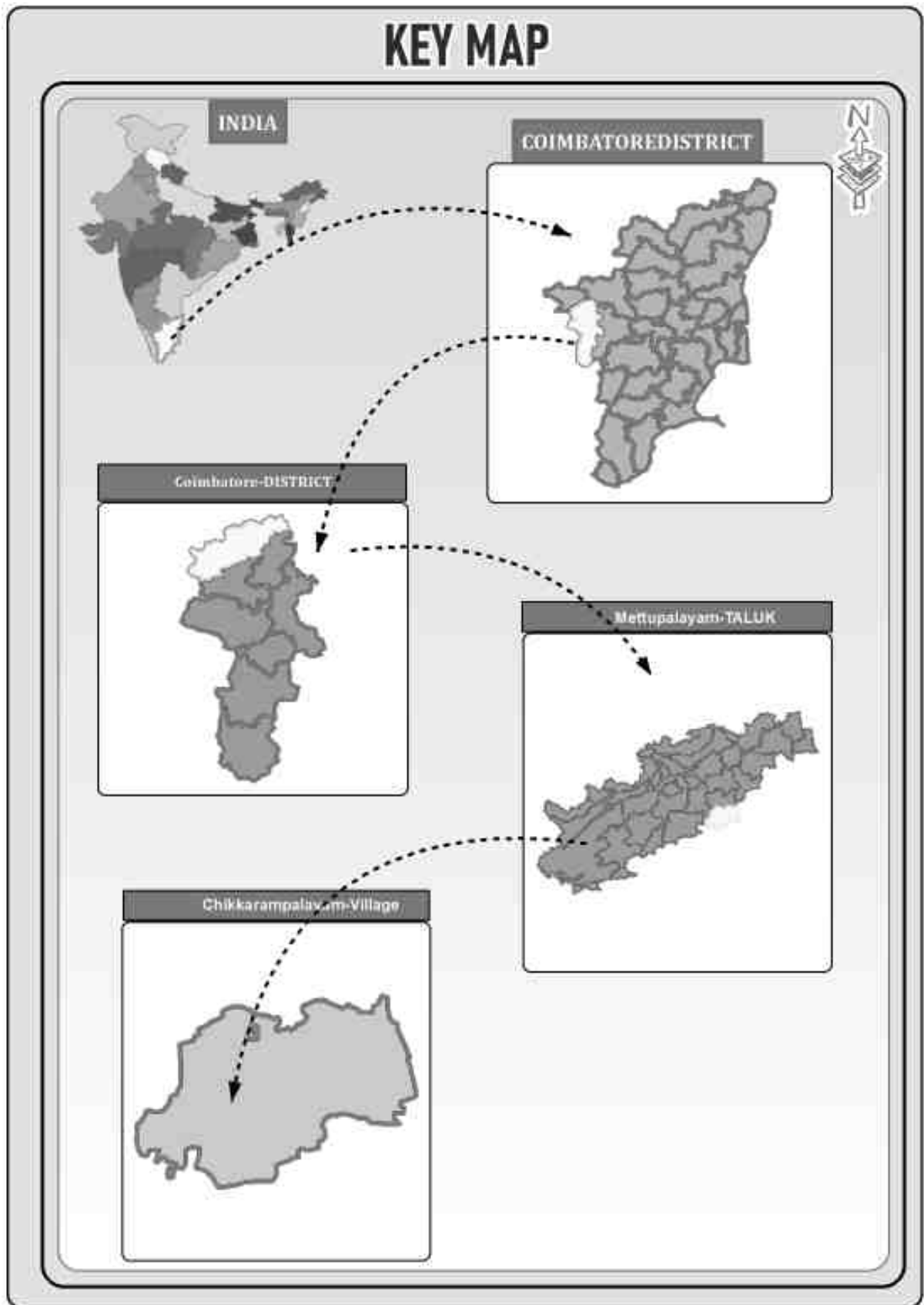
Name of the Quarry	M/s. Sri Blue Metals Rough stone and Gravel quarry	
Land Ownership	It is a Patta land, S.F.No. 76/1A is registered in the name of Thiru.P.Sidhartha Mowli and S.F.No. 76/1B (P) is registered in the name of Thiru.S.Palanisamy. The applicant has obtained consent from pattadhars.	
Land classification	It is a Patta Land-Punjai (Barren Land)	
SF No & Area (Ha)	76/1A & 76/1B (P) & 5.07.22 ha	
Village, Taluk & District	Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.	
Toposheet No	58-A/15 & A/16	
Latitude between	11°14'54.10"N to 11°15'04.77"N	
Longitude between	76°58'07.22"E to 76°58'15.52"E	
Highest Elevation	355m AMSL	
Proposed Depth of Mining	42m (2m Gravel + 40m Rough Stone) below the ground level	
Geological Resources	Rough Stone in m ³	Gravel m ³
	19,73,814m³	82,854m³
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	9,67,173m³	67,082m³
Yearwise Production	Rough Stone in m ³	Gravel m ³
	9,67,173m³	69,942m³
Existing pit dimension (As per Approved mining plan)	Pit-I: 158m (L) x 67m (W) x 15m (D) bgl	
Consent to Operate (CTO) from TNPCB	Proceedings No. F.0694CBN/RS/DEE/TNPCB/CBN/W/2016 Dated:21.01.2016	
Ultimate Pit Dimension	298m (L) x 180m (W) x 42m (D) bgl	
Water Level in the surrounds area	70 – 65 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is exhibits Flat terrain. The area has gentle sloping towards East side. The altitude of the area is 355m (max) above Mean Sea level. The area is covered by 2m thickness of Gravel formation. Massive Charnockite which is clearly inferred from the existing quarry pits.	
Machinery proposed	Jack Hammer	6 Nos
	Compressor	2 Nos
	Wagon Drill	2 Nos
	Excavator with Bucket and Rock Breaker	2No
	Trucks	4 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	38 Nos	
Project Cost	Rs. 4,19,60,000/-	
EMP cost	Rs. 3,80,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Odai	250m-W
	Odai	660m-W
	Belladhi lake	750m-NW
	Tank	1km-NE
	Odai	1.6km- SE
	Bhavani River	6.8km-NE
Greenbelt Development Plan	It is proposed to plant 2540 Nos of trees in the safety barrier and village road.	
Proposed Water Requirement	1.2 KLD	
Nearest Habitation	600m Southwest	

Source: Approved Mining Plan

1.3.2 Location of the Project

- The proposed quarry projects fall in Chikkarampalayam Village, Mettupalayam Taluk and Coimbatore District.
- The project is located about 25.0 km North of Coimbatore, 6 km South East of Mettupalayam and 1.0 km North West side of Chikkarampalayam Village.

FIGURE 1.2 KEY MAP SHOWING THE LOCATION OF THE CLUSTER SITE



Source: Survey of India Toposheet 58-A/16

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

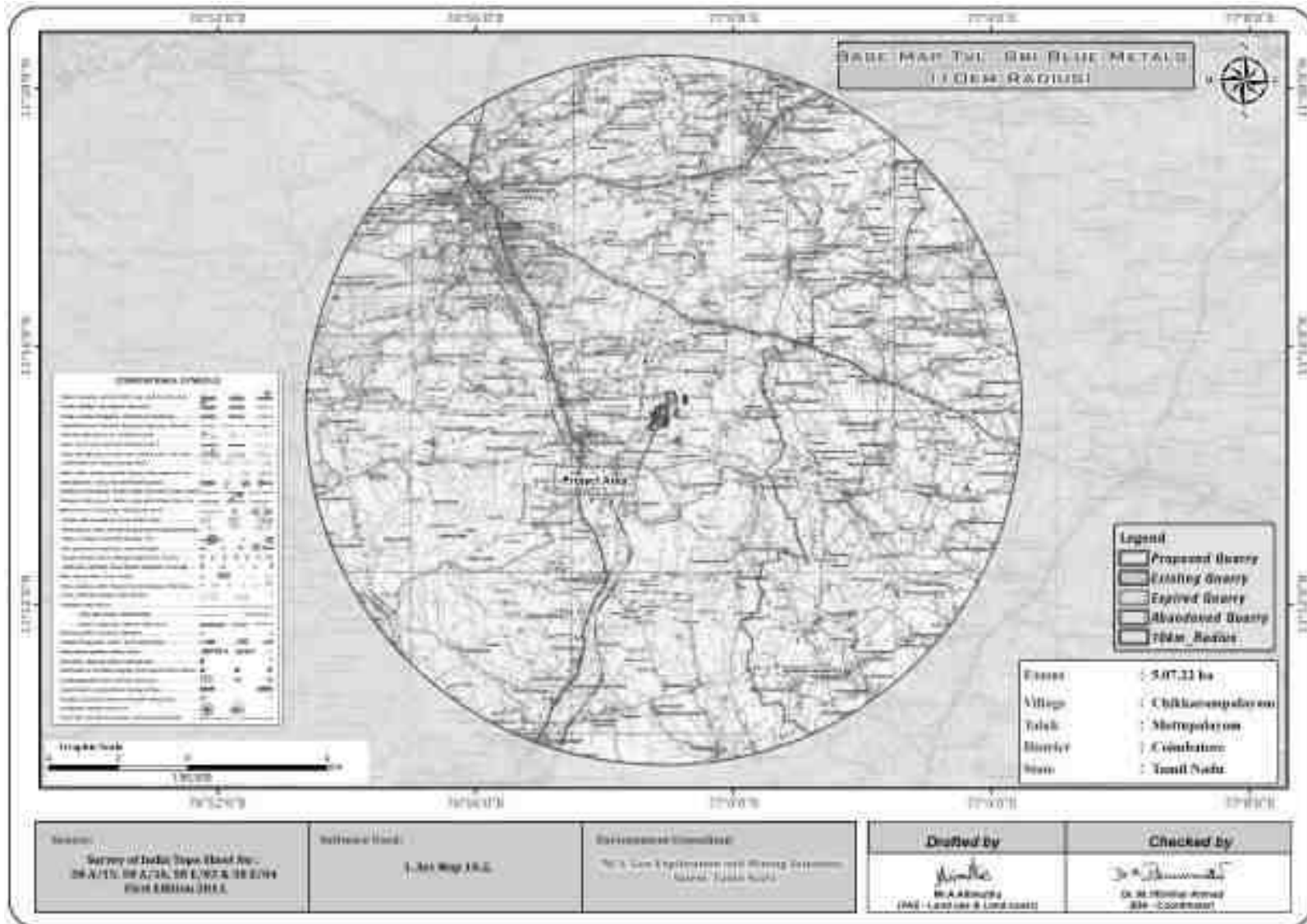
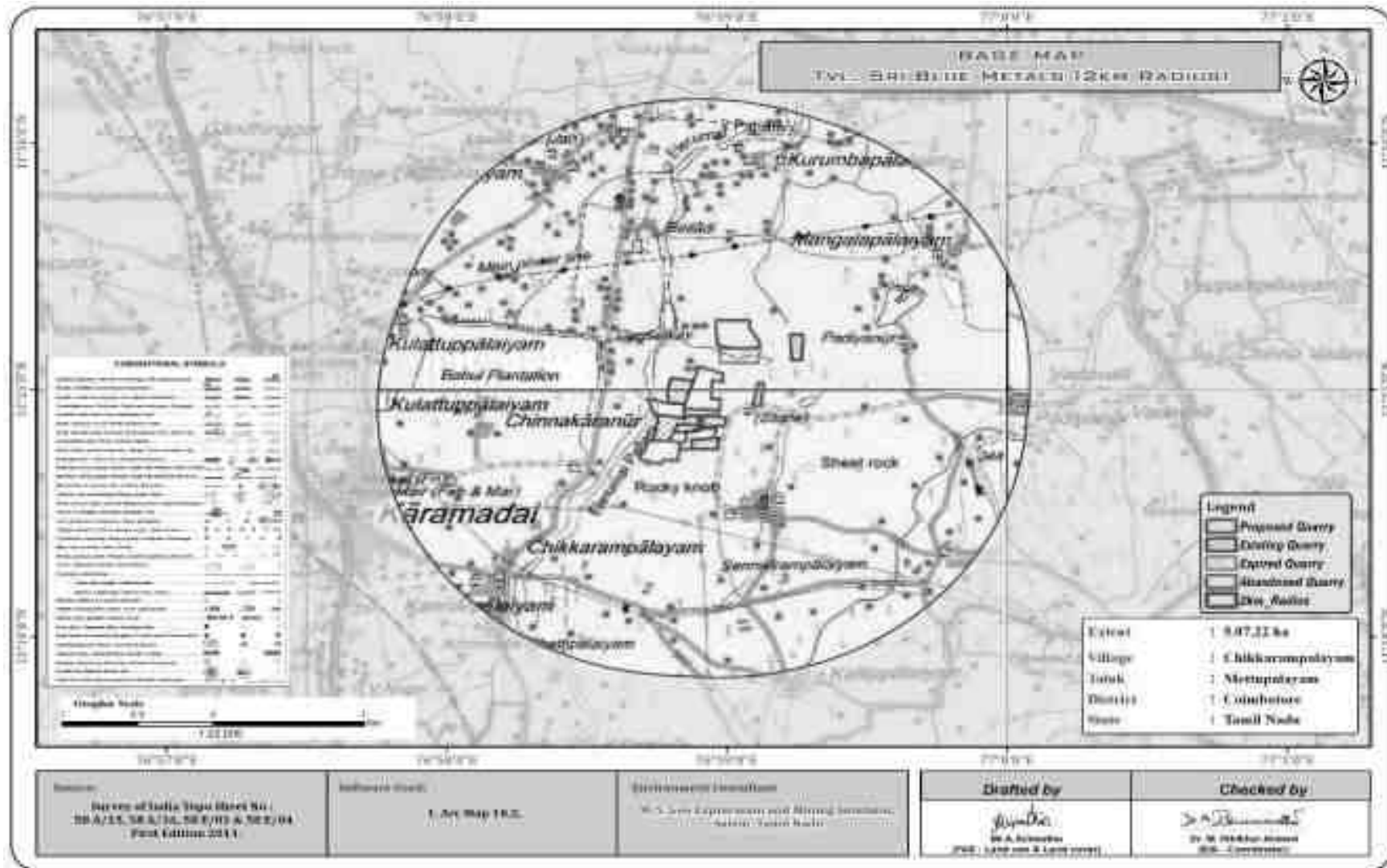


FIGURE 1.3A: TOPOSHEET MAP OF THE STUDY AREA 2KM RADIUS



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

1.4 ENVIRONMENTAL CLEARANCE

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

- Screening,
- Scoping
- Public consultation &
- Appraisal

SCREENING –

- The proponent applied for Rough Stone and Gravel Quarry Lease Dated: 30.03.2022
- Precise Area Communication Letter was issued by the District Collector, Coimbatore R.C. No: 311/Mines/2022, Dated: 29.12.2022.
- The Mining Plan was prepared by Recognized Qualified Person and approved by Assistant Director, Geology and Mining, Coimbatore District, vide R.C.No: 311/Mines/2022 Dated: 06.03.2023.
- 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/425793/2023 Dated: 12.04.2023

SCOPING

- The proposal was placed in 382nd SEAC meeting held on 09.06.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 632nd SEIAA meeting held on 21.06.2023 & 22.06.2023 and issued ToR vide Letter No SEIAA-TN/F.No.9991/SEAC/l(a)ToR-1496/2023 Dated: 22.06.2023.

PUBLIC CONSULTATION –

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district was submitted.

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.
- The report has been prepared using the following references:
 - Guidance Manual of Environmental Impact Assessment for Mining of Minerals, Ministry of Environment and Forests, 2010
 - EIA Notification, 14th September, 2006
 - ToR Lr.No. SEIAA-TN/F.No.9991/SEAC/l(a)ToR-1496/2023 Dated: 22.06.2023
 - Approved Mining Plan

1.5 TERMS OF REFERENCE (ToR)

Compliance to ToR issued vide –

- ToR Lr.No. SEIAA-TN/F.No.9991/SEAC/l(a)ToR-1496/2023 Dated: 22.06.2023

1.6 POST ENVIRONMENT CLEARANCE MONITORING

The project 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 for 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 Post monsoon season (December 2022 to February 2023) for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project.

TABLE 1.4: 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 9 locations (2 Core & 7 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)	7 locations – data monitored once for 24 hours during EIA study
6	Soil Characteristics	Physical and Chemical Parameters	Once at 5 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.
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Source: Field Monitoring Data

1.8.1 Regulatory Compliance & Applicable Laws/Regulations for Proposed Quarry

- Application for Quarrying Lease as per Tamil Nadu Minor Mineral Concession Rules, 1959
- Obtained Precise Area Communication Letter as per Tamil Nadu Minor Mineral Concession Rules, 1959 for Preparation of Mining Plan and obtaining Environmental Clearance
- The Mining Plan has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959
- ToR-Letter No SEIAA-TN/F.No.9991/SEAC/1(a)ToR-1496/2023 Dated: 22.06.2023.

2. PROJECT DESCRIPTION

2.0 GENERAL

The Proposed Rough Stone Quarries requires Environmental Clearance. There are 5 proposed and 6 existing quarries forming a cluster; calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is 27.93.72 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 projects are site specific and there is no additional area required for this project. There is no effluent generation/discharge from this proposed project. Rough Stone is proposed to be excavated by opencast mechanized method involving splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers and rock breakers to avoid secondary blasting.

2.2 LOCATION OF THE PROJECT

- The proposed quarry project area is located in Chikkarampalayam village, Mettupalayam taluk, Coimbatore District
- The project site is located about 26.0 km North of Coimbatore, 6 km South East of Mettupalayam and 1.0 km North West side of Chikkarampalayam Village.
- The proposed area falls in the Survey of India Topo sheet No. 58-A/15 & A/16
- The Latitude between of **11°14'54.10"N to 11°15'04.77"N** The Longitude between of **76°58'07.22"E to 76°58'15.52"E** on WGS 1984 Datum.
- The project does not fall within 10 km radius of any Eco – sensitive zone, National Park, Tiger Reserve, Elephant Corridor and Biosphere Reserves.

TABLE 2.1: SITE CONNECTIVITY

Nearest Roadway	National Highway (NH-181) Coimbatore – Gundlupete Road – 3.0km-SW State Highway (SH-168) Karamadai – Kariyampalayam Road – 2.0km-SE
Nearest Village	Chikkarampalayam – 1.0 Km South West
Nearest Town	Karamadai – 2.0 km – South West
Nearest Railway Station	Karamadai Railway station – 2.0Km – SW
Nearest Airport	Coimbatore –25.0 km – South East
Seaport	Kochi- 165 km – South West

Source: Survey of India Toposheet

The project area is bounded by 11 corners the corners are designated as 1- 11 clock wise from the South west corner. The coordinates for all the corners is given below.

TABLE 2.2: BOUNDARY CO-ORDINATES OF PROJECT

Corner Nos.	Latitude	Longitude
1	11 ⁰ 14'54.53"N	76 ⁰ 58'07.22"E
2	11 ⁰ 14'55.78"N	76 ⁰ 58'07.47"E
3	11 ⁰ 15'02.51"N	76 ⁰ 58'09.67"E
4	11 ⁰ 15'04.77"N	76 ⁰ 58'10.41"E
5	11 ⁰ 15'03.01"N	76 ⁰ 58'15.52"E
6	11 ⁰ 15'00.80"N	76 ⁰ 58'15.49"E
7	11 ⁰ 15'01.47"N	76 ⁰ 58'13.21"E
8	11 ⁰ 14'56.81"N	76 ⁰ 58'13.08"E
9	11 ⁰ 14'56.87"N	76 ⁰ 58'14.94"E
10	11 ⁰ 14'54.75"N	76 ⁰ 58'14.90"E
11	11 ⁰ 14'54.10"N	76 ⁰ 58'14.61"E

Source: Approved Mining Plan

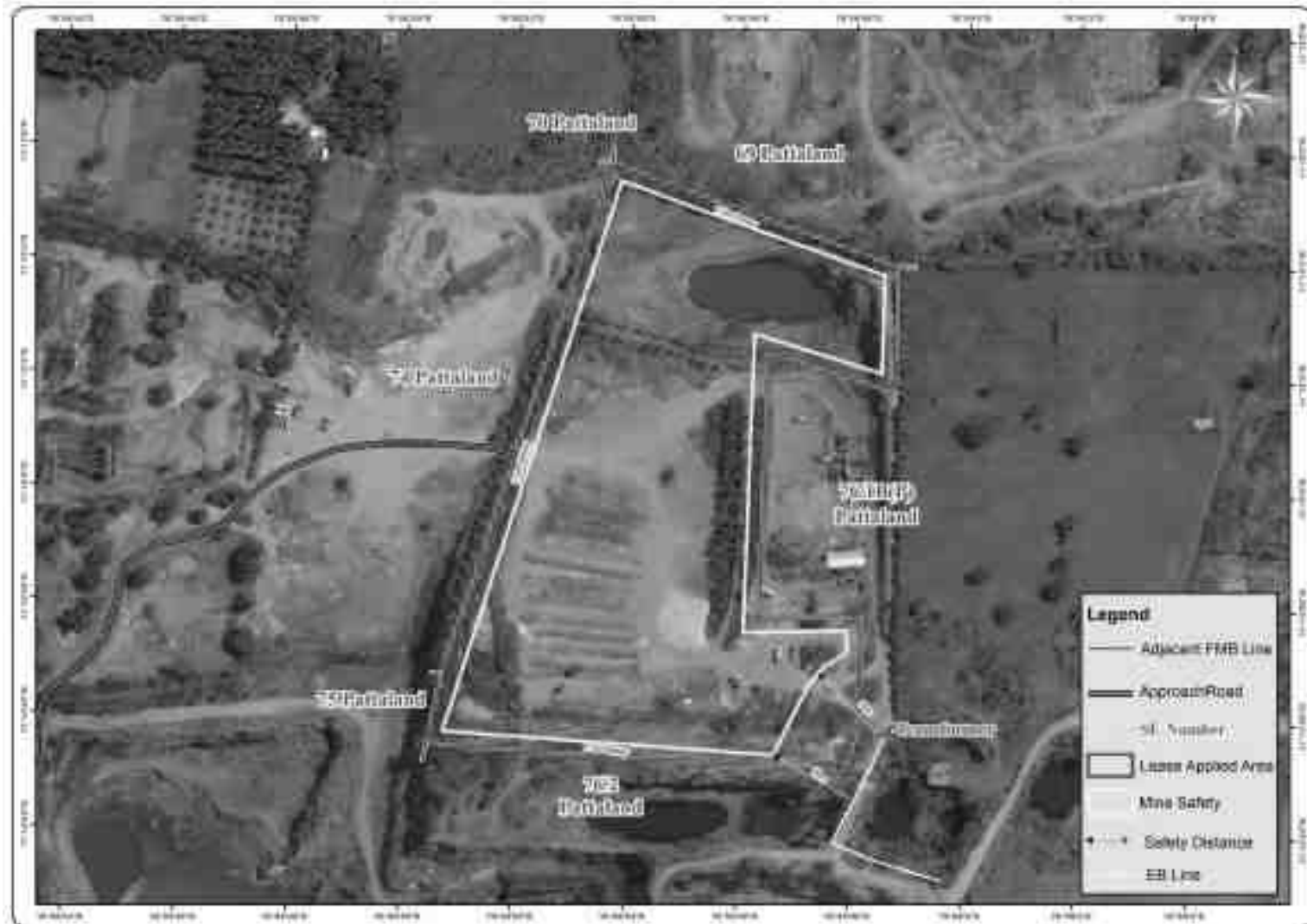
FIGURE 2.1: PHOTOGRAPHS OF THE PROJECT SITE



GREENBELT DEVELOPMENT PHOTOGRAPHS

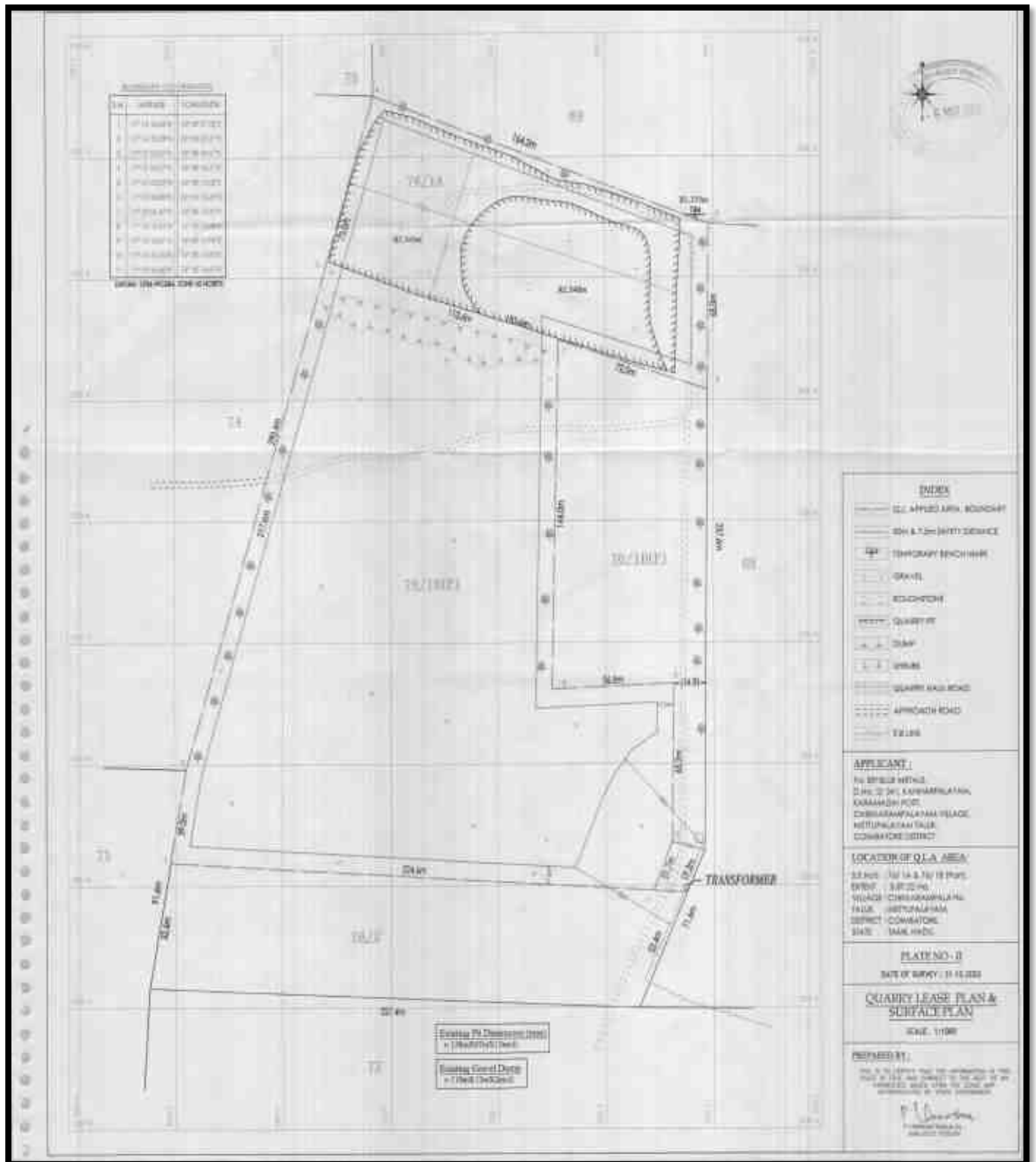


FIGURE 2.2: GOOGLE IMAGE OF THE PROJECT AREA



Source: Google Earth Imagery

FIGURE 2.3: QUARRY LEASE PLAN / SURFACE PLAN



Source: Approved Mining Plan

FIGURE 2.4: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE

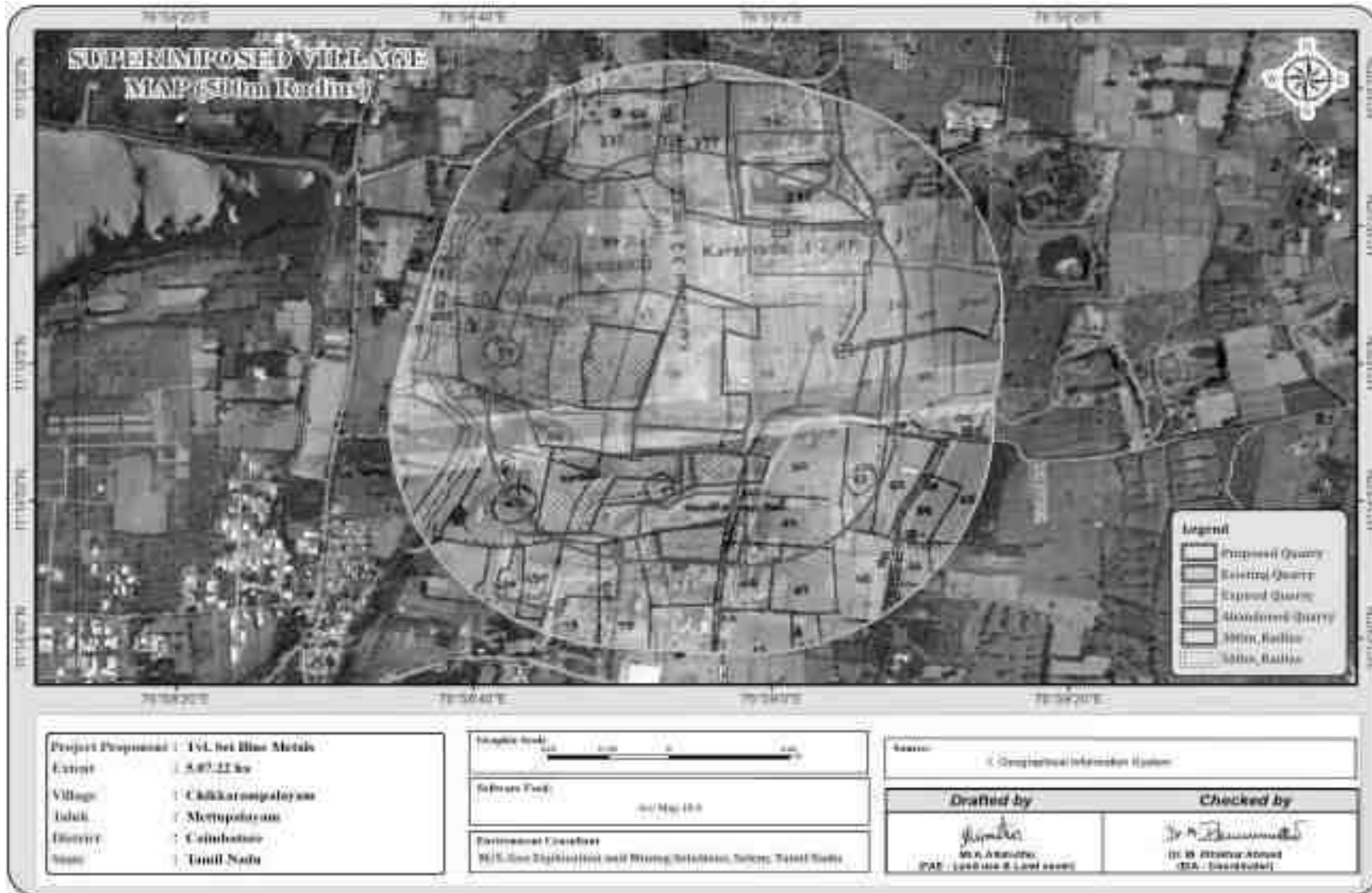


FIGURE 2.5: IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS

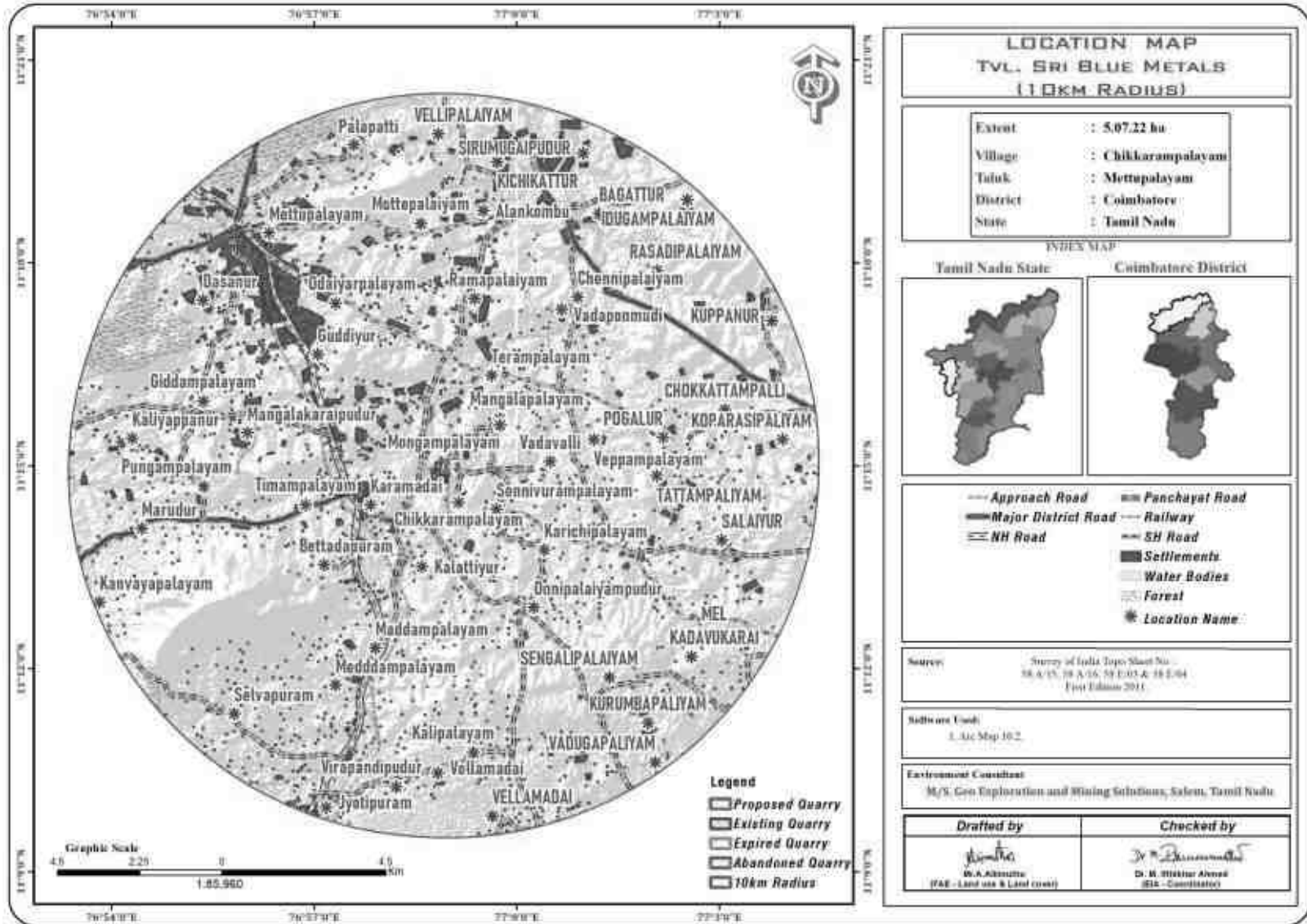


FIGURE 2.6: IMAGE SHOWING SURFACE FEATURES AROUND 5KM RADIUS

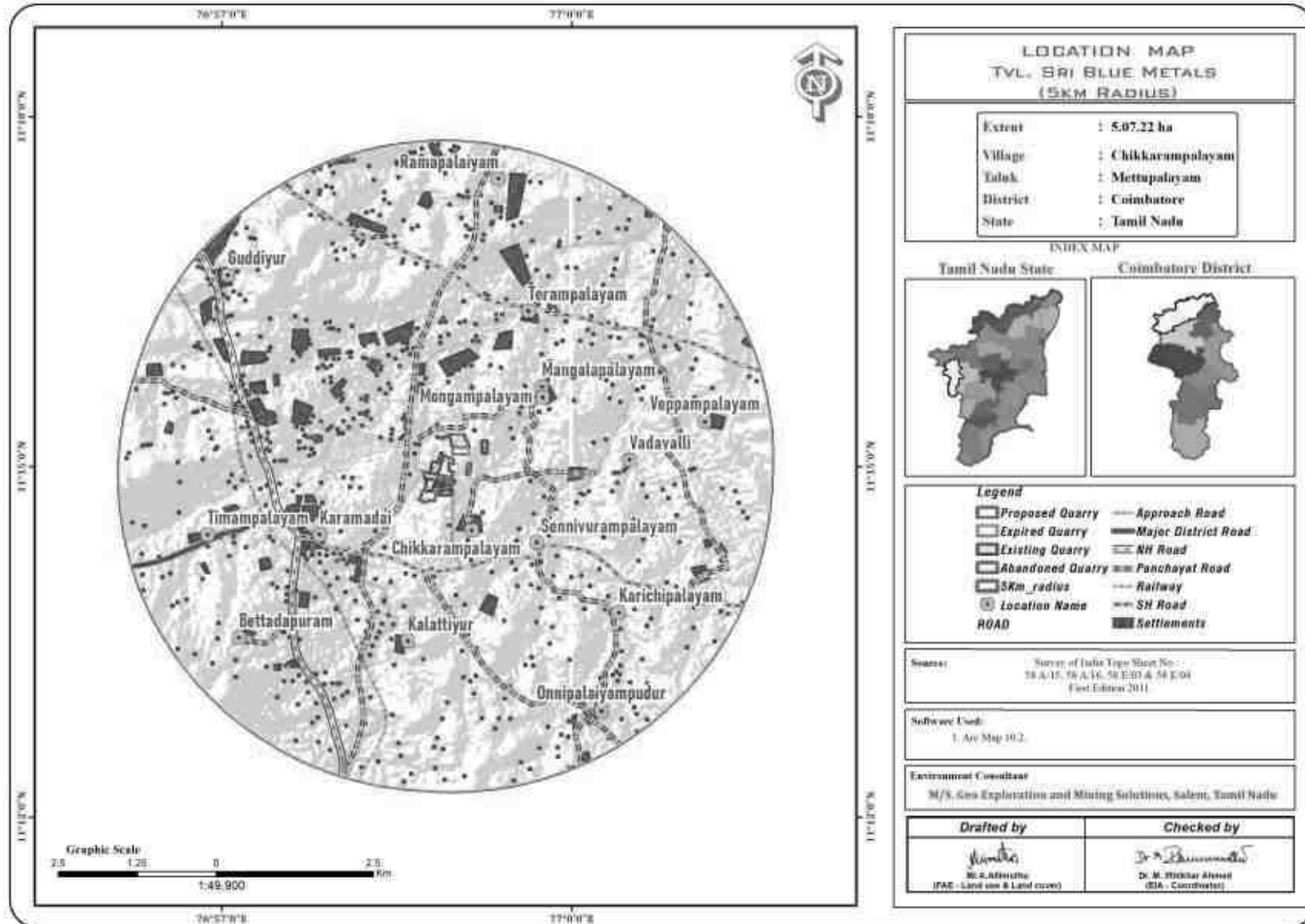
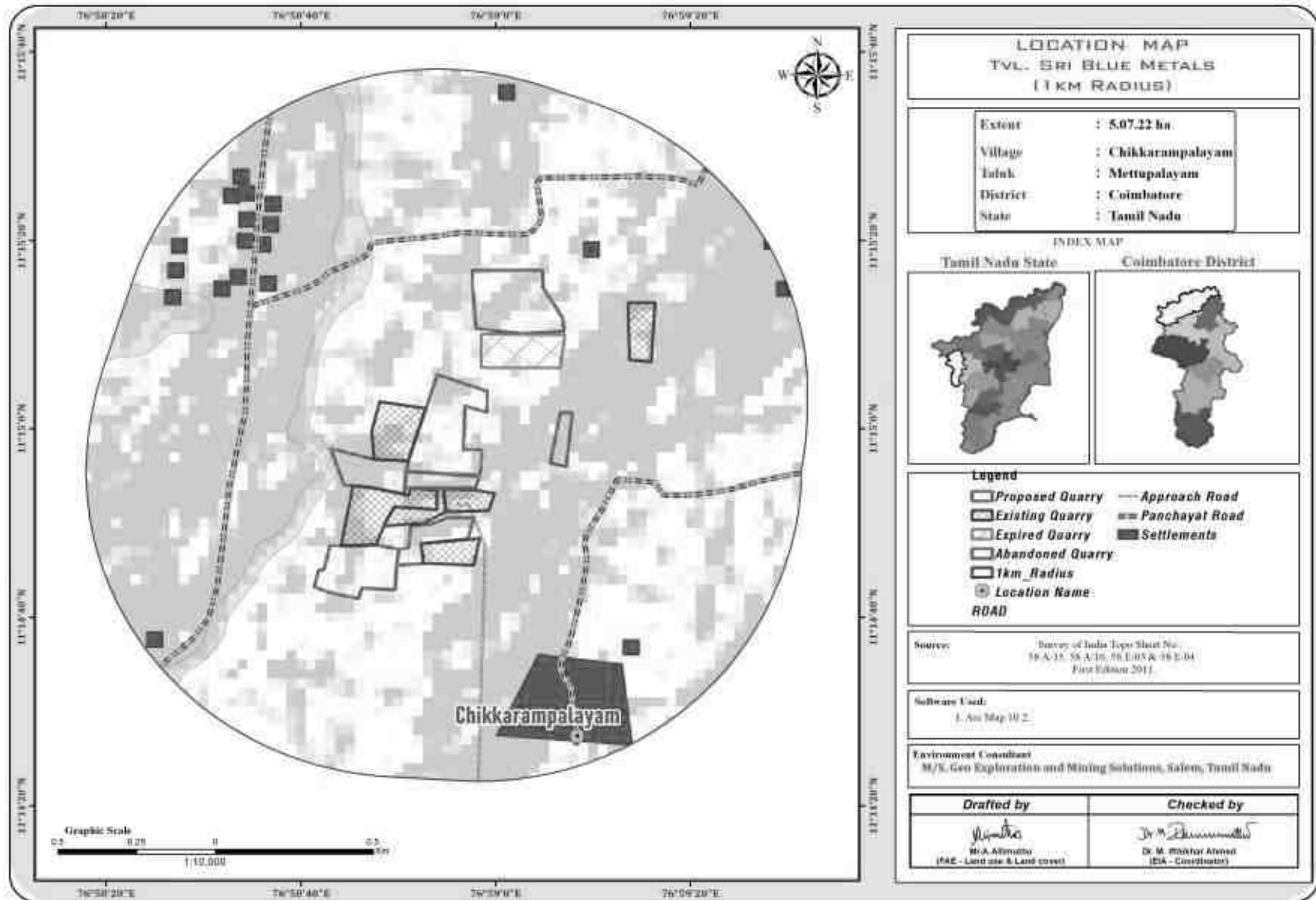


FIGURE 2.7: IMAGE SHOWING SURFACE FEATURES AROUND 1 KM RADIUS



2.2.1 Project Area

- The Rough Stone and Gravel quarry is proposed to operate by opencast mechanized method of mining and the project is site specific
- There is no beneficiation or processing proposed inside the project area
- There is no forest land involved in the proposed projects and is devoid of major vegetation and trees.

TABLE 2.3: LAND USE PATTERN OF THE PROPOSED PROJECT – CORE ZONE

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Quarrying Pit	0.80.00	4.14.50
Infrastructure	Nil	0.01.00
Roads	0.04.00	0.04.00
Green Belt	Nil	0.20.00
Unutilized Area	4.23.22	0.67.72
Grand Total	5.07.22	5.07.22

Source: Approved Mining Plan

2.2.2 Size or Magnitude of Operation

TABLE 2.4: OPERATIONAL DETAILS FOR PROPOSED PROJECT

PARTICULARS	DETAILS	
	Rough Stone (5Year Plan period)	Gravel in m ³
Geological Resources	19,73,814	82,854
Mineable Reserves	9,67,173	67,082
Production for five-year plan period	9,67,173	69,942
Mining Plan Period	5 years	
Number of Working Days	300 days	
Production per day	645	78
No of Lorry loads (6m ³ per load)	107	13
Total Depth of Mining	42m (2m Gravel + 40m Rough Stone) below the ground level	

Source: Mining plan

2.3 GEOLOGY

2.3.1 Regional Geology

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

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

Stratigraphy of the area –

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

Geologically, the district is covered by rocks belonging to Archean age comprising the khondalite group, Charnockite Group, migmatite group, Sathayamangalam group, Bhavani Group and Alkali complex of Proterozoic age and Recent to Late Pleistocene rocks of Cainozoic age.

The Charnockite Group of rocks consisting of Charnockite, pyroxene granulites and associated magnetite quartzite, the Knodalite Group comprising gametiferous – sillimanite gneiss, calc-granulite, crystalline limestone, sillimanite quartzites and associated migmatitic gneisses. The rocks are restricted to the central and southern portions of the district, especially around Suler, Madukkarai and Pollachi taluks.

The fissile hornblende gneisses (Peninsular gneiss – younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsitge – kyanite quartzites, ferruginous quartzite (Sathayamangalam Group) intruded by a number of ultramafic and basic rocks and granites are seen in the Northern portions of the district especially around Mettupalayam and Northern areas of Coimbatore. The granites are Proterozoic age and occupy the Western end and Eastern Part of the District as separate bodies and are recognized as Maruthamalai Granite and Punjapuliyampatti Granites respectively. The quaternary alluvium is seen in the Western areas of Coimbatore town. The alluvium is more than 30m thick in the Chinnathadagam valley northwest of Coimbatore and in the Siruvani valley west of Coimbatore.

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

(<https://www.tnmines.tn.gov.in/pdf/dsr/9.pdf>)

2.3.2 Local Geology: -

The study area follows the regional trend and mainly comprises of Hard Rock Formation as a homogeneous formation / Batholith formation of Charnockite. All the project areas are plain terrain, all the project areas are covered with gravel formation of 1m-2m thickness; Massive Charnockite formation is found after 1m-2m gravel formation which is clearly inferred from the nearby existing quarry pit.

Peninsular gneiss forms the oldest rock formation in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale of the Charnockite body is N30°E – S 30° W with dipping towards NE 60°.

2.3.3 Hydrogeology

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

Quaternary - Laterites, Sands and Clays

Tertiary - Sandstone, Gravels and Clays

Cretaceous - Limestone, Calcareous Sandstone and Clay unconformity.

Archaean - Charnockites, Gneisses, Granites, Dolerites and Pegmatite

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

The Cretaceous formation is represented by Arenaceous Lime stone, Calcareous sand - stone and marl.

The Tertiary formation is argillaceous comprising of Silty clay stones, argillaceous Lime stone.

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

Aquifer Systems:

Occurrence and storage of groundwater depend upon three factors viz., Geology, Topography and rainfall in the form of precipitation. Apart from Geology, wide variation in topographic profile and intensity of rainfall constitutes the prime factors of groundwater recharge. Aquifers are part of the more complex hydro geological system and the behaviour of the entire system cannot be interpreted easily. In hard rock terrain the occurrence of Ground Water is limited to top weathered, fissured and fractured zone which extends to maximum 30 m on an average it is about 10-15 m in Coimbatore District.

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

Alluvial Formations

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

Hard Rock Formations

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

Granitic Gneiss

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

Charnockite

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

Aquifer Parameters

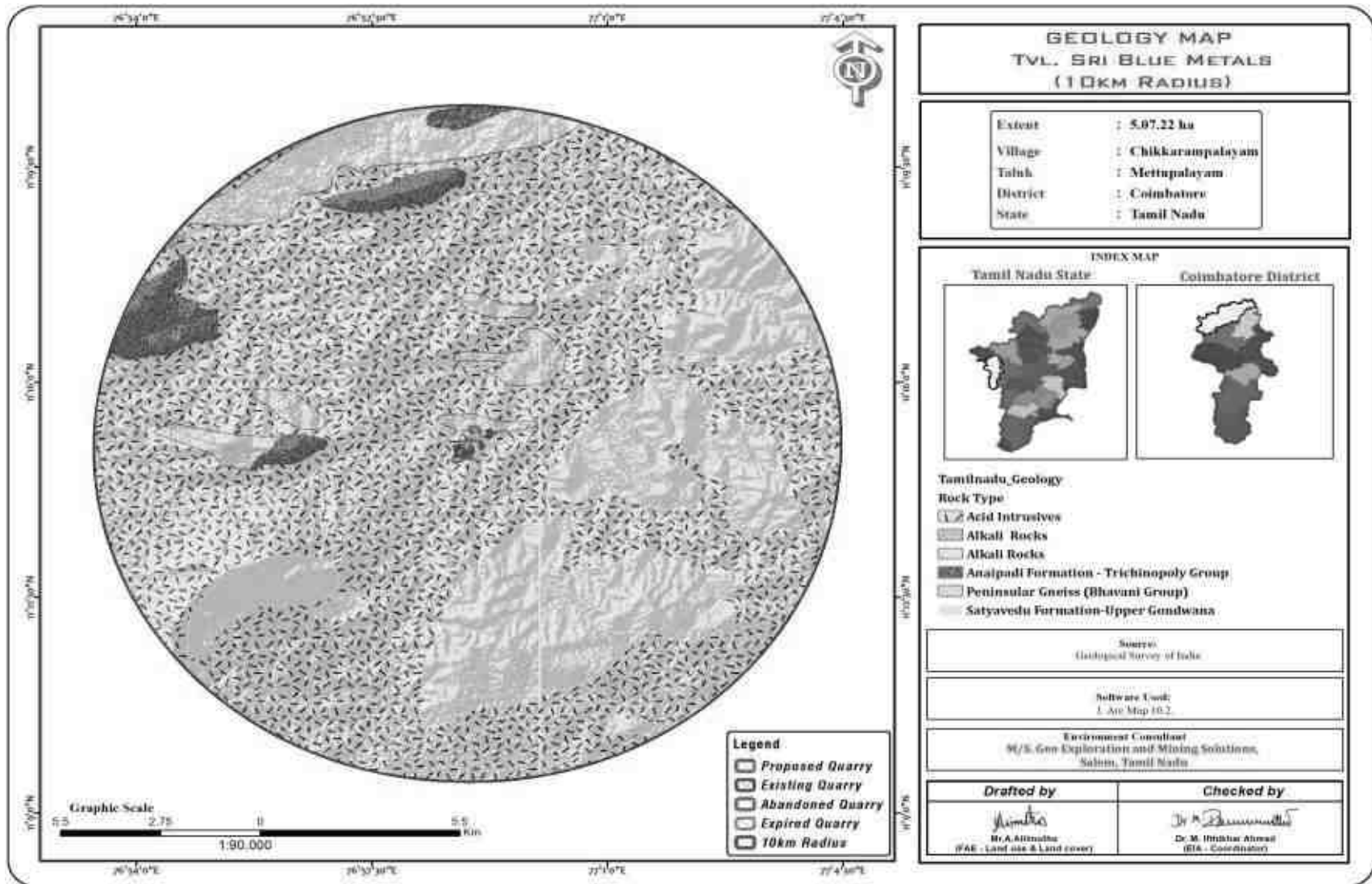
The thickness of aquifer in this district is highly erratic and varies between 15m to 40m below ground level. The intergranular Porosity is essentially dependent on the intensity and degree of weathering and fracture development in the bed rock. As discussed earlier deep weathering has developed in Gneissic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

TABLE 2.5: RANGE OF AQUIFER PARAMETERS

Type of Aquifer	Water Table conditions in hard rock areas
Aquifer paramters yield	50 to 300 Lpm
Transmissivity (T)	1.49 to 164.18 m ² /day
Permeability (K)	0.25 to 26.75 m/day
Depth of water level	7m to 25m

Source: <http://nwm.gov.in/sites/default/files/Notes%20on%20Coimbatore%20District.pdf> and <https://www.twadboard.tn.gov.in/content/coimbatore>

FIGURE 2.8: REGIONAL GEOLOGY MAP



From the above map it is inferred that the cluster quarries fall in the hard rock terrain (Peninsular Gneiss)Source:

FIGURE 2.9: GEOMORPHOLOGY MAP

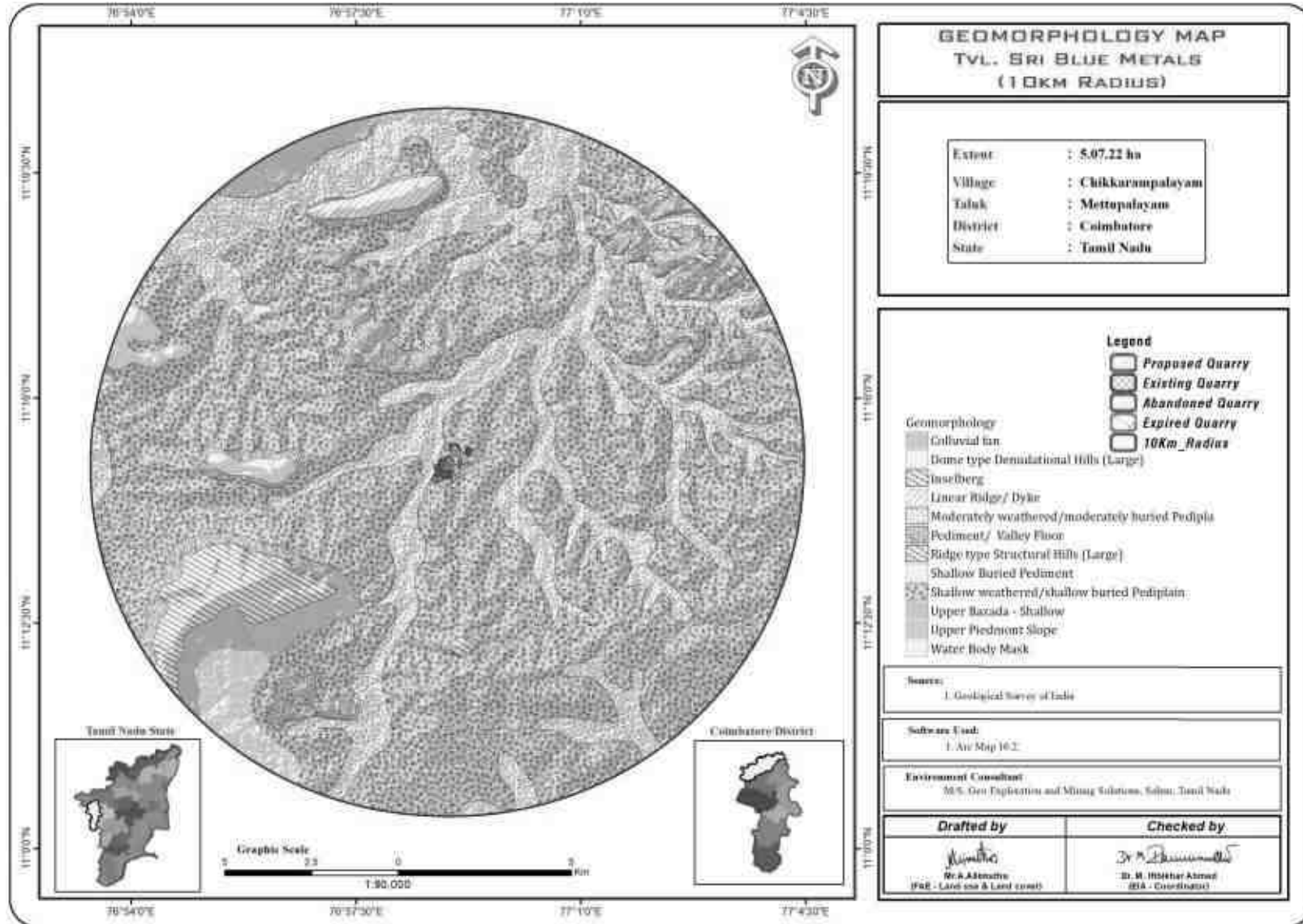
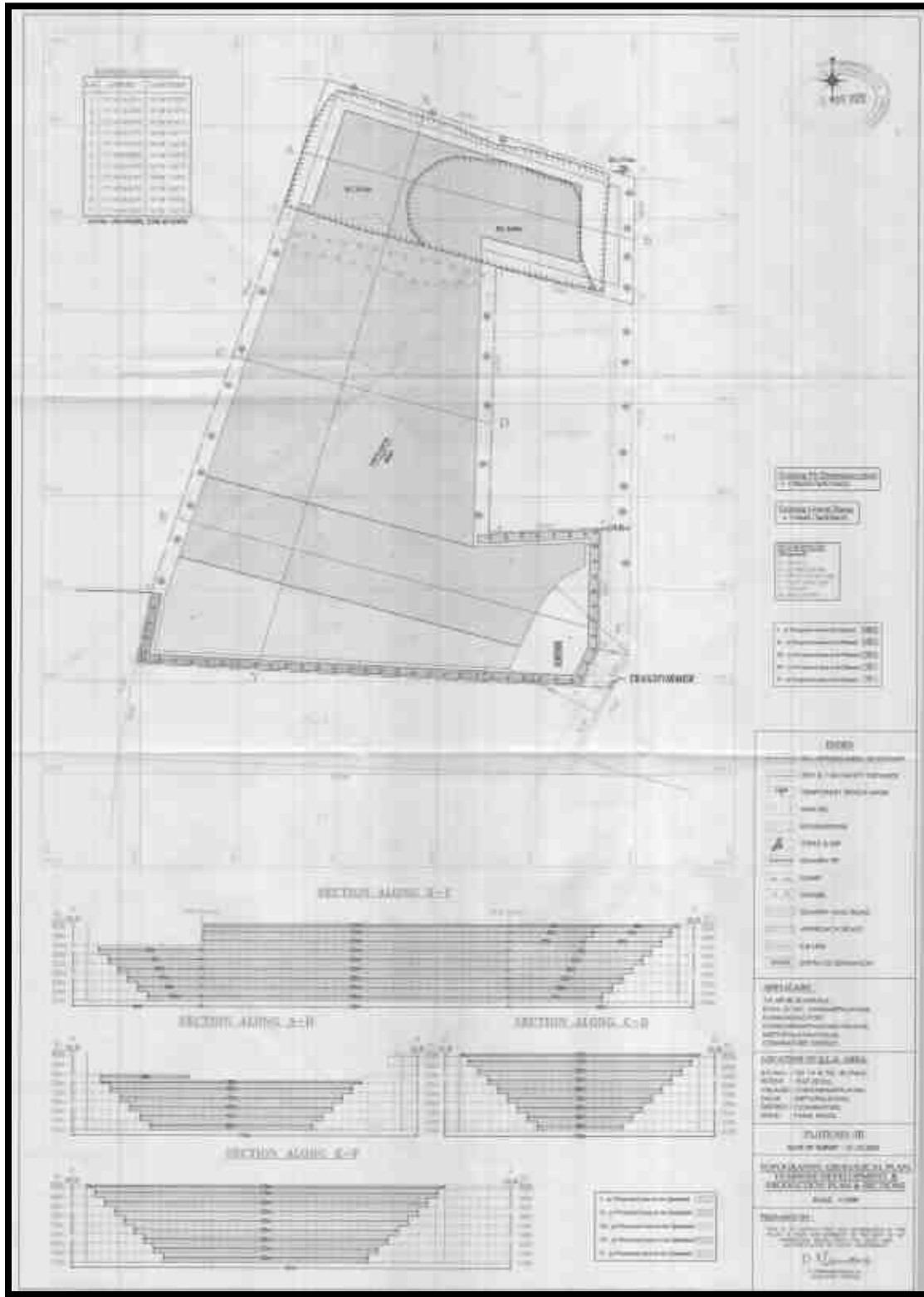


FIGURE 2.10: TOPOGRAPHY, GEOLOGICAL, YEAR-WISE DEVELOPMENT PRODUCTION PLAN AND SECTIONS



Source: Approved Mining Plan

FIGURE 2.11: CLOSURE PLAN AND SECTIONS



Source: Approved Mining Plan

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 for the proposed project.

Based on the availability of Geological Resources the Mineable Reserves are calculated by considering excavation system of bench formation and leaving essential safety distance of 7.5 m (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) for all the proposed projects.

TABLE 2.6: AVAILABLE GEOLOGICAL RESOURCES OF PROPOSED PROJECT

Description	Rough Stone	Gravel
Geological Resource in m ³	19,73,814	82,854
Mineable Resource in m ³	9,67,173	67,082

Source: Approved Mining Plan

The Gravel has been removed during the previous lease period.

TABLE 2.7: YEAR-WISE PRODUCTION PLAN

Year	Rough Stone (m ³)	Gravel (m ³)
I	2,38,910	Dump – 2,860
		36,652
II	1,80,228	16,110
III	2,11,415	14,320
IV	1,94,040	-
V	1,42,580	-
Total	9,67,173	69,942

Source: Approved Mining Plan

Disposal of Waste

There is no waste anticipated in these Rough Stone quarrying operation. The entire quarried out materials will be utilized (100%). Top layer of Gravel formation will be removed and sold to needy customers directly.

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 2.8: ULTIMATE PIT DIMENSION

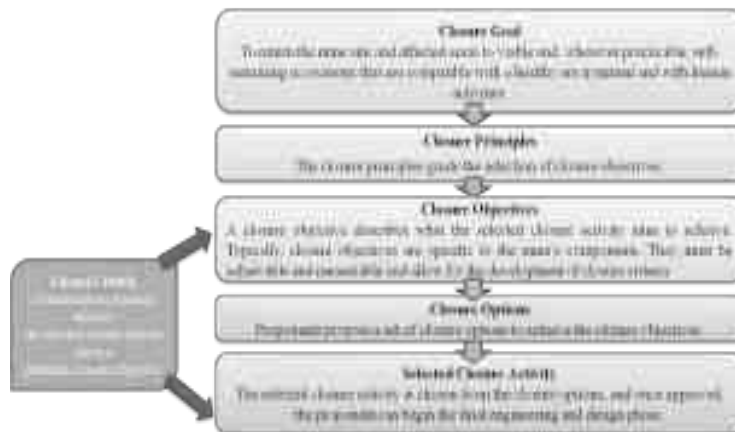
PROPOSAL			
Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max)
I	298	180	42 m bgl

Source: Approved Mining Plan

- At the end of life of mine, the excavated mine pit / void will facilitate to collect the rainwater and the pit will act as temporary reservoir.
- 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.
- Discharge of contaminated drainage has been minimized and controlled.
- Original or desired new surface drainage patterns have been established.
- Fishy culture activities will be carried out in the mine pit after the closure



Closure Planning & Options Considerations in Mine Design –

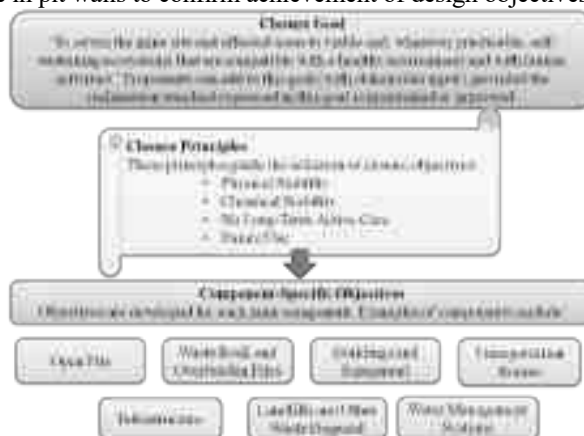
- The closure of mine is well planned at the initial stage of planning & design consideration by the internal and external stake holders
- Construction of 2m height bund all along the mine pit boundary and ensure its stability all time & construction of garland drain along the natural slope to avoid 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
- There is a canal about 100m on Western side of the cluster project area. This river canal will not be hindered by any of mine closure activities
- 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.

Post-Closure Monitoring –

The purpose of post-closure monitoring with respect to open pit mine workings is to ensure the attainment of closure objectives.

- Monitor physical and geotechnical stability of remnant pit walls.
- Monitor the ground regime in pit walls to confirm achievement of design objectives.



- Monitor water level in pit to confirm closure objectives regarding fish, fish habitat, and wildlife safety are being achieved
- Sample water quality and quantity at controlled pit discharge points
- Identify and test unanticipated areas where water management is an issue
- Inspect integrity of barriers such as berms & fences
- Monitor wildlife interactions with barriers to determine effectiveness
- Inspect aquatic habitat in flooded pits where applicable
- Monitor dust levels

TABLE 2.9: MINE CLOSURE BUDGET

ACTIVITY		YEAR					RATE	COST (Rs.)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	50	50	50	50	50	@100 Rs Per sapling	25,000/-
	Cost	5000	5000	5000	5000	5000		
Plantation in the quarried out top benches and approach road	Nos.	120	120	120	120	120	@300 Rs Per Meter	60,000/-
	Cost	12000	12000	12000	12000	12000		
Wire Fencing (In Mtrs) 1,130 Mtrs		3,39,000	-	-	-	-	@300 Rs Per Meter	3,39,000/-
Garland drain (In Mtrs) 1,050 Mtrs		3,15,000	-	-	-	-	@300 Rs Per Meter	3,15,000/-
TOTAL								7,39,000/-

Source: Mining plan

2.5 METHOD OF MINING

The method of mining is Opencast Mechanized Mining Method is being proposed by formation of 5.0-meter height bench with a bench width not less than the bench height. However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act – 1952.

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 Excavators attached with Rock Breakers unit will be deployed for breaking large boulders to required fragmented sizes to avoid secondary blasting and 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.

2.5.1 Drilling & Blasting Parameters

Drilling & Blasting will be carried out as per parameters given below: -

Spacing	–	1.2m
Burden	–	1.0 m
Depth of hole	–	1.5 m
Charge per hole	–	0.50 – 0.75kg
Powder factor	–	6.0 tonnes/kg
Diameter of hole	–	32 mm

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 have 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 2.10 PROPOSED MACHINERY DEPLOYMENT

S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammer with inbuilt dust collector unit	6	1.2m to 2.0m	Compressed air
2	Compressor	2	400psi	Diesel Drive
3	Wagon Drill	2	60 HP	TAM Rock
4	Excavator with Bucket / Rock Breaker	2	300 HP	Diesel Drive
5	Trucks	4	35 Tonnes	Diesel Drive

Source: Approved Mining Plan

2.6 GENERAL FEATURES

2.6.1 Existing Infrastructures

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

2.6.2 Drainage Pattern

Drainage pattern is the pattern formed by the streams, rivers, and lakes in a particular drainage basin over time that reveals characteristics of the kind of rocks and geological structures in a landscape. 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.

Dendritic drainage pattern is one of the most common type that develop in areas where the rock (or unconsolidated material) beneath the stream has no particular fabric or structure and can be easily eroded equally in all directions.

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 Senniveeranpalayam – Therampalayam Panchayat Road that connects to Karamadai - Kariyampalayam State Highway (SH-168) on South Eastern Side.

Traffic density measurements were performed at two locations

1. Karamadai - Kariyampalayam State Highway (SH- 168)
2. Senniveeranpalayam – Therampalayam –Panchayat Road.

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

TABLE.2.11: TRAFFIC SURVEY LOCATIONS

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Karamadai - Kariyampalayam State Highway (SH- 168)	1.5 km-SE	Major District Road (Two Lane)
TS2	Senniveeranpalayam – Therampalayam – Panchayat Road	1.8 km-SE	Village road (Single Lane)

Source: On-site monitoring by GEMS FAE & TM

TABLE 2.12: EXISTING TRAFFIC VOLUME

Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	296	888	115	115	370	185	1188
TS2	122	366	28	28	118	59	453

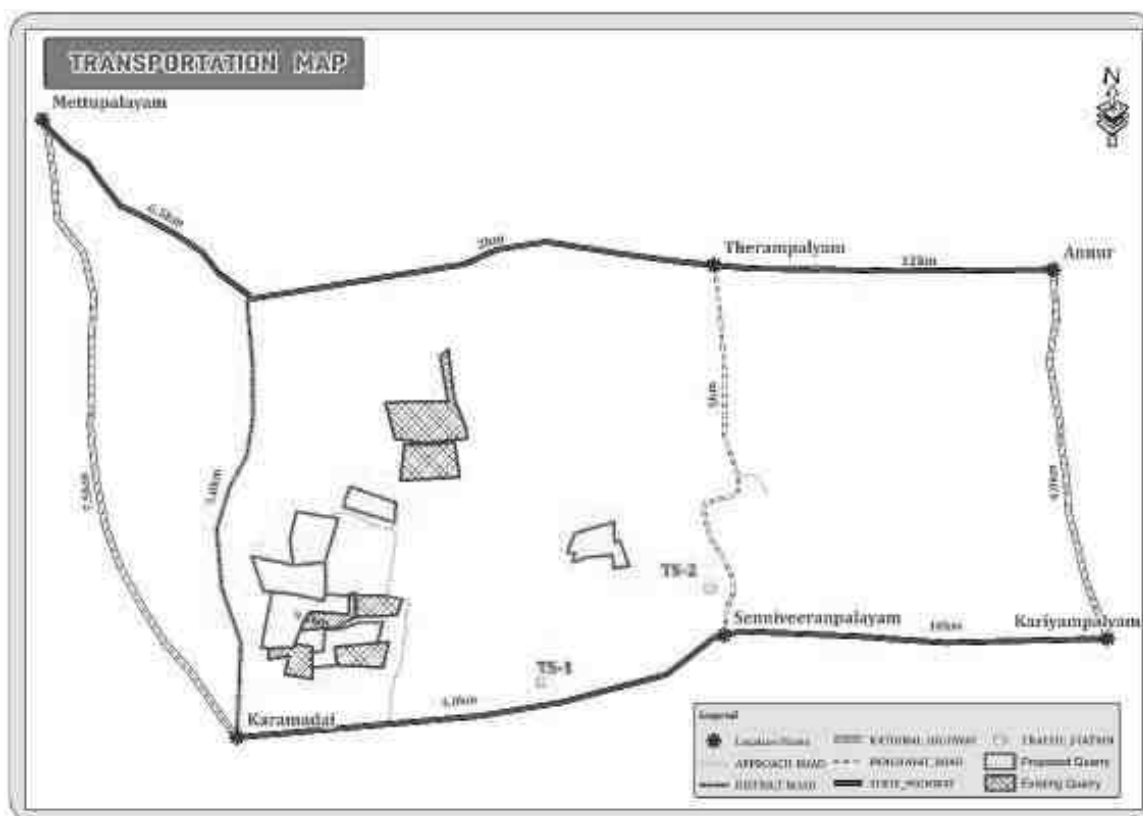
Source: On-site monitoring by GEMS FAE & TM

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

TABLE 2.13: ROUGH STONE & GRAVEL HOURLY TRANSPORTATION REQUIREMENT

Transportation of Rough Stone & Gravel per day		
Capacity of trucks	No. of Trips per day Cumulatively	Volume in PCU
10 tonnes	60	60

Source: Data analysed from Approved Mining Plan

FIGURE.2.12: MINERAL TRANSPORTATION ROUTE MAP**TABLE 2.14: SUMMARY OF TRAFFIC VOLUME**

Route	Existing Traffic volume in PCU	Incremental traffic due to the project	Total traffic volume	Hourly Capacity in PCU as per IRC – 1960 guidelines
Karamadai - Kariyampalayam State Highway (SH- 168)	1188	60	1248	1500
Senniveeranpalayam – Therampalayam –Panchayat Road	453	60	513	1200

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

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

2.6.4 Mineral Beneficiation and Processing

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

2.7 PROJECT REQUIREMENT

2.7.1 Water Source & Requirement

Detail of water requirements in KLD as given below:

TABLE 2.15: WATER REQUIREMENT FOR THE PROJECT

*Purpose	Quantity	Source
Dust Suppression	0.5 KLD	From Existing bore wells from nearby area

Green Belt development	0.4 KLD	From Existing bore wells from nearby area
Sanitation & Drinking	0.3 KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	1.2 KLD	

Source: Prefeasibility report

* Drinking water will be sourced from Approved Water Vendors

2.7.2 Power and Other Infrastructure Requirement

The project is not required power supply for the mining operations. Machineries will be operated by the source of 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.

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

High speed Diesel (HSD) will be used for mining machineries. Diesel will be brought from nearby Fuel Stations.

Gravel:

Per hour Excavator will consume	=	10 liters / hour
Per hour Excavator will excavate	=	60m ³ of Gravel
Gravel quantity	=	69,942/60 = 1,166hours
Diesel consume	=	1,166hours x 10 liters
Total diesel consumption	=	11,660Liters of HSD will be utilized for Gravel

Rough stone:

Per hour Excavator will consume	=	16 liters / hour
Per hour Excavator will excavate	=	20m ³ of Rough stone
Rough stone quantity	=	9,67,173//20 = 48,359hours
Diesel consume	=	48,359hours x 16 liters
Total diesel consumption	=	7,73,744Liters of HSD will be utilized for Rough stone
Total diesel consumption	=	7,85,404Liters of HSD will be utilized for entire project life.

2.7.4 Project Cost

Proposed Project Cost is Rs.4,23,40,000/- Corporate Environmental Responsibility Cost is Rs 5,00,000/-

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 2.16: PROPOSED MANPOWER DEPLOYMENT

Particulars	Workers	Numbers
A) Skilled Labour	Mine Foreman	1
	Mine Mate	1
	Blaster	1
	Excavator Operator	2
	Drivers	4
	Wagon Drill Operator	2

	Jack-Hammer Operator	12
B) Semi-Skilled Labour	Security	3
C) Unskilled	Labour & Helper	4
	Co-operator and Cleaner	8
	Total	38

Source: Approved Mining Plan

2.9 PROJECT IMPLEMENTATION SCHEDULE

The commercial operation will commence after the grant of Environmental Clearance. CTO will be obtained from the Tamil Nadu State Pollution Control Board. The conditions imposed during the Environmental Clearance will be compiled before the start of mining operation.

TABLE 2.17: EXPECTED TIME SCHEDULE

Sl.No.	Particulars	Time Schedule (In Month)					Remarks if any
		1 st	2 nd	3 rd	4 th	5 th	
1	Environmental Clearance						
2	Consent to Operate						Production Start Period

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

This chapter presents a regional background to the baseline data at the very onset, which will help in better appreciation of micro-level field data, generated on several environmental and ecological attributes of the study area. The baseline status of the project environment is described section wise for better understanding of the broad-spectrum conditions. The baseline environment quality represents the background environmental scenario of various environmental components such as Land, Water, Air, Noise, Biological and Socio-economic status of the study area. Field monitoring studies to evaluate the base line status of the project site were carried out covering December 2022, January 2023 and February 2023 with CPCB guidelines. Environmental data has been collected with reference to cluster quarries by EHS 360 Labs Private Limited, – An accredited by ISO/IEC 17025:2017 (NABL) Laboratory for the below attributes –

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

Study Area

An area of 10 km radius (aerial distance) from the periphery of the cluster is considered for EIA study. The data collection has been used to understand the existing environment scenario around the cluster against which the potential impacts of the project can be assessed. The study area has been divided into two zones viz **core zone** and **buffer zone** where core zone is considered as cluster and 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., December 2022, January 2023 and February 2023

Study Methodology

- The project area was surveyed in detail with the help of Total Station and the boundary pillars were picked up with the help of GPS. 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, exchangeable Cations, nutrients & micro nutrients etc., in order to assess the impact due to mining activities and to recommend saplings for Greenbelt development.
- Ground water samples were collected during the study period from the existing bore wells, while surface water was collected from ponds in the buffer zone. The samples were analysed for parameters necessary to determine water quality (based on IS: 10500:2012 criteria) and those which are relevant from the point of view of environmental impact of the proposed mines.
- 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.
- In order to assess the Ambient Air Quality (AAQ), samples of ambient air were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, PM₁₀ and SO₂, NO_x with gaseous attachments & Fine

Dust Samplers (FDS) for PM_{2.5} and other parameters as per NAAQ norms and analysed for primary air pollutants to work out the existing status of air quality.

- The Noise level measurements were also made at various locations in different intervals of time with the help of sound level meter to establish the baseline noise levels in the impact zone.
- Baseline biological studies were carried out to assess the ecology of the study area to study the existing flora and fauna pattern of the area.
- Socio-Economic survey was conducted at village and household level in the study area to understand the present socio-economic conditions and assess the extent of impact due to the proposed mining project.

The sampling methodologies for the various environmental parameters required for the study, frequency of sampling, method of samples analysis, etc., are given below Table 3.1.

TABLE 3.1: MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data's from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
*Soil	Physio-Chemical Characteristics	Once during the study period	5 (1 core & 4 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/Auto matic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
*Ambient Air Quality	PM10 PM2.5 SO2 NOX Fugitive Dust	24 hourly twice a week (December 2022 – February 2023)	9 (2 core & 7 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	7 (3 core & 4 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrante & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio-Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.

Source: On-site monitoring/sampling by EHS360 Labs Private Limited in association with GEMS

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

3.1 LAND ENVIRONMENT

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

3.1.1 Land Use/ Land Cover

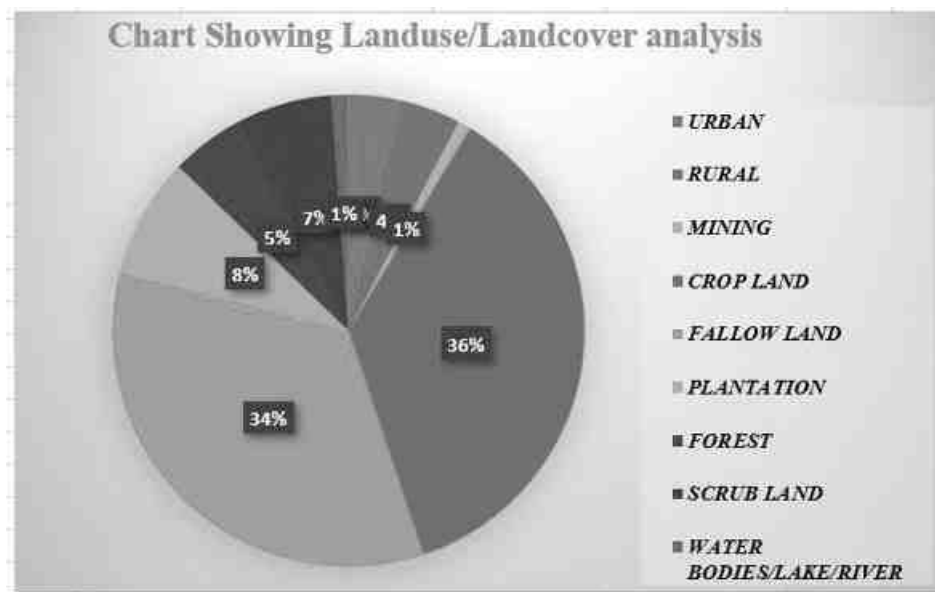
A visual interpretation technique has been adopted for land use classification based on the keys suggested in the chapter – V of the guidelines issued by NNRMS Bangalore & Level III classification with 1:50,000 scale for the preparation of land use mapping. Land use pattern of the area was studied through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

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

S.No	CLASSIFICATION	AREA_HA	AREA_%
BUILTUP			
1	URBAN	1156.67	3.58
2	RURAL	1338.12	4.15
3	MINING	280.58	0.87
AGRICULTURAL LAND			
4	CROP LAND	11697.26	36.24
5	FALLOW LAND	11002.40	34.09
6	PLANTATION	2676.86	8.29
FOREST			
7	FOREST	1630.31	5.05
BARREN/WASTE LANDS			
8	SCRUB LAND	2118.53	6.56
WETLANDS/ WATER BODIES			
9	WATER BODIES/LAKE/RIVER	372.84	1.16
TOTAL		32273.57	100.00

Source: Survey of India Toposheet and Landsat Satellite Imagery

FIGURE 3.1: PIE DIAGRAM OF LAND USE AND LAND IN STUDY AREA



Source: Table 3.2

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) 70.33% followed by Built-up Lands - 7.73%, Scrub & Forest land – 11.61%, and Water bodies 1.16%.

The total mining area within the study area is 280.58 ha i.e., 0.87%. The cluster area of 27.93.72 ha contributes about 8.65% 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

All the proposed project area is plain terrain, covered with gravel and weathered formation of 2 to 4m thickness; Massive Charnockite formation is found after 2 to 4m gravel and weathered formation which is clearly inferred from the existing quarry pits.

3.1.3 Drainage Pattern of the Area

Drainage pattern are created by stream erosion over time that reveals characteristics of the kind of rocks and geological structures in a landscape region drained by streams.

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.

Dendritic patterns, which are by far the most common, develop in areas where the rock (or unconsolidated material) beneath the stream has no particular fabric or structure and can be eroded equally easily in all directions.

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

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.

(Source: https://moes.gov.in/writereaddata/files/LS_EN_20032020_385.pdf)

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 OF LISSIII IMAGE AROUNDS 10KM RADIUS

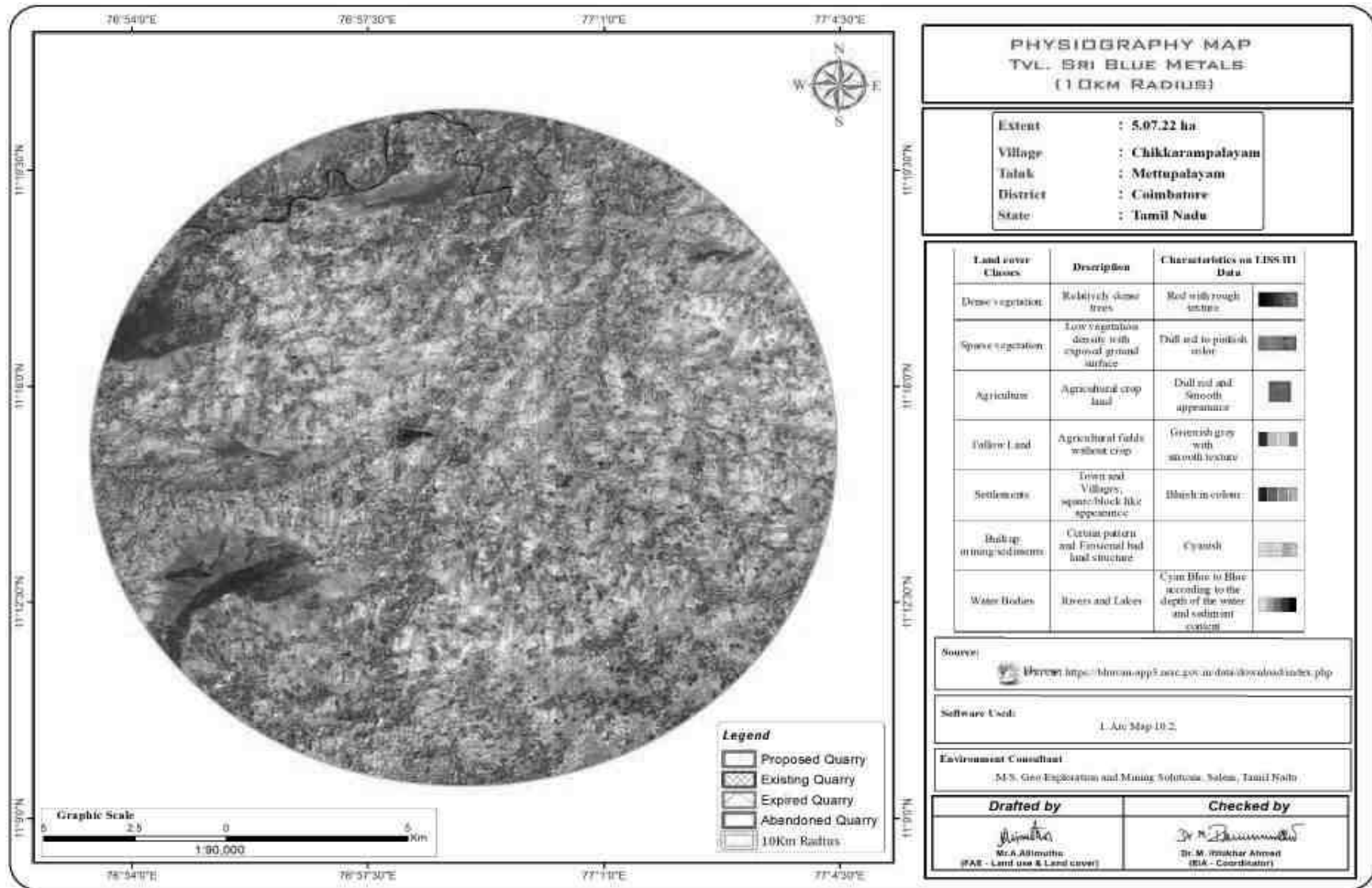


FIGURE 3.2-A: LAND USE LAND COVER MAP 10KM RADIUS

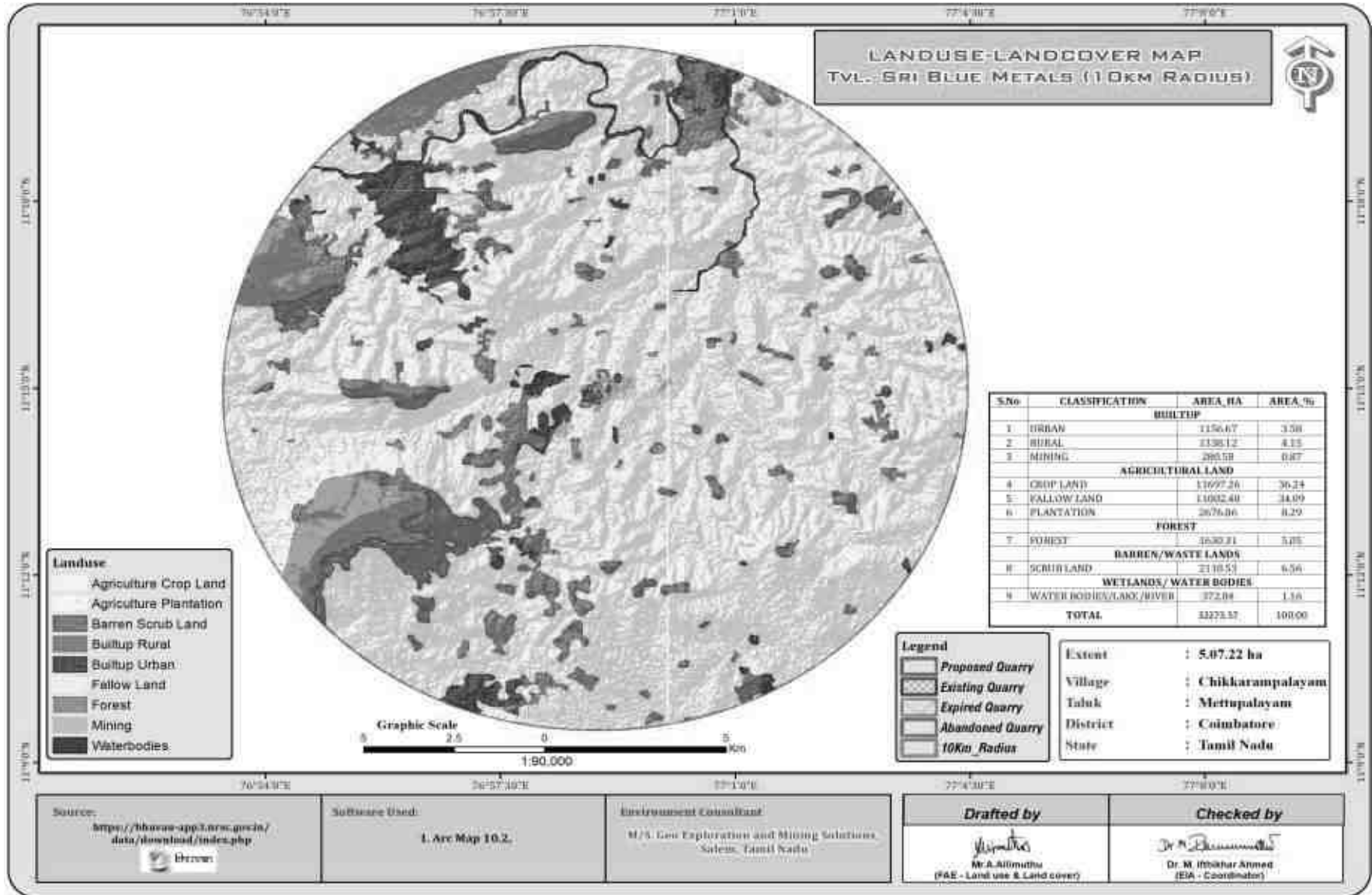


TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE CLUSTER

Sl.No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	Sathyamangalam Tiger Reserve	22km-N
2	Reserve Forest	Nellimalai R.F	7.39 Km North west
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

PROPOSAL – P1		
Sl.No	NAME	DISTANCE & DIRECTION
1	Odai	250m West
2	Odai	660m West
3	Belladhi Lake	750mNW
4	Tank	1km NE
5	Odai	1.6km SE
6	Bhavani River	6.8km NE

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 3.3.

The objective of the soil sampling is -

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

TABLE 3.5: SOIL SAMPLING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	S-1	Core Zone	Project Area	11°15'1.89"N 76°58'52.10"E
2	S-2	Bettadapuram	2.7Km South West	11°13'31.88"N 76°57'27.53"E
3	S-3	Therampalayam	1.8Km North East	11°16'17.93"N 76°59'56.46"E
4	S-4	Onnipalayam	4.2Km South East	11°12'26.51"N 77° 0'4.00"E
5	S-5	Pogalur	5Km North East	11°15'27.20"N 77° 2'23.84"E

Source: On-site monitoring/sampling by EHS360 Labs Private Limited 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. Five (5) 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 EHS360 Labs Private Limited 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 is presented below in Figure 3.4 and the physico-chemical characteristics of the soil & Test Results in Table 3.7.

FIGURE 3.3: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS

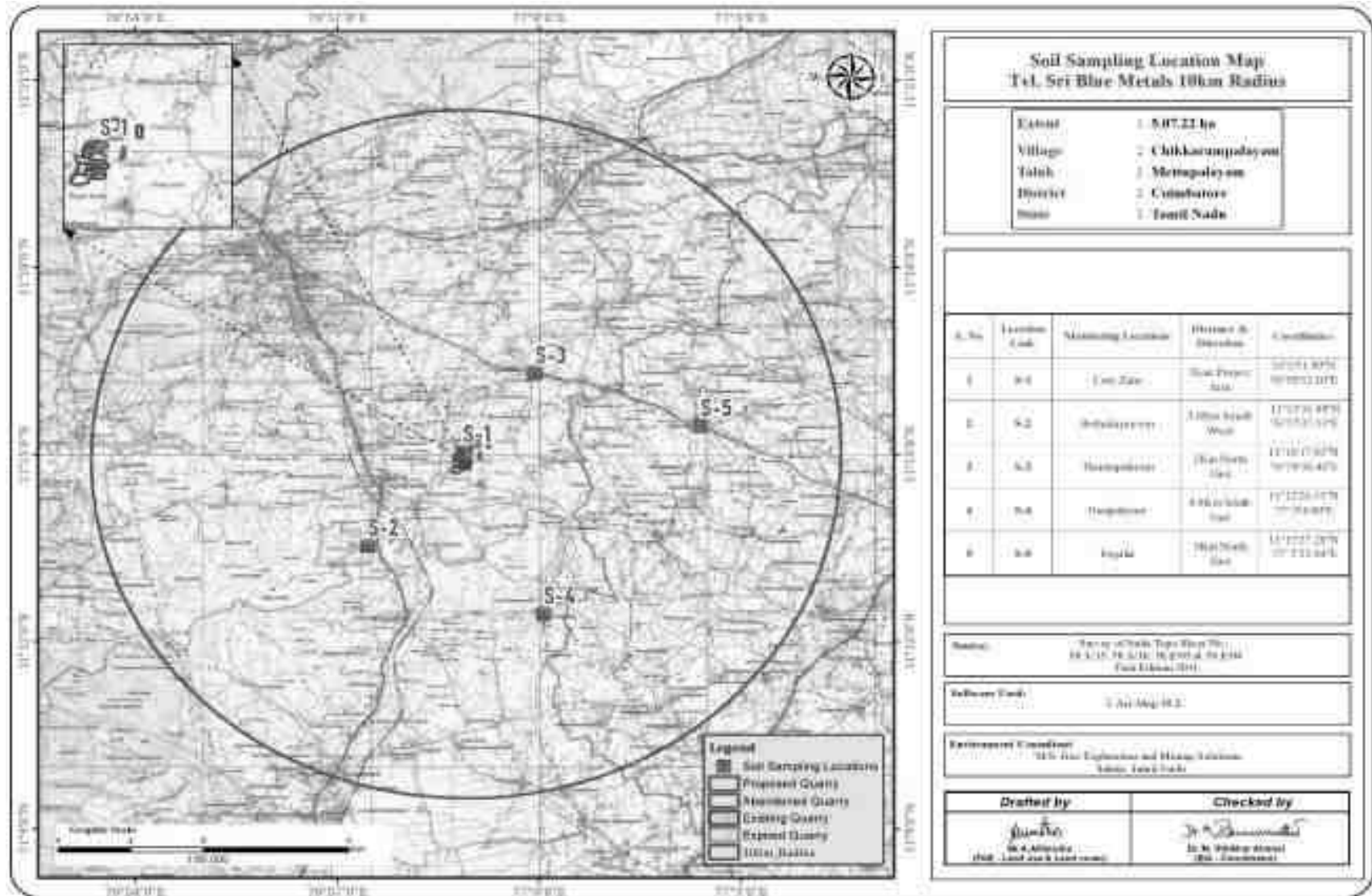


FIGURE 3.4: SOIL MAP

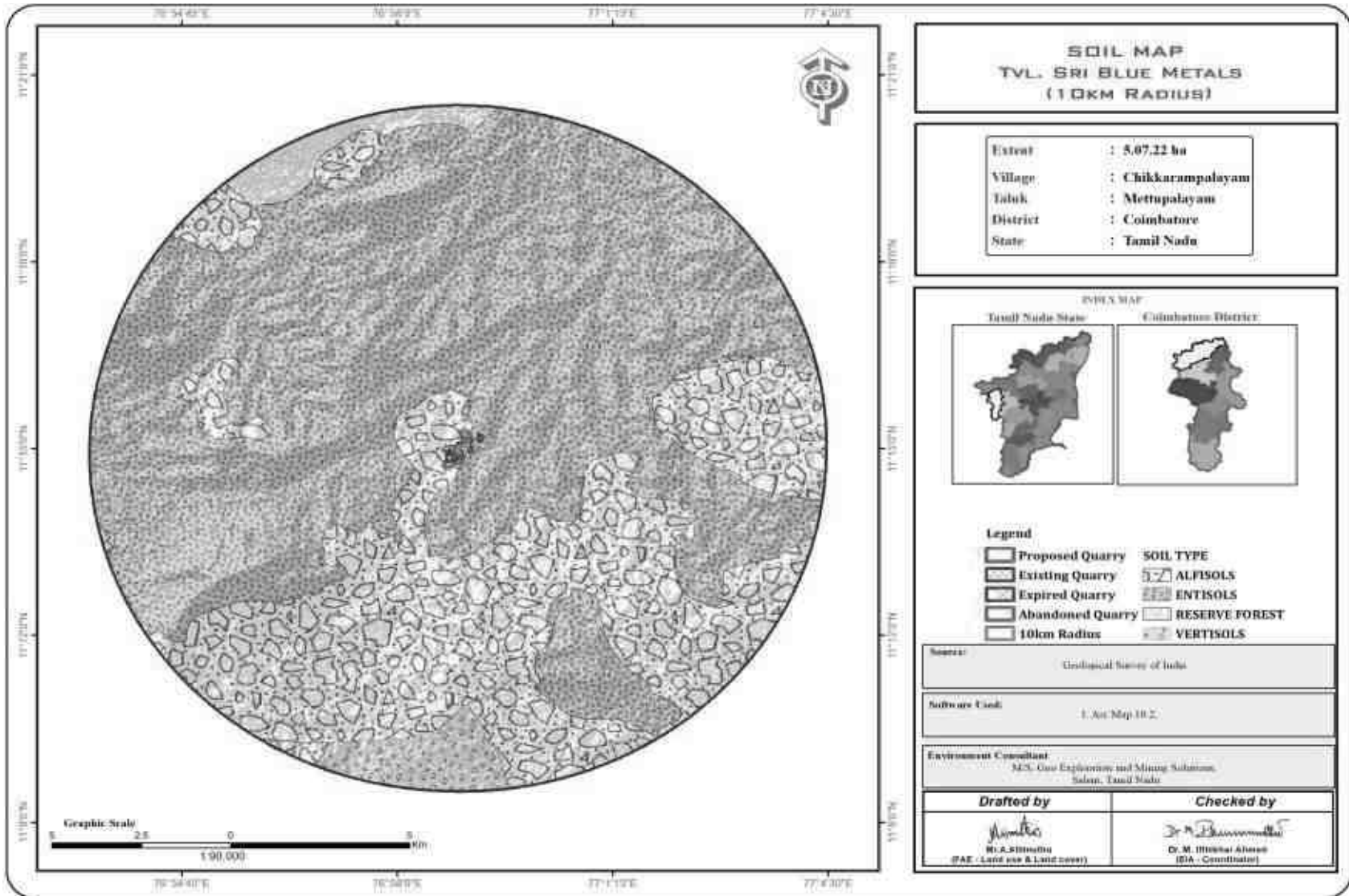


TABLE 3.7: SOIL QUALITY OF THE STUDY AREA

Parameter		S-1 (Near Project Area)	S-2 (Bettadapuram)	S-3 (Therampalayam)	S-4 (Onnipalayam)	S-5 (Pogalur)
1	Colour	Brown	Dark Brown	Brown	Brown	Brown
2	pHat27C	8.10	7.46	7.10	8.27	7.89
3	ElectricalConductivityat25C	547	410	488	607	710
4	Water Activity	Medium	Medium	Medium	Medium	Medium
5	Texture	Sandy Clay	Sandy Loam	Clay	Clay	Sandy Loam
6	Sand	42.1	43.5	37.7	37.7	68.8
7	Slit	15.5	18.8	7.5	8.8	12.7
8	Clay	42.4	37.7	54.8	53.5	18.5
9	Water Holding Capacity	38.5	31.1	47.4	47.2	40.2
10	Bulk Density	1.02	1.03	1.37	1.26	1.02
11	Porosity	21.3	24.9	26.9	28.9	26.6
12	Exchangeable Calcium(asCa)	144.1	120	108.3	138	121.4
13	Exchangeable Magnesium(asMg)	20.5	17.7	25.5	28.8	27
14	Exchangeable Manganese(asMn)	27.3	25.5	31.9	41.1	38.7
15	Exchangeable Zinc as Zn	0.30	0.31	0.52	0.43	0.31
16	Available Boron (as B)	0.51	0.73	0.64	0.80	0.66
17	Soluble Chloride(as Cl)	142	132.7	154	146	161.2
18	Soluble Sulphate(as S04)	124.1	130	111	117	102
19	Available Potassium(as K)	40.1	28.8	30.0	41.3	37.6
20	Sodium Absorption Ratio	1.01	1.68	1.07	1.65	1.54
21	Available Phosphorous(as P)	42.5	30.1	37.7	41.4	37.5
22	Available Nitrogen(as N)	188	254.5	350.1	366.7	250.8
23	Cadmium (as Cd)	BDL (DL:0.003)				
24	Chromium (asCr)	BDL (DL:0.05)				
25	Copper(asCu)	BDL (DL:0.05)				
26	Lead (as Pb)	0.56	0.33	0.67	0.51	0.47
27	Total Iron	1.99	1.59	2.64	2.84	1.66
28	Organic Matter	1.27	1.88	2.10	2.74	1.05
29	Organic Carbon	0.74	1.09	1.22	1.59	0.61
30	CEC	40.1	34.7	37.5	42.2	33.0

Source: Sampling Results by EHS360 Labs Private Limited

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 to Sandy Loam Soil and Bulk Density of Soils in the study area varied between 1.02 – 1.37 g/cc. The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e. ranging from 31.1 – 47.4 %. And 21.3-28.9 %.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline with pH range 7.10 to 8.27
- The available Nitrogen content range between 188to 366 kg/ha
- The available Phosphorus content range between 30.1 to 42.5 kg/ha
- The available Potassium range between 28.8 to 41.3 mg/kg

3.2 WATER ENVIRONMENT

The water resources, both surface and groundwater play a significant role in the development of the area. The purpose of this study is to assess the water quality characteristics for critical parameters and evaluate the impacts on agricultural productivity, domestic community usage, recreational resources and aesthetics in the vicinity. The water samples were collected and transported as per the norms in pre-treated sampling cans to laboratory for analysis.

3.2.1 Surface Water Resources:

Bhavani 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.

Ground water occurring in pheratic conditions in weathered and fractured gneiss rock formation. 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	COORDINATES
SURFACE WATER				
1	SW-1	Near Project Area	Near Project Area	11°14'59.66"N 76°58'39.99"E
2	SW-2	Belladhi Lake	750m North West	11°15'11.44"N 76°58'25.51"E
GROUND WATER				
3	WW-1	Therampalayam	3.5Km North East	11°16'19.25"N 76°59'58.78"E
4	WW-2	Bellaipalayam	6Km North East	11°17'44.73"N 77° 1'25.51"E
5	BW-1	Onnipalayam	5.2km South East	11°12'23.61"N 77° 00'8.58"E
6	BW-2	Pogalur	6Km North East	11°15'28.24"N 77° 2'23.04"E

Source: On-site monitoring/sampling by EHS360 Labs Private Limited in association with GEMS

FIGURE 3.5: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS

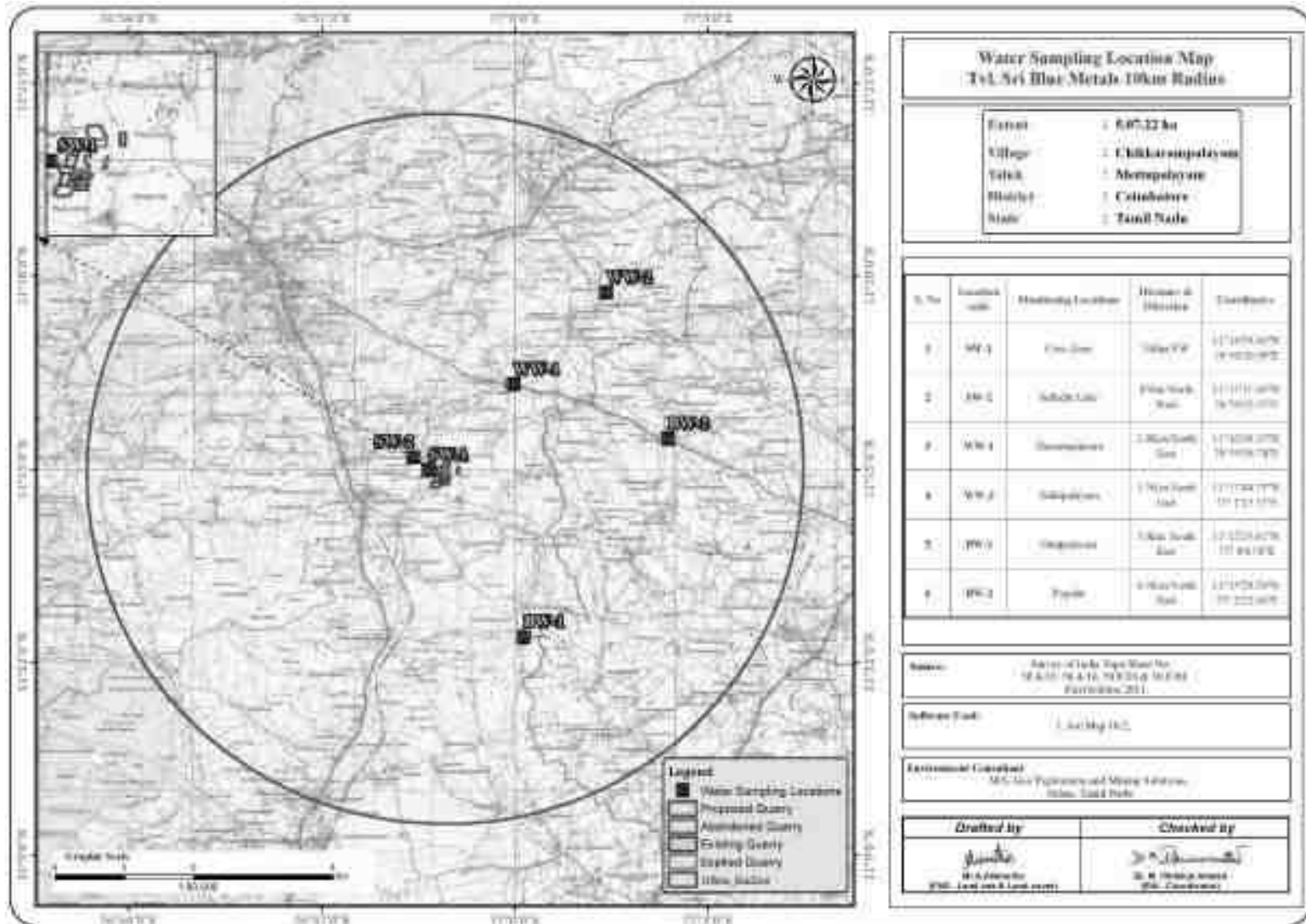


TABLE 3.9: GROUND WATER SAMPLING RESULTS

S.NO	Parameter	BW-1 (Onnipalayam)	BW-2 (Pogalur)	WW-1 (Therampalayam)	WW-2 (Bellaipalayam)
1	Color	< 5	< 5	< 5	< 5
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable
3	pH@ 25°C	7.59	7.10	7.44	7.54
4	Electrical Conductivity @ 25°C	725	682	568	613
5	Turbidity	< 1	< 1	< 1	< 1
6	Total Dissolved Solids	428	402	335	362
7	Total Hardness as CaCO ₃	213.62	259.14	192.88	172.59
8	Calcium as Ca	37.5	41.9	33.8	31.6
9	Magnesium as Mg	29.2	37.6	26.4	22.8
10	Total Alkalinity	164	177	135	142
11	Chloride as Cl ⁻	90.1	85.3	72.7	75.8
12	Sulphate as SO ₄ ⁻	29.2	28.3	25.7	26.7
13	Iron as Fe	0.22	0.17	BDL(DL:0.1)	BDL(DL:0.1)
14	Free Residual Chlorine	BDL(DL: 2.0)	BDL(DL: 2.0)	BDL(DL: 2.0)	BDL(DL: 2.0)
15	Fluoride as F	0.46	0.39	0.20	0.25
16	Nitrates as NO ₃	11.9	9.5	8.3	7.6
17	Copper as Cu	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)
18	Manganese as Mn	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
19	Mercury as Hg	(BDL (DL: 0.0005)	(BDL (DL: 0.0005)	(BDL (DL: 0.0005)	(BDL (DL: 0.0005)
20	Cadmium as Cd	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
21	Selenium as Se	BDL (DL: 0.05)	BDL (DL: 0.05)	BDL (DL: 0.05)	BDL (DL: 0.05)
22	Aluminium as Al	BDL (DL: 0.03)	BDL (DL: 0.03)	BDL (DL: 0.03)	BDL (DL: 0.03)
23	Lead as Pb	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
24	Zinc as Zn	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)
25	Total Chromium	BDL (DL: 0.05)	BDL (DL: 0.05)	BDL (DL: 0.05)	BDL (DL: 0.05)
26	Boron as B	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
27	Mineral Oil	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
28	Phenolic Compounds as C ₆ H ₅ OH	Absent	Absent	Absent	Absent
29	Anionic Detergents as	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
30	Cynaide as CN	Absent	Absent	Absent	Absent
31	Total Coliform	< 2	< 2	< 2	< 2
32	E-Coli	< 2	< 2	< 2	< 2
33	Barium as Ba	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)
34	Ammonia (as Total	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
35	Sulphide as H ₂ S	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
36	Molybdenum as Mo	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)
37	Total Arsenic as As	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
38	Total Suspended Solids	BDL(DL:2)	BDL(DL:2)	BDL(DL:2)	BDL(DL:2)

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

TABLE 3.10: SURFACE WATER SAMPLING RESULTS

Sl. No.	Parameter	Unit	RESULT		CPCB Designated Best Use
			SW1	SW2	
1	Colour	Hazen	10	5	300
2	Odour	-	Agreeable	Agreeable	Not specified
3	pH@ 25°C	-	7.40	7.83	6.5 – 8.5
4	Electrical Conductivity @ 25°C	µs/cm	539	758	
5	Turbidity	NTU	5.1	5.8	Not specified
6	Total Dissolved Solids	mg/l	318	440	1500
7	Total Hardness as CaCO ₃	mg/l	197	145.9	Not specified
8	Calcium as Ca	mg/l	33.2	30	Not specified
9	Magnesium as Mg	mg/l	27.9	17.3	Not specified
10	Total Alkalinity as CaCO ₃	mg/l	163	161.2	Not specified
11	Chloride as Cl ⁻	mg/l	69.5	101.2	600
12	Sulphate as SO ₄ ⁻	mg/l	24.1	32.2	400
13	Iron as Fe	mg/l	0.27	0.19	50
14	Free Residual Chlorine	mg/l	BDL(DL: 2.0)	BDL(DL: 2.0)	400
15	Fluoride as F	mg/l	0.34	0.12	1.5
16	Nitrates as NO ₃	mg/l	12	5.1	50
17	Copper as Cu	mg/l	BDL (DL:0.2)	BDL (DL:0.2)	1.5
18	Manganese as Mn	mg/l	BDL (DL:0.05)	BDL (DL:0.05)	Not specified
19	Mercury as Hg	mg/l	(BDL (DL: 0.0005)	(BDL (DL: 0.0005)	Not specified
20	Cadmium as Cd	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	0.01
21	Selenium as Se	mg/l	BDL (DL: 0.05)	BDL (DL: 0.05)	Not specified
22	Aluminium as Al	mg/l	BDL (DL: 0.03)	BDL (DL: 0.03)	Not specified
23	Lead as Pb	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	0.1
24	Zinc as Zn	mg/l	BDL (DL:0.02)	BDL (DL:0.02)	15
25	Total Chromium	mg/l	BDL (DL: 0.05)	BDL (DL: 0.05)	0.05
26	Boron as B	mg/l	BDL (DL:0.1)	BDL (DL:0.1)	Not specified
27	Mineral Oil	mg/l	BDL (DL:1.0)	BDL (DL:1.0)	Not specified
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	Absent	Absent	0.005
29	Anionic Detergents as MBAS	mg/l	BDL (DL:0.1)	BDL (DL:0.1)	Not specified
30	Cyanide as CN	mg/l	Absent	Absent	0.05
31	Biological Oxygen Demand, 3 days @ 27°C		6.2	7.2	3
32	Chemical Oxygen Demand		24	32	Not specified
33	Dissolved Oxygen		7.5	6.1	4
34	Total Coliform	MPN/ 100ml	100	present	5000
35	E-Coli		20	present	Not specified
36	Barium as Ba	mg/l	BDL (DL:0.5)	BDL (DL:0.5)	300
37	Ammonia (as Total Ammonia-N)	mg/l	BDL (DL:0.1)	2.3	Not specified
38	Sulphide as H ₂ S	mg/l	BDL (DL:0.05)	BDL (DL:0.05)	Not specified
39	Molybdenum as Mo	mg/l	BDL (DL:0.5)	BDL (DL:0.5)	Not specified
40	Total Arsenic as As	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	0.2
41	Total Suspended Solids	mg/l	5.7	6.6	-

3.2.4 Interpretation & Conclusion

Surface Water

PH:

The pH varied from 7.40 to 7.83 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 318 to 440 mg/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 69.5 – 101.2 mg/l. Nitrates varied from 5.1 to 12 mg/l, while sulphates varied from 24.1 to 32.2 mg/l.

Ground Water

The pH of the water samples collected ranged from 7.10 to 7.59 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. The Total Dissolved Solids were found in the range of 335 – 428 mg/l in all samples. The Total hardness varied between 172 – 259 mg/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 70-65m. The maximum depth proposed out of proposed projects is 42m 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. There is no necessity of stream, channel diversion due to these proposed projects.

During the rainy season there is a possibility of collection of seepage water from the subsurface levels which will be collected and stored in the mine sump pits and will be used for dust suppression and greenbelt development and during the end of the life of the mine this collected water will act as a temporary reservoir.

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

Station Code	Water Level in Meters bgl				Latitude	Longitude
	Dec 2022	Jan 2022	Feb 2023	Average		
OW1	7.2	9.2	11.2	9.2	11° 14' 47.18"N	76° 59' 10.14"E
OW2	7.3	9.3	11.3	9.3	11° 14' 38.26"N	76° 59' 20.99"E
OW3	7.6	9.6	11.6	9.6	11° 14' 40.53"N	76° 59' 46.02"E
OW5	8.8	10.8	12.8	10.8	11° 14' 50.23"N	76° 59' 36.33"E
OW4	9	11	13	11	11° 15' 16.79"N	76° 59' 30.78"E
OW6	8.4	10.4	12.4	10.4	11° 15' 12.07"N	76° 59' 45.71"E
OW7	7.9	9.9	11.9	9.9	11° 15' 22.86"N	76° 59' 08.97"E
OW8	8.4	10.4	12.4	10.4	11° 15' 44.75"N	76° 59' 09.68"E
OW9	8.2	10.2	12.2	10.2	11° 15' 41.58"N	76° 58' 47.27"E
OW10	8.8	10.8	12.8	10.8	11° 15' 16.48"N	77° 00' 16.93"E
OW11	8.6	10.6	12.6	10.6	11° 15' 27.36"N	76° 58' 33.27"E
OW12	8.2	10.2	12.2	10.2	11° 15' 00.71"N	76° 58' 27.81"E
OW13	8.7	10.7	12.7	10.7	11° 14' 34.87"N	76° 58' 18.34"E

Source: Onsite monitoring data

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

Station Code	Water Level in Meters bgl				Latitude	Longitude
	Dec 2022	Jan 2022	Feb 2023	Average		
BW1	58	60	62	60	11° 14' 47.84"N	76° 59' 48.18"E
BW2	60	62	64	62	11° 15' 11.15"N	76° 59' 37.63"E
BW3	65	67	69	67	11° 14' 29.87"N	76° 59' 11.37"E
BW4	60	62	64	62	11° 15' 30.22"N	76° 59' 40.93"E
BW5	61	63	65	63	11° 14' 23.52"N	76° 58' 37.51"E
BW6	59	61	63	61	11° 14' 59.97"N	76° 59' 58.85"E
BW7	62	64	66	64	11° 14' 50.09"N	76° 58' 24.64"E
BW8	65	67	69	67	11° 15' 26.07"N	76° 58' 35.89"E
BW9	65	67	69	67	11° 15' 12.64"N	77° 00' 25.64"E
BW10	64	66	68	66	11° 15' 45.79"N	76° 58' 54.88"E
BW11	60	62	64	62	11° 15' 34.56"N	77° 00' 09.11"E

Source: Onsite monitoring data

FIGURE 3.6: OPEN WELL CONTOUR MAP – DECEMBER 2022

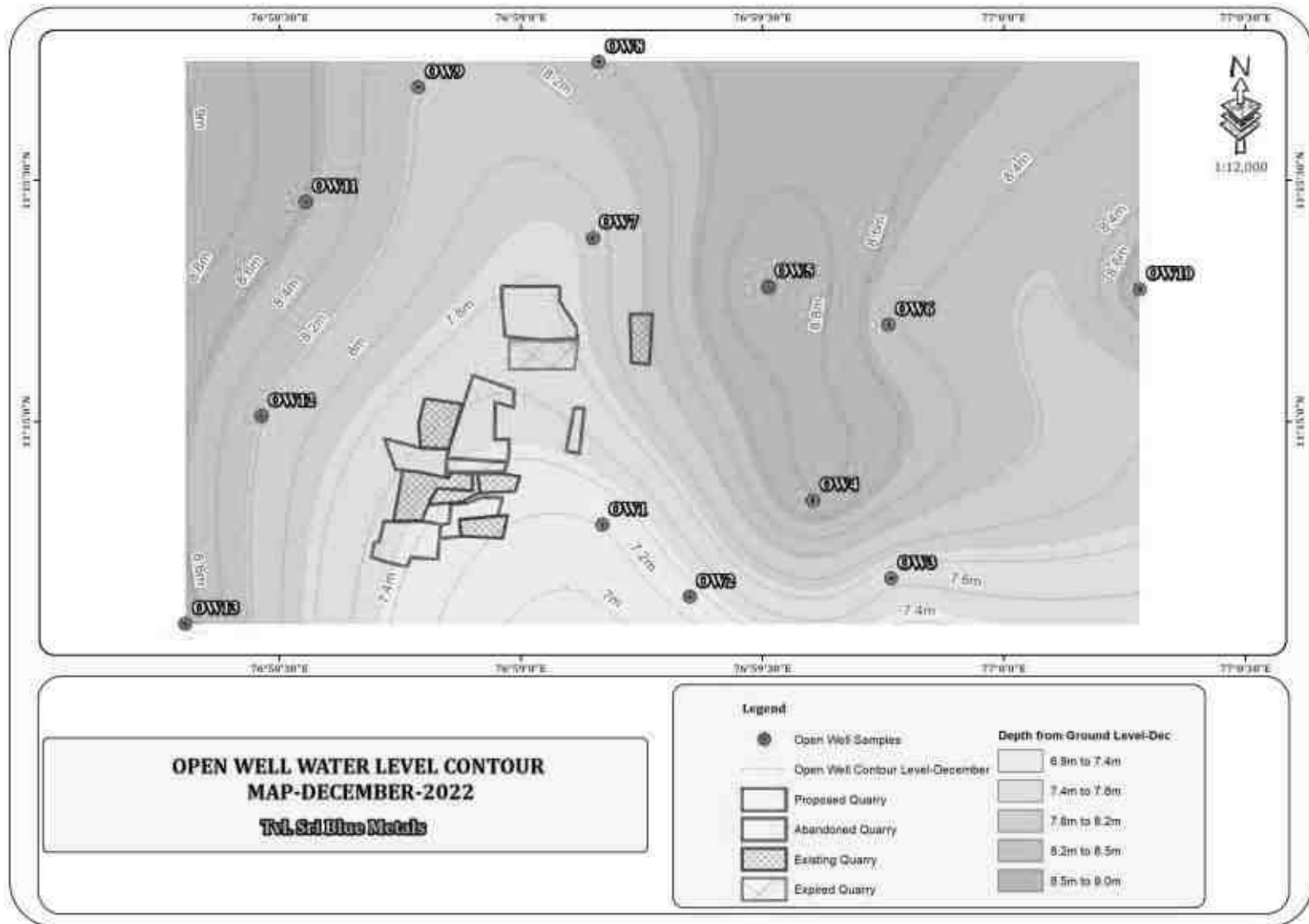


FIGURE 3.7: OPEN WELL CONTOUR MAP – JANUARY 2023

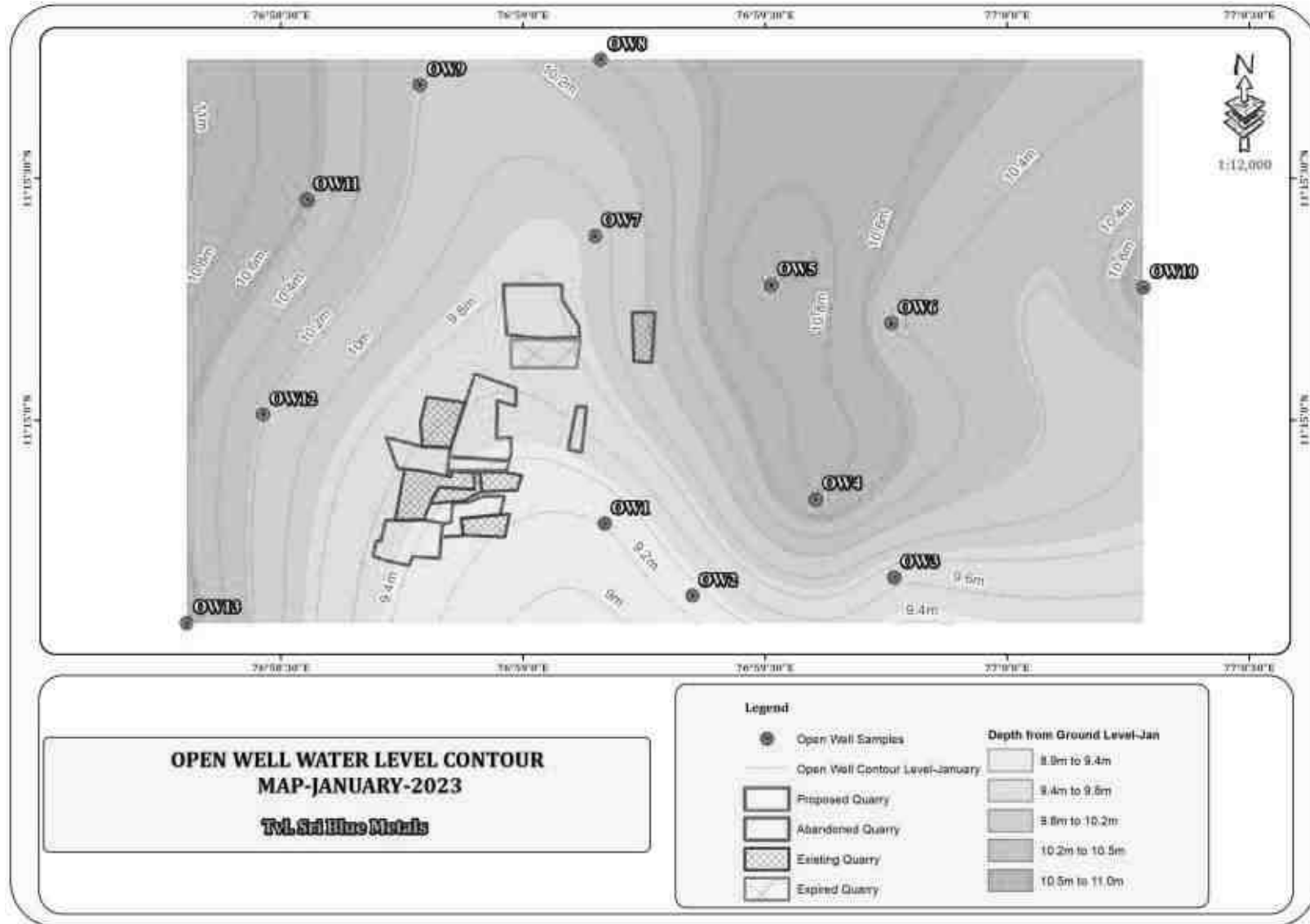


FIGURE 3.8: OPEN WELL CONTOUR MAP – FEBRUARY 2023

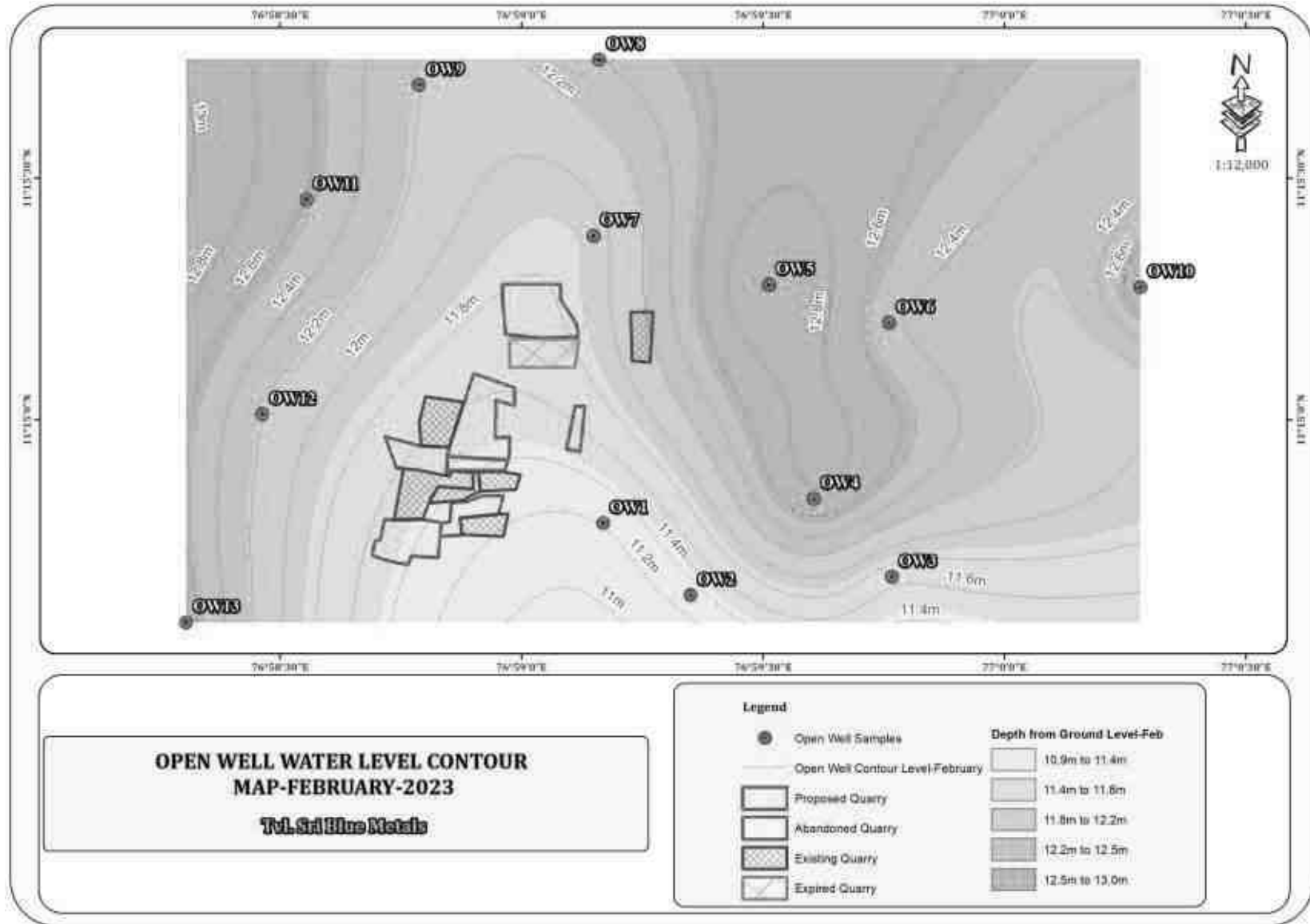


FIGURE 3.9: BOREWELL CONTOUR MAP – DECEMBER 2022

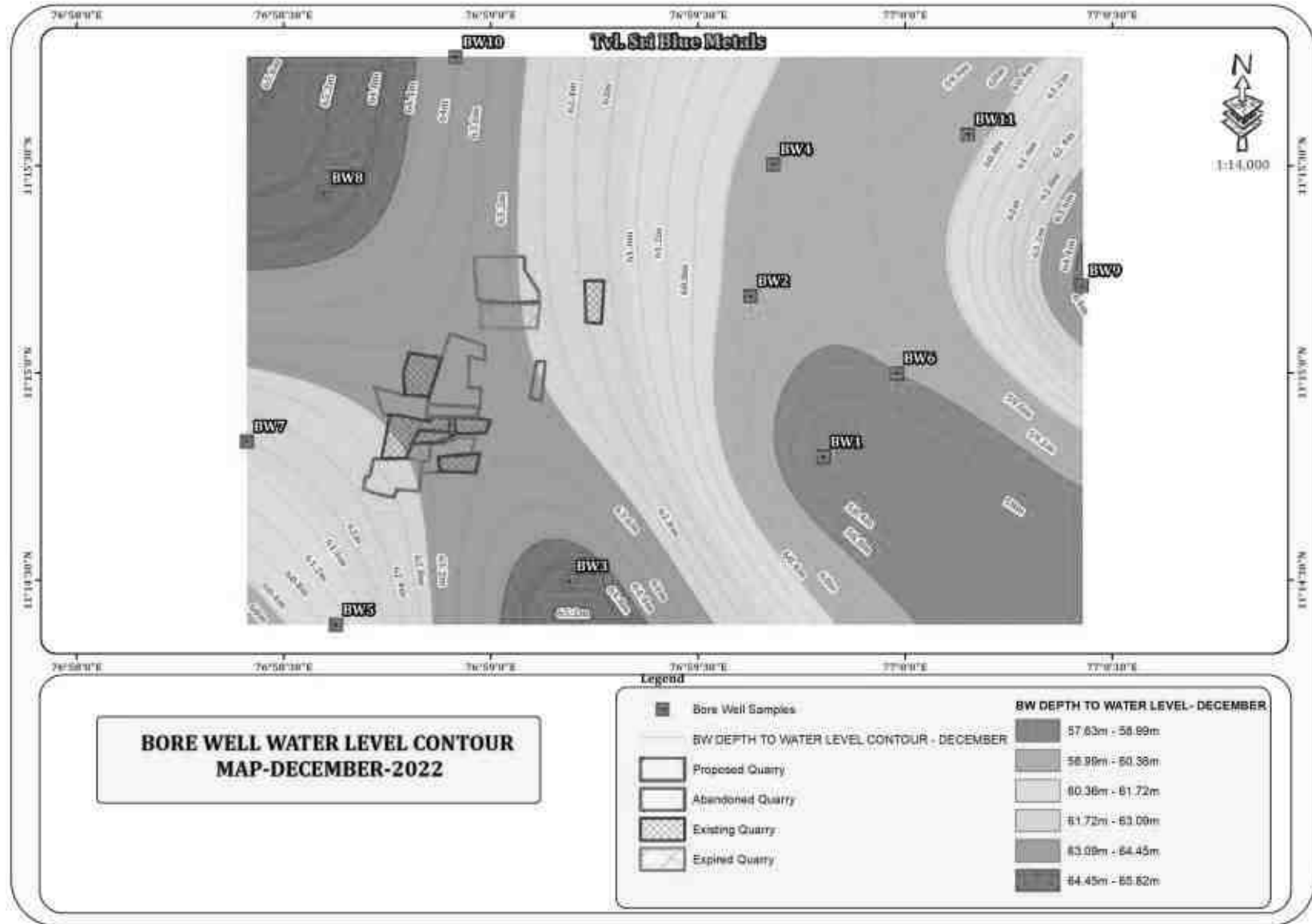


FIGURE 3.10: BOREWELL CONTOUR MAP – JANUARY 2023

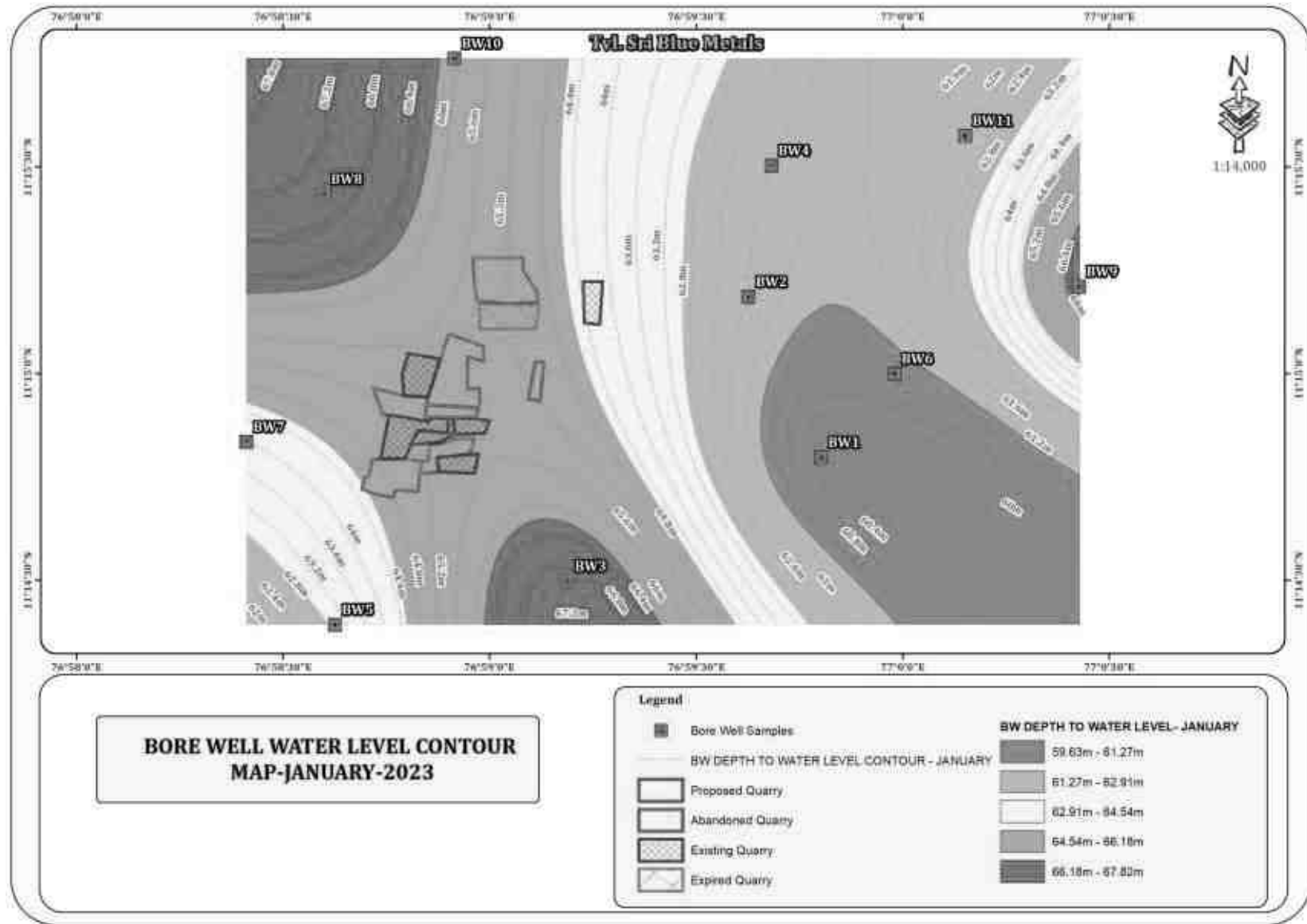


FIGURE 3.11: BOREWELL CONTOUR MAP – FEBRUARY 2023

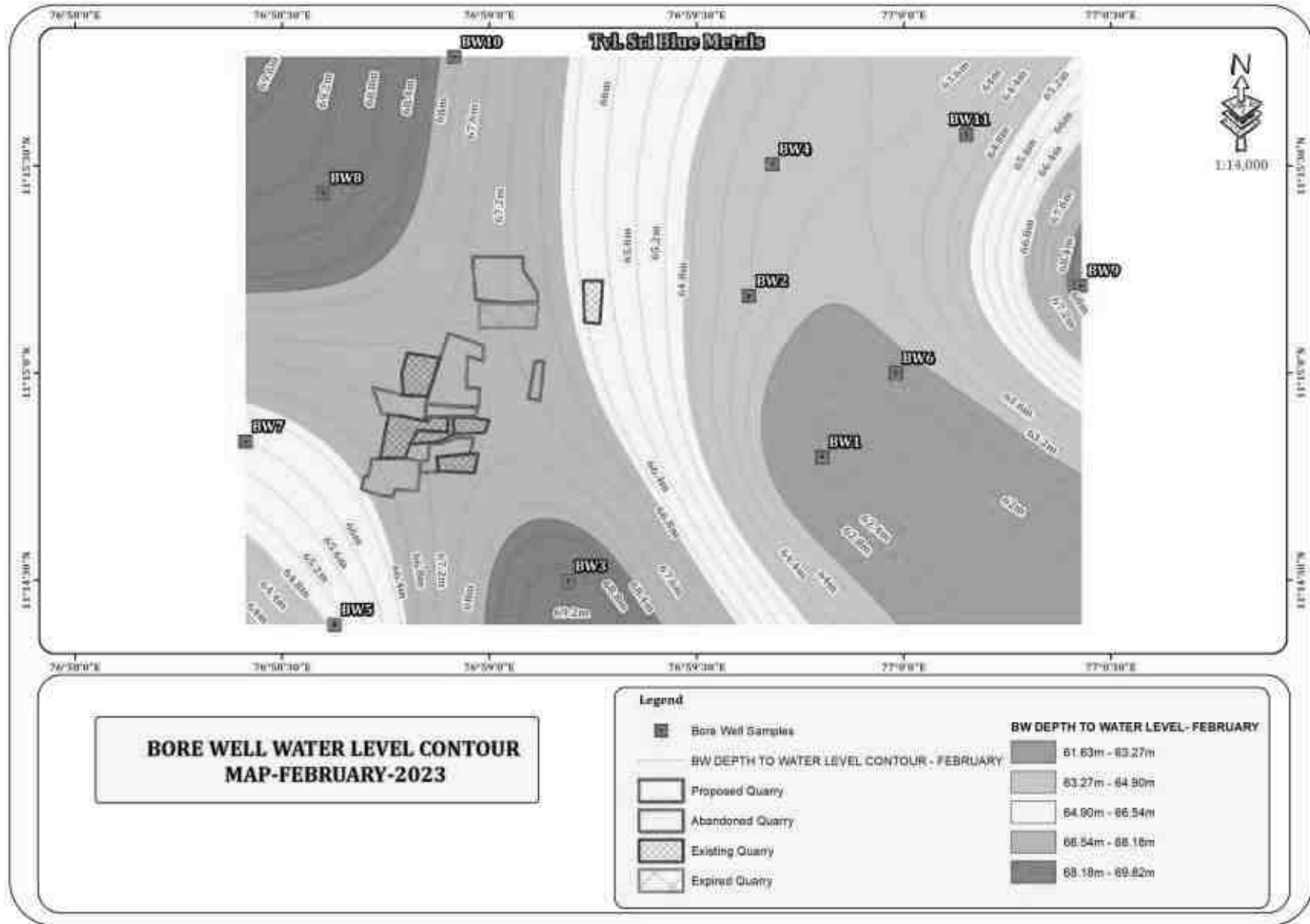


FIGURE 3.12: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE

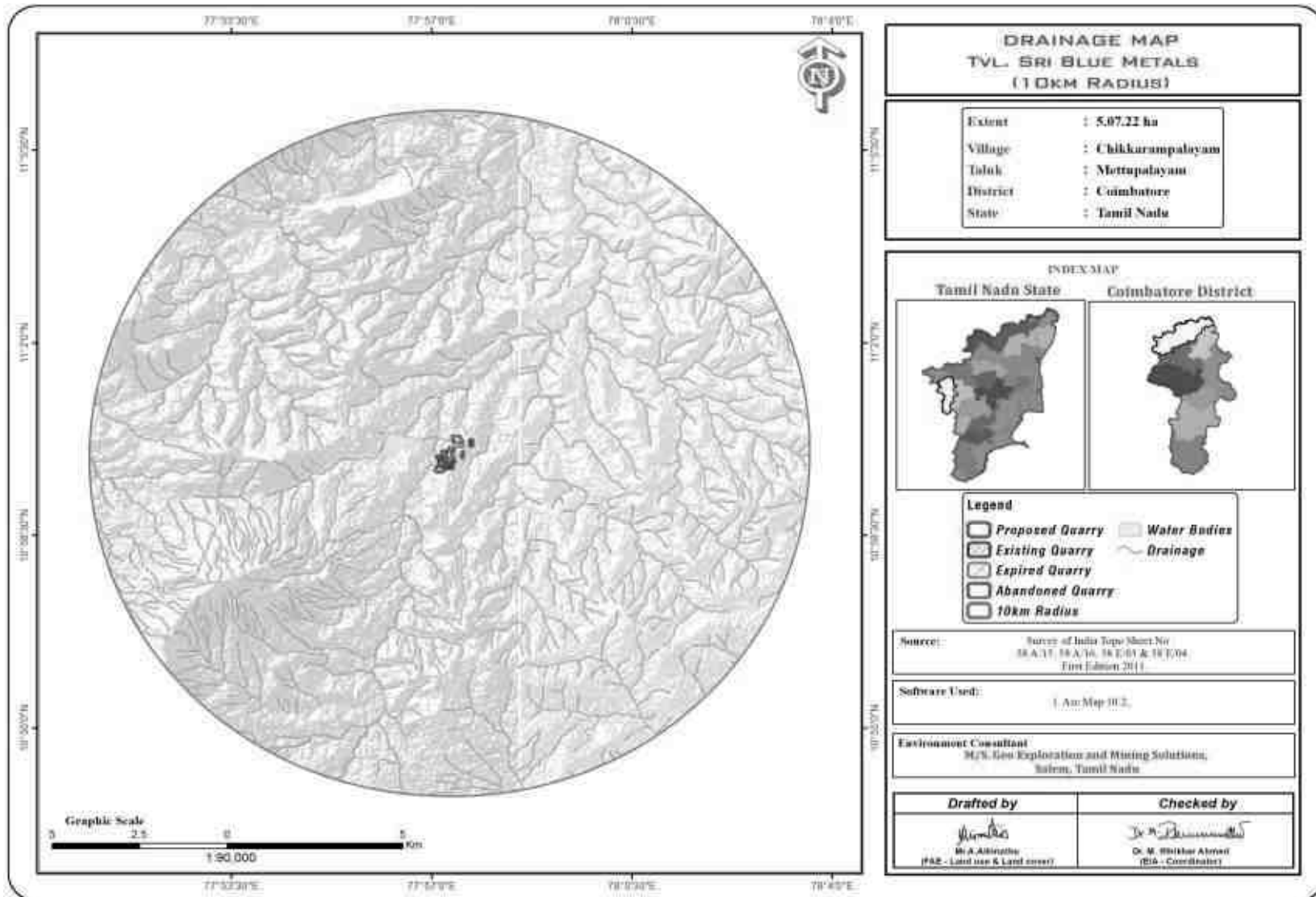
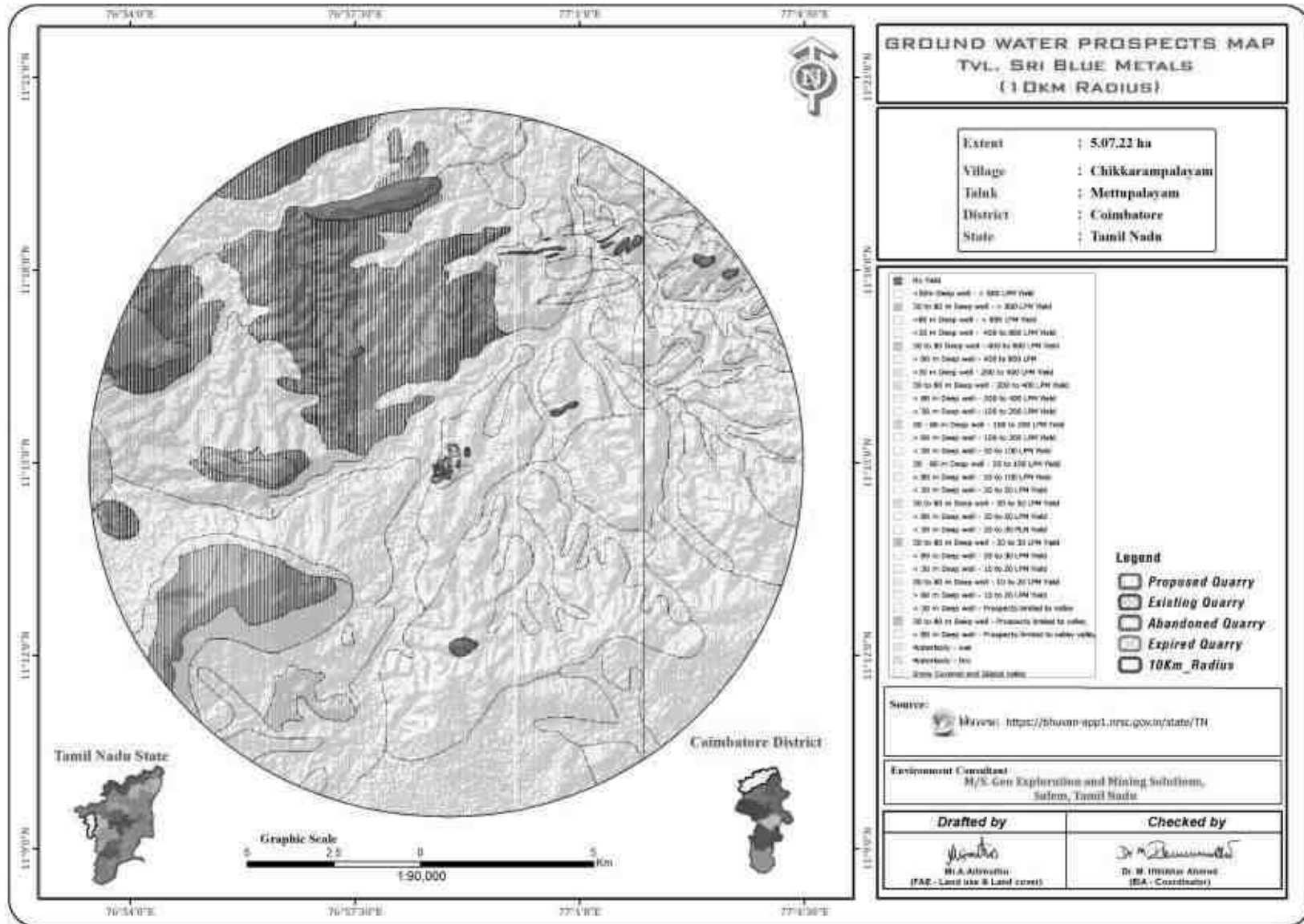


FIGURE 3.13: GROUND WATER PROSPECT MAP



3.2.5.1 Methodology and Data Acquisition

Electric Resistivity Method is well established for delineating lateral as well vertical discontinuities in the resistive structure of the Earth's subsurface. The present study makes use of vertical electric sounding (VES) to delineate the Vertical Resistivity structure at depth. Schlumberger electrode set up was employed for making sounding measurements. Since it is least influenced by lateral inhomogeneities and is capable of providing higher depth of investigation. This is four electrodes collinear set up where in the outer electrodes send current into the ground and the inner electrodes measure the potential difference.

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

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

$$\rho_a = \frac{GAV}{I}$$

ΔV = potential difference between receiving electrodes

G = Geometric Factor.

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

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

ρ_r = Resistivity of Rocks

ρ_w = Resistivity of water in pores of rock

F = Formation Factor

\emptyset = Fractional pore volume

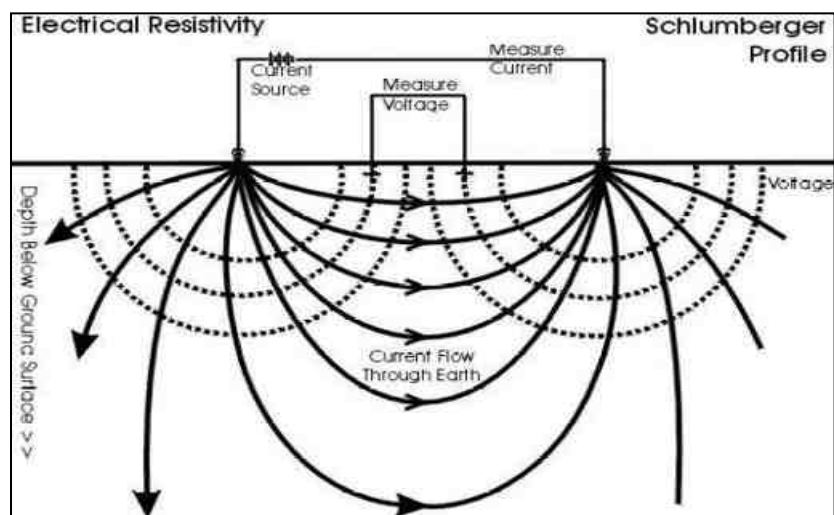
A = Constants with values ranging from 0.5 to 2.5

3.2.5.2 Survey Layout

The layout for a resistivity survey depends on the choice of the current and potential electrode arrangement, which is called electrode array. Here the present study is considered with Schlumberger array. In which the distance may be used for current electrode separation while potential electrode separation is kept on third to one fifth of the same. One interesting aspect in VES is the principle of reciprocity, which permits interchange of the potential and current electrode without any effect on the measured apparent resistivity.

The field equipment deployed for the study is in a deep resistivity meter with a model of SSR – MP – AT. This Signal stacking Resistivity meter is a high-quality data acquisition system incorporating several innovation features for Earth resistivity. In the presence of random earth Noises the signal to noise ratio can be enhanced by \sqrt{N} where N is the number of stacked readings. This SSR meter in which running averages of measurements $[1, (1+2)/2, (1+2+3)/3 \dots (1+2\dots+16/16)]$ 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 70-65m. The maximum depth proposed out of proposed projects is 42m 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.

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 sources of air pollution in the region are mostly due to vehicular traffic, dust arising from unpaved village road and domestic & agricultural activities. 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.

This section describes the identification of sampling locations, methodology adopted during the monitoring period and sampling frequency.

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 –

Coimbatore is 421m above sea level. Coimbatore's climate is classified as tropical. The summers here have a good deal of rainfall, while the winters have very little rain. This location is classified as Aw by Köppen and Geiger. In Coimbatore –

- The average annual temperature is 25.4°C | 77.8°F.
- The annual rainfall here is around 952mm | 37.5 inch.
- The driest month is January with 13mm | 0.5 inch of rainfall. The greatest amount of precipitation occurs in October, with an average of 181mm | 7.1 inch.
- The warmest month of the year is April, with an average temperature of 28.9°C | 84.1°F. The lowest average temperatures in the year occur in December, when it is around 23.2°C | 73.7°F.
- The difference in precipitation between the driest month and the wettest month is 168 mm | 7 inch. The variation in annual temperatures throughout the year is 5.8°C | 42.4°F.

Source: <https://en.climate-data.org/asia/india/tamil-nadu/coimbatore-2788/>

Rainfall –

TABLE 3.13: RAINFALL DATA

Actual Rainfall in mm									Normal Rainfall in mm
2013	2014	2015	2016	2017	2018	2019	2020	2021	
901.0	1221.7	992.9	505.5	873.4	1302.0	1272.4	1585.3	2119.1	1213.2

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

TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE

S.No	Parameters		Dec - 2022	Jan - 2023	Feb - 2023
1	Temperature (°C)	Max	28.5	28.1	25.9
		Min	25.3	24.3	23.3
		Avg.	26.9	26.2	24.6
2	Relative Humidity (%)	Avg.	71.3	74.5	74.8
3	Wind Speed (m/s)	Max	8.750	3.681	3.125
		Min	1.459	0.833	0.000
		Avg.	5.104	2.257	1.562
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind direction		SSW,SW	NNE,NE	NE,NNE

Source: On-site monitoring/sampling by EHS360 Labs Private Limited in association with GEMS

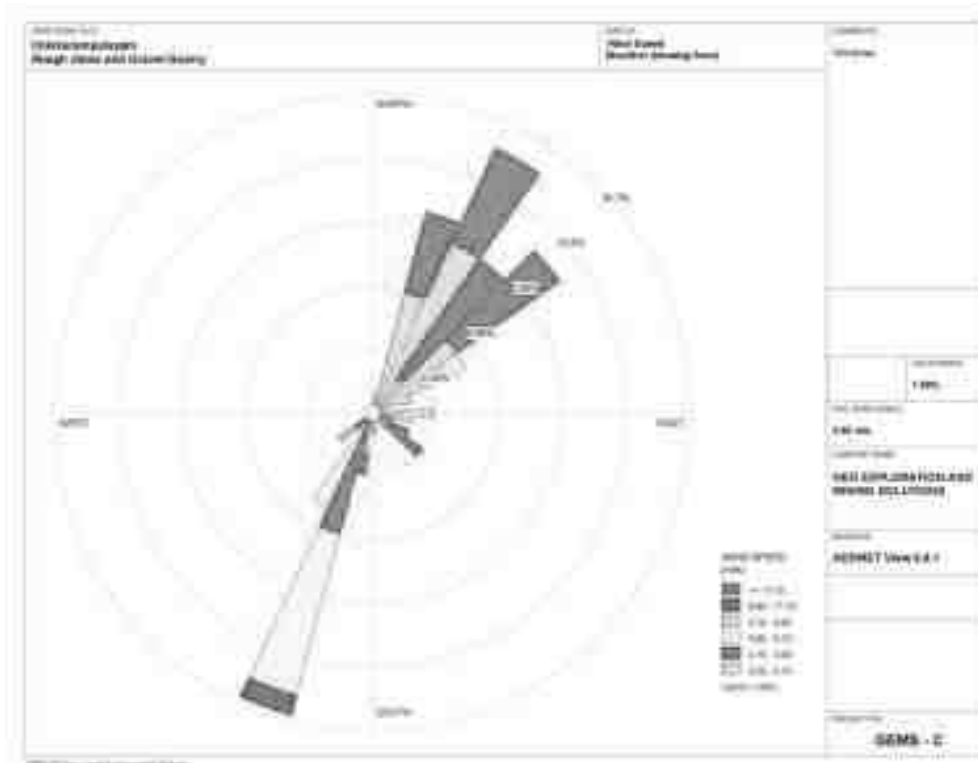
Correlation between Secondary and Primary Data

The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Coimbatore_Agro. A comparison of site data generated during the three months with that of IMD, Coimbatore_Agro reveals the following:

- The average maximum and minimum temperatures of IMD, Coimbatore_Agro showed a higher in respect of on-site data i.e. in Chikkirampalayam village.
- The relative humidity levels were lesser at site as compared to IMD, Coimbatore_Agro.
- The wind speed and direction at site shows similar trend that of IMD, Coimbatore_Agro.

Wind rose diagram of the study site is depicted in Figure. 3.14. Predominant downwind direction of the area during study season is North-East to South West.

FIGURE 3.14: 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- SW
2. Wind velocity readings were recorded between 0.50 to 11.10 m/s
3. Calm conditions prevail of about 1.09 % of the monitoring period
4. Temperature readings ranging from 23.3 to 28.5 °C
5. Relative humidity ranging from 71.3 to 74.8 %
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 EHS360 Labs Private Limited & CPCB Notification

TABLE 3.16: NATIONAL AMBIENT AIR QUALITY STANDARDS

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

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

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

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

3.3.4 Frequency & Parameters for Sampling

Ambient air quality monitoring has been carried out with a frequency of two samples per week at eight (8) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period December 2022 – February 2023. The baseline data of ambient air has been generated for PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂) & Nitrogen Dioxide (NO₂) Monitoring has been carried out as per the CPCB, MoEF guidelines and notifications.

It was ensured that 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

Nine (9) 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	AAQ1	Core Zone	Project Area	11°14'57.00"N 76°58'50.27"E
2	AAQ2	Core Zone	Near Existing Quarry	11°14'52.94"N 76°58'59.44"E
3	AAQ3	Therampalayam	1.8m North East	11°16'19.49"N 76°59'53.69"E
4	AAQ4	Karamadai	1.4 Km South West	11°14'22.79"N 76°57'45.77"E
5	AAQ5	Onnipalayam	4.2Km South East	11°12'25.30"N 77° 00'4.25"E
6	AAQ6	Bellaipalayam	5.5km North East	11°17'39.15"N 77° 1'17.60"E
7	AAQ7	Bodithimmampalayam	8.2km South East	11°15'19.84"N 76°57'15.75"E
8	AAQ8	Bettadapuram	2.7Km South West	11°13'31.86"N 76°57'27.03"E
9	AAQ9	Vadavalli	1.3km East	11°14'59.22"N 77° 0'23.93"E

Source: On-site monitoring/sampling by EHS360 Labs Private Limited in association with GEMS.

FIGURE 3.15: AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

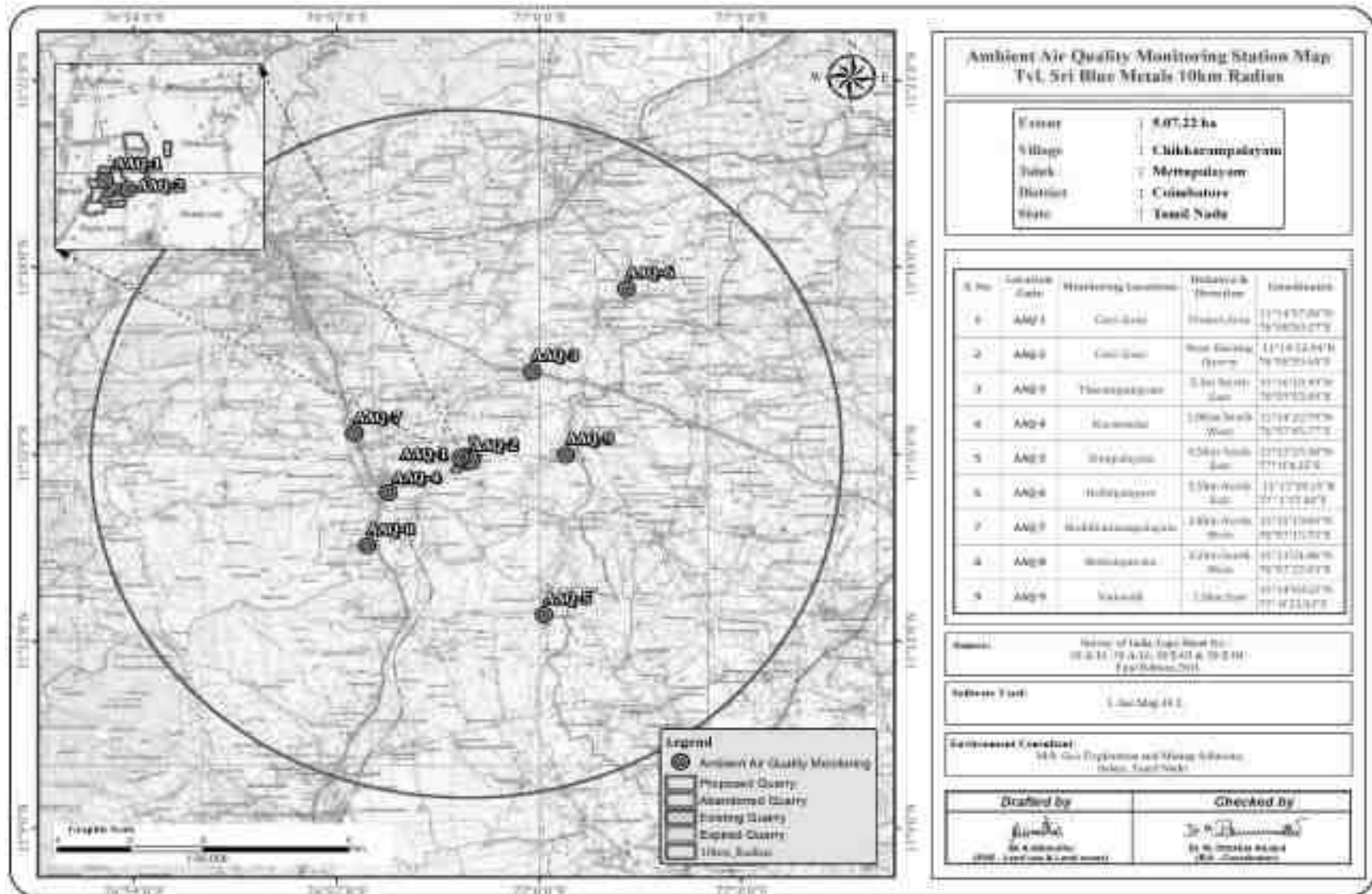


TABLE 3.18 AMBIENT AIR QUALITY DATA LOCATION AAQ1:-

Period: December 2022 – February 2023

Location: AAQ1- Project Area

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM _{2.5}	PM ₁₀	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
05.12.2022	07.00-07.00	62.9	19.9	44.2	7.1	19.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	07.15-07.15	62.7	19.7	44.5	6.9	18.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	07.00-07.00	62.5	19.6	43.2	6.2	19.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	07.15-07.15	64.7	19.4	43.8	6.4	19.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	07.00-07.00	65.2	19.3	43.5	6.5	18.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	07.15-07.15	65.1	19.9	43.2	6.9	19.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	07.00-07.00	64.0	19.5	43.8	6.7	18.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	07.15-07.15	64.3	19.2	43.5	6.0	19.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	07.00-07.00	64.9	18.7	43.2	7.2	18.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	07.15-07.15	64.2	18.3	42.9	7.6	18.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	07.00-07.00	64.8	20.2	42.2	6.6	18.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	07.15-07.15	63.7	19.5	43.2	7.5	19.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	07.00-07.00	65.5	18.9	42.8	6.5	19.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	07.15-07.15	64.8	19.1	43.5	6.1	19.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	07.00-07.00	64.1	19.6	43.1	6.5	19.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	07.15-07.15	62.9	19.7	44.8	6.3	20.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	07.00-07.00	65.2	19.9	43.2	6.5	18.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	07.15-07.15	65.4	19.5	45.6	6.9	19.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	07.00-07.00	66.3	19.6	45.5	6.7	20.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	07.15-07.15	64.9	19.3	45.1	6.4	18.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	07.00-07.00	64.7	19.2	44.5	6.1	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	07.15-07.15	65.2	19.3	44.0	6.5	19.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	07.00-07.00	65.8	19.4	44.3	6.6	18.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	07.15-07.15	64.3	19.6	43.6	6.2	19.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.19 AMBIENT AIR QUALITY DATA LOCATIO NAAQ2-:

Period: December 2022 – February 2023

Location: AAQ2- Core zone

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m ³			Gaseous Pollutants, µg/m ³					Other Pollutants (Particulate Phase) , µg/m ³				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , ng/m ³	BaP, ng/m ³
NAAQ Norms*		(24 hrs)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
05.12.2022	07.15-07.15	57.3	19.8	39.3	7.3	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	07.30-07.30	57.9	20.1	41.5	7.1	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	07.15-07.15	58.3	20.3	39.6	7.6	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	07.30-07.30	58.6	18.5	40.7	7.2	21.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	07.15-07.15	58.1	18.8	41.3	7.5	22.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	07.30-07.30	58.7	18.7	39.8	7.6	21.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	07.15-07.15	57.4	18.2	38.9	7.3	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	07.30-07.30	57.9	20.7	40.4	7.5	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	07.15-07.15	57.3	20.0	42.6	7.6	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	07.30-07.30	57.1	20.3	41.2	7.4	22.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	07.15-07.15	58.7	19.9	40.2	7.8	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	07.30-07.30	58.6	19.3	41.5	7.3	21.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	07.15-07.15	58.4	19.5	42.2	7.2	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	07.15-07.15	59.2	20.6	41.9	7.2	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	07.00-07.00	56.6	20.5	41.3	7.4	22.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	07.15-07.15	56.1	20.7	40.2	7.6	22.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	07.00-07.00	56.7	19.2	40.5	7.7	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	07.15-07.15	56.2	20.3	41.7	7.3	21.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	07.00-07.00	56.1	21.9	41.3	7.5	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	07.15-07.15	55.9	20.1	41.5	7.6	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	07.00-07.00	55.7	20.7	41.5	7.9	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	07.15-07.15	56.7	21.2	40.2	8.2	20.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	07.00-07.00	56.2	20.3	40.3	7.7	20.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	07.15-07.15	56.8	19.9	40.7	7.6	20.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.20 AMBIENT AIR QUALITY DATA LOCATION AAQ3-:

Period: December 2022 – February 2023

Location : AAQ3- Therampalayam (NE)

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase) , $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs.)	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
05.12.2022	07.15-07.15	65.6	19.7	43.2	5.3	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	07.30-07:30	65.5	19.6	41.8	5.7	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	07.15-07.15	65.9	18.4	42.6	5.9	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	07.30-07:30	65.1	21.6	43.5	6.3	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	07.15-07.15	66.3	19.6	40.9	6.8	22.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	07.30-07:30	66.7	20.4	41.6	6.4	22.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	07.15-07.15	66.2	21.6	40.1	6.9	22.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	07.30-07:30	67.1	18.6	41.7	6.8	23.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	07.15-07.15	66.3	18.5	42.5	6.7	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	07.30-07:30	66.2	19.7	41.8	6.2	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	07.15-07.15	65.1	20.5	41.9	7.3	22.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	07.30-07:30	66.7	21.6	42.4	7.5	22.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	07.15-07.15	64.3	21.8	40.6	7.6	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	07.15-07.15	64.7	19.6	40.3	7.9	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	07.00-07.00	65.0	19.7	40.7	7.1	23.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	07.15-07.15	63.6	21.5	41.8	6.6	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	07.00-07.00	64.6	20.4	42.2	6.8	22.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	07.15-07.15	64.2	18.8	42.4	6.9	22.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	07.00-07.00	65.9	19.7	41.6	6.1	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	07.15-07.15	66.1	21.5	41.8	6.7	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	07.00-07.00	66.7	20.9	40.7	5.9	22.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	07.15-07.15	66.3	22.1	43.3	6.8	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	07.00-07.00	66.1	21.7	42.7	7.3	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	07.15-07.15	65.8	20.8	40.8	7.5	24.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.21 AMBIENT AIR QUALITY DATA LOCATIO NAAQ4-:

Period: December 2022 – February 2023

Location: AAQ4 – Karamadai (SW)

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m ³			Gaseous Pollutants, µg/m ³					Other Pollutants (Particulate Phase) , µg/m ³				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , ng/m ³	BaP, ng/m ³
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
05.12.2022	07.00-07.00	62.3	19.6	40.5	5.3	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	07.15-07:15	62.6	18.9	39.2	5.5	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	07.00-07.00	62.4	18.5	40.6	5.6	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	07.15-07:15	62.7	18.2	41.0	5.8	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	07.00-07.00	62.9	18.1	40.8	5.1	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	07.15-07:15	63.6	18.9	41.5	5.9	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	07.00-07.00	63.7	19.1	40.1	5.3	22.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	07.15-07:15	63.8	19.5	41.7	5.2	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	07.00-07.00	63.6	19.8	40.0	5.2	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	07.15-07:15	63.4	19.5	40.1	5.8	22.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	07.00-07.00	62.8	18.3	40.9	5.2	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	07.15-07:15	62.7	18.8	40.4	5.4	21.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	07.00-07.00	62.1	19.6	40.6	5.6	21.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	07.15-07.15	62.5	18.1	40.9	5.4	20.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	07.00-07.00	61.3	19.9	40.2	5.3	20.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	07.15-07.15	61.7	18.5	41.7	5.1	20.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	07.00-07.00	61.9	18.3	40.1	5.8	22.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	07.15-07.15	64.3	18.8	41.6	5.6	22.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	07.00-07.00	64.6	19.2	41.5	5.1	22.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	07.15-07.15	64.1	18.5	40.8	5.5	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	07.00-07.00	63.2	19.8	41.1	5.6	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	07.15-07.15	63.9	19.6	41.5	5.4	23.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	07.00-07.00	63.4	19.2	40.3	5.2	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	07.15-07.15	63.7	18.6	40.9	5.7	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.22 AMBIENT AIR QUALITY DATA LOCATIO NAAQ5:-

Period: December 2022 – February 2023

Location: AAQ5- Onnipalayam (SE)

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m ³			Gaseous Pollutants, µg/m ³					Other Pollutants (Particulate Phase) , µg/m ³				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , ng/m ³	BaP, ng/m ³
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
05.12.2022	07:30-07:30	66.3	20.7	41.3	8.3	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	07:45-07:45	66.4	20.4	42.4	8.5	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	07:30-07:30	65.2	21.5	41.8	8.7	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	07:45-07:45	65.8	20.9	42.4	8.1	24.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	07:30-07:30	63.2	20.5	44.3	8.6	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	07:45-07:45	63.7	21.9	43.7	8.7	22.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	07:30-07:30	64.6	21.7	40.6	7.3	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	07:45-07:45	64.8	21.5	42.5	8.5	24.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	07:30-07:30	64.2	20.6	43.6	7.2	23.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	07:45-07:45	64.3	20.8	42.7	7.1	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	07:30-07:30	64.7	20.4	41.6	7.6	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	07:45-07:45	63.2	21.3	42.9	7.8	22.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	07:30-07:30	63.8	20.8	43.8	7.1	24.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	07.15-07.15	64.6	21.7	42.5	7.8	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	07.00-07.00	64.8	21.6	41.9	6.6	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	07.15-07.15	64.1	22.8	41.3	6.3	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	07.00-07.00	63.2	21.2	42.7	6.1	23.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	07.15-07.15	63.7	21.3	41.3	6.5	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	07.00-07.00	63.1	20.5	43.6	6.8	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	07.15-07.15	64.3	20.3	42.5	6.5	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	07.00-07.00	64.8	21.7	44.8	7.6	23.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	07.15-07.15	63.7	21.3	42.5	7.1	23.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	07.00-07.00	63.1	20.8	41.3	7.8	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	07.15-07.15	65.5	21.5	42.7	7.1	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.23 AMBIENT AIR QUALITY DATA LOCATIO NAAQ6-:

Period: December 2022 – February 2023

Location: AAQ6 – Bellaipalayam (NE)

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m ³			Gaseous Pollutants, µg/m ³					Other Pollutants (Particulate Phase) , µg/m ³				
Date	Period, hrs.	SP/m	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , ng/m ³	BaP, ng/m ³
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
05.12.2022	08:00-08:00	65.3	18.3	39.5	6.2	22.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	08:15-08:15	65.7	18.8	39.2	6.5	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	08:00-08:00	65.6	19.4	38.5	6.4	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	08:15-08:15	65.7	18.9	38.8	6.8	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	08:00-08:00	66.1	18.3	38.6	6.8	24.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	08:15-08:15	66.2	19.7	38.7	7.2	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	08:00-08:00	66.7	19.7	39.6	7.5	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	08:15-08:15	66.2	18.2	39.8	7.4	22.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	08:00-08:00	66.5	19.8	38.6	7.5	23.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	08:15-08:15	65.8	20.3	38.1	7.7	22.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	08:00-08:00	65.9	19.3	38.5	7.4	22.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	08:15-08:15	65.7	20.1	38.4	7.1	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	08:00-08:00	66.8	20.2	39.2	6.8	21.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	07.15-07.15	66.9	20.4	39.3	6.5	22.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	07.00-07.00	67.5	20.9	39.2	6.6	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	07.15-07.15	67.3	20.3	39.6	7.2	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	07.00-07.00	67.8	19.5	39.7	7.6	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	07.15-07.15	66.5	19.7	38.2	7.9	22.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	07.00-07.00	66.7	19.4	39.5	7.2	23.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	07.15-07.15	66.8	19.5	38.3	7.1	22.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	07.00-07.00	67.3	20.3	38.5	6.2	23.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	07.15-07.15	67.9	20.7	39.5	6.5	22.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	07.00-07.00	67.1	20.2	39.3	6.5	21.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	07.15-07.15	67.5	18.3	40.5	6.8	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

Legend: **PM2.5**-Particulate Matter size less than 2.5 µm; **PM10**-Respirable Particulate Matter size less than 10 µm; **SO₂**-Sulphur dioxide; **NO_x**-Oxides of Nitrogen; **NH₃**-Ammonia; **O₃**-Ozone; **CO**-Carbon monoxide; **Pb**-Particulate Lead; **As**-Particulate Arsenic; **Ni**-Particulate Nickel; **C₆H₆**-Benzene & **BaP**- Benzo (a) pyrene in particulate phase **NAAQ Norms**-National Ambient Air Quality Norms-

Revised as per GSR 826(E) dated 16.11.2009 for Industrial, Residential, Rural and other Area.

TABLE 3.24 AMBIENT AIR QUALITY DATA LOCATIO NAAQ7-:

Period: December 2022 – February 2023

Location: AAQ7 – Bodithimmampalayam (S)

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m ³			Gaseous Pollutants, µg/m ³					Other Pollutants (Particulate Phase) , µg/m ³				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , ng/m ³	BaP, ng/m ³
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
05.12.2022	08:00-08:00	60.9	20.4	41.7	6.9	20.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	08:15-08:15	60.7	20.9	40.9	6.4	20.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	08:00-08:00	61.3	20.3	40.3	6.3	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	08:15-08:15	61.7	20.5	41.7	6.8	21.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	08:00-08:00	61.6	20.7	42.3	6.6	21.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	08:15-08:15	61.2	20.6	41.7	7.2	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	08:00-08:00	60.7	21.3	40.2	7.7	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	08:15-08:15	68.6	21.4	42.6	7.5	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	08:00-08:00	69.2	21.8	40.5	7.8	21.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	08:15-08:15	69.7	21.5	41.3	7.5	20.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	08:00-08:00	69.2	21.9	41.7	7.8	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	08:15-08:15	69.3	21.3	42.3	6.3	20.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	08:00-08:00	69.1	20.9	41.3	6.8	20.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	07.15-07.15	60.2	20.1	42.7	6.7	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	07.00-07.00	60.7	22.5	42.9	6.9	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	07.15-07.15	61.2	21.9	41.6	7.9	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	07.00-07.00	61.7	23.3	43.5	7.3	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	07.15-07.15	61.3	24.6	42.3	7.2	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	07.00-07.00	61.7	22.8	41.9	6.8	20.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	07.15-07.15	62.2	21.8	43.3	7.5	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	07.00-07.00	62.8	25.3	42.5	7.6	20.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	07.15-07.15	62.7	23.9	44.7	7.7	21.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	07.00-07.00	62.9	23.4	43.6	7.8	20.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	07.15-07.15	61.1	21.6	42.8	7.9	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.25 AMBIENT AIR QUALITY DATA LOCATIO NAAQ8-:

Period: December 2022 – February 2023

Location: AAQ8 – Bettadapuram (SW)

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m ³			Gaseous Pollutants, µg/m ³					Other Pollutants (Particulate Phase) , µg/m ³				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , ng/m ³	BaP, ng/m ³
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
05.12.2022	08:00-08:00	59.3	18.7	40.3	6.3	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	08:15-08:15	58.6	19.6	39.6	6.4	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	08:00-08:00	57.3	19.7	39.7	6.5	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	08:15-08:15	57.8	19.5	39.5	6.1	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	08:00-08:00	57.3	19.2	38.3	6.7	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	08:15-08:15	57.2	19.3	38.4	6.8	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	08:00-08:00	57.4	19.1	38.2	6.7	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	08:15-08:15	57.1	18.6	38.1	5.3	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	08:00-08:00	57.3	18.7	40.6	5.8	26.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	08:15-08:15	57.9	18.3	40.5	5.9	26.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	08:00-08:00	58.3	20.7	40.7	5.7	26.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	08:15-08:15	58.6	20.7	40.5	5.6	26.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	08:00-08:00	56.8	19.3	40.6	5.1	26.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	07.15-07.15	56.2	19.7	40.8	6.2	26.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	07.00-07.00	56.7	19.6	39.7	6.7	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	07.15-07.15	56.9	19.8	39.5	6.8	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	07.00-07.00	58.9	20.3	39.1	6.5	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	07.15-07.15	58.4	20.4	40.2	6.6	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	07.00-07.00	57.3	20.9	40.3	6.1	24.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	07.15-07.15	57.6	19.6	40.7	5.7	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	07.00-07.00	57.1	19.8	40.5	5.3	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	07.15-07.15	56.8	18.3	41.6	5.8	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	07.00-07.00	56.2	18.2	41.7	5.9	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	07.15-07.15	56.8	18.7	41.3	5.1	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

Legend: **PM2.5**-Particulate Matter size less than 2.5 µm; **PM10**-Respirable Particulate Matter size less than 10 µm; **SO₂**-Sulphur dioxide; **NO_x**-Oxides of Nitrogen; **NH₃**-Ammonia; **O₃**-Ozone; **CO**-Carbon monoxide; **Pb**-Particulate Lead; **As**-Particulate Arsenic; **Ni**-Particulate Nickel; **C₆H₆**-Benzene & **BaP**- Benzo (a) pyrene in particulate phase **NAAQ Norms**-National Ambient Air Quality Norms-

Revised as per GSR 826(E) dated 16.11.2009 for Industrial, Residential, Rural and other Area.

TABLE 3.26 AMBIENT AIR QUALITY DATA LOCATIO NAAQ9-:

Period: December 2022 – February 2023

Location: AAQ9 – Vadavalli

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m ³			Gaseous Pollutants, µg/m ³					Other Pollutants (Particulate Phase) , µg/m ³				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , ng/m ³	BaP, ng/m ³
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
05.12.2022	08:00-08:00	65.9	23.8	48.2	7.6	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	08:15-08:15	66.7	24.6	47.6	7.4	24.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	08:00-08:00	62.9	25.7	45.7	7.5	25.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	08:15-08:15	62.4	23.6	45.5	6.8	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	08:00-08:00	63.5	23.1	42.8	7.2	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	08:15-08:15	63.6	24.7	44.9	7.1	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	08:00-08:00	62.4	25.9	46.5	8.2	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	08:15-08:15	63.8	23.9	44.4	8.8	24.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	08:00-08:00	66.4	24.3	45.7	7.6	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	08:15-08:15	65.8	25.1	43.6	7.7	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	08:00-08:00	65.5	25.3	42.8	7.2	23.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	08:15-08:15	64.9	24.7	45.4	7.1	22.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	08:00-08:00	63.7	23.2	46.7	7.9	24.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	07.15-07.15	64.8	25.8	46.9	6.6	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	07.00-07.00	62.8	23.6	45.7	6.4	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	07.15-07.15	63.5	24.9	45.9	6.2	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	07.00-07.00	64.7	22.8	42.7	6.3	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	07.15-07.15	65.2	23.7	43.6	6.9	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	07.00-07.00	65.9	21.6	43.5	6.6	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	07.15-07.15	64.4	22.5	43.6	7.7	24.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	07.00-07.00	63.2	23.6	42.5	6.6	25.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	07.15-07.15	65.8	25.4	44.6	7.1	23.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	07.00-07.00	65.2	25.8	46.8	7.0	25.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	07.15-07.15	63.4	22.9	46.7	7.5	24.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.27: SUMMARY OF AAQ – 1 to AAQ – 9

PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8	AAQ9
Arithmetic Mean	19.8	19.9	20.3	19.1	21.1	21.0	21.0	18.7	23.35
Minimum	19.6	19.8	19.7	18.6	20.7	20.4	20.4	18.7	24.6
Maximum	19.9	19.9	20.8	19.6	21.5	21.6	21.6	18.7	23.8
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60

PM10	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8	AAQ9
Arithmetic Mean	43.9	40.0	20.3	40.7	42.0	40.0	42.3	40.8	47.45
Minimum	43.6	39.3	40.8	40.5	41.3	39.5	41.7	40.3	46.7
Maximum	44.2	40.7	43.2	40.9	42.7	40.5	42.8	41.3	48.2
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100

SO₂	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8	AAQ9
Arithmetic Mean	6.7	7.5	6.4	5.5	7.7	6.5	7.4	5.7	7.55
Minimum	6.2	6.2	5.3	5.3	7.1	6.2	6.9	5.1	7.5
Maximum	7.1	7.6	7.5	5.7	8.3	6.8	7.9	6.3	7.6
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	100

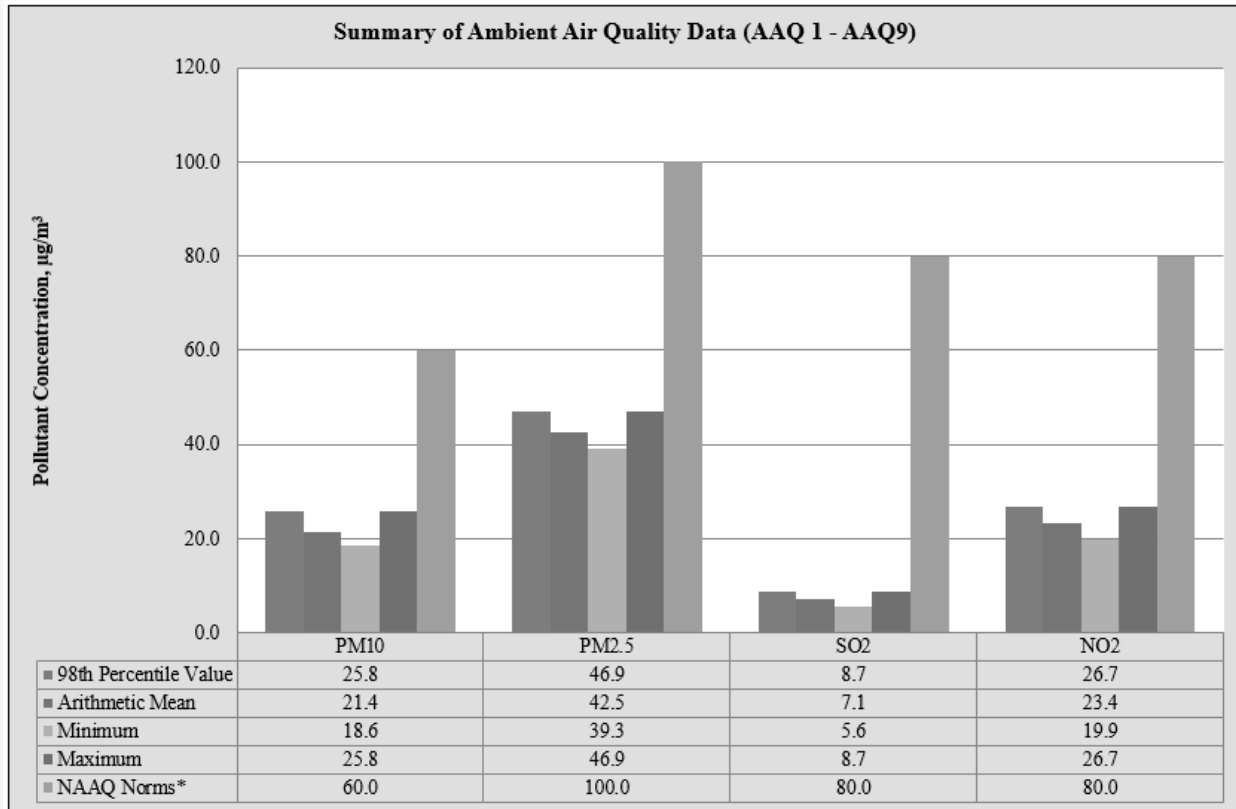
NO₂	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8	AAQ9
Arithmetic Mean	19.1	20.7	24.3	22.7	23.9	23.2	21.1	25.1	24.25
Minimum	19.1	20.1	23.6	21.3	23.7	22.6	20.3	25.1	24.2
Maximum	19.1	21.3	24.9	24.1	24.1	23.7	21.8	25.1	24.3
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	100

TABLE 3.28: ABSTRACT OF AMBIENT AIR QUALITY DATA

1	Parameter	PM2.5	PM10	SO₂	NO₂
2	No. of Observations	260	260	260	260
3	10 th Percentile Value	18.6	39.3	5.6	19.9
4	20 th Percentile Value	19.2	40.1	6.1	21.1
5	30 th Percentile Value	19.5	40.5	6.4	21.5
6	40 th Percentile Value	19.7	41.0	6.6	22.1
7	50 th Percentile Value	20.3	41.6	6.8	22.8

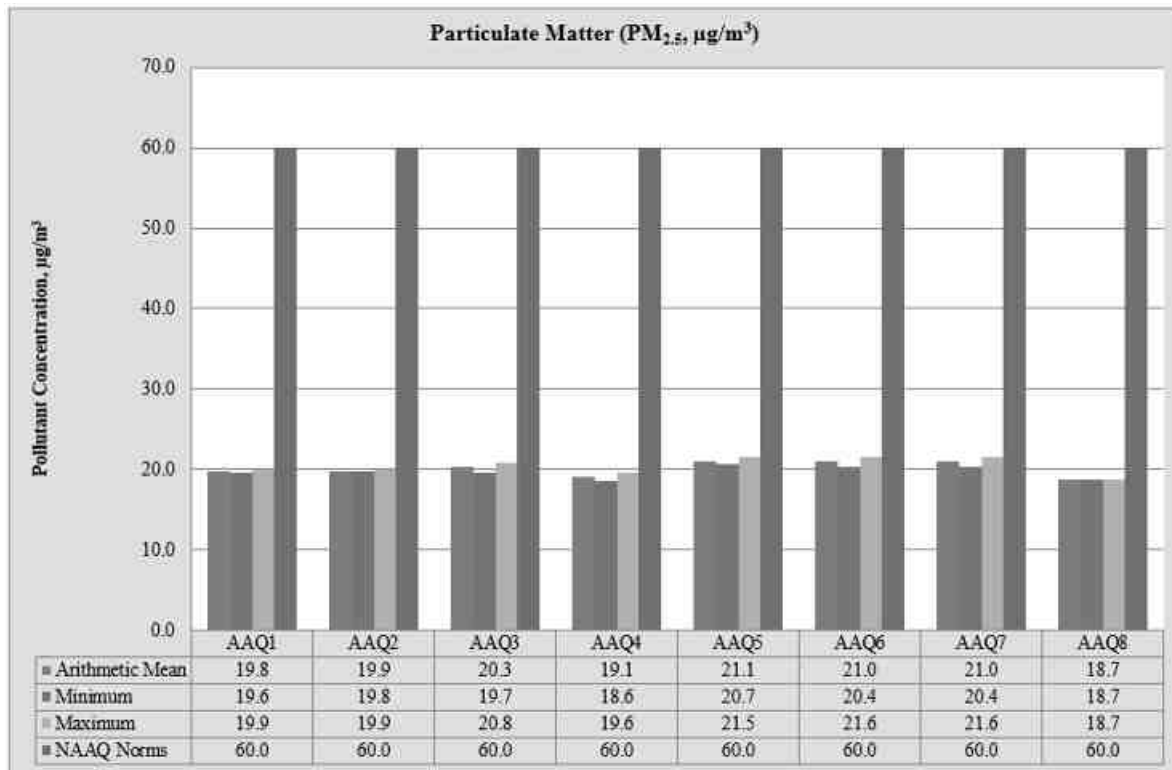
8	60 th Percentile Value	20.6	41.9	7.1	23.5
9	70 th Percentile Value	21.1	42.6	7.3	23.9
10	80 th Percentile Value	21.7	43.3	7.6	24.7
11	90 th Percentile Value	23.6	44.7	7.8	25.3
12	95 th Percentile Value	24.8	45.7	8.1	25.7
13	98 th Percentile Value	25.8	46.9	8.7	26.7
14	Arithmetic Mean	21.4	42.5	7.1	23.4
15	Geometric Mean	21.2	42.4	7.0	23.3
16	Standard Deviation	2.4	2.4	0.9	2.1
17	Minimum	18.6	39.3	5.6	19.9
18	Maximum	25.8	46.9	8.7	26.7
19	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 – AAQ 9



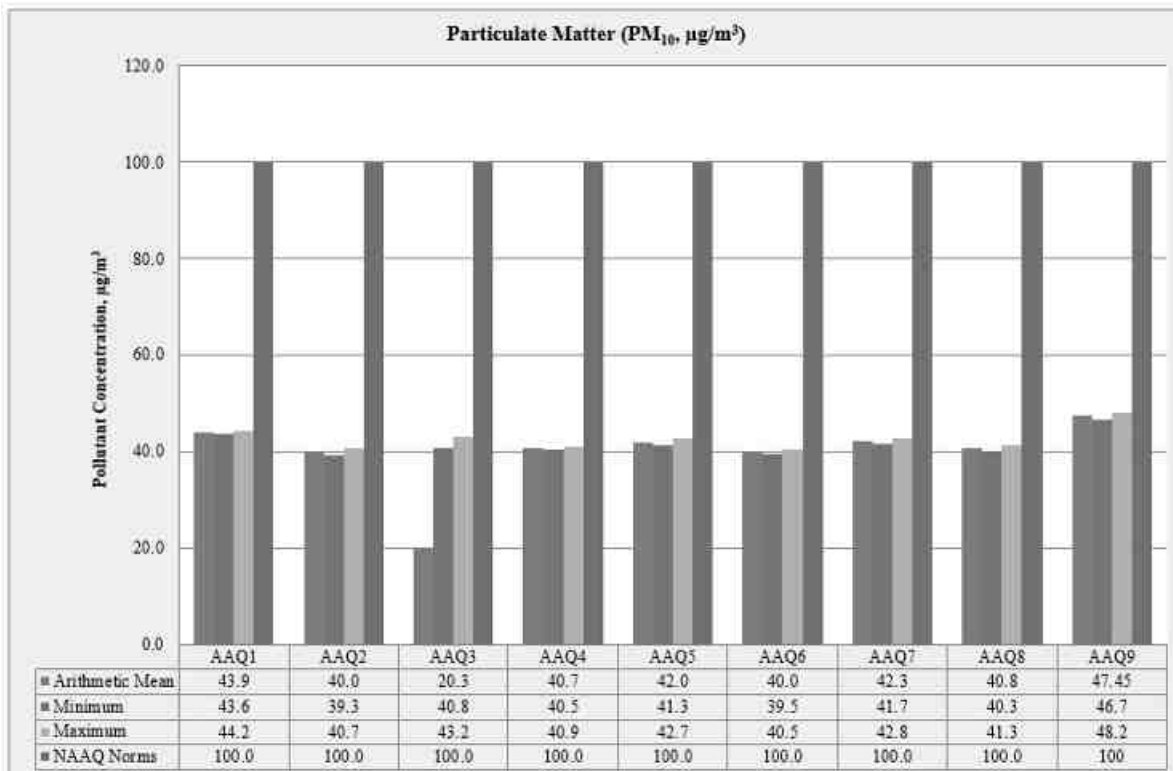
Source: Table 3.17 to 3.27

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



Source: Table 3.17 to 3.27

FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER PM₁₀



Source: Table 3.17 to 3.27

3.3.6 Interpretations & Conclusion

As per monitoring data, PM₁₀ ranges from 38.1 µg/m³ to 48.2 µg/m³, PM_{2.5} data ranges from 18.2 µg/m³ to 25.9 µg/m³, SO₂ ranges from 5.1 µg/m³ to 8.8 µg/m³ and NO₂ data ranges from 18.2 µg/m³ to 26.9 µg/m³. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

3.3.7 FUGITIVE DUST EMISSION –

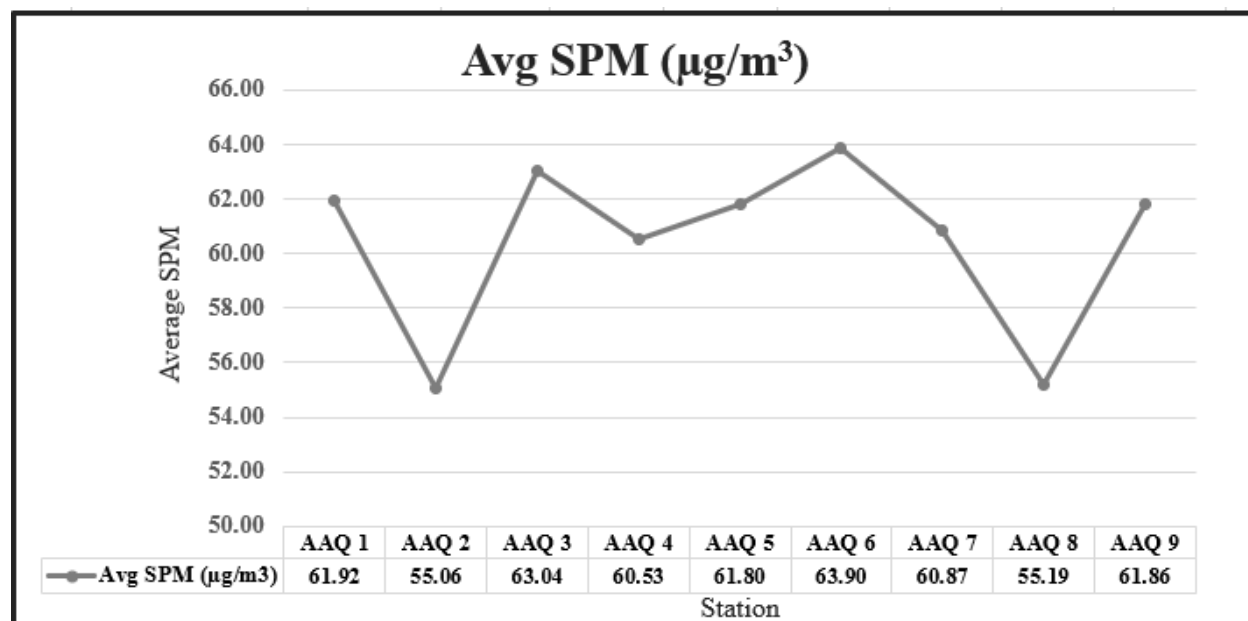
Fugitive dust was recorded at 9AAQ monitoring stations for 30 days average during the study period.

TABLE 3.29: AVERAGE FUGITIVE DUST SAMPLE VALUES

AAQ Locations	Avg SPM (µg/m ³)
AAQ 1	61.92
AAQ 2	55.06
AAQ 3	63.04
AAQ 4	60.53
AAQ 5	61.80
AAQ 6	63.90
AAQ7	60.87
AAQ 8	55.19
AAQ9	61.86

Source: Onsite monitoring/ sampling by EHS360 Labs Private Limited

FIGURE 3.21: LINE DIAGRAM OF AVERAGE SPM VALUES

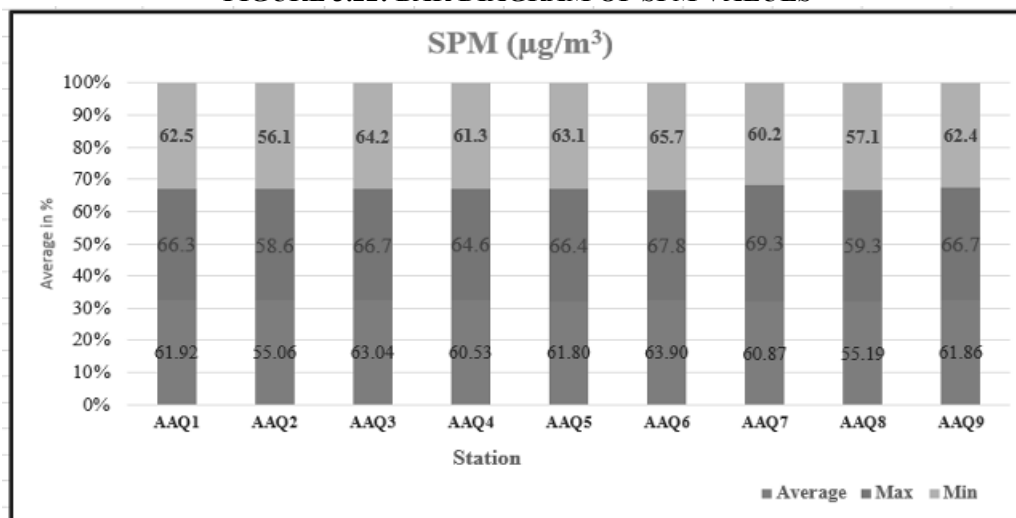


Source: Table 3.28

TABLE 3.30: FUGITIVE DUST SAMPLE VALUES IN µg/m³

SPM (µg/m ³)	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8	AAQ9
Average	61.92	55.06	63.04	60.53	61.80	63.90	60.87	55.19	61.86
Min	66.3	58.6	66.7	64.6	66.4	67.8	69.3	59.3	66.7
Max	62.5	56.1	64.2	61.3	63.1	65.7	60.2	57.1	62.4

Source: Calculations from Lab Analysis Reports

FIGURE 3.22: BAR DIAGRAM OF SPM VALUES

Source: Table 3.29

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 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 3.31: DETAILS OF SURFACE NOISE MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	N1	Core Zone	Project Area	11°14'57.66"N 76°58'50.32"E
2	N2	Core Zone	Project Area	11°15'1.10"N 76°58'51.63"E
3	N3	Core Zone	Near Existing Quarry	11°14'58.87"N 76°59'26.06"E
4	N4	Therampalayam	1.8Km North East	11°16'19.72"N 76°59'53.59"E
5	N5	Bellaipalayam	5.5Km North East	11°17'38.96"N 77° 1'18.44"E
6	N6	Karamadai	1.3Km South West	11°14'21.33"N 76°57'47.97"E
7	N7	Onnipalayam	4.2Km South East	11°12'25.21"N 77°00'04.15"E

Source: On-site monitoring/sampling by EHS360 Labs Private Limited 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,

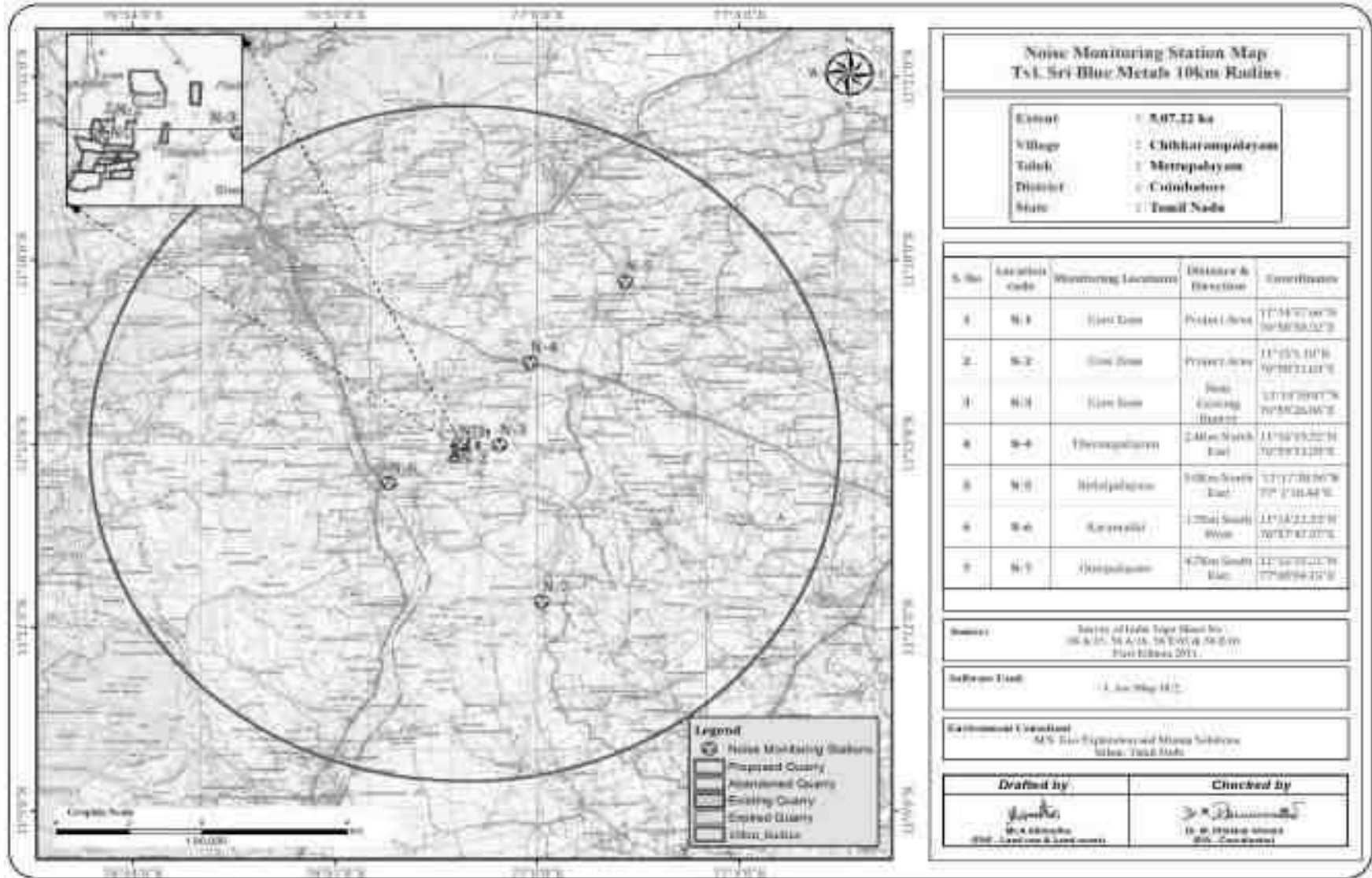
$$Leq = 10 \text{ Log } L / T \sum (10L_n/10)$$

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

T = Time interval of observation

Measured noise levels, displayed as a function of time, is useful for describing the acoustical climate of the community. Noise levels recorded at each station with a time interval of about 60 minutes 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 3.32: AMBIENT NOISE QUALITY RESULT

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Project Area	41.8	37.1	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Project Area (NE)	39.2	37.9	
3	Near Existing Quarry (E)	39.5	35.3	
4	Therampalayam (NE)	37.6	35.7	
5	Bellaipalayam (NE)	38.6	35.2	Residential Day Time- 55 dB (A) Night Time- 45 dB (A)
6	Karamadai (SW)	39.4	39.2	
7	Onnipalayam (SE)	39.4	35.4	

Source: On-site monitoring/sampling by EHS360 Labs Private Limited in association with GEMS

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

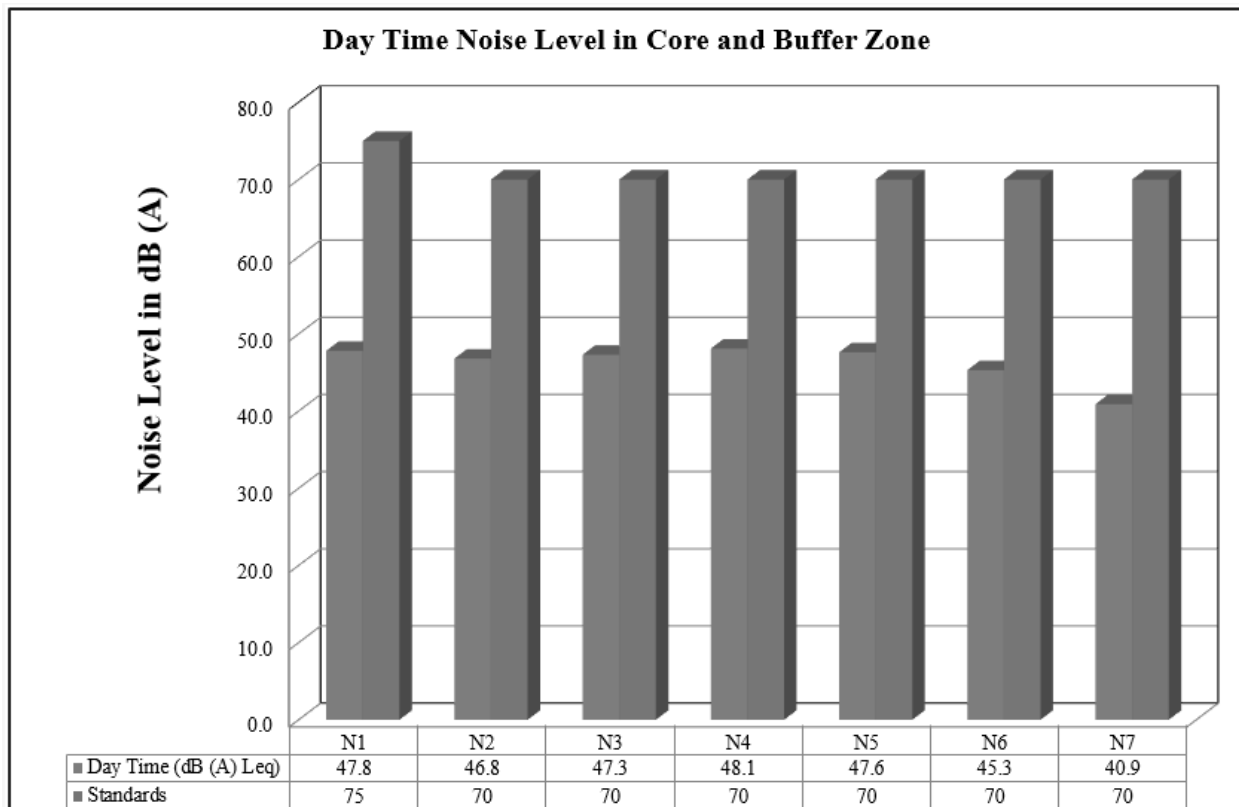
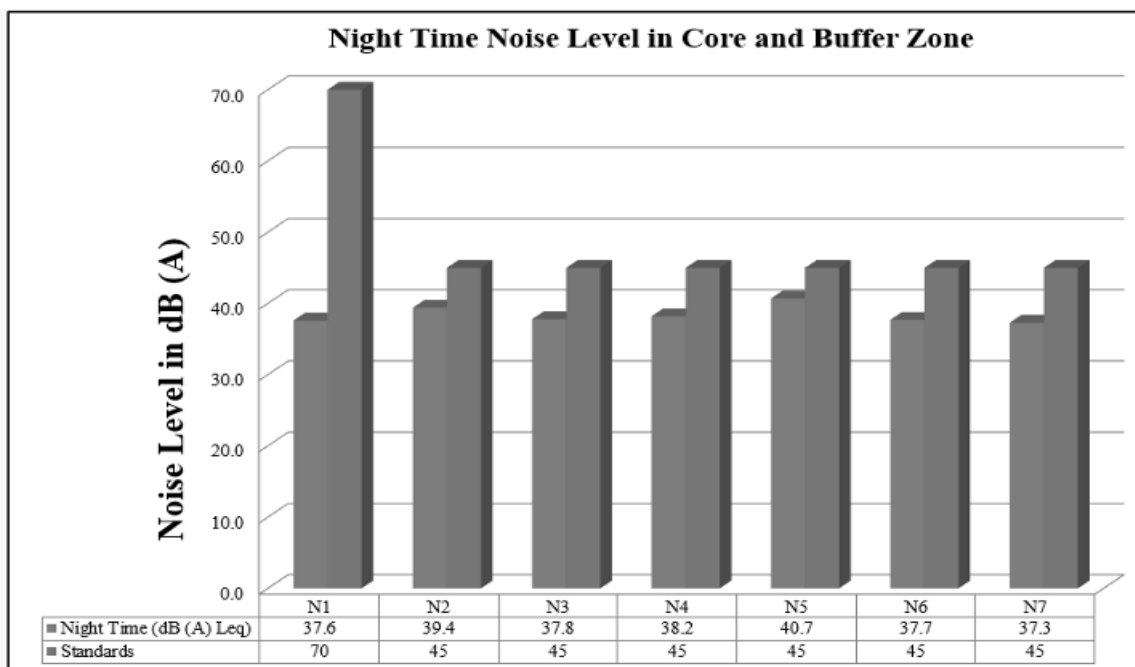


FIGURE 3.25: NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE

3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 7 (Seven) locations around the proposed project area. Noise levels recorded in core zone during day time were from 46.8 to 47.8 dB (A) Leq and during night time were from 37.6 to 39.4 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 40.9 to 48.1 dB (A) Leq and during night time were from 37.3 to 40.7 dB (A) Leq.

Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5 ECOLOGICAL ENVIRONMENT

Ecology is a branch of science which dealing the relations and interactions between organisms and their environment. An ecological survey of the study area was conducted, particularly with reference to listing of species and assessment of the existing baseline ecological conditions in the study area. The main objective of biological study is to collect the baseline data regarding flora and fauna in the study area. Data has been collected through extensive survey of the area with reference to flora and fauna. Information is also collected from different sources i.e. government departments such as District Forest Office, Government of Tamil Nadu. The checklist of flora and fauna was prepared based on the onsite observations as well as forest department records.

3.5.1 Scope of Work

Scope of work for this study includes identification of ecologically sensitive receptors, based on literature survey, field investigations and their mitigation with conservation action plan. The study was carried out in the core as well as buffer zone of the Proposed Rough stone quarry. The study was carried out systematically and scientifically using primary and secondary data in order to bring out factual information on the ecological conditions of the mine site and 10 km radius study area.

The study involved assessment of general habitat type, vegetation pattern, preparation of inventory of flora and fauna of terrestrial ecosystem within 10 km radius from the boundary of all the Proposed Mine site. Biological assessment of the site was done to identify ecologically sensitive areas and whether there are any rare, endangered, endemic or threatened (REET) species of flora & fauna in the core area as well its buffer zone to be impacted. The study also designed to suggest suitable mitigation measures, if necessary, for protection of wildlife habitats and conservation of REET species if any.

3.5.2 Objectives of Biological Studies

The present study was undertaken with the following objectives:

1. To study the likely impact of the proposed mining project on the local biodiversity and to suggest mitigation measure, if required, for vulnerable biota.
2. To assess the nature and distribution of vegetation (Terrestrial and Aquatic) in and around the mining activity.
3. Detail of flora and fauna, Endemic, Rare, Endangered and Threatened (RET Species) separately for core and buffer area based on such primary field survey and clearly indicating the Schedule of fauna present. In case of any schedule- I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished.
4. Devise management & conservation measures for biodiversity.

3.5.3 Methodology of Sampling

The present study was carried out in given steps

1. Field survey was conducted by visual encounter survey for flora present within the 10 km radius study area of all the proposed mine site.
2. After surveying the core and buffer areas, a detailed floral inventory has been compiled. List of all plants of the study area was prepared and their habitats were recorded.
3. Verification of Rare, Endangered and Threatened Flora species from IUCN Red Data Book.
4. Plants and Animals communities were noted.

Site selection criteria: The core study area is located at Village: Chikkirampalayam, Taluk: Mettupalayam, District: Coimbatore, Tamil Nadu. The buffer study area comprises of 10 km radius from all the proposed Rough stone quarry area.

Selection of sampling locations was made with reference to topography, land use, vegetation pattern, etc. The observations were taken on natural vegetation, roadside plantation and non-forest area (agricultural field, in plain areas, village wasteland, etc.) for quantitative representation of different species.

A methodology of Sampling Flora and fauna studies were carried out to assess the list of terrestrial plant and animal species that occur in the core area and the buffer area up to 10 km radius from the project site. No damage is created to flora and fauna during the sampling.

In order to provide representative ecological status for the study area, the 10-km buffer zone has been divided into four quartiles for biodiversity sampling, i.e., NE (Quartile-1), NW (Quartile-2) SW (Quartile-3) and SE (Quartile-4) is given in Fig. 3.26. Each of the quartiles have been examined for representative flora on randomly sampled quadrats for trees (25x25-m), shrubs (10x10-m) and herbs (2x2-m) depending upon prevailing geographical conditions and bio-diversity aspects of study area.

Phyto-sociological Survey method

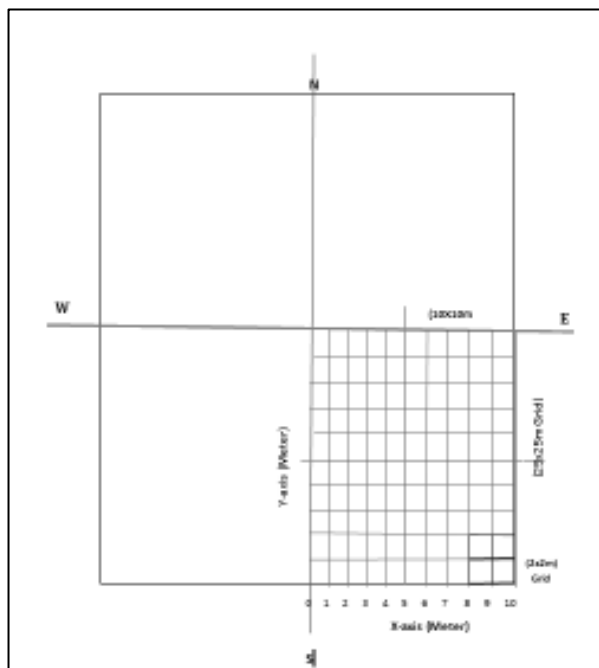
Phyto-sociological parameters, viz., Abundance, Density, Frequency (%) were measured. A total of 10 quadrats were laid down randomly within core area and 40 quadrats were laid down within four quartiles randomly (10/quartile) in buffer area. In core area 10 quadrats were laid randomly to enumerated trees, shrubs, and herbs as per the Following formulae used for calculating the frequency (%), abundance and density of the floral species encountered in the 10 quadrats studied.

Quadrats method

Quadrats of 25 × 25-m were laid down randomly within core and 5-km buffer area; each quadrat was laid to assess the trees (>5 cm GBH) and one, 10 × 10-m sub-quadrat nested within the quadrat for shrubs. The quadrats were laid randomly to cover the area to maximize the sampling efforts and minimize the species homogeneity, such as small stream area, trees in agricultural bunds, tank bunds, farm forestry plantations, wildlife areas, natural forest area, avenue plantations, house backyards, etc. In each quadrat individuals belonging to tree (25 × 25-m) and shrub

(10 × 10-m) were recorded separately and have been identified on the field. Quadrates sampling methods is given in Fig no.3.26.

FIGURE 3.26: A SCHEMATIC DIAGRAM FOR FLORAL RANDOM SAMPLING



FLORA IN CORE ZONE

Taxonomically a total of 27 species belonging to 20 families have been recorded from the core mining lease area. It exhibit plain topography. Based on habitat classification of the enumerated plants the majority of species were Trees 9 (33%) followed by Herb 8 (30%), Shrub 6 (22%) and Climbers 4 (15%). Details of flora with the scientific name were mentioned in Table No. 3.33. The result of core zone of flora studies shows that Fabaceae and Lamiaceae, Amaranthaceae are the main dominating species in the study area it mentioned in Table No.3.33 and the details of diversity of flora family's pattern are given in Fig No.3.27. No species found as threatened category (Table No. 3.33).

FLORA IN BUFFER ZONE

Similar type of environment also in buffer area but with more flora diversity compare than core zone area because nearby agriculture land was found to dominate mostly in all the directions. Majority of the flat landscape around project unit is occupied by agriculture fields. It contains a total of 76 species belonging to 38 families have been recorded from the buffer zone. The floral (76) varieties among them Thirty-five Trees 35 (46%) Twelve Shrubs 12 (16%) and Seventy Herbs 17 (22%) and Climbers Twelve 12 (16%) were identified. The result of buffer zone of flora studies shows that Fabaceae and Cucurbitaceae, Solanaceae are the main dominating species in the study area it mentioned in Table No.3.34.

There is no Rare, Endangered and Threatened Flora species in mining area and their surrounding area. Details of flora with the scientific name were mentioned in Table No.3.34. The diversity of flora families is given in Fig No.3.28.

TABLE 3.33: FLORA IN CORE ZONE

<i>Sl.No</i>	<i>English Name</i>	<i>Vernacular Name</i>	<i>Scientific Name</i>	<i>Family Name</i>
TREES				
1	Acacia Nilotica	Karuvclam maram	<i>Vachellia nilotica</i>	Fabaceae
2	Noni	Nuna maram	<i>Morinda citrifolia</i>	Rubiaceae
3	Mango	Manga	<i>Mangifera indica</i>	Anacardiaceae
4	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	Legumes
5	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae
6	Asian Palmyra plam	Panai maram	<i>Borassus flabellifer</i>	Arecaceae
7	Millettia pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae
8	Mesquite	Velikathan maram	<i>Prosopis juliflora</i>	Fabaceae
9	Coconut	Thennai maram	<i>Cocos nucifera</i>	Arecaceae
SHRUBS				
10	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae
11	Indian mallow	Thuththi	<i>Abutilon indicum</i>	Malvaceae
12	Wild sage	Unichedi	<i>Lantana camara</i>	Verbenaceae
13	Sarphonka	Katu-kolingi	<i>Tephrosia purpurea</i>	Fabaceae
14	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae
15	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
HERBS				
16	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
17	Devil's thorn	Nerunji	<i>Tribulus terrestris</i>	Zygophyllales
18	Yellow-fruit Nightshade	Kantang kathrikai	<i>Solanum virginianum</i>	Solanaceae
19	Mountain knotgrass	Poolai poondu	<i>Aerva lanata</i>	Amaranthaceae
20	Common nut sedge	Korai	<i>Cyperus rotundus</i>	Cyperaceae
21	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae
22	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae
23	Basil	Karunthulasi	<i>Ocimum basilicum</i>	Lamiaceae
CLIMBER				
24	Slender dwarf morning-glory	Vishnukrandi	<i>Evolvulus alsinoides</i>	Convolvulaceae
25	wild water lemon	Sirupunaikkali	<i>Passiflora foetida</i>	Passifloraceae
26	stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
27	Wild bitter	Pavarkai	<i>Momordica charantia</i>	Cucurbitaceae

TABLE 3.34: FLORA IN BUFFER ZONE

<i>Sl.No</i>	<i>English Name</i>	<i>Vernacular Name</i>	<i>Scientific Name</i>	<i>Family Name</i>	<i>Resource use type</i>
TREES					
1	Neem or Indian lilac	Vembu	<i>Azadirachta indica</i>	Meliaceae	M
2	Millettia pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae	E
3	Bitter Albizia	Arappu	<i>Albizia amara</i>	Fabaceae	M
4	Coconut	Thennai maram	<i>Cocos nucifera</i>	Arecaceae	EM
5	Rosewood trees	Eeti	<i>Dalbergia latifolia</i>	Fabaceae	E
6	Mango	Manga	<i>Mangifera indica</i>	Anacardiaceae	E
7	Sesban	Chitthakathi	<i>Sesbania sesban</i>	Fabaceae	M
8	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	Legumes	EM
9	Creamy Peacock Flower	Vadanarayani	<i>Delonix elata</i>	Fabaceae	M
10	Beauty leaf	Punnai	<i>Calophyllu inophyllum</i>	Calophyllaceae	M
11	Indian fig tree	Athi	<i>Ficus recemosa</i>	Moraceae	EM
12	Gum arabic tree	Karuvelam	<i>Acacia nilotica</i>	Mimosaceae	NE
13	Indian fir tree	Nettilinkam	<i>Polylathia longifolia</i>	Annonaceae	E
14	Asian Palmyra plam	Panai maram	<i>Borassus flabellifer</i>	Arecaceae	E
15	Castor oil plant	Amanakku	<i>Ricinus communis</i>	Euphorbiaceae	M
16	Manilkara zapota	Sapota	<i>Manilkara zapota</i>	Sapotaceae	E
17	Black plum	Navalmaram	<i>Sygygium cumini</i>	Myrtaceae	EM
18	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	Rutaceae	EM
19	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	Moraceae	E
20	Banana tree	Vazhaimaram	<i>Musa</i>	Musaceae	EM
21	Teak	Thekku	<i>Tectona grandis</i>	Verbenaceae	E
22	Indian gooseberry	Nelli	<i>Emblica officinalis</i>	Phyllanthaceae	EM
23	Eucalyptus	Eucalyptus	<i>Eucalyptus globules</i>	Myrtaceae	EM
24	Jack fruit	Palamaram	<i>Artocarpus heterophyllus</i>	Moraceae	E
25	Henna	Marudaani	<i>Lawsonia inermis</i>	Lythraceae	EM
26	Five leaf chastera	Nochi	<i>Vitex negundo</i>	Lamiaceae	M
27	Papaya	Pappali maram	<i>Carica papaya L</i>	Caricaceae	EM
28	Acacia Nilotica	Karuvelam maram	<i>Vachellia nilotica</i>	Fabaceae	M
29	Chinese chaste tree	Nochi	<i>Vitex negundo</i>	Verbenaceae	E
30	Peepal	Arasanmaram	<i>Ficus religiosa</i>	Moraceae	M
31	Noni	Nuna maram	<i>Morinda citrifolia</i>	Rubiaceae	M
32	Guava	Koyya	<i>Psidium guajava</i>	Myrtaceae	EM
33	Custard apple	Seethapazham	<i>Annona reticulata</i>	Annonaceae	E
34	Curry tree	Velipparuthi	<i>Murraya koenigii</i>	Asclepiadaceae	EM

35	Bamboo	Moonghil	<i>Bambusa bambo</i>	Poaceae	E
SHRUBS					
36	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae	M
37	Indian Oleander	Arali	<i>Nerium indicum</i>	Apocynaceae	M
38	Thorn apple	Oomathai	<i>Datura stramonium</i>	Solanaceae	E
39	Flame of the Woods	Idlipoo	<i>xoracoc cineo</i>	Rubiaceae	M
40	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae	EM
41	Night shade plan	Sundaika	<i>Solanum torvum</i>	Solanaceae	EM
42	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae	M
43	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae	EM
44	Rosary pea	Kundumani	<i>Abrus precatorius</i>	Fabaceae	M
45	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae	M
46	Ceylon Date Palm	Icham	<i>Phoenix pusilla</i>	Arecaceae	EM
47	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae	M
HERBS					
48	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae	M
49	Tridax daisy	Veetukaayapoendu	<i>Tridax procumbens</i>	Asteraceae	M
50	Hibiscus hispidissimus	Kaattu piral	<i>Hibiscus hispidissimus</i>	Malvaceae	M
51	Indian Copperleaf	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae	M
52	False daisy	Karisilanganni	<i>Eclipta prostata</i>	Asteraceae	EM
53	Common nut sedge	Korai	<i>Cyperus rotundus</i>	Cyperaceae	NE
54	Node Flower	Kumattikkirai	<i>Allmania nodiflora</i>	Amaranthaceae	M
55	Poor land flatsedg	Kunnakora	<i>Cyperus compressus</i>	Cyperaceae	NE
56	Gale of the wind	Keelaneeli	<i>Phyllanthus niruri</i>	Phyllanthaceae	EM
57	Benghal dayflower	Kanamvazha	<i>Commelina benghalensis</i>	Commelinaceae	M
58	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae	M
59	Carrot grass	Parttiniyam	<i>Parthenium hysterophorus</i>	Asteraceae	NE
60	Creeping wood sorrel	Pulliyari	<i>Oxalis corniculata</i>	Oxalidaceae	M
61	Red Hogweed	Mukurattai	<i>Boerhavia diffusa</i>	Nyctaginaceae	M
62	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae	M
63	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae	E
64	European black nightshade	Manathakkali	<i>Solanumnigrum</i>	Solanaceae	EM
CLIMBER					
65	Ivy gourd	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae	M
66	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	M
67	Balloon vine	Mudakkotan	<i>Cardiospermum helicacabum</i>	Sapindaceae	M
68	Betel	Vettilai	<i>Piper betle</i>	Piperaceae	EM
69	Butterfly pea	Karkakartum	<i>Clitoria ternatea</i>	Fabaceae	M

70	Wild bitter	Pavarkai	<i>Momordica charantia</i>	Cucurbitaceae	EM
71	Purple fruited pea eggplant	Thuthuvelai	<i>Solanum trilobatum</i>	Solanaceae	EM
72	Indian sarsparilla	Nannari	<i>Hemidesmus indicus</i>	Asclepiadaceae	M
73	Pointed gourd	Kovakkai	<i>Trichosanthes dioica</i>	Cucurbitaceae	EM
74	Butterfly-pea	Sangupoo	<i>Clitoriaternatia</i>	Fabaceae	M
75	Wild jasmine	Malli	<i>Jasminum augustifolium</i>	Oleaceae	EM
76	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	Cucurbitaceae	EM

*E- Economical, M- Medicinal, EM- Both Economical and Medicinal, NE- Not evaluated

AQUATIC VEGETATION

The field survey for assessing the aquatic vegetation was also undertaken during the study period. The list of aquatic plants observed in the study area is given in Table 3.35.

TABLE 3.35: AQUATIC VEGETATION

Sl.No	Scientific name	Common Name	Tamil Name	IUCN List
1	<i>Eichornia crassipe</i>	Water hyacinth	Agayatamarai	NA
2	<i>Aponogeton natans</i>	Floating laceplant	Kottikizhnagu	NA
3	<i>Nymphaea nouchali</i>	Blue waterlily	Nellambal	LC

*LC- Least Concern, NA-Not yet assessed

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 Red Data Book and Indian Wildlife Protection Act, 1972. There are no rare, endangered, threatened (RET) and endemic species present in core area.

FAUNA METHODOLOGY

The study of fauna takes substantial amount of time to understand the specific faunal characteristics of the area. The assessment of fauna has been done on the bases of primary data collected from the lease sites. The presence was also confirmed from the local inhabitants depending on the animal sightings and the frequency of their visits in the project area. In addition, officials, local peoples were another source of information for studying the fauna of the area. Field activities are physical/active search, covering rocks, burrows, hollow inspection and location of nesting sites and habitat assessment etc. Taxonomical identification was done by the field guide book and wildlife envis data base ([wiienviis.nic.in/Database/Schedule Species Database](http://wiienviis.nic.in/Database/Schedule%20Species%20Database)) and Zoological Survey of India (ZSI). Detailed faunas are mentioned in the Table No. 3.36 and 3.37.

Survey and Monitoring of Mammals

Intensive survey has been done by line transect methods (Walking and in vehicle) for all major habitats for surveying of mammals by direct and indirect evidence. Indirect methods such as faecal matter (i.e., scat) and pug mark by establishing 10 × 100-m linear transects depending on the habitat (i.e., existing wildlife game routes/forest trails used).

Direct observation technique has been used for surveying large and medium sized mammals. But this technique is perfectly suitable for surveying of diurnal mammals; however, good photographs were also taken for species identification.

Survey and Monitoring of Birds

Birds are sampled by using point count methods, and opportunistic bird sightings. By this bird vocal sounds and photographs, the species were identified in consultation with village local people.

Point count: in these methods, the observer will stand in a randomly chosen point and birds seen or heard in 50m radius are recorded for 5-min. this observation is repeated in another point at least 30m from the first point. We have enumerated 20 point – counts in each quartile, which constitute a total of 80 points-count (20 x 4) within 10 km radius area.

Opportunistic bird sightings: while traveling in study area, many bird species will be detected in survey time. Such species are recoded by their appearance or by their call.

Survey and Monitoring of reptiles

Several survey techniques such as standard walk transect visual encounter survey methods were used to sampling reptiles in each and every habitat of the study area. While doing this survey, photographs were taken for identification of species. Species identification was done by using standard field guides in consultation with village people expert.

The butterfly was enumerated by 2 linear transects of 10 × 100 m were laid within each quartile at minimum interval of 1 km. Further, amphibians and fishes documented in existing literature and secondary information in consultation with local people and wildlife experts.

FAUNA IN CORE ZONE

A total of 23 varieties of species observed in the Core zone of Chikkarampalayam Village, Rough stone and gravel quarry (Table No.3.36) among them numbers of Insects 7 (30%), Reptiles 5 (22%), Mammals 3 (13%) and Avian 8 (35%). A total of 23 species belonging to 18 families have been recorded from the core mining lease area. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and 7 species are under schedule IV according to Indian wild life Act 1972. A total eight species of bird were sighted in the mining lease area.

Dominant species are mostly birds and insects and three amphibians were observed during the extensive field visit (Hopllobatrachus tigerinus), (Rana hexadactyla), (Bufo melonosticatus). There are no critically endangered,

endangered, vulnerable and endemic species were observed. Details of fauna in core zone with the scientific name were mentioned in Table No. 3.36.

TABLE 3.36: FAUNA IN CORE ZONE

<i>Sl. No</i>	<i>English Name</i>	<i>Family Name</i>	<i>Scientific Name</i>	<i>WPA Schedule</i>	<i>IUCN List</i>
INSECTS					
1	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
2	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
3	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	NL	NL
4	Mottled emigrant	Peridae	<i>Catopsilia pyranthe</i>	NL	LC
5	Praying mantis	Mantidae	<i>mantis religiosa</i>	NL	NL
6	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NL	LC
7	Stick insect	Lonchodidae	<i>carausius morosus</i>	NL	LC
REPTILES					
8	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
9	Brahminy skink	Scincidae	<i>Eutropis carinata</i>	NL	LC
10	Common skink	Scincidae	<i>Mabuya carinatus</i>	NL	LC
11	Common house gecko	Gekkonidae	<i>Hemidactylus frenatus</i>	NL	LC
12	Fan-Throated Lizard	Agamidae	<i>Sitanaponticeriana</i>	NL	LC
MAMMALS					
13	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	NL
14	Asian Small Mongoose	Herpestidae	<i>Herpestes javanicus</i>	Schedule II	LC
15	Common rat	Muridae	<i>Rattus rattus</i>	Schedule IV	LC
AVES					
16	Asian green bee-eater	Meropidae	<i>Meropsorientalis</i>	NL	LC
17	Two-tailed Sparrow	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
18	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
19	common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
20	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC
21	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NL	LC
22	Koel	Cucalidae	<i>Eudynamys</i>	Schedule IV	LC
23	Indian pond heron	Ardeidae	<i>Ardeola grayii</i>	Schedule IV	LC

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

FAUNA IN BUFFER ZONE

Taxonomically a total of 44 species belonging to 32 families have been recorded from the buffer zone area. Based on habitat classification the majority of species were Birds 17 (38%), followed by Insects 14 (32%), Reptiles 7 (16%), Mammals 3 (7%) and amphibians 3 (7.5%). There are three Schedule II species and twenty-four species are under schedule IV according to Indian wild life Act 1972. A total 17 species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable and endemic species were observed.

The result of core & Buffer zone of fauna studies shows that Nymphalidae and *Scincidae*, *Agamidae* are the main dominating species in the study area; it is mentioned in Table No.3.37. There is no schedule I Species in study area. A detail of fauna diversity of family's pattern is given in Fig No.3.30. There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of faunal diversity in buffer zone are given in Table No.3.37.

TABLE 3.37: FAUNA IN BUFFER ZONE

Sl.No	Common name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
INSECTS					
1	Blue tiger	Nymphalidae	<i>Tirumala limniace</i>	Schedule IV	LC
2	Praying mantis	Mantidae	<i>mantis religiosa</i>	NL	NL
3	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
4	Tawny coster	Nymphalidae	<i>Danaus chrysippus</i>	Schedule IV	LC
5	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	Schedule IV	LC
6	Common Indian crow	Nymphalidae	<i>Euploea core</i>	Schedule IV	LC
7	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NL	LC
8	Ant	Formicidae	<i>Camponotus Vicinus</i>	NL	NL
9	Dragonfly	Gomphidae	<i>Ceratogomphus pictus</i>	Schedule IV	
10	Milkweed butterfly	Nymphalidae	<i>Danainae</i>	NL	LC
11	Indian honey bee	Apidae	<i>Apis cerana</i>	Schedule IV	LC
12	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
13	Lesser grass blue	Lycanidae	<i>Zizina Otis indica</i>	Schedule IV	LC
14	Jewel beetle	Buprestidae	<i>Eurythyrea austriaca</i>	Schedule IV	NA
REPTILES					
15	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
16	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)	LC
17	Olive keelback water snake	Natricidae	<i>Atretium schistosum</i>	Sch II (Part II)	
18	Brahminy skink	Scincidae	<i>Eutropis carinata</i>	NL	LC
19	Common house gecko	Gekkonidae	<i>Hemidactylus frenatus</i>	NL	LC
20	Fan-Throated Lizard	Agamidae	<i>Sitanaponticeriana</i>	NL	LC
21	Common skink	Scincidae	<i>Mabuya carinatus</i>	NL	LC
MAMMALS					
22	Indian palm squirrel	Sciuridae	<i>Funambulus palmarum</i>	Schedule IV	LC
23	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	LC
24	Asian Small Mongoose	Herpestidae	<i>Herpestes javanicus</i>	Schedule (Part II)	LC
AVES					
25	Indian pond heron	Ardeidae	<i>Ardeola grayii</i>	Schedule IV	LC
26	Common Quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
27	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
28	Shikra	Accipitridae	<i>Accipiter badius</i>	NL	LC
29	Koel	Cuculidae	<i>Eudynamys</i>	Schedule IV	LC
30	Asian green bee-eater	Meropidae	<i>Meropsorientalis</i>	NL	LC
31	Red-vented Bulbul	Pycnonotidae	<i>Pycnonotuscafer</i>	Schedule IV	LC
32	Indian golden oriole	Oriolidae	<i>Oriolus kundoo</i>	Schedule IV	LC
33	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	NL	LC
34	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NL	LC
35	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
36	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
37	Two-tailed Sparrow	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
38	Grey Francolin	Phasianidae	<i>Francolinus pondicerianus</i>	Schedule IV	LC
39	White-breasted waterhen	Rallidae	<i>Amaurornis phoenicurus</i>	NL	LC
40	Common Coot	Rallidae	<i>Fulica atra</i>	Schedule IV	LC
41	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC
AMPHIBIANS					
42	Indian Burrowing frog	Dicroglossidae	<i>Sphaerotheca breviceps</i>	Schedule IV	LC
43	Green Pond Frog	Ranidae	<i>Rana hexadactyla</i>	Schedule IV	LC
44	Tiger Frog	Chordata	<i>Hoplobatrachus tigerinus (Rana tigerina)</i>	Schedule IV	LC

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

FIGURE 3.27: FLORAL DIVERSITY IN CORE ZONE

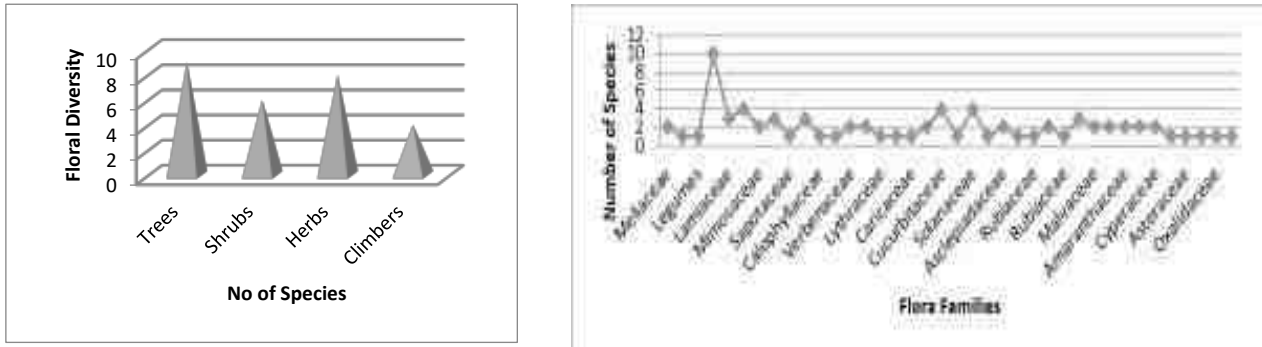


FIGURE 3.28: FLORAL DIVERSITY IN BUFFER ZONE

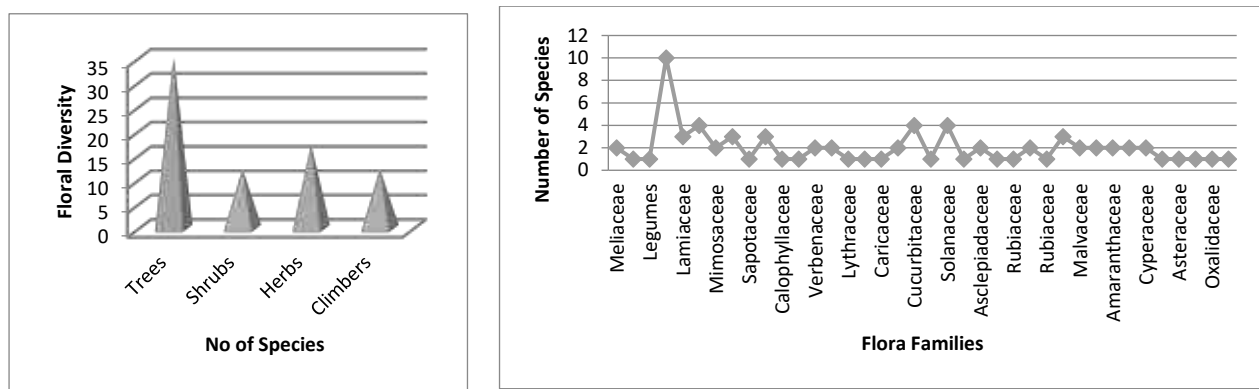


FIGURE 3.29: FAUNA DIVERSITY IN CORE ZONE

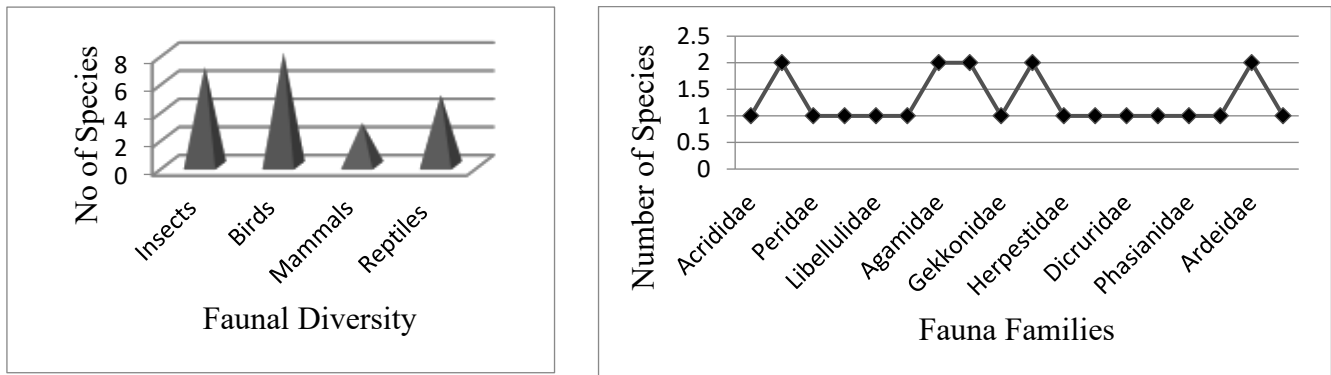
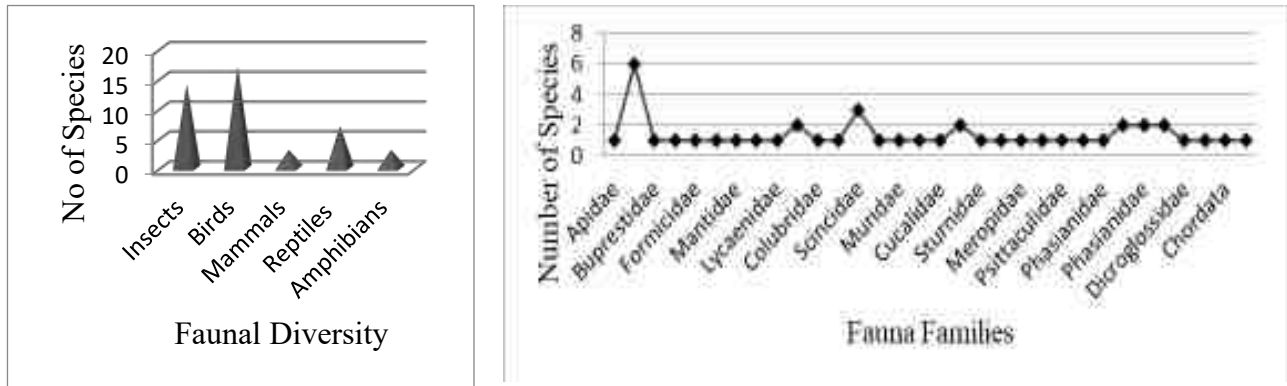


FIGURE 3.30: FAUNA DIVERSITY IN BUFFER ZONE



3.5.4 Interpretation & Conclusion:

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

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.

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 of the proposed mining project.
- 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

Coimbatore is the third largest city of Tamilnadu, Coimbatore, is one of the most industrialized cities in Tamil Nadu, known as the textile capital of South India or the Manchester of the South, the city is situated on the banks of the river Noyyal, Coimbatore existed even prior to the 2nd or 3rd century AD by Karikalan, the first of the early Cholas. Among its other great rulers were Rashtrakutas, Chalukyas, Pandyas, Hoysalas and the Vijayanagara kings.

There are more than 25,000 small, medium, large sale industries and textile mill. Coimbatore is also famous for the manufacture of motor pump sets and varied engineering goods. The development of Hydro electricity from the Pykara Falls in the 1930 led to a cotton boom in Coimbatore.

Coimbatore serves as an entry and exit point to neighbouring Kerala and the ever-popular hill station of Udthagamandalam (Ooty). It is the disembarking point for those who want to take the Mountain train that runs from Mettupalayam, just 35 kms from Coimbatore. There are also regular bus services from Coimbatore to Ooty.

3.6.4 Study area:

CHIKKIRAMPALAYAM VILLAGE

Chikkarampalayam village is situated in Teshil Mettupalayam, District Coimbatore and in State of Tamil Nadu India. Village has population of 10242 as per census data of 2011, in which male population is 5059 and female population is 5183. Total geographical area of Chikkarampalayam village is 1456.29 Hectares. Population density of Chikkarampalayam is 7 persons per Hectares. Total number of house hold in village is 2957.

As per the Census Data 2011 there are 1025 Femals per 1000 males out of 10242 total population of village. There are 1005 females per 1000 males under 6 years of age in the village.

In Chikkarampalayam village population of children with age 0-6 is 874 which makes up 8.53 % of total population of village. Average Sex Ratio of Chikkarampalayam village is 1025 which is higher than Tamil Nadu state average of 996. Child Sex Ratio for the Chikkarampalayam as per census is 1005, higher than Tamil Nadu average of 943.

TABLE 3.38: CHIKKIRAMPALAYAM VILLAGE POPULATION FACTS

Number of Households	2957
Population	10,242
Male Population	5,059
Female Population	5,183
Children Population	874
Sex-ratio	1025 females per 1000 males
Literacy	78.81%
Male Literacy	84.99%
Female Literacy	72.79%
Scheduled Tribes (ST) %	9
Scheduled Caste (SC) %	2,045

Source: <https://www.census2011.co.in/data/village/644356-chikkarampalayam-tamil-nadu.html>

Gram Panchayat name of the Chikkarampalayam village is Chikkarampalayam. CD Block name is Karamadai and Teshil/Taluk or sub-district is Mettupalayam. Data Reference year is 2009 of Census 2011. Sub District HQ Name is METTUPALAYAM and Sub District HQ Distance is 10 Km from the village. District Head Quarter name is COIMBATORE and it's distance from the village is 35Km. Nearest Town of the Chikkarampalayam village is KARAMADAI and nearest town distance is 1 km. Pincode of Chikkarampalayam village is 641104. As per census 2011 village code of village Chikkarampalayam is 644356.

TABLE 3.39: DEMOGRAPHICS POPULATION OF VILLAGE CHIKKIRAMPALAYAM

Total Population	Male Population	Female Population
10242	5059	5183

Source: <https://etrace.in/census/village/chikkarampalayam-mettupalayam-district-coimbatore-tamil-nadu-644356>

Sex Ratio of Chikkirampalayam Village -Census 2011

As per the Census Data 2011 there are 1025 Females per 1000 males out of 10,242 total population of village. There are 1005 girls per 1000 boys under 6 years of age in the village.

Literacy of Chikkirampalayam Village

Out of total population total 7383 people in Chikkarampalayam Village are literate, among them 3929 are male and 3454 are female in the village. Total literacy rate of Chikkarampalayam is 78.81%, for male literacy is 84.99% and for female literacy rate is 72.79%.

Worker's profile of Chikkirampalayam Village

Total working population of Chikkarampalayam is 4694 which are either main or marginal workers. Total workers in the village are 4694 out of which 3220 are male and 1474 are female. Total main workers are 4269 out of which female main workers are 3004 and male main workers are 1265. Total marginal workers of village are 425.

TABLE 3.42: POPULATION DATA OF STUDY AREA

Sl.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	Belladhi	2155	7637	3863	3774	5293	2987	2306	2344	876	1468
2	Bellapalayam	2703	9131	4606	4525	6392	3517	2875	2739	1089	1650
3	Bilichi	3076	10412	5188	5224	7231	3884	3347	3181	1304	1877
4	Chickadasampalayam	5276	19049	9546	9503	13818	7370	6448	5231	2176	3055
5	Chikkarampalayam	2957	10242	5059	5183	7383	3929	3454	2859	1130	1729
6	Illuppanatham	2665	9255	4569	4686	6225	3387	2838	3030	1182	1848
7	Jadayampalayam	2935	10049	5030	5019	7240	3910	3330	2809	1120	1689
8	Karegoundenpalayam	2084	7531	3796	3735	5101	2802	2299	2430	994	1436
9	Kariampalayam	1232	4498	2264	2234	2839	1595	1244	1659	669	990
10	Kattampatti	1664	5859	2919	2940	4237	2270	1967	1622	649	973
11	Kuppanur	1225	4130	2113	2017	2477	1406	1071	1653	707	946
12	Kuppepalayam	779	2784	1424	1360	1642	936	706	1142	488	654
13	Marudur	2737	9491	4756	4735	6156	3392	2764	3335	1364	1971
14	Odanthurai	1529	5399	2686	2713	3454	1883	1571	1945	803	1142
15	Odderpalayam	2051	7403	3626	3777	5054	2684	2370	2349	942	1407
16	Pogalur	1321	4671	2332	2339	2874	1599	1275	1797	733	1064
17	Thekkampatti	3619	12414	6189	6225	7988	4477	3511	4426	1712	2714
18	Vadakkalur	1567	5640	2784	2856	3703	2092	1611	1937	692	1245
19	Vadavalli	1105	3859	1902	1957	2496	1359	1137	1363	543	820
20	Veerapandi	2105	7528	3792	3736	4788	2694	2094	2740	1098	1642
21	Vellamadai	1975	6874	3458	3416	4003	2263	1740	2871	1195	1676

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

TABLE 3.43: WORKERS PROFILE OF STUDY AREA

Sl.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	Belladhi	3526	2508	1018	3331	2405	926	476	1039	1773	4111
2	Bellapalayam	4626	3035	1591	4047	2738	1309	418	568	1986	4505
3	Bilichi	5390	3472	1918	4717	3129	1588	652	1048	2951	5022
4	Chickadasampalayam	8539	5860	2679	7450	5371	2079	620	1367	5289	10510
5	Chikkarampalayam	4694	3220	1474	4269	3004	1265	344	662	3151	5548
6	Illuppanatham	4474	2958	1516	3279	2385	894	571	400	1834	4781
7	Jadayampalayam	4904	3250	1654	4627	3098	1529	689	1078	2119	5145
8	Karegoundenpalayam	4001	2513	1488	3667	2325	1342	610	1389	1562	3530
9	Kariampalayam	2263	1498	765	1939	1350	589	172	359	1052	2235
10	Kattampatti	2753	1891	862	2529	1817	712	222	524	1736	3106
11	Kuppanur	2657	1496	1161	2385	1383	1002	674	773	871	1473
12	Kuppepalayam	1476	945	531	1423	922	501	379	360	679	1308
13	Marudur	4782	3088	1694	4311	2928	1383	856	1275	2090	4709
14	Odanthurai	2709	1690	1019	2514	1616	898	77	958	1396	2690
15	Odderpalayam	3295	2281	1014	3045	2178	867	464	496	1957	4108
16	Pogalur	2524	1552	972	2315	1483	832	410	655	1216	2147
17	Thekkampatti	6595	4091	2504	5531	3504	2027	896	2058	2392	5819
18	Vadakkalur	3234	1932	1302	3047	1840	1207	524	655	1296	2406
19	Vadavalli	2519	1395	1124	2420	1357	1063	1029	641	660	1340
20	Veerapandi	4271	2495	1776	3724	2224	1500	439	231	3011	3257
21	Vellamadai	3964	2344	1620	3085	1922	1163	638	836	1515	2910

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

TABLE 3.44: COMMUNICATION & TRANSPORT FACILITIES IN THE STUDY AREA

Sl.No	Village Name	PO	SPO	PTO	T	PCO	MP	IC / CSC	PCF	BS	PBS	RS	NH	SH	MDR	BTR	GR	NWR	FP
1	Belladhi	2	1	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1
2	Bellapalayam	2	1	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1
3	Bilichi	2	1	2	1	1	1	2	2	1	1	2	1	1	1	1	1	2	1
4	Chickadasampalayam	2	1	2	1	1	1	2	2	2	1	2	2	1	1	1	1	2	1
5	Chikkampalayam	2	1	2	1	1	1	2	2	2	1	2	2	1	1	1	1	2	1
6	Illuppanatham	2	1	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1
7	Jadayampalayam	2	1	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1
8	Karegoundenpalayam	2	1	2	1	1	1	2	2	1	1	2	1	1	1	1	1	2	1
9	Kariampalayam	2	1	2	1	1	1	2	2	1	1	2	1	1	1	1	1	2	1
10	Kattampatti	2	1	2	1	1	1	1	2	1	1	2	1	2	1	1	1	2	1
11	Kuppanur	2	1	2	1	1	1	2	2	1	1	2	2	2	2	1	1	2	1
12	Kuppepalayam	2	1	2	1	1	1	2	2	1	1	2	2	2	2	1	1	2	1
13	Marudur	2	1	2	1	1	1	2	2	1	1	2	2	1	1	1	1	2	1
14	Odanthurai	2	1	2	1	1	1	2	2	1	1	2	1	2	1	1	1	2	1
15	Odderpalayam	2	1	2	1	2	1	2	2	1	1	2	2	2	1	1	1	2	1
16	Pogalur	2	1	2	1	1	1	2	2	1	1	2	2	2	2	1	1	2	1
17	Thekkampatti	2	1	2	1	1	1	2	2	1	1	2	2	2	2	1	1	2	1
18	Vadakkalur	2	1	2	1	1	1	2	2	1	1	2	2	2	2	1	1	2	1
19	Vadavalli	2	1	2	1	1	1	2	2	1	1	2	2	2	2	1	1	2	1
20	Veerapandi	2	1	2	1	1	1	2	1	1	1	2	1	2	1	1	1	2	1
21	Vellamadai	2	1	2	1	1	1	2	1	1	1	2	2	1	1	1	1	2	1

Abbreviations: PO - Post Office; MP - Mobile Phone Coverage; RS - Railway Station; GR - Gravel Roads; SPO - Sub Post Office; IC / CSC - Internet Cafe/Common Service Centre; NH - National Highways; NWR - Navigate waterways River; PTO - Post & Telegraph office; PCF - Private Courier Facility; SH - State Highways; FP - Foot path; T- Telephone (Landline); BS - Public Bus Service; MDR - Major District Road; PCO - Public call office / Mobile; PBS - Private Bus Service; BTR - Black Topped (Pucca Roads). Note: 1 - Available within the village 2 - Not available

TABLE 3.45: WATER & DRAINAGE FACILITIES IN THE STUDY AREA

Sl.No	Village Name	TP	CW	UCW	HP	TW/BH	S	R/C	T/P/L	CD	OD	CT
1	Belladhi	1	1	1	2	1	1	2	2	1	1	1
2	Bellapalayam	1	1	1	1	1	2	2	2	1	1	2
3	Bilichi	1	1	1	1	1	2	2	2	1	1	2
4	Chickadasampalayam	1	1	1	1	1	2	1	2	1	1	1
5	Chikkarampalayam	1	1	1	2	1	2	2	2	1	1	2
6	Illuppanatham	1	1	1	1	1	2	2	2	1	1	2
7	Jadayampalayam	1	1	1	2	1	2	1	2	1	1	1
8	Karegoundenpalayam	1	1	1	1	1	2	2	2	1	1	2
9	Kariampalayam	1	2	1	2	1	2	2	2	1	1	2
10	Kattampatti	1	1	1	2	1	2	2	2	1	1	2
11	Kuppanur	1	1	1	2	1	1	2	2	1	1	2
12	Kuppepalayam	1	1	1	1	1	2	2	2	1	1	2
13	Marudur	1	1	1	1	1	1	1	2	1	1	1
14	Odanthurai	1	1	1	2	1	2	1	1	1	1	2
15	Odderpalayam	1	1	1	1	1	1	2	2	1	1	2
16	Pogalur	1	1	1	1	1	2	1	2	1	1	2
17	Thekkampatti	1	1	1	1	1	2	2	2	1	1	2
18	Vadakkalur	1	1	1	1	1	1	2	2	1	1	1
19	Vadavalli	1	1	1	1	1	2	2	2	1	1	2
20	Veerapandi	1	1	1	2	1	1	2	2	1	1	2
21	Vellamadai	1	1	1	1	1	2	2	2	1	1	2

Abbreviations: T - Tap Water; R / C - River / Canal; CW - Covered Well; T/P/L - Tank / Pond / Lake; UCW - Uncovered Well; CD - Covered Drainage; HP - Hand Pump; OD - Open Drainage; TW/BH - Tube / Bore Well; CT - Community Toilet Complex for General public; S - Spring

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

TABLE 3.46: OTHER FACILITIES IN THE STUDY AREA

Sl.No	Village Name	ATM	CB	COB	ACS	SHG	PDS	RM	AMS	NC	NC-AC	CC	SF	PL	NPS	APS	BDRO	PS
1	Belladhi	2	1	1	2	1	1	1	2	1	1	1	1	1		1	1	1
2	Bellalpalayam	2	2	1	1	1	1	2	1	1	1	1	2	2		1	1	1
3	Bilichi	2	2	1	1	1	1	2	2	1	1	2	1	1		1	1	1
4	Chickadasampalayam	2	2	1	1	1	1	2	1	1	1	1	1	2		1	1	1
5	Chikkarampalayam	2	2	2	1	1	1	2	2	1	1	1	2	1		1	1	1
6	Illuppanatham	2	2	1	1	1	1	2	2	1	1	1	1	2		1	1	1
7	Jadayampalayam	1	2	1	1	1	1	1	2	1	1	1	1	1		1	1	1
8	Karegoundenpalayam	2	2	1	1	1	1	2	2	1	1	1	1	1		1	1	1
9	Kariampalayam	2	2	2	1	1	1	2	2	1	1	1	1	1		1	1	1
10	Kattampatti	1	1	2	1	1	1	2	2	1	1	2	1	1		1	1	1
11	Kuppanur	2	2	1	1	1	1	2	2	1	1	2	2	1		1	1	1
12	Kuppepalayam	2	2	2	1	1	1	2	2	1	1	2	1	1		1	1	1
13	Marudur	2	2	2	2	1	1	2	2	1	1	1	1	1		1	1	1
14	Odanthurai	2	2	2	2	1	1	2	2	1	1	2	2	1		1	1	1
15	Odderpalayam	2	2	2	2	1	1	2	2	1	1	1	1	2		1	1	1
16	Pogalur	2	2	2	1	1	1	2	2	1	1	2	2	1		1	1	1
17	Thekkampatti	2	2	1	1	1	1	2	2	1	1	1	1	1		1	1	1
18	Vadakkalur	2	1	2	1	1	1	1	2	1	1	2	2	1		1	1	1
19	Vadavalli	2	2	2	1	1	1	2	2	1	1	1	1	1		1	1	1
20	Veerapandi	2	2	2	2	1	1	2	2	1	1	1	1	1		1	1	1
21	Vellamadai	2	2	1	1	1	1	2	2	1	1	1	1	1		1	1	1
22	Belladhi	2	1	1	2	1	1	1	2	1	1	1	1	1		1	1	1
23	Bellalpalayam	2	2	1	1	1	1	2	1	1	1	1	2	2		1	1	1

Abbreviations: ATM - Automatic Teller Machine; PDS - Public Distribution System (Shop); CB - Commerical Bank; RM - Regular Market; COB - Co-operative Bank; AMS - Agricultural Market Society; ACS - Agricultural Credit Societies; NC - Nutritional Centres; SHG - Self Help Group; NC-AC - Nutritional Centres - Anganwadi Centre; DBRO - Birth & Death Registration Office; PS - Power Supply
 Note - 1 - Available within the village; 2 - Not available

TABLE 3.47: EDUCATIONAL FACILITIES IN THE STUDY AREA

Sl.No	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	Belladhi	1	2	1	2	1	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
2	Bellapalayam	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	Bilichi	1	2	1	2	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2
4	Chickadasampalayam	1	1	1	2	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	2	1	2	2	2
5	Chikkarampalayam	1	1	1	1	1	1	1	1	2	1	2	2	2	1	2	2	2	2	2	2	2	2	2	2
6	Illuppanatham	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7	Jadayampalayam	1	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	Karegoundenpalayam	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
9	Kariampalayam	1	1	1	2	1	2	2	2	2	2	2	2	1	2	2	2	1	2	2	2	2	2	2	2
10	Kattampatti	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	Kuppanur	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	Kuppepalayam	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2
13	Marudur	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	Odanthurai	1	2	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	Odderpalayam	1	2	1	1	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	Pogalur	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
17	Thekkampatti	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18	Vadakkalur	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
19	Vadavalli	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20	Veerapandi	1	1	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
21	Vellamadai	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	1	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 3.48: MEDICAL FACILITIES IN THE STUDY AREA

Sl.No	Village Name	CHC	PHC	PHSC	MCW	TBC	HA	HAM	D	VH	MHC	FWC	NGM-I/O
1	-	0	0	1	0	0	0	0	0	1	0	0	a
2	Bellapalayam	0	1	1	1	1	0	0	1	0	0	1	
3	Bilichi	0	1	1	1	1	0	0	1	1	0	1	
4	Chickadasampalayam	0	3	8	2	3	0	0	3	0	0	3	
5	Chikkarampalayam	0	1	1	1	1	0	0	1	1	0	1	
6	Illuppanatham	0	0	1	0	0	0	0	0	0	0	0	b
7	Jadayampalayam	0	1	1	1	1	0	0	1	0	0	1	
8	Karegoundenpalayam	0	0	1	1	1	0	0	0	0	0	0	b
9	Kariampalayam	0	0	1	0	0	0	0	0	0	0	0	c
10	Kattampatti	0	0	1	0	0	0	0	0	1	0	0	a
11	Kuppanur	0	0	1	0	0	0	0	0	0	0	0	b
12	Kuppepalayam	0	0	0	0	0	0	0	0	0	0	0	b
13	Marudur	0	0	1	0	0	0	0	0	0	0	0	b
14	Odanthurai	0	0	3	0	0	0	0	0	0	0	0	a
15	Odderpalayam	0	0	1	1	0	0	0	0	0	0	0	a
16	Pogalur	1	1	1	1	1	0	0	1	1	0	1	
17	Thekkampatti	0	2	1	2	2	0	0	2	1	0	2	
18	Vadakkalur	0	0	1	1	0	0	0	0	0	0	0	b
19	Vadavalli	0	0	1	1	0	0	0	0	0	0	0	b
20	Veerapandi	0	1	1	1	1	0	0	1	0	0	1	
21	Vellamadai	0	0	1	1	0	0	0	0	1	0	0	b

Abbreviations: CHC-Community Health Centre; TBC-TB Clinic; VH- Vetrernity 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 – Tamil Nadu Census of India – 2011

3.6.6 Recommendation and Suggestion

- 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.
- Health care centre and ambulance facility can be provided to the population to get easy access to medical facilities. Maternity facility should be made available at the place to avoid going to distant places for treatment which involves risks. Apart from that as these areas are prone to various diseases a hospital with modern facilities should be opened on a priority basis in a central place to provide better health facilities to the villagers around the project.
- While developing an Action Plan, it is very important to identify the population who falls under the marginalized and vulnerable groups. So that special attention can be given to these groups with special provisions while making action plans.

3.6.7 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 from Proposed Project

- Permanent or temporary change on land use and land cover.
- Change in Topography: Topography of the ML area will change at the end of the life of the mine.
- 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 Common Mitigation Measures for Proposed Project

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

4.1.3 Soil Environment

The proposed projects area is covered by thin layer of gravel formation and the average thickness is about 1m - 2 m, the excavated gravel will be directly sold to needy customers in open market.

4.1.4 Impact on Soil Environment from Proposed Project

Erosion and Sedimentation (Removal of protective vegetation cover; Exposure of underlying soil horizons that may be less pervious, or more erodible than the surface layers; Reduced capacity of soils to absorb rainfall; Increased energy in storm-water runoff due to concentration and velocity; and Exposure of subsurface materials which are unsuitable for vegetation establishment).

4.1.5 Common Mitigation Measures for Proposed Project

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

4.1.6 Waste Dump Management

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

4.2 WATER ENVIRONMENT

4.2.1 Anticipated Impact from Proposed Project

- 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

Detail of water requirements in KLD as given below:

TABLE 4.1: WATER REQUIREMENT

PROPOSAL – P1		
*Purpose	Quantity	Source
Dust Suppression	0.5 KLD	From Existing bore wells from nearby area
Green Belt development	0.4 KLD	From Existing bore wells from nearby area
Domestic purpose	0.3 KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	1.2 KLD	

* Water for drinking purpose will be brought from approved water vendors

Source: Approved Mining Plan Pre-Feasibility Report

4.2.2 Common Mitigation Measures for Proposed Project

- Garland drain, settling tank will be constructed along the proposed mining lease area. The Garland drain will be connected to settling tank and sediments will be trapped in the settling traps and only clear water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judiciously utilize the rainwater as part of rainwater harvesting system.
- Providing benches with inner slopes and through a system of drains and channels, allowing rain water to descent into surrounding drains, so as to minimize the effects of erosion & water logging arising out of uncontrolled descent of water.
- Reuse the water collected during storm for dust suppression and greenbelt development within the mines
- Installing interceptor traps/oil separators to remove oils and greases. Water from the tipper wash-down facility and machinery maintenance yard will pass through interceptor traps/oil separators prior to its reuse;
- Using flocculating or coagulating agents to assist in the settling of suspended solids during monsoon seasons;
- 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.
- Regular monitoring (every 6 month once) and analysing the quality of water in open well, bore wells and surface water

4.3 AIR ENVIRONMENT

4.3.1. Anticipated Impact from Proposed Project

- 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 Proposed Project

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

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

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

AERMOD Software.

The impact on Air Environment is due to the mining and allied activities during Land Development phase, Mining process and Transportation. The emissions of Sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are marginal. Loading - unloading and transportation of Rough Stone, wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities releasing Particulate Matter (PM₁₀) affecting Ambient Air of the area. Prediction of impacts on air environment has been carried out taking into consideration cumulative production three proposed quarries. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software.

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

By using the above-mentioned inputs, ground level concentrations due to the quarrying activities have been estimated to know the incremental concentration in ambient air quality and impact in the study area. The effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere. Air quality modelling is an important tool for prediction, planning and evaluation of air pollution control activities besides identifying the requirements for emission control to meet the regulatory standards and to apply mitigation measures to reduce impact caused by quarrying activities. Suspended Particulate Matter (SPM) is the major pollutant occurred

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

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

TABLE 4.2: ESTIMATED EMISSION RATE FOR PM₁₀

Activity	Source type	Value	Unit
		P1	
Drilling	Point Source	0.134178981	g/s
Blasting	Point Source	0.010520513	g/s
Mineral Loading	Point Source	0.049119996	g/s
Haul Road	Line Source	0.002524926	g/s/m
Overall Mine	Area Source	0.085035549	g/s

TABLE 4.3: ESTIMATED EMISSION RATE FOR SO₂

Activity	Source type	Value	Unit
		P1	
Overall Mine	Area Source	0.002945279	g/s

TABLE 4.4: ESTIMATED EMISSION RATE FOR NO_x

Activity	Source type	Value	Unit
		P1	
Overall Mine	Area Source	0.000334906	g/s

FIGURE 4.1: AERMOD TERRAIN MAP

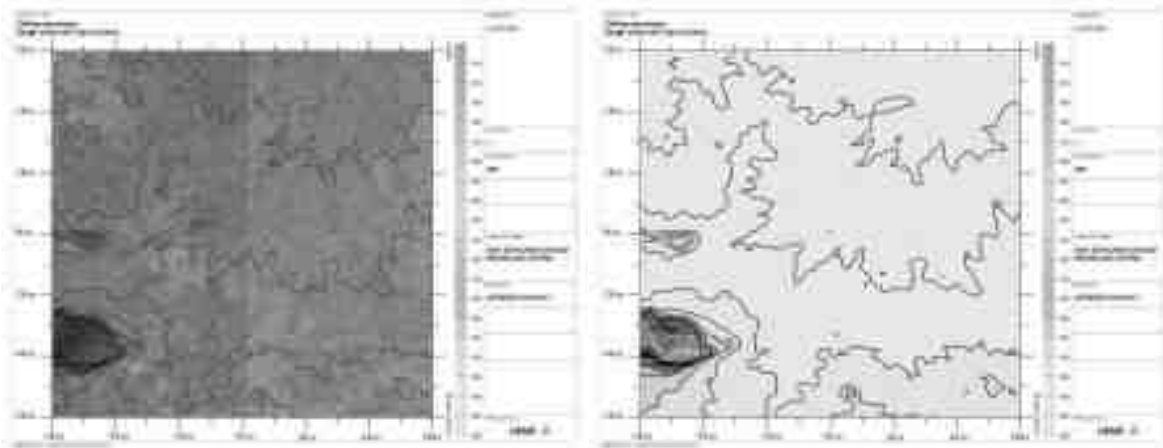


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀

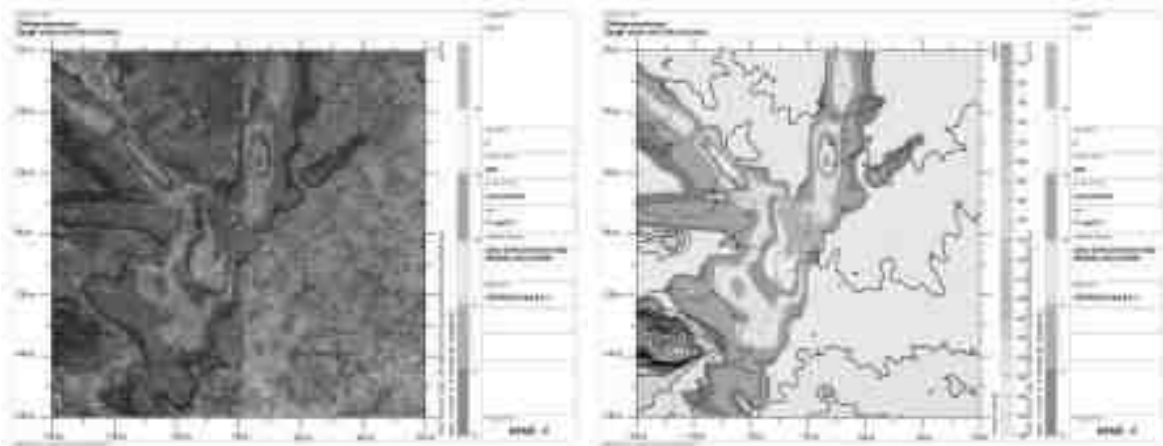


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF SO₂

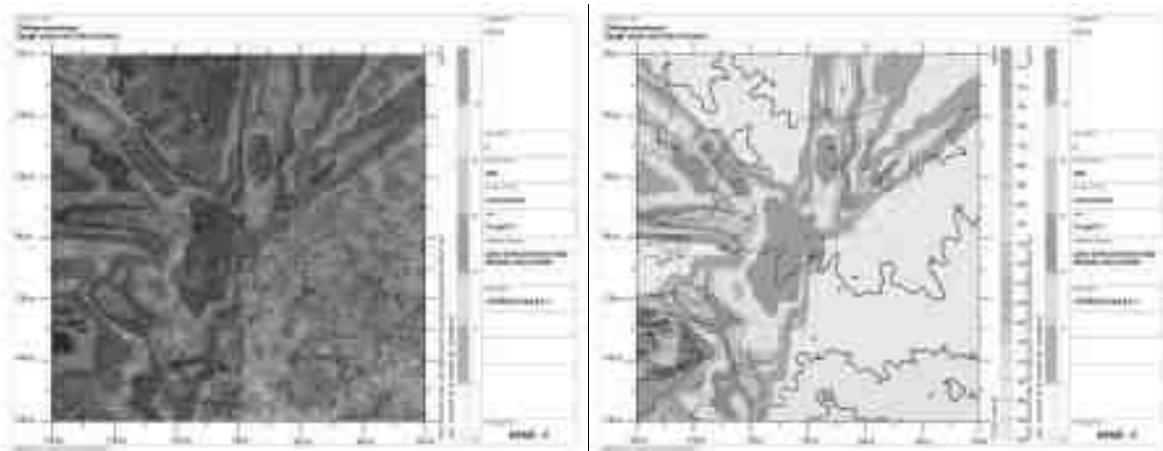
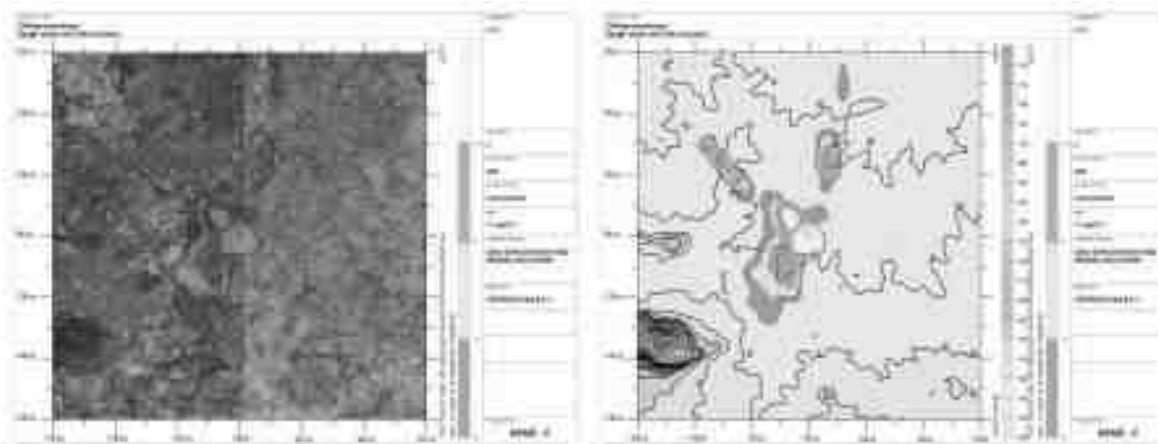
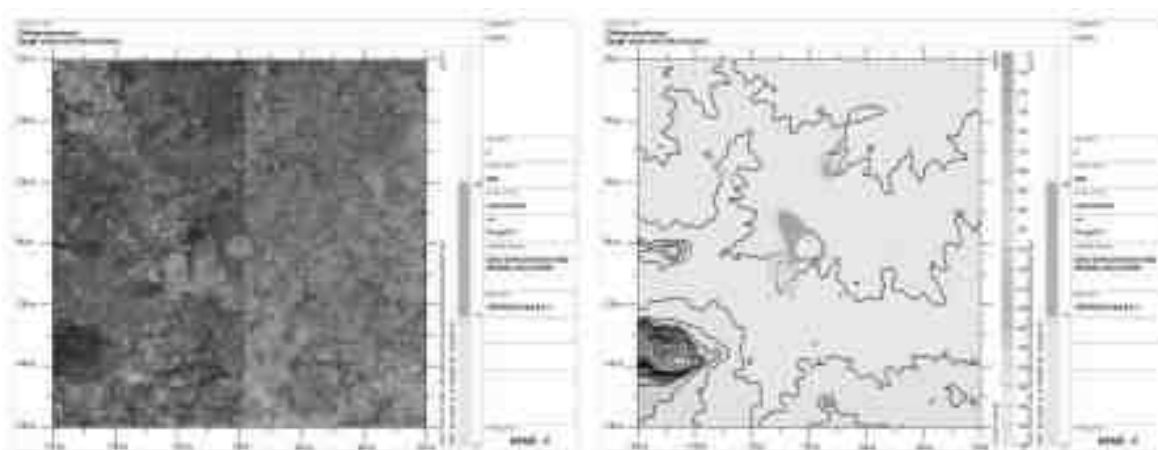


FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO_x**FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST**

4.3.2.1 Model Results

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

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF PM₁₀

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM ₁₀ (µg/m ³)	Incremental value of PM ₁₀ due to mining (µg/m ³)	Total PM ₁₀ (µg/m ³)
AAQ1	11°14'57.00"N 76°58'50.27"E	17	-20	24.2	17.72	41.92
AAQ2	11°15'33.80"N 76°57'59.66"E	-1530	1055	23.6	9.54	33.14
AAQ3	11°15'54.66"N 76°59'7.44"E	541	1693	23.4	7.65	31.05
AAQ4	11°14'22.79"N 76°57'45.77"E	-1954	-1143	22.7	12.01	34.71
AAQ5	11°12'25.30"N 77° 0'4.25"E	2278	-4781	20.2	0	20.2
AAQ6	11°16'19.13"N 77° 0'29.50"E	3049	2461	21.6	3.15	24.75
AAQ7	11°15'19.84"N 76°57'15.75"E	-2871	619	21.4	5.37	26.77
AAQ8	11°13'31.86"N 76°57'27.03"E	-2529	-2709	21.7	1.58	23.28
AAQ9	11°14'59.22"N 77° 0'23.93"E	2881	-83	22.4	0	22.4

TABLE 4.6: INCREMENTAL & RESULTANT GLC OF PM_{2.5}

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM _{2.5} (µg/m ³)	Incremental value of PM _{2.5} due to mining (µg/m ³)	Total PM _{2.5} (µg/m ³)
AAQ1	11°14'57.00"N 76°58'50.27"E	17	-20	43.4	10.95	54.35
AAQ2	11°15'33.80"N 76°57'59.66"E	-1530	1055	42.6	10.12	52.72
AAQ3	11°15'54.66"N 76°59'7.44"E	541	1693	42.7	8.69	51.39
AAQ4	11°14'22.79"N 76°57'45.77"E	-1954	-1143	42.6	10.38	52.98
AAQ5	11°12'25.30"N 77° 0'4.25"E	2278	-4781	42.3	0	42.3
AAQ6	11°16'19.13"N 77° 0'29.50"E	3049	2461	41.6	4.88	46.48
AAQ7	11°15'19.84"N 76°57'15.75"E	-2871	619	41.7	7.23	48.93
AAQ8	11°13'31.86"N 76°57'27.03"E	-2529	-2709	42.1	2.16	44.26
AAQ9	11°14'59.22"N 77° 0'23.93"E	2881	-83	42.5	0	42.5

TABLE 4.7: INCREMENTAL & RESULTANT GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO ₂ (µg/m ³)	Incremental value due to mining (µg/m ³)	Total SO ₂ (µg/m ³)
AAQ1	11°14'57.00"N 76°58'50.27"E	17	-20	19.8	3.59	23.39
AAQ2	11°15'33.80"N 76°57'59.66"E	-1530	1055	15.3	3.32	18.62
AAQ3	11°15'54.66"N 76°59'7.44"E	541	1693	16.2	2.47	18.67
AAQ4	11°14'22.79"N 76°57'45.77"E	-1954	-1143	10.8	3.50	14.3
AAQ5	11°12'25.30"N 77° 0'4.25"E	2278	-4781	10.6	0	10.6
AAQ6	11°16'19.13"N 77° 0'29.50"E	3049	2461	10.1	0	10.1
AAQ7	11°15'19.84"N 76°57'15.75"E	-2871	619	9.6	1.03	10.63
AAQ8	11°13'31.86"N 76°57'27.03"E	-2529	-2709	10.7	0	10.7
AAQ9	11°14'59.22"N 77° 0'23.93"E	2881	-83	9.5	0	9.5

TABLE 4.8: INCREMENTAL & RESULTANT GLC OF NO_x

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline NO _x (µg/m ³)	Incremental value due to mining (µg/m ³)	Total NO _x (µg/m ³)
AAQ1	11°14'57.00"N 76°58'50.27"E	17	-20	23.4	11.85	35.25
AAQ2	11°15'33.80"N 76°57'59.66"E	-1530	1055	22.6	2.83	25.43
AAQ3	11°15'54.66"N 76°59'7.44"E	541	1693	22.4	1.18	23.58
AAQ4	11°14'22.79"N 76°57'45.77"E	-1954	-1143	15.8	5.99	21.79
AAQ5	11°12'25.30"N 77° 0'4.25"E	2278	-4781	15.6	0	15.6
AAQ6	11°16'19.13"N 77° 0'29.50"E	3049	2461	13.1	0	13.1
AAQ7	11°15'19.84"N 76°57'15.75"E	-2871	619	12.1	0	12.1
AAQ8	11°13'31.86"N 76°57'27.03"E	-2529	-2709	13.4	0	13.4
AAQ9	11°14'59.22"N 77° 0'23.93"E	2881	-83	14.1	0	14.1

TABLE 4.9: INCREMENTAL & RESULTANT GLC OF FUGITIVE DUST

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Fugitive (µg/m ³)	Incremental value due to mining (µg/m ³)	Total Fugitive Dust (µg/m ³)
AAQ1	11°14'57.00"N 76°58'50.27"E	17	-20	63.9	36.15	100.05
AAQ2	11°15'33.80"N 76°57'59.66"E	-1530	1055	63.5	0	63.5
AAQ3	11°15'54.66"N 76°59'7.44"E	541	1693	63.0	0	63.0
AAQ4	11°14'22.79"N 76°57'45.77"E	-1954	-1143	60.6	0	60.6
AAQ5	11°12'25.30"N 77° 0'4.25"E	2278	-4781	61.0	0	61.0
AAQ6	11°16'19.13"N 77° 0'29.50"E	3049	2461	61.2	0	61.2
AAQ7	11°15'19.84"N 76°57'15.75"E	-2871	619	60.9	0	60.9
AAQ8	11°13'31.86"N 76°57'27.03"E	-2529	-2709	61.7	0	61.7
AAQ9	11°14'59.22"N 77° 0'23.93"E	2881	-83	60.8	0	60.8

From the resultant of cumulative concentration i.e., Background + Incremental Concentration of pollutant in all the receptor locations without effective mitigation measures are still within the prescribed NAAQ limits of 100, 80

& 80 µg/m³ for PM10, SO₂ & NO_x respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

4.3.4. Common Mitigation Measures for Respective Individual Proposed Projects

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

Advantages of Wet Drilling: -

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

Blasting –

- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas
- Controlled blasting includes Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e. at the time lunch hours, controlled charge per hole as well as charge per round of hole
- Before loading of material water will be sprayed on blasted material
- Dust mask will be provided to the workers and their use will be strictly monitored

Haul Road & Transportation –

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- Water sprinkling on haul roads & loading points will be carried out twice a day
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metalled 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 –

- Planting of trees all along main mine haul roads and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of 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 in close proximity to the project area. Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities.

Predictions have been carried out to compute the noise level at various distances around the working pit due to these major noise-generating sources. Noise modelling has been carried out to assess the impact on surrounding ambient noise levels.

Basic phenomenon of the model is the geometric attenuation of sound. Noise at a point generates spherical waves, which are propagated outwards from the source through the air at a speed of 1,100 ft/sec, with the first wave making an ever-increasing sphere with time. As the wave spreads the intensity of noise diminishes as the fixed amount of energy is spread over an increasing surface area of the sphere. The assumption of the model is based on point source relationship i.e., for every doubling of the distance the noise levels are decreased by 6 dB (A).

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

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

Where:

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

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

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

4.4.1 Anticipated Impact from all Proposed Projects

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 4.10: 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

*50 feet from source = 15.24 meters

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

The total noise to be produced by mining activity is calculated to be 95.8 dB (A). Generally, most mining operations produce noise between 100-109 dB (A). We have considered equipment and operation noise levels (max) to be approx. 109 dB (A) for noise prediction modelling.

TABLE 4.11: PREDICTED NOISE INCREMENTAL VALUES

Location ID	N1	N2	N3	N4	N5	N6	N7
Maximum Monitored Value (Day) dB(A)	42.3	41.8	42.8	40.2	39.1	39.9	39.2
Incremental Value dB(A)	70.6	63.2	50.6	29.2	24.5	32.1	26.1

Total Predicted Noise level dB(A)	70.6	63.2	51.2	40.5	39.2	40.6	39.4
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The incremental noise level is found within the range of 63.2 –70.6 dB (A) in Core Zone and 24.5 – 50.6 dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations are within permissible limits of Industrial area (core zone) & Residential area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.).

4.4.2 Common Mitigation Measures for Respective Individual Proposed Projects

The following noise mitigation measures are proposed for control of Noise

- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained;
- The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Silencers / mufflers will be installed in all machineries;
- Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise;
- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured through training and awareness.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects

4.4.3 Ground Vibrations

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

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

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

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

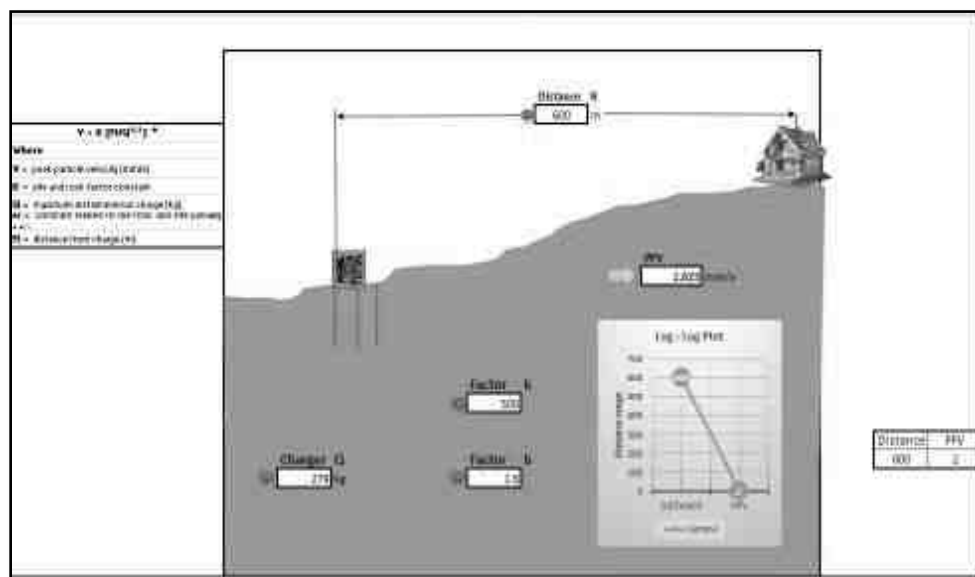
B = constant related to the rock and site (usually 1.6)

R = distance from charge (m)

TABLE 4.12: PREDICTED PPV VALUES DUE TO BLASTING

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	279	600m	1.623

FIGURE 4.6: GROUND VIBRATION PREDICTION



From the above graph, the charge per blast of 279kg 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 85 kg and carry out blasting twice or thrice a day based on the onsite conditions under the supervision of competent person employed. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.4.3.1 Common Mitigation Measures for Respective Individual Proposed Projects

- The blasting operations in the cluster quarries are carried out 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.
- Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire.
- The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used.
- The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects.
- Appropriate blasting techniques shall be adopted 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 ECOLOGY AND BIODIVERSITY

4.5.1 Impact on Ecology and Biodiversity

The impact on biodiversity is difficult to quantify because of its diverse and dynamic characteristics, mining activities generally result in the deforestation, land degradation, water, air and noise pollution which directly or indirectly affect the faunal and floral status of the project area. However, occurrence and magnitude of these impacts are entirely dependent upon the project location, mode of operation and technology involved. Impact prediction is the main footstep in impact evaluation and identifies project actions that are likely to bring significant changes in the project environment. The present study was carried out to predict the likely impacts of the proposed project at Chikkarampalayam village and the surrounding environment with special reference to biological attributes covering habitats/ecosystems and associated biodiversity.

The proposed mining activities include removal of some scattered bushes and other thorny species. Although impacts on key habitat elements will occur on a local scale, but on a regional scale they would not be critical for the life cycle needs of the species observed or expected. Moreover, during conceptual stage, the mined-out areas on the top bench will be re-vegetated by planting local /native species and lower benches will be converted into rainwater harvesting structure following completion of mining activities, which will replace habitat resources for fauna species in this locality over a longer time. Existing roads will be used; new roads will not be constructed to reduce impact on flora. Wild life is not commonly found in the project area and its immediate environs because of lack of vegetal cover and surface water. Except few domestic animals, reptiles, hares and some common birds are observed in the study area.

- I. None of the plants will be cut during operational phase of the mine.
- II. There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.
- III. Most of the land in the buffer area is undulating terrain with crop lands, grass patches and small shrubs. Hence, there will be no effect on flora of the region

4.5.2 Common Mitigation Measures for Proposed Project

Keeping all this in mind the mitigations have been suggested under environmental management plan. With the understanding of the role of plant species as bio-filter to control air pollution, appropriate plant species (mainly tree species) have been suggested conceding the area/site requirements and needed performance of specific species. The details of year wise proposed plantation program are given in Table 4.13.

The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. In order to compensate the loss of vegetation cover, it is suggested to carry out afforestation program mainly in proposed areas falls in the cluster earmarked for plantation program as per Approved Mining Plan in different phases. This habitat improvement program would ensure the faunal species to re-colonize and improve the abundance status in the core zone.

The objectives of the green belt cover will cover the following:

- Noise abatement
- Ecological restoration
- Aesthetic, biological and visual improvement of area due to improved vegetative and plantations cover.

4.5.2.2.1. Species Recommendation for Plantation granted in the district

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

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

TABLE 4.13: RECOMMENDED SPECIES FOR GREENBELT DEVELOPMENT PLAN

Sl.No	Name of the plant (Botanical)	Family Name	Common Name	Habit
1	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree
2	<i>Albiziafalculatoria</i>	Fabaceae	Tamarind, Puliymaram	Tree
3	<i>Polyalthialongifolia</i>	Annonaceae	Kattumaram	Tree
4	<i>Borassus Flabellifer</i>	Areceaceae	Palmyra Palm	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, and Casuarina will be planted along the Lease boundary and avenue plantation will be carried out in respective proposed projects. The rate of survival expected to be 80% in this area. Afforestation Plan is given in Table No.4.13 and budget of green belt development plan are given in Table No.4.14.

TABLE 4.14: GREENBELT DEVELOPMENT PLAN

PROPOSAL – P1					
Year	No. of tress proposed to be planted	Area to be covered in m2	Name of the species	Survival rate expected in %	No. of trees expected to be grown
I	2540	Plantation along 7.5m safety distance, along approach road.	Neem, Pongamia Pinnata, Casuarina etc.,	80	2030

TABLE 4.15: BUDGET FOR GREENBELT DEVELOPMENT PLAN

ACTIVITY		YEAR					RATE	COST (Rs.)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	50	50	50	50	50	@100 Rs Per sapling	25,000/-
	Cost	5000	5000	5000	5000	5000		
Plantation in the quarried out top benches and approach road	Nos.	120	120	120	120	120		60,000/-
	Cost	12000	12000	12000	12000	12000		
Wire Fencing (In Mtrs) 1,130 Mtrs		3,39,000	-	-	-	-	@300 Rs Per Meter	3,39,000/-

Garland drain (In Mtrs) 1,050 Mtrs	3,15,000	-	-	-	-	@300 Rs Per Meter	3,15,000/-
TOTAL							7,39,000/-

After complete extraction of mineral, the excavated pits will be allowed to collect rainwater and seepage water to serve as a reservoir to charge the nearby wells. Fish culture will also be attempted. A bund will be constructed around the pits. In order to minimize the impact of mining on the vegetation outside the mine lease area, it is recommended that adequate protection measures must be implemented. As mining involves movement of vehicles and increased anthropogenic activities, some of the areas can be fenced by involving local people and educating them about increased benefits of such activities.

4.5.3. Anticipated Impact on Fauna

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

4.5.3.1. Measures for protection and conservation of wildlife species

- Undertaking mitigative measures for conducive environment to the flora and fauna in consultation with Forest Department.
- Dust suppression system will be installed within mine and periphery of mine for all proposed projects
- Plantation around mine area will help in creating habitats for small faunal species and to create better environment for various fauna. Creating and developing awareness for nature and wildlife in the adjoining villages.

4.5.3.2. Mitigation Measures

- All the preventive measures will be taken for growth & development of fauna.
- Creating and development awareness for nature and wildlife in the adjoin villages.
- The workers shall be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 pm.

4.5.4. Impact on Aquatic Biodiversity

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

4.5.5. Impact Assessment on Biological Environment

A detail of impact and assessments was mentioned in Table No 4.16.

TABLE 4.16: ECOLOGICAL IMPACT ASSESSMENTS

SI.No	Attributes	Assessment
1	Proximity to national park/wildlife sanctuary/reserve forest /mangroves/coastline/estuary/sea	Sathyamangalam Tiger Reserve-22km-N Nellimalai R.F 7.3 Km North West
2	Proposed mining project impact surface water quality that also provide water to wildlife	'NO 'scheduled or threatened wildlife animal sighted regularly core in core area.

3	Located near an area populated by rare or endangered species	NO endangered, critically endangered, vulnerable species sighted in core mining lease area.
4	Proposed project restricts access to waterholes for wildlife	'NO'
5	Project likely to affect migration routes	'NO' 'migration route observed during monitoring period.
6	Proposed mining project increase siltation that would affect nearby biodiversity area.	Surface runoff management such as garland drains is proposed to be constructed, so there will be no siltation nearby mining area.
7	Risk of fall/slip or cause death to wild animals due to project activities	'NO'
8	Activities of the project affects the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in mining lease site. The fauna sighted mostly migrated from buffer area.
9	Mining project effect the forest-based livelihood/ any specific forest product on which local livelihood depended	'NO'
10	The project release effluents into a water body that also supplies water to a wildlife	No water body near to core zone so chances of water become polluted is low.
11	The project likely to affect wetlands, Fish breeding grounds, marine ecology	'NO'. Wetland was not present in near core Mining lease area. No breeding and nesting ground present in core mining area.
12	Project likely to affect flora of an area, which have medicinal value	'NO'
13	Forestland is to be diverted, has carbon high sequestration	'NO' 'There was no forest land diverted.

TABLE 4.17: ANTICIPATED IMPACT OF ECOLOGY AND BIODIVERSITY

Sl. No	Aspect Description	Likely Impacts on Ecology and Biodiversity (EB)	Impact Consequence - Probability Description / Justification	Significance	Mitigation Measures
Pre-Mining Phase					
1	Uprooting of vegetation of lease area	Site specific loss of common floral diversity (Direct impact)	Site possesses common floral (not trees) species. Clearance of these species will not result in loss of flora	Less severe	No immediate action required. However, Greenbelt /plantation will be developed in project site and in periphery of the project boundary, which will improve flora and fauna diversity of the project area.
		Site specific loss of associated faunal diversity (Partial impact)	Site supports only common species, Which use wide variety of habitats of the buffer zone reserve forest area. So there is no threat of faunal diversity.		
		-Loss of Habitat (Direct impact)	Site does not form Unique / critical habitat structure for unique flora or fauna.		
Mining phase					
2	Excavation of mineral using machine and	Site-specific disturbance to normal faunal movements	Site does not form unique / critical habitat	Less severe	Mining activity should not be operated after 5PM.

	labours, Transportation activities will generate noise.	at the site due to noise. (Partial impact)	structure for unique flora or fauna.		Excavation of dump and transportation work should stop before 7PM.
3	Vehicular Movement for transportation of materials will result in generation of dust (SPM) due to haul roads and emission of SO ₂ , NO ₂ , CO etc.	Impact on surrounding agriculture and associated fauna due to deposition of dust and Emission of CO. (Indirect impact)	Impact is less as the agricultural land far from core area.	Less severe	All vehicles will be certified for appropriate Emission levels. More plantation have been suggested. Upgrade the vehicles with alternative fuel such biodiesel, methanol and biofuel around the mining area.

4.6 SOCIO ECONOMIC

4.6.1 Anticipated Impact from Proposed Project

- 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 Common Mitigation Measures for Proposed Project

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

4.7 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, Spirometry tests
- Periodic medical examination – yearly
- Lung function test – yearly, those who are exposed to dust
- Eye test

Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost. The first aid box will be made available at the mine for immediate treatment.

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

4.8 MINE WASTE MANAGEMENT

No waste is anticipated from any of the proposed quarries.

4.9 MINE CLOSURE

Mine closure plan is the most important environmental requirement in mining projects. The mine closure plan should cover technical, environmental, social, legal and financial aspects dealing with progressive and post closure activities. The closure operation is a continuous series of activities starting from the decommissioning of the project. Therefore, progressive mine closure plan should be specifically dealt with in the mining plan and is to be reviewed along with mining plan. As progressive mine closure is a continuous series of activities, it is obvious that the proposals of scientific mining have included most of the activities to be included in the closure plan. While formulating the closure objectives for the site, it is important to consider the existing or the pre-mining land use of the site; and how the operation will affect this activity.

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

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

- To overcome adverse socio-economic impacts.

4.9.1 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

M/s.Sri Blue Metals Rough Stone and Gravel Quarry Project at Chikkarampalayam Village is a mining project for excavation of Rough Stone, which is site specific. The proposed project has following advantages: -

- It is an existing quarry already mining operation is carried out
- The mineral deposit occurs in a non-forest area.
- There is no habitation within the project area; hence no R & R issues exist.
- 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

Mechanized open cast 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 is being practiced in 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 monitoring and evaluation of environmental parameters indicates potential changes occurring in the environment, which paves way for implementation of rectifying measures wherever required to maintain the status of the natural environment. Evaluation is also a very effective tool to judge the effectiveness or deficiency of the measures adopted and provides insight for future corrections.

The main objective of environmental monitoring is to ensure that the obtained results in respect of environmental attributes and prevailing conditions during operation stage are in conformity with the prediction during the planning stage. In case of substantial deviation from the earlier prediction of results, this forms as base data to identify the cause and suggest remedial measures. Environmental monitoring is mandatory to meet compliance of statutory provisions under the Environment (Protection) Act, 1986, relevant conditions regarding monitoring covered under EC orders issued by the SEIAA 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 Project Proponent. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to proposed project; Environmental protection measures like dust suppression, control of noise and blast vibrations, maintenance of machinery and vehicles, housekeeping in the mine premises, plantation, implementation of Environmental Management Plan and environmental clearance conditions will be monitored by the Respective Mine Management. On the other hand, implementation of area level protection measures like green belt development, environmental quality monitoring etc., are taken up by a senior executive who reports to their Mine Management.

An Environment monitoring cell (EMC) will be constituted to monitor the implementation of EMP and other environmental protection measures in all the proposed quarries.

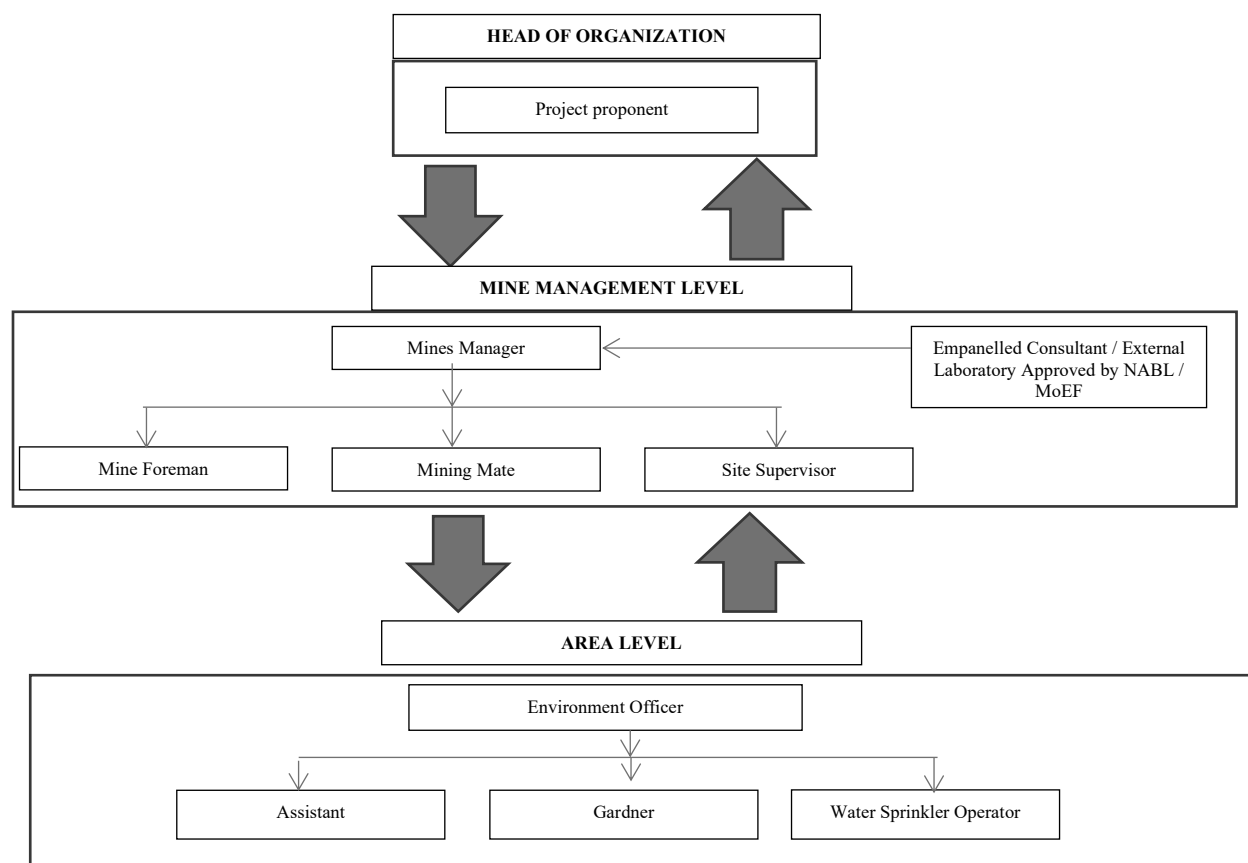
The responsibilities of this cell will be:

- 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

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

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

- Air quality;
- Water and wastewater quality;
- Noise levels;
- Soil Quality; and
- Greenbelt Development

The details of monitoring are detailed in Table 6.2

TABLE 6.2: PROPOSED MONITORING SCHEDULE POST EC

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	Monitoring water level depth variations
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.

TABLE 6.3 ENVIRONMENT MONITORING BUDGET

Sl.No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	Rs. 76,000/-	Rs. 76,000/-
2	Meteorology		
3	Water Quality		
4	Hydrology		
5	Soil Quality		
6	Noise Quality		
7	Vibration Study		
Total		Rs 76,000/-	Rs 76,000/-

Source: Approved Mining Plan

6.5 REPORTING SCHEDULES OF MONITORED DATA

The monitored data on air quality, water quality, noise levels and other environmental attributes will be periodically examined by the Mine Management Coordinator and 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
- Post-COVID Health Management Plan

7.1. PUBLIC CONSULTATION FOR P1

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 FOR P1

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 FOR P1

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	<p>Improper and unsafe practices</p> <p>Due to high pressure of compressed air, hoses may burst</p> <p>Drill Rod may break</p>	<p>Safe operating procedure established for drilling (SOP) will be strictly followed.</p> <p>Only trained operators will be deployed.</p> <p>No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places,</p> <p>Drilling shall not be carried on simultaneously on the benches at places directly one above the other.</p> <p>Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual.</p> <p>All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition.</p> <p>Operator shall regularly use all the personal protective equipment.</p>
4	Blasting	<p>Fly rock, ground vibration, Noise and dust.</p> <p>Improper charging, stemming & Blasting/fining of blast holes</p> <p>Vibration due to movement of vehicles</p>	<p>Restrict maximum charge per delay as per regulations and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blasting can be conducted safely.</p> <p>SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation</p> <p>Shots are fired during daytime only.</p> <p>All holes charged on any one day shall be fired on the same day.</p> <p>The danger zone will be distinctly demarcated (by means of red flags)</p>
5	Transportation	<p>Potential hazards and unsafe workings contributing to accident and injuries</p> <p>Overloading of material</p> <p>While reversal & overtaking of vehicle</p> <p>Operator of truck leaving his cabin when it is loaded.</p>	<p>Before commencing work, drivers personally check the dumper/truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio-visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition.</p> <p>Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle.</p> <p>Concave mirrors should be kept at all corners</p> <p>All vehicles should be fitted with reverse horn with one spotter at every tipping point</p> <p>Loading according to the vehicle capacity</p> <p>Periodical maintenance of vehicles as per operator manual</p>
6	Natural calamities	Unexpected happenings	<p>Escape Routes will be provided to prevent inundation of storm water</p> <p>Fire Extinguishers & Sand Buckets</p>
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 FOR P1

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

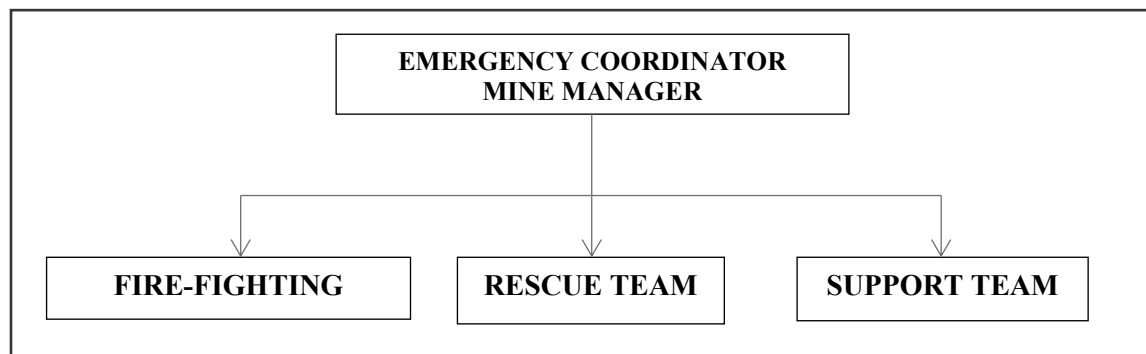
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

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 FOR P1



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 for respective proposed quarries. A mobile communication network and wireless shall connect Mine Emergency Control Room (MECR) to control various departments of the mine, fire station and neighbouring industrial units/mines.

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 IN P1

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.

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

- All safety precautions and provisions of Metalliferous Mines Regulations (MMR), 1961 is strictly followed during all mining operations.
- Observance of all safety precautions for blasting and storage of explosives as per MMR 1961.
- Entry of unauthorized persons into mine & allied areas is completely prohibited.
- Fire-fighting and first-aid provisions in the mines office complex and mining area are provided.
- Provisions of all the safety appliances such as safety boot, helmets, goggles, dust masks, ear plugs and ear muffs etc. are made available to the employees and the use of same is strictly adhered to through regular monitoring.
- Training and refresher courses for all the employees working in hazardous premises.
- Working of mine, as per approved plans and regularly updating the mine plans.
- Cleaning of mine faces is regularly done.
- Handling of explosives, charging and blasting are carried out only by qualified persons following SOP.
- Checking and regular maintenance of garland drains and earthen bunds to avoid any inflow of surface water in the mine pit.
- Provision of high-capacity standby pumps with generator sets with enough quantity of diesel for emergency pumping especially during monsoon.
- A blasting SIREN is used at the time of blasting for audio signal.
- Before blasting and after blasting, red and green flags are displayed as visual signals.
- Warning notice boards indicating the time of blasting and NOT TO TRESPASS are displayed at prominent places.
- Regular maintenance and testing of all mining equipment were carried out as per manufacturer's guidelines.

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 7.6: LIST OF QUARRIES WITHIN 500 METER RADIUS

*PROPOSED QUARRIES					
CODE	Name of the Owner	S.F. Nos	Extent	Status	Remarks
P1	M/s. Sri Blue Metals,	76/1A & 76/1B (P)	5.07.22	Lr.No. SEIAA- TN/F.No.9991/SEAC/l(a)ToR- 1496/2023 Dated: 22.06.2023	
P2	Thiru.C.N. Mani,	75	2.47.5 ha	Tor obtained vide Lr. No SEIAA TN/F.No.8709/ ToR- 1084/2021 Dated: 17.03.2022	EC granted
P3	Tmt.M.Muthammal	77/2E (P),77/2F(P),& 79/1A (P)	1.82.0Ha	SEIAA- TN/F.No.8393/SEAC/ToR- 973/2021 Dated: 05.07.2021	EC granted

P4	Thiru.A.Nandakumar	78/1(P), 419&420	3.46.0 Ha	Lr.No.SEIAA- TN/F.No.9011/SEAC/ToR- 1161/2022 Dated: 06.06.2022	Under EC process
P5	Thiru.R.K.Palanisamy	340 (P) and 341/3 (P)	4.90.0 Ha	Lr.No.SEIAA- TN/F.No.9309/SEAC/ToR- 1242/2022 Dated: 30.08.2022	Under EC process
Total			17.72.72 ha		
*EXISTING QUARRIES					
CODE	Name of the Owner	S.F. No	Extent	Status	Remarks
E-1	Thiru.S. Gnanasekaran,	77/2D (P)	1.01.2 ha	01.10.2018 to 30.09.2023	Quarry in under operation
E-2	Thiru.S. Gnanasekaran,	74/2	2.37.0 ha	28.10.2022 to 27.10.2027	Quarry in under operation
E-3	Tmt.R.Poorani,	80/1	1.27.0 ha	22.12.2018 to 21.12.2023	Quarry in under operation
E-4	Tmt.T.Kaveriammal,	77/2B	0.99.0 ha	24.12.2018 to 23.12.2023	Quarry in under operation
E-5	M/s.Technomax Building Solution India Pvt Ltd	345/3 (P)	1.45.8 Ha	26.10.2018 to 25.10.2023	Quarry in under operation
E-6	M/s. Sri Blue Metals,	77/1B & 421/2B (Part)	3.11.0 ha	14.02.2023 to 13.02.2028	Quarry in under operation
TOTAL			10.21.0 ha		
EXPIRED QUARRY					
CODE	Name of the Owner	S.F. No	Extent	Status	Remarks
EX-1	Thiru.R.K.Selvakumar	69 (P)	2.19.0 ha	07.10.2017 to 16.10.2022	-
ABANDONED QUARRY					
A-1	Tmt.K.Vidya	76/2	1.21.5	21.12.2000 to 20.12.2005	
A-2	Thiru.R.Venkatasamy	67/2	0.61.0	09.06.2003 to 08.06.2008	
TOTAL			1.82.5 ha		
TOTAL CLUSTER EXTENT*			27.93.72 Ha		

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

TABLE 7.7: SALIENT FEATURES OF PROPOSAL "P1"

Name of the Quarry	M/s. Sri Blue Metals Rough stone and Gravel quarry	
Land Ownership	It is a Patta land, S.F.No. 76/1A is registered in the name of Thiru.P.Sidhartha Mowli and S.F.No. 76/1B (P) is registered in the name of Thiru.S.Palanisamy. The applicant has obtained consent from pattadhars.	
Land classification	It is a Patta Land-Punjai (Barren Land)	
SF No & Area (Ha)	76/1A & 76/1B (P) & 5.07.22 ha	
Village, Taluk & District	Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.	
Mining period	5 Years	
Toposheet No	58-A/15 & A/16	
Latitude between	11°14'54.10"N to 11°15'04.77"N	
Longitude between	76°58'07.22"E to 76°58'15.52"E	
Highest Elevation	355m AMSL	
Proposed Depth of Mining	42m (2m Gravel + 40m Rough Stone) below the ground level	
Geological Resources	Rough Stone in m ³	Gravel m ³
	19,73,814m³	82,854m³
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	9,67,173m³	67,082m³
Year wise Production	Rough Stone in m ³	Gravel m ³
	9,67,173m³	69,942m³
Existing pit dimension (As per Approved mining plan)	Pit-I: 158m (L) x 67m (W) x 15m (D) bgl	
Consent to Operate (CTO) from TNPCB	Proceedings No. F.0694CBN/RS/DEE/TNPCB/CBN/W/2016 Dated:21.01.2016	
Ultimate Pit Dimension	298m (L) x 180m (W) x 42m (D) bgl	
Water Level in the surrounds area	70 – 65 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is exhibits Flat terrain. The area has gentle sloping towards East side. The altitude of the area is 355m (max) above Mean Sea level. The area is covered by 2m thickness of Gravel formation. Massive Charnockite which is clearly inferred from the existing quarry pits.	
Machinery proposed	Jack Hammer	6 Nos
	Compressor	2 Nos
	Wagon Drill	2 Nos
	Excavator with Bucket and Rock Breaker	2No
	Trucks	4 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	38 Nos	
Project Cost	Rs. 4,19,60,000/-	
EMP cost	Rs. 3,80,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Odai	250m-W
	Odai	700m-W
	Belladhi lake	750m-NW
	Tank	1km- NE
	Odai	1.6km-SE
	Bhavani River	6.8km-NE
Greenbelt Development Plan	It is proposed to plant 2540 Nos of trees in the safety barrier and village road.	
Proposed Water Requirement	1.2 KLD	
Nearest Habitation	600m Southwest	

TABLE 7.8: SALIENT FEATURES OF PROPOSAL “P2”

Name of the Quarry	Thiru. C.N.Mani Rough Stone & Gravel Quarry	
Toposheet No	58-A/15	
Latitude between	11 ^o 14'53.04"N to 11 ^o 14'57.99"N	
Longitude between	76 ^o 58'43.03"E to 76 ^o 58'51.36"E	
Highest Elevation	355m AMSL	
Proposed Depth of Mining	57 m bgl (2 m Gravel + 55 m Rough Stone)	
Geological Resources	Rough Stone in m ³	Gravel m ³
	8,82,297	544
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	2,00,603	Gravel was removed during previous lease period
Yearwise Production	Rough Stone in m ³	
	2,00,603	
Existing pit dimension	202m (L) x 84m (W) x 25m (D)bgl	
Environmental Clearance	Lr.No.SEIAA-TN/F.No.2222/EC/1(a)/1178/2014 Dated: 08.04.2014	
Consent to Operate (CTO) from TNPCB	Proceedings No. F.0506CBN/RS/DEE/TNPCB/CBN/A/2015 Dated:03.11.2015	
Ultimate Pit Dimension	202m (L) x 84m (W) x 57m(D) bgl	
Water Level in the surrounding areas	60 – 65 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is exhibits plain terrain. The area has gentle sloping towards West side. The altitude of the area is 355 m (max) above mean sea level. The area is covered by 2 m thickness of Gravel Formation. Massive Charnockite is found after 2 m (Gravel Formation) which is clearly inferred from the nearby existing quarrying pit.	
Machinery proposed	Jack Hammer	5 Nos
	Compressor	2 Nos
	Hydraulic Excavator	1 Nos
	Tipppers	3 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	25 Nos	
Project Cost	Rs. 44,85,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Canal	50m West
	Belladhi Lake	600m North West
	Odai	750m North East
	Odai	1.5Km East
	Bhavani River	7km North East
Greenbelt Development Plan	It is proposed to plant 1,250 Nos of trees in the safety barrier and village road.	
Proposed Water Requirement	3.0 KLD	
Nearest Habitation	470m South West	

Source: Approved Mining Plan

TABLE 7.9: SALIENT FEATURES OF PROPOSAL “P3”

Name of the Project	Tmt. Muthammal Rough stone and Gravel quarry	
Toposheet No	58-A/16	
Latitude between	11 ^o 14'45.62" N to 11 ^o 14'50.65" N	
Longitude between	76 ^o 58'49.83" E to 76 ^o 58'57.68" E	
Highest Elevation	340m AMSL	
Proposed Depth of Mining	31 m bgl (1 m Gravel + 30 m Rough Stone)	

Geological Resources	Rough Stone in m ³	Gravel m ³
	3,96,853	480
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	63,384	Gravel was removed during previous lease period
Yearwise production recommended in ToR	Rough Stone in m ³	
	63,384	
Existing pit Dimension	Pit-I: 60m (L) x 38m (W) x 20m (D) Pit-II: 98m (L) x 46m (W) x 24m (D) Pit-III: 82m (L) x 64m (W) x 15m (D)	
Environmental Clearance	Lr. No. SEIAA-TN/F.No.3046/EC/1(a)/2414/2014 Dated: 19.11.2015.	
Consent to Operate (CTO) from TNPCB	Proceedings No. F.0602CBN/RS/DEE/TNPCB/CBN/W/2015 Dated: 04.12.2015	
Ultimate Pit Dimension	Pit-I: 60m (L) x 38m (W) x 31m (D) Pit-II: 173m (L) x 64m (W) x 31m (D)	
Water Level measured in the surrounding area	60-65m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is exhibits plain terrain. The area has gentle sloping towards North east side. The altitude of the area is 340m (max) above mean sea level. The area is covered by 1m thickness of Gravel Formation. Massive Charnockite is found after 1m (Gravel Formation) which is clearly inferred from the nearby existing quarrying pit.	
Machinery proposed	Jack Hammer	2 Nos
	Compressor	1 No
	Hydraulic Excavator	1 No
	Tipplers	1 No
Blasting method and type of Explosives proposed	Controlled Blasting Method by shot hole drilling (35-32mm dia hole) and small dia of 25mm slurry explosive are proposed to use for winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	15 Nos	
Project Cost	Rs.31,37,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Odai	300m West
	Belladhi Lake	950m North West
	Odai	650m North East
	Odai	1.7Km East
	Bhavani River	7.3km North East
Greenbelt Development Plan	It is proposed to plant 1,000 Nos of trees in the safety barrier and nearby village roads.	
Proposed Water Requirement	2.0 KLD	
Nearest Habitation	600m South East	

Source: Approved Mining Plan

TABLE 7.10: SALIENT FEATURES OF PROPOSAL "P4"

Name of the Project	Thiru. A. Nandhakumar Rough Stone & Gravel Quarry	
Toposheet No	58-A/16	
Latitude between	11°14'42.00"N to 11°14'47.83"N	
Longitude between	76°58'41.37"E to 76°58'49.95"E	
Highest Elevation	350m AMSL	
Proposed Depth of Mining (As per ToR)	47 m bgl (2 m Gravel + 45 m Rough Stone)	
Geological Resources	Rough Stone in m ³	Gravel m ³
	13,49,900	39,684
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	3,86,746	28,470

Yearwise Production	Rough Stone in m ³ 3,86,746	Gravel m ³ 28,470
Environmental Clearance	Lr.No.SEIAA-TN/F.No.3822/EC/1(a)/2709/2015 Dated: 11.01.2016	
Consent to Operate (CTO) from TNPCB	Proceedings No. F.0702CBN/RS/DEE/TNPCB/CBN/A/2021 DATED 13.02.2021	
Ultimate Pit Dimension	180m (L) x 205m (W) x 47m(D) bgl	
Water Level in the surrounding areas	65 – 70 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving small drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is exhibits plain terrain. The area has gentle sloping towards Southern side. The altitude of the area is 350 m (max) above mean sea level. The area is covered by 2 m thickness of Gravel Formation. Massive Charnockite is found after 2 m (Gravel Formation) which is clearly inferred from the nearby existing quarrying pit.	
Machinery proposed	Jack Hammer	10 Nos
	Compressor	3 Nos
	Hydraulic Excavator	2 No
	Tippers	4 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	38 Nos	
Project Cost	Rs. 79,45,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Canal	140m NW
	Belladhi Lake	820m NW
	Canal	1.90 km East
	Bhavani River	7.5km NE
Greenbelt Development Plan	As per Mining plan it is Proposed to plant 1750 trees in the 7.5 m Safety Zone, approach road & panchayat roads.	
Proposed Water Requirement	3.5 KLD	
Nearest Habitation	2.0 km North	

TABLE 7.11: SALIENT FEATURES OF PROPOSAL “P5”

Name of the Quarry	R.K.Palanisamy Rough Stone & Gravel Quarry	
Toposheet No	58-A/15	
Latitude between	11°15'10" N- 11°15'21" N	
Longitude between	76°58'58" E- 76°59'08" E	
Geological Resources	Rough Stone in m ³	Gravel m ³
	14,50,000	72,500
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	2,88,900	1,200
Ultimate Pit Dimension	235(L) * 130 (W) * 42 (D)	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Machinery proposed	Jack Hammer	2 Nos
	Compressor	1 No
	Hydraulic Excavator	1 No
	Tippers	1 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	12 Nos	

Project Cost	Rs. 57,06,000/-
CER Cost @ 2% of Project Cost	Rs. 1,14,120/-

Source: Approved Mining Plan

TABLE 7.13: SALIENT FEATURES OF PROPOSAL “E1”

Name of the Quarry	Thiru. S.Gnanasekaran Roughstone and gravel quarry	
Toposheet No	58-A/15	
Latitude between	11°14'49.77"N to 11°14'53.70"N	
Longitude between	76°58'48.20"E to 76°58'54.52"E	
Geological Resources	Rough Stone in m ³	Gravel m ³
	3,03,600	20,240
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	34,130	1,104
Existing pit dimension	128m(L) x 44m(W) x 12m(D)	
Ultimate Pit Dimension	Pit-1: 129m(L) x 44m(W) x 32m(D)	
	Pit-2: 64m(L) x 12m(W) x 7m(D)	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Machinery proposed	Jack Hammer	1 Nos
	Compressor	1 Nos
	Hydraulic Excavator	1 Nos
	Tippers	1 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	11 Nos	
Project Cost	Rs. 42,12,400/-	
CER Cost @ 2% of Project Cost	Rs.84,248/-	

Source: Approved Mining Plan

TABLE 7.12: SALIENT FEATURES OF PROPOSAL “E2”

Name of the Quarry	Thiru. S.Gnanasekaran – Rough Stone and Gravel quarry.	
Toposheet No	58-A/15	
Latitude between	11°14'56.68"N to 11°15'02.95"N	
Longitude between	76°58'47.23"E to 76°58'52.67"E	
Highest Elevation	354m AMSL	
Proposed Depth of Mining	22 m bgl (2m Gravel + 20m Rough Stone)	
Geological Resources	Rough Stone in m ³	Gravel m ³
	4,74,000	47,400
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	2,76,500	38,236
Ultimate Pit Dimension	167m (L) x 124m (W) x 22m (D)	
Water Level in the surrounds area	55 – 60 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is exhibits plain terrain. The area has gentle sloping towards south west side. The altitude of the area is 354 m (max) above mean sea level. The area is covered by 2 m thickness of Gravel Formation. Massive Charnockite is found after 2 m (Gravel Formation) which is clearly inferred from the nearby existing mine pit.	
Machinery proposed	Jack Hammer	5 Nos
	Compressor	1 No
	Hydraulic Excavator	2 Nos
	Tippers	3 Nos

Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	27 Nos	
Project Cost	Rs.51,50390/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Canal	160m West
	Belladhi Lake	580m North West
	Odai	700m East
	Odai	1.7km East
	Bhavani River	7km North
Greenbelt Development Plan	Proposed to plant 1000 trees in safety barrier and village roads.	
Proposed Water Requirement	4.0 KLD	
Nearest Habitation	520m South West	

Source: Approved Mining Plan

TABLE 7.14: SALIENT FEATURES OF PROPOSAL “E3”

Name of the Quarry	Tmt.R.Poorani Rough Stone & Gravel Quarry	
Toposheet No	58-A/15	
Latitude between	11°14'45.54"N to 11°14'48.39"N	
Longitude between	76°58'52.31"E to 76°58'58.33"E	
Geological Resources	Rough Stone in m ³	Gravel m ³
	5,09,080	25,454
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	77,355	7,068
Existing pit dimension	60m(L) x 50m(W) x 20m(D)	
Ultimate Pit Dimension	118m(L) x 58m(W) x 42m (D)	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Machinery proposed	Jack Hammer	3 Nos
	Compressor	1 No
	Hydraulic Excavator	1 No
	Tipplers	1 No
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	18 Nos	
Project Cost	Rs. 36,28,550 /-	
CER Cost @ 2% of Project Cost	Rs. 73,000 /-	

Source: Approved Mining Plan

TABLE 7.15: SALIENT FEATURES OF PROPOSAL “E4”

Name of the Quarry	Tmt.Kaveriammal Rough Stone & Gravel Quarry	
Toposheet No	58-A/15	
Latitude between	11°14'51.16"N to 11°14'53.59"N	
Longitude between	76°58'54.62"E to 76°58'59.82"E	
Geological Resources	Rough Stone in m ³	Gravel m ³
	3,60,270	24,018
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	46,576	-
Existing pit dimension	85m (L) x 60m(W) x 19m(D)	
Ultimate Pit Dimension	85m(L) x 60m(W) x 42m (D)	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Machinery proposed	Jack Hammer	3 Nos
	Compressor	1 No

	Hydraulic Excavator	1 No
	Tippers	1 No
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	18 Nos	
Project Cost	Rs. 32,64,085/-	
CER Cost @ 2% of Project Cost	Rs. 67,000 /-	

Source: Approved Mining Plan

TABLE 7.16: SALIENT FEATURES OF PROPOSAL “E5”

Name of the Quarry	M/s.Technomax Building Solution India Private Limited	
Toposheet No	58-A/15	
Latitude between	11 ⁰ 15'07"N to 11 ⁰ 15'13"N	
Longitude between	76 ⁰ 59'14"E to 76 ⁰ 59'17"E	
Highest Elevation	350m AMSL	
Proposed Depth of Mining	32m bgl (2 m Gravel + 30m Rough Stone)	
Geological Resources	Rough Stone and Gravel in m ³	
	8,62,200	
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	1,06,085	19,060
Existing pit dimension	84m (L) x 7.5m (W) x 5m (D)bgl	
Ultimate Pit Dimension	177m (L) x 61m (W) x 32m(D) bgl	
Water Level in the surrounds area	55 – 60 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is exhibits plain terrain. The area has gentle sloping towards Northeastern side. The altitude of the area is 350 m (max) above mean sea level. The area is covered by 2 m thickness of Gravel Formation. Massive Charnockite is found after 2 m (Gravel Formation) which is clearly inferred from the nearby existing quarrying pit.	
Machinery proposed	Jack Hammer	1Nos
	Compressor	1 Nos
	Hydraulic Excavator	1 Nos
	Tippers	2 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	14 Nos	
Project Cost	Rs. 29,58,000/-	
CER Cost @ 2% of Project Cost	Rs.59,160/-	
Nearest Habitation	1km North East	

TABLE 7.17: SALIENT FEATURES OF PROPOSAL “E6”

Name of the Quarry	M/s.Sri Blue Metals Rough stone quarry	
Toposheet No	58-A/16	
Latitude between	11 ⁰ 14'47.63"N to 11 ⁰ 14'54.52"N	
Longitude between	76 ⁰ 58'44.12"E to 76 ⁰ 58'53.96"E	
Highest Elevation	355m AMSL	
Proposed Depth of Mining	52 m bgl (2 m Gravel + 50 m Rough Stone)	
Geological Resources	Rough Stone in m ³	Gravel m ³
	10,47,328	2,412
Mineable Reserves	Rough Stone in m ³	Gravel m ³

	2,75,864	Gravel was removed during previous lease period
Yearwise Production	Rough Stone in m ³	
	2,75,864	
Existing pit dimension	Pit-I: 189m (L) x 139m (W) x 27m (D) bgl Pit-II: 116m (L) x 55m (W) x 25m (D) bgl	
Environmental Clearance	Lr.No.SEIAA-TN/F.No. 3766/EC/1(a)/2482/2015 Dated:01.12.2015	
Consent to Operate (CTO) from TNPCB	Proceedings No. F.0694CBN/RS/DEE/TNPCB/CBN/W/2016 Dated:21.01.2016	
Ultimate Pit Dimension	Pit – I 181m (L) x 139m (W) x 52m (D) bgl Pit – II 116m (L) x 55m (W) x 42m (D) bgl	
Water Level in the surrounds area	60 – 65 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is exhibits plain terrain. The area has gentle sloping towards North side. The altitude of the area is 355 m (max) above mean sea level. The area is covered by 2 m thickness of Gravel Formation. Massive Charnockite is found after 2 m (Gravel Formation) which is clearly inferred from the existing pit	
Machinery proposed	Jack Hammer	8 Nos
	Compressor	2 Nos
	Hydraulic Excavator	1 Nos
	Tipppers	3 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	31 Nos	
Project Cost	Rs. 60,13,000/-	
CER Cost @ 2% of Project Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Odai	530m South West
	Canal	100m West
	Odai	1.8Km East
	Belladhi Lake	850m North West
	Bhavani River	7.3 km North East
Greenbelt Development Plan	It is proposed to plant 1,500 Nos of trees in the safety barrier and village roads.	
Proposed Water Requirement	3.5 KLD	
Nearest Habitation	380m South west	

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 7.18: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE

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	9,67,173	1,93,435	645	107
P2	2,00,603	40,121	134	22
P3	63,384	12,677	42	7
P4	78,942	15,788	53	9
P5	2,88,900	57,780	193	32
Total	1,599,002	3,19801	1067	177
E1	34,130	6,826	23	4
E2	2,76,500	55,300	184	31

E3	77,355	15,471	52	9
E4	71,075	14,215	47	8
E5	1,06,085	21,217	71	12
E6	2,75,864	55,173	184	31
Total	8,41,009	1,68,202	551	95
Grand Total	24,40,011	4,88,003	1,618	272

TABLE 7.19: CUMULATIVE PRODUCTION LOAD OF GRAVEL

Quarry	Production for p;[=five-year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1	69,942	23,314	78	13
P2	-	-	-	-
P3	-	-	-	-
P4	4,212	2,106	7	1
P5	1,200	1,200	4	1
Total	75,354	26,620	89	15
E1	1,104	1,104	4	1
E2	38,236	12,745	42	7
E3	7,068	7,068	24	4
E4	-	-	-	-
E5	19,060	9,530	32	5
E6	-	-	-	-
Total	65,468	30,447	102	17
Grand Total	1,40,822	57,067	191	32

On a cumulative basis considering the proposed quarries, it can be seen that the overall production of Rough Stone is 1067m³ per day and overall production of Gravel is 89m³ per day with a capacity of 177 trips of Rough Stone per day and 15 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 1 or 3 years of 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 11 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 7.20: EMISSION ESTIMATION FROM QUARRIES WITHIN 500 METER RADIUS

EMISSION ESTIMATION FOR QUARRY "P1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.134178981	g/s
	Blasting	Point Source	0.010520513	g/s
	Mineral Loading	Point Source	0.049119996	g/s
	Haul Road	Line Source	0.002524926	g/s
	Overall Mine	Area Source	0.085035549	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.002945279	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000334906	g/s
EMISSION ESTIMATION FOR QUARRY "P2"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.078564385	g/s
	Blasting	Point Source	0.000724007	g/s
	Mineral Loading	Point Source	0.040511056	g/s
	Haul Road	Line Source	0.002488386	g/s
	Overall Mine	Area Source	0.056026982	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000447229	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000024444	g/s

EMISSION ESTIMATION FOR QUARRY "P3"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.055605678	g/s
	Blasting	Point Source	0.000128591	g/s
	Mineral Loading	Point Source	0.036102563	g/s
	Haul Road	Line Source	0.002484127	g/s
	Overall Mine	Area Source	0.048715505	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000138544	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000005679	g/s
EMISSION ESTIMATION FOR QUARRY "P4"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.078564385	g/s
	Blasting	Point Source	0.000724007	g/s
	Mineral Loading	Point Source	0.040511056	g/s
	Haul Road	Line Source	0.002488386	g/s/m
	Overall Mine	Area Source	0.056026982	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000447229	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000024444	g/s
EMISSION ESTIMATION FOR QUARRY "P5"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.096363812	g/s
	Blasting	Point Source	0.002009946	g/s
	Mineral Loading	Point Source	0.043944459	g/s
	Haul Road	Line Source	0.002496205	g/s/m
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.001033536	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000106451	g/s
EMISSION ESTIMATION FOR QUARRY "E1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.046181079	g/s
	Blasting	Point Source	0.000050808	g/s
	Mineral Loading	Point Source	0.034447976	g/s
	Haul Road	Line Source	0.00248339	g/s
	Overall Mine	Area Source	0.038403514	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	7.96088E-05	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000001920	g/s
EMISSION ESTIMATION FOR QUARRY "E2"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.086503111	g/s
	Blasting	Point Source	0.001171583	g/s
	Mineral Loading	Point Source	0.042708666	g/s
	Haul Road	Line Source	0.00249272	g/s
	Overall Mine	Area Source	0.055915755	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000719665	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000038210	g/s
EMISSION ESTIMATION FOR QUARRY "E3"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.050959974	g/s
	Blasting	Point Source	0.000083131	g/s
	Mineral Loading	Point Source	0.036097148	g/s
	Haul Road	Line Source	0.002484124	g/s
	Overall Mine	Area Source	0.052437245	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000133875	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000006481	g/s
EMISSION ESTIMATION FOR QUARRY "E4"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀				

	Drilling	Point Source	0.046181079	g/s
	Blasting	Point Source	0.000050808	g/s
	Mineral Loading	Point Source	0.034447976	g/s
	Haul Road	Line Source	0.00248339	g/s
	Overall Mine	Area Source	0.038403514	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	7.96088E-05	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000001920	g/s
EMISSION ESTIMATION FOR QUARRY "E5"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.050959974	g/s
	Blasting	Point Source	0.000083131	g/s
	Mineral Loading	Point Source	0.036097148	g/s
	Haul Road	Line Source	0.002484124	g/s/m
	Overall Mine	Area Source	0.052437245	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000133875	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000006481	g/s
EMISSION ESTIMATION FOR QUARRY "E6"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.057549062	g/s
	Blasting	Point Source	0.000152688	g/s
	Mineral Loading	Point Source	0.036518344	g/s
	Haul Road	Line Source	0.002484365	g/s
	Overall Mine	Area Source	0.038221411	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000146086	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000003464	g/s

Source: Emission Calculation

TABLE 7.21: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM₁₀ in µg/m³	
Background	24.2
Incremental	17.72
Resultant	41.92
NAAQ Norms	100 µg/m³
PM_{2.5} in µg/m³	
Background	43.4
Incremental	10.95
Resultant	54.35
NAAQ Norms	60 µg/ m³
So₂ in µg/m³	
Background	19.8
Incremental	3.59
Resultant	23.39
NAAQ Norms	80 µg/ m³
No₂ in µg/m³	
Background	23.4
Incremental	11.85
Resultant	35.25
NAAQ Norms	80 µg/ m³

Noise Environment –

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

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

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

Where:

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

$A_{e1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

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

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 7.22: 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)	
Proposed					
Habitation Near P1	48.8	44.5	50.2	55	
Habitation Near P2	47	48.1	50.6		
Habitation Near P3	41.4	46.1	47.4		
Habitation Near P4	47	48.1	50.6		
Habitation Near P5	41.7	45.3	49.4		
Existing					
Habitation Near E1	40.3	46.1	47.1		
Habitation Near E2	48.3	45.8	50.2		
Habitation Near E3	41.01	44.5	46.1		
Habitation Near E4	36.3	43.2	44.0		
Habitation Near E5	43.85	41.5	45.8		
Habitation Near E6	42	49.2	50.0		

Source: Lab Monitoring Data

The incremental noise level is found within the range of 41.5 - 49.2 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 11 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 9 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.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining areas and may cause injury to persons or damage to the structures.

Nearest Habitations from 11 mines respectively are as in below Table 7.21.

TABLE 7.23: NEAREST HABITATION FROM EACH MINE

Location ID	Distance & Direction
Proposed	
Habitation Near P1	600m-SW
Habitation Near P2	470m SW
Habitation Near P3	600m-SE
Habitation Near P4	540m SE
Habitation Near P5	1.0 km NW
Existing	
Habitation Near E1	500m SW
Habitation Near E2	520m SW
Habitation Near E3	600m West
Habitation Near E4	700m SW

Habitation Near E5	850m NW
Habitation Near E6	380m SW

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 7.24: GROUND VIBRATIONS AT 11 MINES

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in mm/s
P1	279	600m-SW	1.623
P2	47	470m SW	0.683
P3	14	600m SE	0.181
P4	112	540m SE	0.926
P5	76	1.0 km NW	0.486
E1	10	500m SW	0.152
E2	80	520m SW	0.751
E3	23	600m West	0.220
E4	20	700m SW	0.154
E5	14	850m NW	0.085
E6	42	380m SW	1.241

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

TABLE 7.25: SOCIO ECONOMIC BENEFITS FROM 11 MINES

Location ID	Project Cost	CER Cost
P1	Rs.4,23,40,000	Rs. 5,00,000/-
P2	Rs.44,85,000	Rs 5,00,000/-
P3	Rs.31,37,000	Rs 5,00,000/-
P4	Rs.79,45,000	Rs.5,00,000/-
P5	Rs.57,06,000	Rs.5,00,000/-
Total	Rs. 63,61,3,000	Rs.25,00,000/-
E1	Rs. 42,12,400/-	Rs.84,248
E2	Rs.51,50,390/-	Rs 5,00,000/-
E3	Rs.36,28,550	Rs.73,000
E4	Rs.32,64,085	Rs. 67,000
E5	Rs.28,58,000	Rs. 59,160
E6	Rs.60,13,000	Rs 5,00,000/-
Total	Rs. 2,51,26,425	Rs. 12,83,408/-
Grand Total	Rs. 8,87,39,425	Rs. 37,83,408/-

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 25,00,000/-**
- Existing Projects shall fund towards CER – **Rs.12,83,408/-**

- Projects in Cluster shall fund towards CER – **Rs 37,83,408/-**

TABLE 7.26: EMPLOYMENT BENEFITS FROM 11 MINES

Description	Employment
P1	38
P2	25
P3	15
P4	38
P5	12
Total	128
E1	11
E2	27
E3	18
E4	18
E5	14
E6	31
Total	119
Grand Total	247

A total of 128 people will get employment due to 5 proposed mines in cluster and 119 people are already employed at existing mines.

TABLE 7.27: GREENBELT DEVELOPMENT

Code	No of Trees proposed to be planted	Survival %	Area to be covered	Name of the Species
P1	2540	80%	Safety barrier & village road	Neem, Pungan
P2	1,250	80%		Neem, Pungan
P3	750	80 %		Neem, Pungan
P4	2080	80 %		Neem, Casuarina
P5	2500	80 %		Neem, Casuarina
Total	9,120	80 %		
E1	100	80 %		Neem, Pungan
E2	1000	80 %		Neem, Pungan
E3	100	80 %		Neem, Pungan
E4	150	80 %		Neem, Pungan
E5	200	80 %		Neem, Casuarina
E6	1500	80 %		Neem, Pungan
Total	3,050	80 %		Neem, Pungan

Based on the Proposed Mining Plan it's anticipated that there shall growth of native species of Neem, Pungan, Casuarina etc., in the Cluster at a rate of 9,120 Trees Planted over a period of 5 Years with Survival Rate of 80 %.

7.5 PLASTIC WASTE MANAGEMENT PLAN

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

Objective –

- To investigate the actual supply chain network of plastic waste.
- To identify and propose a sustainable plastic waste management by installing bins for collection of recyclables with all the plastic waste
- Preparation of a system design layout, and necessary modalities for implementation and monitoring.

TABLE 7.28: 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

7.6 POST COVID HEALTH MANAGEMENT PLAN

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

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

Post-COVID Follow Up Protocol –

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

- It is also suggested by the Ministry of AYUSH that the use of Chyawanprash in the morning (1 teaspoonful) with Luke warm water/milk is highly recommended (under the direction of Registered Ayurveda physician) as in the clinical practice Chyawanprash is believed to be effective in post-recovery period.
- If there is persistent dry cough / sore throat, do saline gargles and take steam inhalation. The addition of herbs/spices for gargling/steam inhalation. Cough medications, should be taken on advice of medical doctor or qualified practitioner of Ayush.
- Look for early warning signs like high grade fever, breathlessness, SpO₂ < 95%, unexplained chest pain, new onset of confusion, focal weakness.
- Avoid smoking and consumption of alcohol.
- Communicate to your employees and contractors about the plan and make sure they are aware of what they need to do – or not do – under the plan. Emphasize key points such as the importance of staying away from work even if they have only mild symptoms or have had to take simple medications (e.g. paracetamol, ibuprofen) which may mask the symptoms.
- The plan should address how to keep your business running even if a significant number of employees, contractors and suppliers cannot come to your place of business - either due to local restrictions on travel or because they are ill.

Carbon Emission.

Carbon dioxide (CO₂): 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 (CH₄): 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 (N₂O): 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.

In this quarrying activities, anticipated GHG is mainly CO₂ as its proposed for usage of HSD (High Speed Diesel) for proposed machinery totally deployed are 2 Compressor, 1 Excavator and 3 Tippers for which an approximate usage of HSD is around 150 Liters per day (as per pre-feasibility report). Which contributes to 40.20 kg of CO₂ for the stretch of daily activity of 20 kms @ 1 Litter Diesel produces 2.68 kg of CO₂ on the contrast 1 tree absorbs approximately 20-40 kgs of CO₂ per year.

- It is proposed to plant 1,500 Nos trees from this project shall absorb 30,000 kgs of CO₂ per year on average basis.
- Apart from which, its proposed for deployment of New Modern Machineries (BSVI) and PUC certified Vehicles

Therefore, the implementation of proposed mitigation measures for winning of mineral may not have much of impact on the surrounding environment leading to release of Greenhouse gases (GHC), rise in temperature & livelihood of local people.

Hydrothermal/Geothermal effect due to destruction in the Environment.

- Hydrothermal – relating to hot water —used especially of the formation of minerals by hot solutions rising from a cooling magma.
- Geothermal – relating to or produced by the internal heat of the earth.
- The proposed activity is for quarrying of Rough stone by opencast mechanized mining method for an ultimate depth of 42 m bgl.

- The proposed mining area and the surrounding falls under hard rock formation i.e., Charnockite Formation and the district has not recorded any Hydrothermal / Geothermal effect and as per the Seismic Zonation Map of India, the district falls under the Zone II of seismic zones classification.
- The resultant of this open cast mining shall not have any Hydrothermal/Geothermal effect on the surrounding environment.

Bio-geochemical processes and its foot prints including environmental stress.

- Bio-geochemical cycle – any of the natural pathways by which essential elements of living matter are circulated. The term biogeochemical is a contraction that refers to the consideration of the biological, geological, and chemical aspects of each cycle.
- This proposed activity is for quarrying of rough stone quarry and maximum depth of mining is 42 m bgl and the applied area for quarrying is a patta land with no major vegetation and it is proposed for greenbelt development all along the safety barrier and construction of garland drainage and implement the proposed EMP strictly to mitigate the impacts on surrounding environment.
- No Bio-geochemical processes and its foot prints including environmental stress are anticipated and at the end of life of mine the proposed quarry shall be left as an artificial reservoir structure and allowed to collect rain water and shall enrich the ecosystem.

Sediments geochemistry in the surface streams.

- Sedimentary Geochemistry has been in use to understand the conditions of deposition, climatic variations, tectonic setting, provenance, reservoir characteristics, etc.,
- The elemental composition of sediments in surface streams is the product of physical and chemical erosion of rocks, which is then transported across drainage networks.
- The project area when broken up lead to create void and land use pattern of the proposed area is alerted by ways of formation of open pit and as mitigation measure its proposed for garland drain all along the boundary barrier to ensure that no natural drainage pattern is disturbed and the garland drains are in turn connected to settlement traps were its ensured that no debris are carried away and hence the proposed activity shall not lead to any deposition of sediments in the nearby surface streams.

8. PROJECT BENEFITS

8.0 GENERAL

The Proposed Project for Quarrying Rough Stone at Chikkarampalayam Village aims to produce **9,67,173m³** Rough Stone over a period of 5 Years and Gravel 69,942m³. 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 38 persons for carrying out mining operations and give preference to the local people in providing employment. 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 project area is located in Chikkarampalayam Village, Mettupalayam Taluk and Coimbatore 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 this project.

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

8.4 IMPROVEMENT IN SOCIAL INFRASTRUCTURE

Employment is expected during civil construction period, in trade, garbage lifting, sanitation and other ancillary services, Employment in these sectors will be primarily temporary or contractual and involvement of unskilled labour will be more. A major part of the labour force will be mainly from local villagers who are expected to engage themselves both in agriculture and mining activities. This will enhance their income and lead to overall economic growth of the area.

8.5 OTHER TANGIBLE BENEFITS

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

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

CORPORATE SOCIAL RESPONSIBILITY

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.

Under this programme, the project proponents will take-up following programmes for social and economic development of villages within 10 km of the project site. For this purpose, separate budget will be provided every year. For finalization of these schemes, proponent will interact with LSG. The schemes will be selected from the following broad areas –

- Health Services
- Social Development
- Infrastructure Development
- Education & Sports
- Self-Employment

CSR Cost Estimation

- CSR activities will be taken up in the Chikkarampalayam 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

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.

The project proponent will spent Rs 5,00,000/- towards Corporate Environmental Responsibility for the Nearby Government School

TABLE 8.1: CER – ACTION PLAN

Activity	Beneficiaries	Total
Providing Sanitation facilities to the school	Chikkarampalayam villagers	Rs 5,00,000/-
Planting and maintaining of trees in the school compound	Chikkarampalayam villagers	
Providing Environmental related books to the school library	Chikkarampalayam villagers	

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

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 Tvl. Sri Blue Metals 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 (unutilized areas, infrastructure, haul Roads) will be utilized for greenbelt development. Aesthetic of the Environment will not be affected. There is no major vegetation in the project area during the course of quarrying operation and after completion of the quarrying operation thick plantation will be developed under greenbelt development 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
Re-fuelling to be undertaken in a safe location, away from vehicle movement pathways & 100 m away of any watercourse Refuelling activity to be under visual observation at all times. Drainage of refuelling 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 is no overburden or waste anticipated from proposed project.

TABLE 10.2: PROPOSED CONTROLS FOR SOIL MANAGEMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.4. WATER MANAGEMENT

In the proposed quarrying project, no process is involved for the effluent generation, only oil & grease from the machinery wash is anticipated and domestic sewage from mine office. The quarrying operation is proposed upto a depth of 42 m BGL, the water table in the area is 70 m – 65 m below ground level, hence the proposed projects will not intersect the Ground water table during entire quarry period.

TABLE 10.3: PROPOSED CONTROLS FOR WATER ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.5. AIR QUALITY MANAGEMENT

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

TABLE 10.4 : PROPOSED CONTROLS FOR AIR ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.6. NOISE POLLUTION CONTROL

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and cutting activities. No mining activities are planned during night time.

TABLE 10.5: PROPOSED CONTROLS FOR NOISE ENVIRONMENT

CONTROL	RESPONSIBILITY
Development of thick greenbelt all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Preventive maintenance of mining machinery and replacement of worn out accessories to control noise generation	Mines Foreman
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Mines Manager
Provision of earmuff/ ear plugs to workers working in noise prone zones in the mines	Mining Mate
Provision of effective silencers for mining machinery and transport vehicles	Mines Manager

Provision of sound proof AC operator cabins to HEMM	Mines Manager
Sharp drill bits are used to minimize noise from drilling	Mines Foreman
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring are carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.7.C 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

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 2540 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 trees proposed to be planted	Survival %	Recommended area	Name of the species
I	2540	80%	Safety barrier, Unutilized land, Village roads	Neem, Pongamia Pinnata, etc.,

Source: Conceptual Plan of Approved Mining plan & Proposed by FAE's & EIA Coordinator

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 TO PLANT IN THE GREENBELT

S.No	Botanical Name	Local Name	Importance
1.	Azadirachta indica	Neem, Vembu	Neem oil & neem products
2.	Tamarindus indica	Tamarind	Edible & Medicinal and other Uses
3.	Polyalthia longifolia	Nettilinkam	Tall and evergreen tree
4.	Borassus Flabellifer	Palmyra Palm	Tall Wind breaker tree and its fruits are edible

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 –

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

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detailed medical examination at the time of employment. The medical examination covers the following tests under mines act 1952.

- General Physical Examination and Blood Pressure
- X-ray Chest and ECG
- Sputum test
- Detailed Routine Blood and Urine examination

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

TABLE 10.9.: MEDICAL EXAMINATION SCHEDULE

Sl.No	Activities	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
1	Initial Medical Examination (Mine Workers)					
A	Physical Check-up					
B	Psychological Test					
C	Audiometric Test					
D	Respiratory Test					
2	Periodical Medical Examination (Mine Workers)					
A	Physical Check – up					
B	Audiometric Test					
C	Eye Check – up					
D	Respiratory Test					
3	Medical Camp (Mine Workers & Nearby Villagers)					
4	Training (Mine Workers)					

Medical Follow ups:- Work force will be divided into three targeted groups age wise as follows:-		
Age Group	PME as per Mines Rules 1955	Special Examination
Less than 25 years	Once in a Three Years	In case of emergencies
Between 25 to 40 Years	Once in a Three Years	In case of emergencies
Above 40 Years	Once in a Three Years	In case of emergencies
Medical help on top priority immediately after diagnosis/ accident is the essence of preventive aspects.		

10.9.2.: Proposed Occupational Health and Safety Measures –

- The mine site will have adequate drinking water supply so that workers do not get dehydrated.
- Lightweight and loose-fitting clothes having light 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.
- Supervisor will be instructed for reporting any problems with hearing protectors or noise control equipment.
- At noisy working activity, exposure time will be minimized.
- Dust generating sources will be identified and proper control measure will be adopted.
- Periodic medical examinations will be provided for all workers.
- Strict observance of the provisions of DGMS Acts, Rules and Regulations in respect of safety both by management and the workers.
- The width of road will be maintained more than thrice the width of the vehicle. A code of traffic rules will be implemented.
- In respect of contract work, safety code for contractors and workers will be implemented. They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training 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.

TABLE 10.10.: LIST OF PERIODICAL TRAININGS PROPOSED FOR EMPLOYEES

Course	Personnel	Frequency	Duration	Instruction
New-Employee Training	All new employees exposed to mine hazards	Once	One week	Employee rights Supervisor responsibilities Self-rescue Respiratory devices Transportation controls Communication systems Escape and emergency evacuation Ground control hazards Occupational health hazards Electrical hazards First aid Explosives
Task Training Like Drilling, Blasting, Stemming, safety, Slope stability, Dewatering, Haul road maintenance,	Employees assigned to new work tasks	Before new Assignments	Variable	Task-specific health & safety procedures and SOP for various mining activity. Supervised practice in assigned work tasks.
Refresher Training	All employees who received new-hire training	Yearly	One week	Required health and safety standards Transportation controls Communication systems Escape ways, emergency evacuations Fire warning Ground control hazards First aid Electrical hazards Accident prevention Explosives Respirator devices
Hazard Training	All employees exposed to mine hazards	Once	Variable	Hazard recognition and avoidance Emergency evacuation procedures Health standards Safety rules Respiratory devices

Source: Proposed by FAE's & EIA Coordinator as per DGMS Norms

10.9.4.: Budgetary Provision for Environmental Management –

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 10.11 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

TABLE 10.11: EMP BUDGET FOR PROPOSED PROJECT

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	50722	50722
	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 - 3 Units	150000	15000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 4 Units	20000	1000
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	101444
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0

	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Compentent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	2514650
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	50722	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	1014440	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 2540Trees - (1130Inside Lease Area & 1050 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)	226000	33900
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	315000	31500
	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	110850	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	5706321	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) - 38 Employees	152000	38000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	38000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	10144.4
	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	253610	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
CER	As per MoEF & CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	0
TOTAL			3692494	3816360.2

TOTAL COST FOR THE FIVE YEARS

Year Wise Break Up	
1st Year	7508854.2
2nd Year	4007178.2
3rd Year	4207537.1
4th Year	4417914
5th Year	4749659.7
Total	249 Lakhs

In order to implement the environmental protection measures, an amount of Rs.36.92 lakhs as capital cost and recurring cost as Rs. 38.16 lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project.

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

M/s.Sri Blue Metals Rough Stone and Gravel (Extent – 5.07.22 ha) 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.

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 December 2022– February 2023 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

The project proponent ensures to obtain necessary clearances and quarrying will be carried out as per rules and regulations. The Mining Activity will be carried out in a phased manner as per the approved mining plan after obtaining EC, CTO from TNPCB, execution of lease deed and obtaining DGMS Permission and working will be carried out under the supervision of Competent Persons employed.

Overall, the EIA report has predicted that the project will comply with all environment standards and legislation after commencement of the project and operational stage mitigation measures are implemented.

Mining operations has positive impact on environment and socio economy such as landscape improvement, water as by-product, economy development and better public services, providing and supply of Rough Stone as per market demand.

Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for 38 people directly in the proposed project and indirectly around 10-20 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 M/s.Sri Blue Metals Rough Stone and Gravel Quarry.

12. DISCLOSURE OF CONSULTANT

The Project Proponent Thiru. S. Gnansekaran Proprietor of M/s. Sri Blue Metals have engaged M/s Geo Exploration and Mining Solutions, an Accredited Organization under Quality Council of India – National Accreditation Board for Education & Training, New Delhi, for carrying out the EIA Study as per the ToR Issued for the proposed project.

Name and address of the consultancy:

GEO EXPLORATION AND MINING SOLUTIONS

No 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004

Tamil Nadu, India

Email: infogeoexploration@gmail.com

Web: www.gemssalem.com

Phone: 0427 2431989.

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

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

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

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

Declaration by experts contributing to the EIA/EMP for M/s. Sri Blue Metals Rough Stone & Gravel Quarry Project over an Extent of 5.07.22 ha in Chikkampalayam Village of Mettupalayam Taluk, Coimbatore District of Tamil Nadu. It is also certified that information furnished in the above EIA study are true and correct to the best of our knowledge.

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

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

Designation: **EIA Coordinator**




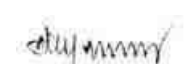




Date & Signature:











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

Associated Team Member with EIA Coordinator:

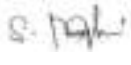


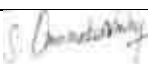
1. Mr. S. Nagamani
2. Mr.P. Viswanathan
3. Mr. M.Santhoshkumar
4. Mr. S. Ilavarasan



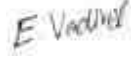
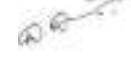
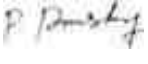
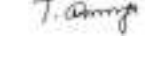
FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

Sl. No.	Functional Area	Involvement	Name of the Expert/s	Signature
1	AP	<ul style="list-style-type: none"> ▪ Identification of different sources of air pollution due to the proposed mine activity ▪ Prediction of air pollution and propose mitigation measures / control measures 	Mr. A. Jagannathan	
2	WP	<ul style="list-style-type: none"> ▪ Suggesting water treatment systems, drainage facilities ▪ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures. 	Dr. M. Ifthikhar Ahmed	
			Mr. N. Senthilkumar	
3	HG	<ul style="list-style-type: none"> ▪ Interpretation of ground water table and predict impact and propose mitigation measures. ▪ Analysis and description of aquifer Characteristics 	Dr. P. Thangaraju	
4	GEO	<ul style="list-style-type: none"> ▪ Field Survey for assessing the regional and local geology of the area. ▪ Preparation of mineral and geological maps. ▪ Geology and Geo morphological analysis/description and Stratigraphy/Lithology. 	Dr. M. Ifthikhar Ahmed	
			Dr. P. Thangaraju	
5	SE	<ul style="list-style-type: none"> ▪ Revision in secondary data as per Census of India, 2011. ▪ Impact Assessment & Preventive Management Plan ▪ Corporate Environment Responsibility. 	Mrs. K. Anitha	
6	EB	<ul style="list-style-type: none"> ▪ Collection of Baseline data of Flora and Fauna. ▪ Identification of species labelled as Rare, Endangered and threatened as per IUCN list. 	Mrs. Amirtham	

		<ul style="list-style-type: none"> Impact of the project on flora and fauna. Suggesting species for greenbelt development. 	Mr. Alagappa Moses	
7	RH	<ul style="list-style-type: none"> Identification of hazards and hazardous substances Risks and consequences analysis Vulnerability assessment Preparation of Emergency Preparedness Plan Management plan for safety. 	Mr. N. Senthilkumar	
			Mr. S. Pavel	
			Mr. J. R. Vikram Krishna	
8	LU	<ul style="list-style-type: none"> Construction of Land use Map Impact of project on surrounding land use Suggesting post closure sustainable land use and mitigative measures. 	Mr. A. Allimuthu	
9	NV	<ul style="list-style-type: none"> Identify impacts due to noise and vibrations Suggesting appropriate mitigation measures for EMP. 	Mr. A. Jagannathan	
10	AQ	<ul style="list-style-type: none"> Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. Recommending mitigations measures for EMP 	Mr. N. Senthilkumar	
11	SC	<ul style="list-style-type: none"> Assessing the impact on soil environment and proposed mitigation measures for soil conservation 	Dr. M. Ifthikhar Ahmed	
12	SHW	<ul style="list-style-type: none"> Identify source of generation of non-hazardous solid waste and hazardous waste. Suggesting measures for minimization of generation of waste and how it can be reused or recycled. 	Mr. A. Jagannathan	
			Mr. J. R. Vikram Krishna	

LIST OF TEAM MEMBERS ENGAGED IN THIS PROJECT

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

			<ul style="list-style-type: none"> ▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan 	
5	Mr. A. Allimuthu	SE	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of data's ▪ Provide inputs by analysing primary and secondary data 	
6	Mr. S. Ilavarasan	LU; SC	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assisting FAE in preparation of land use maps ▪ Provide inputs & Assisting FAE with soil conservation methods and identifying impacts 	
7	Mr. E. Vadivel	HG	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE & provide inputs on aquifer characteristics, ground water level/table ▪ Assist with methods of ground water recharge and conduct pump test, flow rate 	
8	Mr. D. Dinesh	NV	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE and provide inputs on impacts due to proposed mine activity and suggest mitigation measures ▪ Assist FAE with prediction modelling 	
9	Mr. Panneer Selvam	EB	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna 	
10	Mrs. Nathiya	EB	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna 	

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 EIA/EMP for M/s. Sri Blue Metals Rough Stone & Gravel Quarry Project over an Extent of 5.07.22 ha in Chikkarampalayam Village of Mettupalayam Taluk, Coimbatore 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/RA0276 Dated: 20.02.2023

Validity:

Valid till 06.08.2025

ANNEXURE

M/s. SRI BLUE METALS ROUGH STONE & GRAVEL QUARRY

Chikkarampalayam Village,
Mettupalayam Taluk,
Coimbatore District

EXTENT = 5.07.22 ha

ToR obtained

Lr.No. SEIAA-TN/F.No.9991/SEAC/1(a)ToR-1496/2023 Dated: 22.06.2023

Project Proponent

**M/s. Sri Blue Metals,
Proprietor Thiru S. Gnanasekaran
D.No 2/241, Kannarpalayam,
Karamadai Post,
Chikkarampalayam Village,
Mettupalayam Taluk,
Coimbatore District – 641 104**

LIST OF ANNEXURES

Annexure No	DESCRIPTION	PAGE NO
P1 Thiru.T.Manojkumar,	COPY OF TERMS OF REFERENCE	1A-23A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	24A-29A
	COPY OF MINING PLAN APPROVED LETTER	30A-31A
	COPY OF APPROVED MINING PLAN WITH PLATES	32A-107A
	COPY OF ADDITIONAL DOCUMENT	108A-132A
P2 Thiru.C.N. Mani,	COPY OF ENVIRONMENTAL CLEARANCE	133A-168A
P3 Tmt.M.Muthammal,	COPY OF ENVIRONMENTAL CLEARANCE	169A – 199A
P4 Thiru.A.Nandakumar	COPY OF TOR	200A – 219A
P5 Thiru.R.K.Palanisamy	COPY OF TOR	220A – 237A
E1 Thiru.S.Gnanasekaran	COPY OF MINING PLAN	238A – 280A
E2 Thiru.S.Gnanasekaran,	COPY OF MINING PLAN APPROVAL LETTER	281A – 283A
E3 Tmt.R.Poorani,	COPY OF ENVIRONMENTAL CLEARANCE	284A – 301A
E4	COPY OF ENVIRONMENTAL CLEARANCE	302A – 310A

Tmt.T.Kaveriammal,		
E5 M/s.Technomax Building Solution India Pvt Ltd	COPY OF ENVIRONMENTAL CLEARANCE	311A – 320A
E6 M/s. Sri Blue Metals,	COPY OF ENVIRONMENTAL CLEARANCE	321A – 352A
	COPY OF BASE LINE MONITORING DATA	353A - 396A
	COPY OF NABET CERTIFICATE	397A



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

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.9991/SEAC/1(a)ToR-1496/2023 Dated:22.06.2023.

To

Tvl. Sri Blue Metals,
No. 2/241, Kannarpalayam,
Karamadai Post,
Coimbatore District – 641 104.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Proposal Seeking Terms of Reference with public Hearing (ToR) for the Proposed rough stone & gravel quarry lease over an extent of 5.07.22 Ha (Patta Land) at S.F.No. 76/1A & 76/1B(P) of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu by Tvl.Sri Blue Metals - under project category – “B1” and Schedule S.No.1(a) “Mining of Minerals Projects” – **ToR issued along with Public Hearing-** preparation of EIA report – Regarding.

Ref: 1. Online proposal No. SIA/TN/MIN/425793/2023 dated 12.04.2023.
2. Your application submitted for Terms of Reference dated: 20.04.2023.
3. Minutes of the 382nd SEAC meeting held on 09.06.2023.
6. Minutes of the 632nd SEIAA meeting held on 21.06.2023 & 22.06.2023.

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


MEMBER SECRETARY
SEIAA-TN

The proponent, Tvl.Sri Blue Metals has submitted application for Terms of Reference (ToR) on 20.04.2023, for the Proposed rough stone & gravel quarry lease over an extent of 5.07.22 Ha (Patta Land) at S.F.No. 76/1A & 76/1B(P) of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

The proposal is placed for appraisal in this 382nd SEAC meeting held on 09.06.2023. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, **Tvl.Sri Blue Metals** has applied for Terms of Reference for the Proposed rough stone & gravel quarry lease over an extent of 5.07.22 Ha (Patta Land) at S.F.No. 76/1A & 76/1B(P) of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamilnadu.
2. The project/activity is covered under Category "BI" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.

As per the mining plan, the lease period is for 5 years and the mining plan is for 5 years. The production for 5 years not to exceed **9,67,173m³ of rough stone & 69,942m³ of gravel up to a depth of 42m below ground level.**

Based on the presentation made by the proponent, **SEAC decided to recommend the proposal for Terms of Reference (TOR) with Public Hearing subject to the following additional TORs**, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

1. **The proponent/consultant shall furnish an affidavit stating that no mining operations were carried out in the proposed project area after 2014.**
2. 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.
3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
4. The PP shall submit a detailed hydrological report indicating the impact of proposed


MEMBER SECRETARY
SEIAA-TN

- quarrying operations on the waterbodies like lake, water tanks, etc located within 1 km of the proposed quarry.
5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
 6. Since the quarry is existing with a depth of excavation varies from 6 m to 15 m without benches of appropriate dimension (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall carry out a 'Slope Stability Assessment' studies for the existing conditions of the quarry wall by involving any of these reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research (CIMFR) / Dhanbad, NIRM - Bengaluru, IIT-Madras, NIT Surathkal - Dept of Mining Engg.. The above studies shall spell out a 'Slope Stability Action Plan' for the proposed quarry covering the existing condition of the quarry wall including the overall pit slope angle where the proposed depth exceeds 30 m and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.
 7. If the blasting operation is to be carried out, the PP shall present a conceptual design for carrying out the NONEL initiation based controlled blasting operation including the line drilling & muffle blasting techniques and a Simulation Model indicating the anticipated Blast-induced Ground Vibration levels in the proposed quarry as stipulated by the DGMS Circular No.7 of 1997, during the EIA Proposal.
 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,


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- a. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 - b. Quantity of minerals mined out.
 - c. Highest production achieved in any one year
 - d. Detail of approved depth of mining.
 - e. Actual depth of the mining achieved earlier.
 - f. Name of the person already mined in that leases area.
 - g. If EC and CTO already obtained, the copy of the same shall be submitted.
 - h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
12. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
13. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
14. The PP shall furnish the revised manpower including the statutory & competent persons as required under the provisions of the MMR 1961 for the prosed quarry based on the volume of rock handled & area of excavation.
15. 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.
16. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
17. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/ TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data,


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- it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
18. 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.
 19. 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.
 20. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
 21. 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.
 22. 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.
 23. 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.
 24. 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.
 25. Impact on local transport infrastructure due to the Project should be indicated.
 26. 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.


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27. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
28. Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
29. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
30. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the **appendix-I** in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. 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
34. A Disaster Management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
35. A Risk Assessment and Management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific


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occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
42. The PP shall prepare the EMP for the entire life/lease of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.



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Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	விலவம்
2	<i>Adenanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்கிதழ்மணி
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathu	ஆத்தி
7	<i>Bauhinia tomentosa</i>	Iruvadu	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமா
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Funai	பனை
13	<i>Cassia fistula</i>	Sarakondrai	சர்க்கொண்டை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொண்டை
15	<i>Chloroxylon sweetenia</i>	Puramaram	புரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Narvuli	நரவளி
18	<i>Cratogeomys</i>	Mavalungum	மாலைங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சீறு உசா
21	<i>Diospyros ebenum</i>	Karungali	கருங்காலை
22	<i>Diospyros schloroxylon</i>	Vaganai	வாகளை
23	<i>Ficus amplissima</i>	Kallitchi	கல் இச்சி
24	<i>Hibiscus tiliaceus</i>	Aatrupoovarasu	ஆற்றுப்பலகை
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயி மரம், ஆயில்
27	<i>Lannea coromandelica</i>	Odhiam	ஓதியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottamaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	வில்லா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	பிளிம்பை பிச்சிப்படை
32	<i>Madhuca longifolia</i>	Illupai	இலுப்பை
33	<i>Mankara hexandra</i>	UlakkaPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	ஏச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்


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40	<i>Premna mollissima</i>	Munrai	முள்ளை
41	<i>Premna serratifolia</i>	Narumunrai	நறு முள்ளை
42	<i>Premna tomentosa</i>	Malapoovarasu	மலைப் புலா
43	<i>Prosopis cineriza</i>	Vanu maram	வள்ளி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Veunangu, Tada	வேளாணங்குடி
46	<i>Pterospermum xylocarpum</i>	Polavu	புலவு
47	<i>Putranjiva roxburghii</i>	Karipala	கரிபலா
48	<i>Salvadora persica</i>	Uga Maram	உகை மரம்
49	<i>Sapindus emarginatus</i>	Marupungan, Soapukai	மாடுப்புலகை சோபுகை
50	<i>Saraca asoca</i>	Asoca	அசோகை
51	<i>Strobilus asper</i>	Pirav maram	பிரை மரம்
52	<i>Strychnos nuxvomica</i>	Yettu	யெட்டு
53	<i>Strychnos petaterum</i>	Therthang Kottai	தேர்தாள் கோட்டை
54	<i>Syzgium cumini</i>	Navai	நவை
55	<i>Terminalia bellerica</i>	Thandir	தாண்டி
56	<i>Terminalia arjuna</i>	Ven marudhu	வேள் மருது
57	<i>Toona ciliata</i>	Sandhara vembu	சந்தாள் வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	புலா
59	<i>Walsura trifoliata</i>	valbura	வால்புரை
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பலை
61	<i>Pithecolobium dulce</i>	Kodukkapuli	கொடுக்கபுளி

Discussion by SEIAA and the Remarks:-

The subject was placed in the 632nd authority meeting held on 21.06.2023 & 22.06.2023. The authority noted that the subject was appraised in the 382nd SEAC meeting held on 09.06.2023. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the following conditions and the conditions mentioned in 'Annexure B' of this minutes.

- i) Considering the safety aspects & the water regime of the locality, this Terms of Reference is accorded for the **restricted depth of 32m below ground level.**
- ii) The proponent shall furnish a letter obtained from AD/DD of Dept. of G&M stating whether any mining activity was carried out in the proposed area after 2014.
- iii) The proponent shall furnish details on the impact of the proposed mining activity on the elephant corridors and the mitigation measures proposed for the same.


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Annexure 'B'**Cluster Management Committee**

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

Impact study of mining

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
 - a) Soil health & soil biological, physical land chemical features .
 - b) Climate change leading to Droughts, Floods etc.


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- c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
- d) Possibilities of water contamination and impact on aquatic ecosystem health.
- e) Agriculture, Forestry & Traditional practices.
- f) Hydrothermal/Geothermal effect due to destruction in the Environment.
- g) Bio-geochemical processes and its foot prints including environmental stress.
- h) Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

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

Forests

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


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Water Environment

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

Energy

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

Climate Change

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


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Mine Closure Plan

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

EMP

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

Risk Assessment

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

Disaster Management Plan

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

Others

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

A. STANDARD TERMS OF REFERENCE

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had


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- been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
 - 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
 - 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
 - 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
 - 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
 - 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
 - 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
 - 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease


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period.

- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.


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- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and


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- EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
 - 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
 - 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
 - 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 - 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
 - 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
 - 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
 - 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.


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- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land,


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if any, occupational health impacts besides other impacts specific to the proposed Project.

- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
 - g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA:II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
 - h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH


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again with the revised documentation.

- i) As per the circular no. J-11011/618/2010-1A.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

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


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


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irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

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

Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
5. The District Collector, Coimbatore District.
6. Stock File.

From

Thiru.V.Sasikumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To

Tvl. Sri Blue Metals,
2/241, Kannarpalayam,
Karamadai Post,
Coimbatore.

Rc.No.311/Mines/2022 Dated: 06.03.2023

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District –
Mettupalayam Taluk – Chikkarampalayam Village - Survey
Nos. 76/1A (1.21.50 Hec) and 76/1B (Part) (3.85.72 Hec) -
over an extent of 5.07.22 hectares of patta land -
Application preferred by Tvl. Sri Blue Metals for quarrying
Roughstone and gravel – Precise area communicated -
Details of quarries situated within 500 meter radial
distance - Requested – furnished - reg.

- Ref. 1. Assistant Director, Dept. of Geology and Mining,
Coimbatore Letter Rc.No.311/Mines/2019, Dated:
29.12.2022.
2. Tvl. Sri Blue Metals, Coimbatore letter dated:
20.01.2023.

I invite kind attention to the reference cited wherein Tvl. Sri Blue Metals has been issued precise area for the grant of Rough Stone and gravel quarry lease over an extent of 5.07.22 hectares of patta land in Survey Nos. 76/1A (1.21.50 Hec) and 76/1B (Part) (3.85.72 Hec) of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.

In the reference 2nd cited of Tvl. Sri Blue Metals has requested to furnish the details of quarries situated within 500 meter radial distance from the proposed area.

In this connection the details of abandoned, expired, existing and proposed quarries situated within 500 meter radial distance from the proposed area are furnished below.

i) Existing Quarries

Sl. No.	Name of the Owner	Village &S.F.Nos.	Extent in Hect.	Lease period	Remarks
1.	S.Gnanasekaran	Chikkarampalayam 77/2D (P)	1.01.2	01.10.2018 - 30.09.2023	

2.	S.Gnanasekaran	Chikkarampalayam 74/2	2.37.0	28.10.2022 - 27.10.2027	
3.	R.Poorani	Chikkarampalayam 80/1	1.27.0	22.12.2018 - 21.12.2023	
4.	T.Kaveriammal	Chikkarampalayam 77/2B	0.99.0	24.12.2018 - 23.12.2023	
5.	M/s.Technomax Building Solution India Pvt Ltd	Bellathi 345/3 (P)	1.45.8	26.10.2018 to 25.10.2023	
6.	Sri Blue Metals	Chickkarampalayam 77/1B & 421/2B (P)	3.11.0	14.02.2023 to 13.02.2028	

ii) Expired Quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
1.	R.K.Selvakumar	Chikkarampalayam 69(P)	2.19.0	17.10.2017 - 16.10.2022	

iii) Abandoned quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease period	Remarks
1.	K.Vidya	Chikkarampalayam 76/2	1.21.5	21.12.2000 - 20.12.2005	
2.	R.Venkadasamy	Chikkarampalayam 67/2	0.61.0	09.06.2003 - 08.06.2008	

iv) Proposed quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Remarks
1.	Sri Blue Metals	Chikkarampalayam 76/1A & 76/1B(P)	5.07.22	Subject area Precise area communicated
2	C.N.Mani	Chikkarampalayam 75	2.47.5	Pending with SEIAA
4.	M.Muthammal	Chikkarampalayam 77/2E(P), 77/2F(P), & 79/1A(P)	1.82.0	Pending with SEIAA
5.	A.Nandhakumar	Chikkarampalayam 78/1 (P) , 419 & 420	3.46.0	Pending with SEIAA

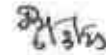
6.	R.K.Palanisamy	Bellathi 340 (P) & 341/3 (P)	4.90.0	Pending with SEIAA
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v) Future Proposed quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Remarks
---NIL---				


 Assistant Director,
 Dept. of Geology and Mining,
 Coimbatore.





From

Thiru.V.Sasikumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To

Tvl. Sri Blue Metals,
2/241, Kannarpalayam,
Karamadai Post,
Coimbatore.

Rc.No.311/Mines/2022 Dated: 06.03.2023

Sir,

Sub : Mines & Minerals – Minor Mineral – Coimbatore District – Mettupalayam Taluk – Chikkarampalayam Village - Survey Nos. 76/1A (1.21.50 Hec) and 76/1B (Part) (3.85.72 Hec) - over an extent of 5.07.22 hectares of patta land - Application preferred by Tvl. Sri Blue Metals for quarrying Rough stone and gravel – Precise area communicated – Mining Plan – approved – further particulars called for – furnished – regarding.

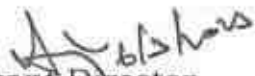
- Ref: 1. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.311/Mines/2022, Dated: 29.12.2022.
2. Tvl. Sri Blue Metals, Coimbatore letter dated: 20.01.2023.

In the reference 2nd cited Tvl. Sri Blue Metals has requested to furnish certain particulars regarding the precise area granted in Survey Nos. 76/1A (1.21.50 Hec) and 76/1B (Part) (3.85.72 Hec) over an extent of 5.07.22 hectares of patta land in Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District. In this connection the following details are furnished.

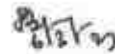
The area was previously held under quarry lease and the details are as follows

Sl. No.	Name of the Exlessee	SF.No/ Extent	District Collector's proceedings No. & Date	Validity	Lease Period
1	R.Rangaraj	76/1A 1.21.5 Hec	Rc.No.81/1998/ MM2 dt: 19.05.1998	5 Years	26.05.1998 to 25.05.2003
2	R.Rangaraj	76/1A 1.21.5 Hec	Rc.No.157/2004 /MM1 dt: 21.05.2004	5 Years	30.05.2004 to 29.05.2009
3	R.Rangaraj	76/1A - 1.21.5 Hec	Rc.No.523/2009 /MM1 dt: 02.12.2009	5 Years	02.12.2009 to 01.12.2014

At the time of inspection, the quarry pit with a dimension of 150 Meter (length) X 58 Meter (width) X 15 Meter depth are noticed in the applied area.


Assistant Director,
Dept. of Geology and Mining,
Coimbatore.





From
Thiru.V.Sasikumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To
Tvl. Sri Blue Metals,
2/241, Kannarpalayam,
Karamadai Post,
Coimbatore.

Rc.No.311/Mines/2022 Dated: 06.03.2023

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District –
Mettupalayam Taluk – Chikkarampalayam Village - Survey
Nos. 76/1A (1.21.50 Hec) and 76/1B (Part) (3.85.72 Hec) -
over an extent of 5.07.22 hectares of patta land -
Application preferred by Tvl. Sri Blue Metals for quarrying
Rough stone and gravel – Submission of mining plan for
approval – approved – regarding.

- Ref: 1. Quarry lease application dated 30.03.2022 preferred by
Tvl. Sri Blue Metals, Coimbatore.
2. Assistant Director, Dept. of Geology and Mining,
Coimbatore Letter Rc.No.311/Mines/2022, Dated:
29.12.2022
3. Mining Plan submitted by Tvl. Sri Blue Metals dated:
20.01.2023.

In response to the precise area communicated by the Assistant
Director of Geology and Mining, Coimbatore the applicant Tvl. Sri Blue
Metals vide reference 3rd cited has submitted three copies of mining plan
for the grant of Roughstone and gravel quarry lease over an extent of
5.07.22 hectares of patta land in Survey Nos. 76/1A (1.21.50 Hec) and
76/1B (Part) (3.85.72 Hec) of Chikkarampalayam Village, Mettupalayam
Taluk, Coimbatore District.

2. The mining plan submitted for the grant of Rough stone and
gravel quarry lease over an extent of 5.07.22 hectares of patta land in
Survey Nos. 76/1A (1.21.50 Hec) and 76/1B (Part) (3.85.72 Hec) of
Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District
has been verified in detail.

3. As per the guidelines/instructions issued by the Commissioner
of Geology and Mining, Chennai vide letter Rc.No.3868/LC/2012, dated
19.11.2012, the mining plan is hereby approved, subject to the following
conditions:

- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way imply the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Amended Act, 2015, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv) As per the Assistant Director, Dept. of Geology and Mining, Coimbatore letter Rc.No.311/Mines/2022, Dated: 29.12.2022 the following conditions have been incorporated in the Mining Plan.
- a) No hindrance should be caused to the adjacent pattadars and public.
- b) A safety distance of 7.5 meters should be provided for the adjacent patta lands from the lease applied area.
- c) A safety distance of 50 meters should be provided for an EB line passing on the North Eastern side of the applied area.
- d) DGPS survey should be done by the Government recognized agency and boundary stones should be erected along the entire boundary of the leased out area.
- e) Quarrying should be done in are seeking permission along after leaving proper safety distance.
- v) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

Encl: Two copies of Approved Mining Plan.

13/12/22
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

13/12/22
Copy submitted to:
The Commissioner of Geology and Mining, Chennai-32.



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

(PREPARED UNDER RULES 41 & 42 AS AMENDED IN TAMIL NADU MINOR MINERAL CONCESSION RULES, 1939)

Patta Lands / Lease Period = Five Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 5.07.22 Ha
S.F.NOS : 76/1A & 76/1B (P)
VILLAGE : CHIKKAMPALAYAM
TALUK : METTUPALAYAM
DISTRICT : COIMBATORE
STATE : TAMIL NADU

FOR

APPLICANT

Tvl. Sri Blue Metals,
No. 2/241, Kannarpalayam,
Karamadai Post,
Coimbatore District – 641 104.

PREPARED BY

P.Viswanathan, M.Sc.,
Qualified Person

No.17, Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.
E-mail: infogeoexploration@gmail.com



Tvl. Sri Blue Metals,
No. 2/241, Kannarpalayam,
Karamadai Post,
Coimbatore District – 641 104.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Chikkarampalayam Rough Stone and Gravel Quarry in S.F.Nos. 76/1A & 76/1B (P) over an extent of 5.07.22 Ha of Patta lands in Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu State has been prepared by


P.Viswanathan, M.Sc.,
Qualified Person

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

P.Viswanathan, M.Sc.,
No. 17, Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.

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

Signature of the Applicant
For Tvl. Sri Blue Metals


S.Gnanasekaran
(Proprietor)

Place: Coimbatore
Date: 30.12.2022

Tvl Sri Blue Metals,

No. 2/241, Kannarpalayam,

Karamadai Post,

Coimbatore District – 641 104.



DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Chikkarampalayam Rough Stone and Gravel Quarry in S.F.Nos. 76/1A & 76/1B (P) over an extent of 5.07.22 Ha of Patta lands in Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore 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
For Tvl. Sri Blue Metals


S. Gnanasekaran
(Proprietor)

Place: Coimbatore

Date: 30.12.2022

CERTIFICATE



Certified that I am, **P.Viswanathan**, M.Sc., having an office at Regd. Off. No. 17, Advaitha Ashram Road, Alagapuram, Salem – 636 004, holding a Post Graduate Degree in Applied Geology (M.Sc., Applied Geology) from Periyar University, Salem 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 Applied 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 in Respect of Chikkarampalayam Rough Stone and Gravel Quarry in S.F.Nos. 76/1A & 76/1B (P) over an extent of 5.07.22 Ha of Patta lands in Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu State for **Tvl. Sri Blue Metals**, No. 2/241, Kannarpalayam, Karamadai Post, Coimbatore District – 641 104, Tamil Nadu State. 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


P.Viswanathan, M.Sc.,

Place: Salem

Date: 02.01.2023

P.Viswanathan, M.Sc.,

No. 17, Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.



CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Chikkarampalayam Rough Stone and Gravel Quarry in S.F.Nos. 76/1A & 76/1B (P) over an extent of 5.07.22 Ha of Patta lands in Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Tvl. Sri Blue Metals,
No. 2/241, Kannarpalayam,
Karamadai Post,
Coimbatore District – 641 104.

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

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

Signature of the Qualified Person


P.Viswanathan, M.Sc.,

Place: Salem
Date: 02.01.2023

P.Viswanathan, M.Sc.,

No. 17, Advaita Ashram Road,

Alagapuram, Salem District – 636 004.

Cell: +91 94422 78601 & 94433 56539.



CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations and Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Chikkarampalayam Rough Stone and Gravel Quarry in S.F.Nos. 76/1A & 76/1B (P) over an extent of 5.07.22 Ha of Patta lands in Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Tvl. Sri Blue Metals,

No. 2/241, Kannarpalayam,

Karamadai Post,

Coimbatore District – 641 104.

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

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

Signature of the Qualified Person

P.Viswanathan, M.Sc.,

Place: Salem

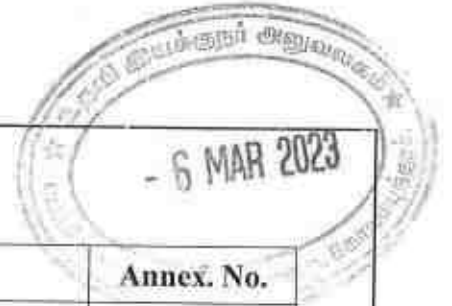
Date: 02.01.2023

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**MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR
CHIKKARAMPALAYAM ROUGH STONE AND GRAVEL QUARRY OVER AN
EXTENT OF 5.07.22 Ha IN CHIKKARAMPALAYAM VILLAGE,
METTUPALAYAM TALUK, COIMBATORE 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

This Mining Plan and Environment Management Plan are prepared for **Tvl. Sri Blue Metals**, No. 2/241, Kannarpalayam, Karamadai Post, Coimbatore District – 641 104.

The applicant applied for Rough Stone and Gravel quarry over an extent of 5.07.22 Ha of Patta lands in S.F.Nos. 76/1A & 76/1B (P) of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu State under Rules 19 (1) & 20 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the Assistant Director, Department of Geology and Mining, Coimbatore District and passed a Precise Area Communication letter vide **Rc.No.311/Mines/2022, Dated: 29.12.2022** to submit Mining Plan for the approval in Department of Geology and Mining, Coimbatore District and obtain Environmental Clearance from the SEIAA, Chennai, Tamil Nadu State, with the conditions to provide:

1. No hindrance shall be caused to the adjoining Patta lands and Public while carrying out Rough Stone and Gravel quarrying operations.
2. A safety distance of 7.5 meters should be provided to the adjacent patta lands.
3. A safety distance of 50 meters should be provided to the EB Line with Transformer on the Northeast side of the lease applied area.
4. Each boundary pillar should be planted via inspected by a government approved company in accordance with DGPS (Differential Global Positioning System) in the lease area.
5. Child labor should not be engaged for quarry operation.

(Please refer Annexure No – I).

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 than 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, Chennai, Tamil Nadu State, 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.

Short Notes of Mining Plan:

- a. Village Panchayat - Chikkarampalayam
- b. Panchayat Union - Karamadai
- c. The Geological Resources are **19,73,814m³** of Rough Stone and **82,854m³** of Gravel formation in the entire area.
- d. The Total Mineable Reserves are **9,67,173m³** of Rough Stone and **67,082m³** of Gravel in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are **9,67,173m³** of Rough Stone and **69,942m³** of Gravel for five years in the entire area.
- f. Total extent of the lease applied area = 5.07.22 Ha
- g. Topography of the area = The area exhibits Flat terrain
- h. Proposed Depth of mining = 42m (2m Gravel + 40m Rough Stone) below the ground level
- i. Mining Plan Period = Five years
- j. It is a fresh lease application, but the applied area has been considered quarrying operation earlier. The quarry lease was previously granted in the favour of **Thiru.R.Rangaraj**, over an extent of 1.21.5 hectares of Patta land in S.F.No. 76/1A of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District vide **Rc.No.523/2009/MM1, Dated: 02.12.2009** for the period of five years from 02.12.2009 to 01.12.2014 for quarrying of Rough Stone and Gravel. The applicant has again applied a quarry lease on 30.03.2022, over an extent of 5.07.22 hectares of Patta lands in S.F.Nos. 76/1A & 76/1B (P) of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District for the period of five years. The application was



meritoriously processed by the Assistant Director, Department of Geology and Mining, Coimbatore District and recommended the quarry lease for the period of five years.

- k. The maximum dimension of the **existing quarry pit** is given table below (Refer Plate No. II).

Existing Pit Dimension (maximum)		
Length (m)	Width (m)	Depth (m)
158	67	15m below ground level

- l. Method of mining / level of mechanization.
Opencast mechanized method, the quarry operation Wagon Drill of 110mm Dia is proposed to drill for primary blasting also Jack hammer drilling used.
- m. Type of machineries proposed in the quarrying operation is given below:
Excavator of 0.90m³ bucket capacity (with Rock breaker attachment)
Jack hammers 35mm dia.
Wagon Drill machine- 110 mm, Rock Breaker- 600kg hammer.
Trucks - 35tons - 4 Nos.
- n. No trees will be uprooted due to this quarrying operation.
- o. The approach road from the main road to quarry is already existence in good condition. The same will be maintained and utilized for Transportation of quarry materials and machineries.
- p. There is No Export of this Rough Stone and Gravel.
- q. Topo sketch covering 10km and 1km radius around the proposed area with markings of habitations, water bodies including streams, rivers, roads, major structure like bridges, wells, archaeological importance, places of worships is marked and enclosed as Plate Nos. IA & IB.
- r. The lease applied area is about 5.07.22 Ha bounded by eleven corners; the corners are designated as 1-11 Clockwise from the Southwestern corner the Co – ordinates for the all the corners are clearly marked in the Quarry Lease and Surface Plan enclosed as Plate No. II.
- s. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are enclosed as Plate Nos. III and IV.
- t. General conditions will not be 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.



Mining Plan and PQCP

Chikkarampalayam Rough Stone and Gravel Quarry

- u. There is no waste anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- v. Around 38 employees are deploying in the quarrying operation.
- w. Total Cost of the project is about **Rs.4,31,87,000/-**.
- x. Infrastructures around the lease applied area given below in the table:

TABLE-1

Particulars	Location	Approximate aerial distance and direction from lease applied area
Nearest Post Office	Belladhi	1km – NW
Nearest School	Chikkarampalayam	1km – SE
Nearest Dispensary	Karamadai	2km – SW
Nearest Town	Karamadai	2km – SW
Nearest Police Station	Karamadai	2km – SW
Nearest Hospital	Karamadai	2km – SW
Nearest D.S.P. Office	Mettupalayam	8km – NW
Nearest Railway Station	Karamadai	2km – SW
Nearest Airport	Coimbatore	25km – SE
Nearest Seaport	Kochi	166km – SW
District Head quarters	Coimbatore	25km -- S

**2.0 GENERAL INFORMATION****2.1 a) Name of the Applicant :** Tvl. Sri Blue Metals,**b) Address of the Applicant (With Phone No and Aadhaar No)**

Address : No. 2/241, Kannarpalayam,
Karamadai Post,
Coimbatore District.

Pin Code : 641 104

Mobile No : +91 98422 04259

Aadhaar No : 4171 8521 8213

Email ID : sribm276215@gmail.com

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

The applicant is a Proprietorship Firm. Thiru.S.Gnanasekaran is a Proprietor of this firm.

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 Assistant Director, Department of Geology and Mining, Coimbatore District vide **Rc.No. 311/Mines/2022, Dated: 29.12.2022** to submit approved mining plan and to obtain Environmental Clearance from the SEIAA, Chennai, Tamil Nadu State.

c) Period of permission / lease to be granted:

Five Years.

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

Name : **P.Viswanathan, M.Sc.,**
Qualified Person

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

Telephone : 0427- 2431989 (Office)

Cell No : +91 94422 78601 & 94433 56539

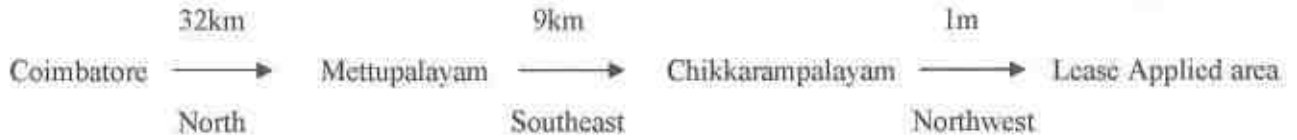
Email : infogeoexploration@gmail.com



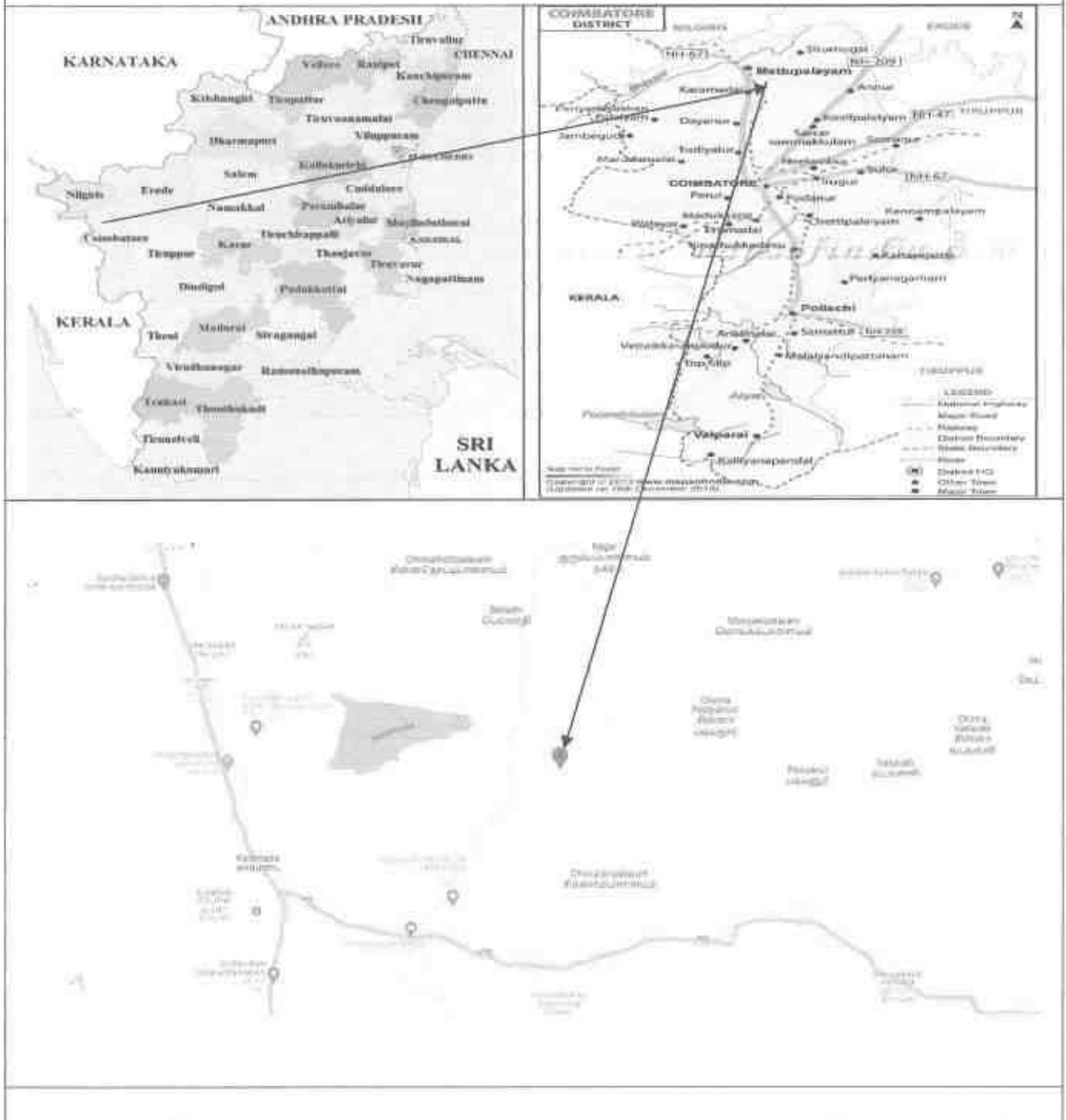
3.0 LOCATION

a) Details of the area with location map:

The lease applied area is located about 25km North side of Coimbatore, 8km Southeast side of Mettupalayam and 1km Northwest side of Chikkarampalayam Village.



Location Map of the Lease Applied Area



6 MAR 2023

Mining Plan and PQCP

Chikkarampalayam Rough Stone and Gravel Quarry

TABLE-2

District	Taluk	Village	S.F. No.	Lease Applied Area (Ha)	Patta No
Coimbatore	Mettupalayam	Chikkarampalayam	76/1A	1.21.50	2302
			76/1B (P)	3.85.72	2767
Total Extent				5.07.22	

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

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

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

It is a Patta land, S.F.No. 76/1A is registered in the name of Thiru.P.Sidhartha Mowli and S.F.No. 76/1B (P) is registered in the name of Thiru.S.Palanisamy. The applicant has obtained consent from pattadhars. Please Refer patta copy and consent document as Annexure Nos. IV & VII.

d) Topo sheet No. with latitude and longitude:

The lease applied area falls in the Topo sheet No: 58 – A/15 & 58 – A/16 Latitude between: 11°14'54.10"N to 11°15'04.77"N and Longitude between: 76°58'07.22"E to 76°58'15.52"E on WGS datum-1984. Please refer the Plate Nos. I to II.

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

The approach road is situated on the West side which is connects to the Karamadai – Belladhi Village Road located at 610m on the West side of the applied area.

Multiple road access is available from the quarry to state highways and National Highway, no villages are enrooted hence the traffic density is not much more due to the transportation of Rough Stone.

The approach road from the quarry is already existed and the same will be utilized for haulage and maintained during the entire lease period, tree sapling will be planted on the either side of the road to prevent dust and noise propagation to the nearby areas.

The Nearest Railway line is Coimbatore – Ooty which is about 3km on the Southwestern side of the lease applied area.



PART - A

4.0 GEOLOGY AND MINERAL RESERVES

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

The lease applied area exhibits Flat terrain. The area has gentle sloping towards East side. The altitude of the area is 355m (max) above Mean Sea level. The area is covered by 2m thickness of Gravel formation. Massive Charnockite which is clearly inferred from the existing quarry pits.

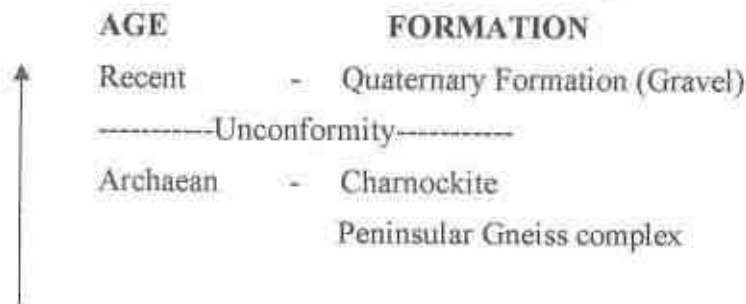
The Water table is found at a depth of 70m in summer and at 65m in rainy seasons. Average annual rainfall is about 1213mm.

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 N30°E – S30°W with dipping towards SE60°.

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





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 Coimbatore 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 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 and commercial aspects etc.,

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

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

Geological Resources (Plate No. III):

The Geological Resources of Rough Stone and Gravel are calculated up to a maximum depth of 42m (2m Gravel + 40m Rough Stone) below the ground level. The total Geological resources are calculated by sectional method and the resources are estimated after depletion of existing quarry pits. The total geological resources are given table below:

TABLE-3

GEOLOGICAL RESOURCES						
Section	Bench	Length (m)	Width (m)	Depth (m)	Geological Resources of Rough Stone (m ³)	Gravel (m ³)
XY-AB	I	1	15	2	-	30
	II	1	15	5	75	-
	III	1	15	5	75	-
	IV	64	86	3	16512	-
	IV	64	174	2	22272	-
	V	64	174	5	55680	-
	VI	64	174	5	55680	-
	VII	64	174	5	55680	-
	VIII	64	174	5	55680	-
	IX	64	174	5	55680	-
	Total					317334	30
XY-CD	I	155	136	2	-	42160
	II	155	136	5	105400	-
	III	155	136	5	105400	-
	IV	155	136	5	105400	-
	V	155	136	5	105400	-
	VI	155	136	5	105400	-
	VII	155	136	5	105400	-
	VIII	155	136	5	105400	-
	IX	155	136	5	105400	-
	Total					843200	42160
XY-EF	I	92	221	2	-	40664
	II	92	221	5	101660	-
	III	92	221	5	101660	-
	IV	92	221	5	101660	-
	V	92	221	5	101660	-
	VI	92	221	5	101660	-
	VII	92	221	5	101660	-
	VIII	92	221	5	101660	-
	IX	92	221	5	101660	-
	Total					813280	40664
Grand Total					1973814	82854

Total Geological Resources of Gravel : 82,854m³

Total Geological Resources of Rough Stone : 19,73,814m³

Existing Pit Dimension:

The lease applied area has been quarried in earlier the existing pit dimensions are follows:

TABLE-4

Existing Pit Dimension (maximum)		
Length (m)	Width (m)	Depth (m)
158	67	15m below ground level



Available Mineable Reserves:

The available Mineable reserves are calculated after leaving the safety distance, Bench loss and existing pit to a maximum depth of 42m below ground level.

TABLE-5

MINEABLE RESERVES						
Section	Bench	Length (m)	Width (m)	Depth (m)	Mineable Reserves of Rough Stone (m ³)	Gravel (m ³)
XY-AB	IV	52	45	3	7020	
	IV	52	132	2	13728	
	V	47	122	5	28670	
	VI	42	112	5	23520	
	VII	37	102	5	18870	
	VIII	32	92	5	14720	
	IX	27	82	5	11070	
	Total					117598
XY-CD	I	154	119	2	-	36652
	II	154	113	5	87010	-
	III	155	103	5	79825	-
	IV	155	93	5	72075	-
	V	155	83	5	64325	-
	VI	155	73	5	56575	-
	VII	155	63	5	48825	-
	VIII	155	53	5	41075	-
	IX	155	43	5	33325	-
	Total					483035	36652
XY-EF	I	85	179	2	-	30430
	II	82	173	5	70930	-
	III	77	163	5	62755	-
	IV	72	153	5	55080	-
	V	67	143	5	47905	-
	VI	62	133	5	41230	-
	VII	57	123	5	35055	-
	VIII	52	113	5	29380	-
	IX	47	103	5	24205	-
	Total					366540	30430
Grand Total					967173	67082

The mineable reserves have been computed as 9,67,173m³ of Rough Stone and 67,082m³ of Gravel at the rate of 100% recovery upto a maximum depth of 42m below ground level for a period of five years.

**5.0 MINING****5.1 Method of mining (opencast / underground):**

Open cast Mechanized Mining is being carried out with 5.0 meter vertical bench with a bench width is not less than the bench height. The slope of the bench should not more than 60° from the horizontal.

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 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. This relaxation will be applied and obtained after the execution of lease/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 shallow jack hammer drilling and deep hole Wagon drilling, slurry explosives in blasting, excavation, loading and transportation of Rough Stone to the needy crusher.

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

Splitting of rock mass of considerable volume from the parent rock mass by Wagon, jackhammer drilling and slurry explosives 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 Charnockite is hard and compact rock, 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 formation, the Gravel was already removed during previous quarry lease period and dumped on the North side. 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, Green belt development are shown in Plate Nos. III.

Year wise development and Production

TABLE-6

YEARWISE RESERVES								
Section	Year	Bench	Length (m)	Width (m)	Depth (m)	Recoverable Reserves of Rough Stone (m ³)	Gravel (m ³)	
-		Dump	110	13	2		2860	
XY-CD	I	I	154	119	2	-	36652	
		II	154	113	5	87010	-	
		III	155	103	5	79825	-	
		IV	155	93	5	72075	-	
		Total					238910	39512
XY-AB	II	V	155	83	5	64325	-	
		IV	52	45	3	7020	-	
		IV	52	132	2	13728	-	
XY-EF	II	V	47	122	5	28670	-	
		I	45	179	2	-	16110	
		II	42	173	5	36330	-	
		III	37	163	5	30155	-	
		Total					180228	16110
		XY-EF	III	I	40	179	2	-	14320
II	40			173	5	34600	-	
III	40			163	5	32600	-	
IV	72			153	5	55080	-	
V	67			143	5	47905	-	
VI	62			133	5	41230	-	
Total							211415	14320
XY-CD	IV	VII	57	123	5	35055	-	
		VIII	52	113	5	29380	-	
		IX	47	103	5	24205	-	
		VI	155	73	5	56575	-	
		VII	155	63	5	48825	-	
Total					194040			
XY-AB	V	VIII	155	53	5	41075	-	
		IX	155	43	5	33325	-	
		VI	42	112	5	23520	-	
		VII	37	102	5	18870	-	
		VIII	32	92	5	14720	-	
		IX	27	82	5	11070	-	
Total					142580			
Grand Total						967173	69942	

The Recoverable reserves have been computed as 9,67,173m³ of Rough Stone and 69,942m³ of Gravel for five years at 100% recovery upto depth of 42m 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 General of Mine Safety, Chennai** region by submitting relevant documents, appropriate safety plans and its Mitigation measures.

One Trucks load	=	12m ³ (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed in these five years plan period	=	9,67,173m ³
Hence total Trucks loads per day	=	9,67,173m ³ / 12m ³
	=	80,598 Trucks loads
	=	80,598 / 5 years
	=	16,120 / 300 Days
Rough Stone	=	53 - 54 Trucks loads per day
Total quantity of Gravel to be removed during three years	=	69,942m ³
Hence total Trucks loads per day	=	69,942m ³ / 12m ³
	=	5,829 Trucks loads
	=	5,829 / 3 years
	=	1,943 / 300 days
Gravel	=	6 - 7 Trucks load per day

Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 pm lunch break)

5.5 Machineries to be used:

a) For Mining:

The following machineries are proposed to meet out the proposed Rough Stone quantity, the Required Machineries are given below.

1. Excavator of 0.90Cbm bucket capacity (with Rock breaker attachment).
2. Wagon drill.
3. Portable compressor attached with Jackhammer (4 jack hammer capacity).

Drill machine-110mm Drilling accessories (Drill rods, hose, hose clamps etc.,) Rock breaker-600kg hammer.

**b) Loading equipment:**

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

c) 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 35Tons capacity Trucks.

TABLE-7**I. DRILLING MACHINE:**

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack hammer	6	30-35	1.2m to 2.0m	Compressed air
2	Compressor	2	-	400 psi	Diesel Drive
3	Wagon Drill	2	110mm	60HP	TAM Rock

II. EXCAVATION & LOADING EQUIPMENT:

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

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

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

5.6 Disposal of Overburden/Waste:

The overburden in the form of Gravel formation, the Gravel was already removed during previous quarry lease period and dumped on the North side. 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 (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 Environment 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 five years, the ultimate pit limit (dimension) at the end of this mining plan period is given below:

TABLE-8

Ultimate Pit Dimension (maximum)		
Length (m)	Width (m)	Depth (m)
298	180	42m below ground level

Greenbelt has proposed on the Panchayat roads by planting native species of Neem, Casuarina and Pongamia pinnata, etc., tree sapling. 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. 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 quarry 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 the storage water will be used for afforestation purpose. The quarry pit will be fenced with barbed wire fencing to prevent inadvertent entry of public and cattle (Refer Plate No. IV).

6.0 BLASTING

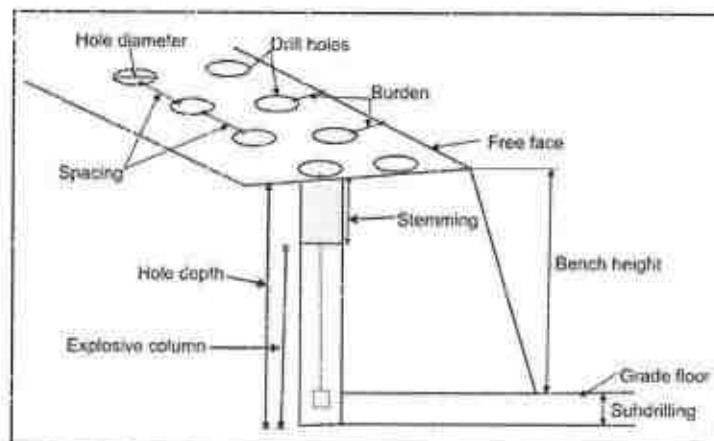
6.1 Blasting pattern:

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 occasionally jack hammer drill of 35mm will be deployed for secondary fragmentation Drilling and Blasting.

Wagon Drilling and deep hole blasting parameters are as follows:

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

BLASTING PATTERN DRAWING



Staggered "V" Pattern of Blasting Design

Spacing	=	2.5m
Burden	=	2.0m
Depth of the hole	=	6.5m
No of holes proposed per day	=	14 Holes



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.

6.3 Measures proposed to minimize ground vibration due to blasting:

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

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

Delay detonators:

Delay blasting (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	= 1,676 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 279 Kg-Slurry explosives
Charge/ hole	= 20 Kg
Blasting at day time only	= 12.00 – 12.30p.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.



7.0 MINE DRAINAGE

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

The Water Table in the area is 70m in summer season and 65m in rainy season which is observed from the nearby bore wells and the data obtained from 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.

TABLE-9

Type	Distance & Direction	Location
Bore Well	490m West side	11°14'56.57"N 76°58'34.65"E

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

Quarry operations are confined well above the water table during the entire lease period. If water is encountered at due to rain water and seepage, the same will be pumped out by 5HP water pumps 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	<p>None of the above situated within 50m radius.</p> <p>Nearest National Highway – Coimbatore to Gundlupete Road (NH-181) - 3km – Southwest side</p> <p>Nearest State Highway - Karamadai to Kariyampalayam Road (SH-168) - 2km – Southeast side</p> <p>Nearest Major District Road – Karamadai to Sirumugai (MD-979) – 2km - Northwest side</p>
8.2	Water Bodies (River, Pond, Lake, Odai, Canal)	50m	There is no River, Pond, Lake, Odai, Canal located within 50m radius of the lease area.
8.3	Village Road	10m	No village road is passing within 10m radius on the lease area.
8.4	Habitation / Village	300m	There is no approved habitation within 300m radius from the lease area (Refer Plate No I-B).
8.5	Archaeological / historical monuments	500m	There are no Archaeological / historical monuments within 500m radius from the lease area.
8.6	Places of worships	500m	There is no place of worships within the radius of 500m from the lease area.
8.7	Housing area, EB line (HT & LT Line)	50m	The EB line with Transformer is situated on the Southeast side, hence 50m safety distance has been provided. There is no other Housing area, EB line (HT & LT Line) within the radius of 50m from the lease area.



Mining Plan and PQCP

Chikkarampalayam Rough Stone and Gravel Quarry

8.8	Adjacent Patta lands / Govt. Land	7.5m/10m			
			Direction	Classification	Safety Distance
			North	Patta land	7.5m
			East	Patta land	7.5m
			Southeast	EB line with Transformer	50m
			South	Patta land	7.5m
			West	Patta land	7.5m
			(Refer Plate No. II).		
8.9	Boundaries of the permitted area	7.5m/10m	<p>The boundaries of the permitted areas are as follows:</p> <p>North - S.F.No. 69</p> <p>East - S.F.Nos. 68 & 76/1B (P)</p> <p>South - S.F.No. 76/2</p> <p>West - S.F.Nos. 75 & 74</p> <p>(Refer Plate No. II).</p>		
8.10	Reserve forest	60m	<p>There is no reserved forest / forest / social forest / wild life sanctuary etc., within radius of 60m of the lease area.</p> <p>(Refer Plate No. IA and IB).</p>		
8.11	Protected area / ECO sensitive area/ Wild Life Sanctuary	10km	<p>There is no ECO sensitive Zone/ Wild Life Sanctuary/ Critically Polluted Area/ HACA/ CRZ located within 10km radius of the area.</p> <p>(Refer Plate No. IA).</p>		



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
Mine Mate	:	1
Blaster	:	1
Excavator Operator	:	2
Drivers	:	4
Wagon Drill Operator	:	2
Jack-Hammer Operator	:	12

b. Semi-skilled:

Security	:	3
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c. Unskilled:

Labour & Helper	:	4
Co-operator and Cleaner	:	8
Total	:	38

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 approved water vendors in Karamadai which is about 2.0km on the Southwestern side of the lease applied area.

b. **Sanitary Facilities:**

Hygienic modern Sanitary Facilities will be constructed as semi permanent structure and it will be maintained periodically as hygienic.

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 vehicle. Hospital is available in Karamadai located at a distance of 2.0km 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****10.0 ENVIRONMENT MANAGEMENT PLAN****10.1 Existing Land use pattern:**

The quarry lease applied area exhibits Flat 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-10

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Quarrying Pit	0.80.00	4.14.50
Infrastructure	Nil	0.01.00
Roads	0.04.00	0.04.00
Green Belt	Nil	0.20.00
Unutilized Area	4.23.22	0.67.72
Grand Total	5.07.22	5.07.22

10.2 Water Regime:






It is a simple opencast quarry operation. The quality of water will not be affected due to this quarrying operation. However, mitigation measures will be carried out like Garland drains constructed on all sides of quarry pit to avoid surface run-off rain water entering into the pit.

The waste water discharged to water bodies will be met the standard prescribed under the Environment (Protection) Act – 1986 by The Ministry of Environment, Forest and Climate change.






10.3 Flora and Fauna:

TABLE-11

- 6 MAR 2023

S.No.	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Cocos nucifera</i>	<i>Arecaceae</i>	Coconut, Thennai	Tree	
2.	<i>Curcuma longa</i>	<i>Zingiberaceae</i>	Turmeric	Herb	
3.	<i>Sorghum bicolor</i>	<i>Poaceae</i>	Solam	Grass	
4.	<i>Borassus flabellifera</i>	<i>Arecaceae</i>	Palmyra Palm	Tree	
5.	<i>Calotropis gigantea</i>	<i>Asclepiadaceae</i>	Crown Flower, Erukku	Shrub	

List of Fauna

S.No.	Scientific Name	Common Name	Picture
1.	<i>Egretta garzetta</i>	Little egret	
2.	<i>Boiga spp</i>	Cat snake	
3.	<i>Dicrurus macrocercus</i>	Black drongo	
4.	<i>Calotes versicolor</i>	Garden Lizard	
5.	<i>Funambulus palmarum</i>	Indian palm squirrel	
6.	<i>Hieroglyphus sp</i>	Grasshopper	

**10.4 Climatic Conditions:**

The area receives rainfall of about 1213mm/annum and the rainy season is mainly from Oct - Dec during monsoon. The summer is hot with maximum temperature of 35°C and winter encounters a minimum temperature of 22°C.

10.5 Human settlement:

There are few villages located in this area within 5km radius; the approximate distance and population are given below:

TABLE-12

S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Mongampalayam	2km - NE	2,800
2.	Chikkarampalayam	1km - SE	10,400
3.	Karamadai	2km - SW	36,000
4.	Belladhi	1km - NW	7,800

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Karamadai located at a distance of 2.0km on the Southwestern 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 slurry blasting, Jack hammer drilling, loading and unloading during the Rough Stone quarry operation.

The following Mitigations measures will be carried out:

- Mist Water spraying will be carried out by means of water sprinklers to suppress the dust emission in the Haul roads.
- Vegetations will be formed on the non quarrying area.
- Avoiding spillages during the transportation.

Air quality will be monitored periodically as per Norms and Mitigative 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 Drilling, Blasting, Excavation and Transportation.

**Engineering Noise control:**

Noise will be created due to the usage of Machineries and Vehicles. The Noise will be controlled in the following manner.

- Selection of new low - noise equipment's is proposed to be deployed for the Rough Stone quarry operation.
- Modifications of older equipments.
- Implementation of effective preventive maintenance which reduces noise more than 50%.
- Developing Green belts which act as Acoustic barrier, pollution absorbent and noise controller.
- The drivers will be strictly instructed to move the vehicle during the transportation not exceed 40km per hour.
- Sentries with flags & whistle will posted in village road junction and populated area to control and regulate traffic.

110mm diameter and 6.5m depth will be drilled and conventional low power explosives such as Slurry Explosives with delay of Non Electrical Detonators will be used for Rough Stone production. Hence, ground vibration and noise pollution will be minimal and restricted within the quarry workings.

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 Environment impact assessment statement describing impact of mining on the five years:

In the mining plan proposed for a production of Rough Stone involve 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 Environment 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.3,80,000/-**.

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%).

10.10 Proposal for reclamation of land affected during mining activities and at the end of mining (refilling / fencing etc.):

In the mining plan proposed only to a maximum depth of 42m below ground level has been envisaged as workable depth for safe & economic mining during entire lease applied area. There is no waste generated hence, backfilling is not possible. Hence, the quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. The barbed wire fencing cost would be around **Rs.3,39,000/-**.



10.11 Programme of Greenbelt development (indicate extend, number, name of species to be afforested):

The safety zone all along the boundary barrier has been identified to be utilized for Greenbelt development. Appropriate native species of Neem, Pongamia Pinnata, Casuarina, etc., trees will be planted in a phased manner as described below.

TABLE-13

Years	No. of trees proposed to be planted	Survival %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	50	80	400	Neem, Pongamia Pinnata, Casuarina, etc.,	40
II	50	80	400		40
III	50	80	400		40
IV	50	80	400		40
V	50	80	400		40

Nearly 2,000 sq.m area is proposed to use under Greenbelt by planting 50 Number of trees saplings during every year with an anticipated survival rate of 80% (Please refer Plate No. III). The estimated budget for plantation and maintenance of Greenbelt development would be around **Rs.25,000/-** for the period of five years.

The Greenbelt Development will be formed in the quarried out top benches and approach road of the lease applied area. The cost would be around **Rs.60,000/-**.

10.12 Proposed financial estimate / budget for (EMP) environment management:

Budget Provision for the entire quarrying period:

TABLE-14

S. No	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year
1	Ambient air quality monitoring	6500	4	26000	52000
2	Noise level monitoring	250	4	1000	2000
3	Ground vibration monitoring	1000	2	2000	4000
4	Water sampling and analysis	9000	1	9000	18000
Total EMP Cost/ year					76,000

The EMP cost would be around **Rs.3,80,000/-** for the period of five years.



A. Project / investment / Operational cost																		
i) Land cost	<p>The Land value as per the Government Guideline land cost is calculated as follows,</p> <table border="1"> <thead> <tr> <th>S.F.No</th> <th>Extent</th> <th>Cost/Ha</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>76/1A</td> <td>1.21.50</td> <td>497000</td> <td>603855</td> </tr> <tr> <td>76/1B (P)</td> <td>3.85.72</td> <td>497000</td> <td>1917028.4</td> </tr> <tr> <td>Total</td> <td>5.07.22</td> <td>Total</td> <td>2520883.4</td> </tr> </tbody> </table> <p>i.e., Rs.25,21,000/- (Source: https://tnreginet.gov.in/portal/)</p>	S.F.No	Extent	Cost/Ha	Total	76/1A	1.21.50	497000	603855	76/1B (P)	3.85.72	497000	1917028.4	Total	5.07.22	Total	2520883.4	= Rs.25,21,000/-
S.F.No	Extent	Cost/Ha	Total															
76/1A	1.21.50	497000	603855															
76/1B (P)	3.85.72	497000	1917028.4															
Total	5.07.22	Total	2520883.4															
ii) Machinery to be used	<p>The following Machineries are proposed to meet out the productions.</p> <p>Excavator attached with rock breaker (2 Nos)</p> <p>Trucks (4 Nos)</p> <p>Tractor Mounted Compressor</p> <p>Jack Hammer and loose tools</p> <p>Wagon Drill</p> <p>Water Sprinkling Tanker</p> <p>Total Machineries cost</p>	<p>Rs.1,12,00,000/-</p> <p>Rs.1,20,00,000/-</p> <p>Rs.15,00,000/-</p> <p>Rs.3,00,000/-</p> <p>Rs.1,00,00,000/-</p> <p>Rs.12,00,000/-</p> <p>Rs.3,62,00,000/-</p>																
iii) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattles cost would be around	= Rs.3,39,000/-																
iv) Labourers shed	Labour sheds will be constructed as semi permanent structure. The cost would be around	= Rs.5,00,000/-																
v) Sanitary facility	Adequate latrine and urinal accommodation shall be provided at conveniently accessible places the cost would be around	= Rs.2,50,000/-																
vi) Others items	First aid room & accessories	= Rs.2,00,000/-																
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around	= Rs.4,00,000/-																
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	= Rs.1,50,000/-																



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ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around	= Rs.5,00,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	= Rs.5,00,000/-
xi) Garland drains Construction	Construction of garland drains to divert surface run-off from virgin area away from mining area	= Rs.3,15,000/-
xii) Greenbelt etc.	Greenbelt program will be carried out in the boundary barriers the cost would be around	= Rs.25,000/-
	Greenbelt program will be in the quarried out top benches and approach road	= Rs.60,000/-
	Total Operational Cost	= Rs.4,19,60,000/-
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 five years period is Rs.3,80,000/-		
Description		Amount (Rs.)
A. Operational Cost		4,19,60,000
B. EMP Cost		3,80,000
Total Project Cost (A+ B)		4,23,40,000
The applicant indents to involve corporate environment responsibilities (CER) activity like Solar Lamp, Water purifier, Sanitary Facilities, Garden Maintenance, Cot & Bed Facilities to the nearby Dispensary and Solar Lamp, Water purifier, Sanitary Facilities, Garden Maintenance and Table Facilities to the nearby Govt. School at 2.0% from the total project cost. The Cost would be around Rs.8,47,000/- .		8,47,000
Total Cost		4,31,87,000
The Total cost would be around four crores thirty one lakhs and eighty seven thousand only.		

**11.0 PROGRESSIVE QUARRY CLOSURE PLAN****11.1 Introduction:**

The Progressive Quarry Closure Plan for Rough Stone and Gravel quarry over an extent of 5.07.22 Ha of Patta lands in S.F.Nos. 76/1A & 76/1B (P) of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu State has been prepared for **Tvl. Sri Blue Metals**, No. 2/241, Kannarpalayam, Karamadai Post, Coimbatore District – 641 104.

11.2 Present Land use pattern:LAND USE TABLE-15

Description	Present area (Ha)
Quarrying Pit	0.80.00
Infrastructure	Nil
Roads	0.04.00
Green Belt	Nil
Unutilized Area	4.23.22
Grand Total	5.07.22

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. The slope of the bench should not more than 60° from the horizontal.

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 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. This relaxation will be applied and obtained after the execution of lease/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 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 and sufficient reserves are available to carry on the activities. The reason for closure will be discussed in the ensuing mining plan.

11.6 Statutory obligations:

The applicant ensures to comply all the conditions were imposed while granting 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	:	P.Viswanathan, M.Sc., Qualified Person
Address	:	No.17, Advaita Ashram Road, Alagapuram, Salem District – 636 004.
Telephone	:	0427- 2431989 (Office)
Cell No	:	+91 94422 78601 & 94433 56539

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:

There is no waste generated during entire life of quarry, hence backfilling is not possible in the quarried out pit. The entire quarry area is an active also no proposal given for Progressive quarry closure plan in the previous mining plan hence, the applicant has not taken any action for progressive quarry closure. Hence, review of implementation of progressive quarry closure does not arise at present. However, if any work done for progressive quarry closure plan during this plan period, it will be discussed in the ensuing Mining Plan.



11.9 Closure Plan:

(i) Mined Out Land:

At the end of mining plan period, about 4.14.50 Ha of area will be mined out. Land use at various stages is given in the table below.

LAND USE TABLE-16

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Quarrying Pit	0.80.00	4.14.50
Infrastructure	Nil	0.01.00
Roads	0.04.00	0.04.00
Green Belt	Nil	0.20.00
Unutilized Area	4.23.22	0.67.72
Grand Total	5.07.22	5.07.22

The Greenbelt Development will be formed in the quarried out top benches and approach road of the lease applied area.

(ii) Water quality management:

Following control measures will be adopted for controlling water pollution:

- Construction of garland drains to divert surface run-off from virgin area away from mining area.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- The quarried out pit will be allowed to collect rain and seepage water which will act as a reservoir for storage. This water storage will enhance the static level and ground water recharge of nearby wells and it will be used for agriculture purpose to the nearby agriculture land.
- 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 is utilized (100%). Hence, waste management does not arise.

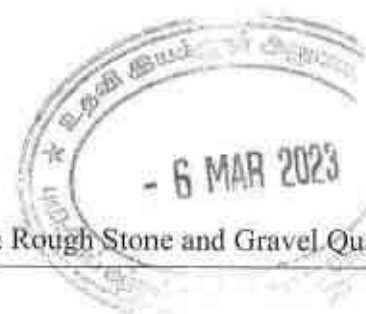
(v) Disposal of mining machinery:

All the machineries will be purchased by fresh condition, the same will be maintained as good condition for the entire lease period. After completion of quarry operation all the machineries will be utilized in another quarry lease 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 unauthorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m 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 provide before blasting time to prevent any accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

**(vii) Disaster Management and Risk Assessment:**

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse, flying stones due to blasting etc.
- The complete quarrying 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 the quarried out top benches and approach road of the lease applied area.

(viii) Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.



- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:
 - Quarry roads and approach roads,
 - Fencing on approach roads,
 - Checking and maintenance of machines and equipment,
 - Drinking water arrangements,
 - Quarry office, first aid stations etc.
- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, quarrying 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 maximum five years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

(x) Time Scheduling for Abandonment:

The lease applied area has enormous potential for continuance of operations even after the expiry of the lease period. The details of time schedule of all abandonment will be given at the time of final closure plan.



(xi) Abandonment Cost:

As at present mining is not going to be closed so abandonment cost could not be assessed. However, based on the progressive quarry closure activities during the plan period, cost is assessed as given below:

LAND USE TABLE-17

ACTIVITY		YEAR					RATE	COST (Rs.)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	50	50	50	50	50	@100 Rs Per sapling	25,000/-
	Cost	5000	5000	5000	5000	5000		
Plantation in the quarried out top benches and approach road	Nos.	120	120	120	120	120	@300 Rs Per Meter	60,000/-
	Cost	12000	12000	12000	12000	12000		
Wire Fencing (In Mtrs) 1,130 Mtrs		3,39,000	-	-	-	-	@300 Rs Per Meter	3,39,000/-
Garland drain (In Mtrs) 1,050 Mtrs		3,15,000	-	-	-	-	@300 Rs Per Meter	3,15,000/-
TOTAL								7,39,000/-

12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT MAR 2023

This Mining plan for Rough Stone (Charnockite) and Gravel is under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied within the quarrying operation, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. As per amendment notification in the EIA notification 2006 is given by Ministry of Environment, Forest and Climate Change vide S.O.1807(E), dated:12.04.2022, the validity of existing environmental clearance is extended upto the end of this mining plan period. 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.

Prepared by



P. Viswanathan, M.Sc.,
Qualified person

Place: Salem

Date: 02.01.2023

DONATE RED

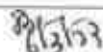
SPREAD GREEN

SAVE BLUE

This Mining Plan is Approved
subject to the conditions / stipulation
& indicated in the Mining Plan Approval
Letter No: 311/Mines/2022 dt: 6-3-2022
office of the A.D. Geology & Mining Coimbatore

This Mining Plan is Approved based on the incorporation of the particulars specified in the letter of the Commissioner of Geology and Mining, Chennai dt No: 1950/2012 dated 19.11.2012 and subjected to timely fulfillment of the conditions laid down under Tamilnadu Minor Mineral Concession Rules 1959


ASSISTANT DIRECTOR
DEPARTMENT OF GEOLOGY & MINING
COIMBATORE DISTRICT



- 6 MAR 2023

உதவி இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
மாவட்ட ஆட்சியர் அலுவலக வளாகம்,
கோயம்புத்தூர் - 18.

ந.க.எண்.311/கனிமம்/2022

நாள்: 29.12.2022

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - கோயம்புத்தூர் மாவட்டம் - மேட்டுப்பாளையம் வட்டம் - சிக்காரம்பாளையம் கிராமம் - புல எண். 76/1A-ல் 1.21.50 ஹெக்டேர் மற்றும் புல எண்.76/1B (பகுதி)-ல் 3.85.72 ஹெக்டேர் ஆக மொத்தம் 5.07.22 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க தி/வா.ஸ்ரீ புளூ மெட்டல்ஸ் என்ற நிறுவனத்திற்கு - குவாரி குத்தகை அனுமதி வழங்குவது - தொடர்பாக.

- பார்வை: 1. தி/வா.ஸ்ரீ புளூ மெட்டல்ஸ், 2/241, கண்ணார்பாளையம், காரமடை அஞ்சல், கோயம்புத்தூர் மாவட்டம் என்பவரது விண்ணப்பம் நாள்: 30.03.2022.
2. இவ்வலுவலக கடிதம் இதே எண். நாள்: 31.03.2022.
3. வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் வடக்கு அவர்களின் கடித ந.க.எண். 1810/2022/அ3 நாள்: 02.09.2022.
4. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் தணிக்கை அறிக்கை நாள்: 19.12.2022.
5. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை கடிதம் எண். 1870/எம்.எம்-1/2020 நாள்: 12.08.2020.

பார்வை 1-ல் கோயம்புத்தூர் மாவட்டம், காரமடை அஞ்சல், 2/241, கண்ணார்பாளையம் என்ற முகவரியில் இயங்கி வரும் தி/வா.ஸ்ரீ புளூ மெட்டல்ஸ் என்ற நிறுவனத்தின் உரிமையாளர் திரு.S.ஞானசேகரன் என்பவர் கோயம்புத்தூர் மாவட்டம், மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமம், புல எண். 76/1A-ல் 1.21.50 ஹெக்டேர் மற்றும் புல எண்.76/1B (பகுதி)-ல் 3.85.72 ஹெக்டேர் ஆக மொத்தம் 5.07.22 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரி உரிய ஆவணங்களுடன் விண்ணப்பித்துள்ளார்.

மேற்படி மனு தொடர்பாக, வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் வடக்கு மற்றும் கோயம்புத்தூர் புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு கோயம்புத்தூர் மாவட்டம், காரமடை அஞ்சல், 2/241, கண்ணார்பாளையம் என்ற முகவரியில் இயங்கி வரும் தி/வா.ஸ்ரீ புளூ மெட்டல்ஸ் என்ற நிறுவனத்திற்கு கோயம்புத்தூர் மாவட்டம், மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமம், புல எண். 76/1A-ல் 1.21.50 ஹெக்டேர் மற்றும் புல எண்.76/1B (பகுதி)-ல் 3.85.72 ஹெக்டேர் ஆக மொத்தம் 5.07.22 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில்



சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க சில நிபந்தனைகளுடன் பரிந்துரை செய்துள்ளார்கள்.

அனுமதி கோரும் புல எண். 76/1A ஆனது பட்டா எண். 3359-ன் படி திரு. பழனிசாமி மற்றும் திருமதி.ஜெயலட்சுமி ஆகியோர் பெயரில் கூட்டுப்பட்டாவாகவும், புல எண்.76/1B ஆனது பட்டா எண். 2767-ன் படி திரு. பழனிசாமி என்பவர் பெயரில் தனிப்பட்டாவாகவும், கிராம கணக்கில் தாக்கலாகியுள்ளது. மேற்படி பட்டாதாரர்கள் தங்களுக்கு பாத்தியப்பட்ட புலங்களில் மாவட்ட ஆட்சியரால் அனுமதி அளிக்கும் நாளிலிருந்து 5 ஆண்டுகளுக்கு தி/வா.புரீ புளூ மெட்டல்ஸ் என்ற நிறுவனம் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுத்துக் கொள்ள தங்களுக்கு எவ்வித ஆட்சேபணையும் இல்லை என சம்மத கடிதம் அளித்துள்ளார்கள். எனவே மேற்படி பூமியில் மேற்கண்ட நிறுவனம் குவாரி குத்தகை உரிமம் பெற தகுதியுடையது ஆகும்.

எனவே, வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் வடக்கு மற்றும் உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் ஆகியோரின் பரிந்துரைகளின் அடிப்படையில் கோயம்புத்தூர் மாவட்டம், காரமடை அஞ்சல், 2/241, கண்ணார்பாளையம் என்ற முகவரியில் இயங்கி வரும் தி/வா.புரீ புளூ மெட்டல்ஸ் என்ற நிறுவனத்திற்கு கோயம்புத்தூர் மாவட்டம், மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமம், புல எண். 76/1A-ல் 1.21.50 ஹெக்டேர் மற்றும் புல எண்.76/1B (பகுதி)-ல் 3.85.72 ஹெக்டேர் ஆக மொத்தம் 5.07.22 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 1959-ஆம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் விதி 19(1) மற்றும் 20-ன் படி குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றும் நாளிலிருந்து 5 (ஐந்து) ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு குவாரி குத்தகை வழங்குவதற்குரிய நிலப்பரப்பாக (Precise Area Communication) கருதப்படுகிறது.

நிபந்தனைகள்

1. அருகிலுள்ள பட்டா நிலங்களுக்கும் மற்றும் பொது மக்களுக்கும், எவ்வித இடையூறும் இன்றி சாதாரண கல் மற்றும் கிராவல் குவாரி பணி மேற்கொள்ள வேண்டும்.
2. அருகில் உள்ள பட்டா நிலத்திற்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
3. அனுமதி கோரும் புலத்தின் வடகிழக்கு பகுதியில் மின்மாற்றியுடன் செல்லும் மின்கம்பி பாதைக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.

- 6 MAR 2023

4. அனுமதி கோரும் புலத்தினை அரசு அங்கீகாரம் பெற்ற நிறுவனத்தினரால் DGPS (Differential Global Positioning System)-ன் படி ஆய்வு செய்யப்பட்டு ஒவ்வொரு எல்லைத் தூண்களும் நடப்படவேண்டும்.
5. குழந்தை தொழிலாளர்களை வேலைக்கு அமர்த்தல் கூடாது.

மேலும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள்-1959 விதி எண். 41 மற்றும் 42-ன் படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறும், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு அதிகார அமைப்பின் அனுமதியினை பெற்று சமர்ப்பிக்கவும் மனுதாரரை கேட்டுக் கொள்ளப்படுகிறது.

A. J. J. J.
உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை
கோயம்புத்தூர்.

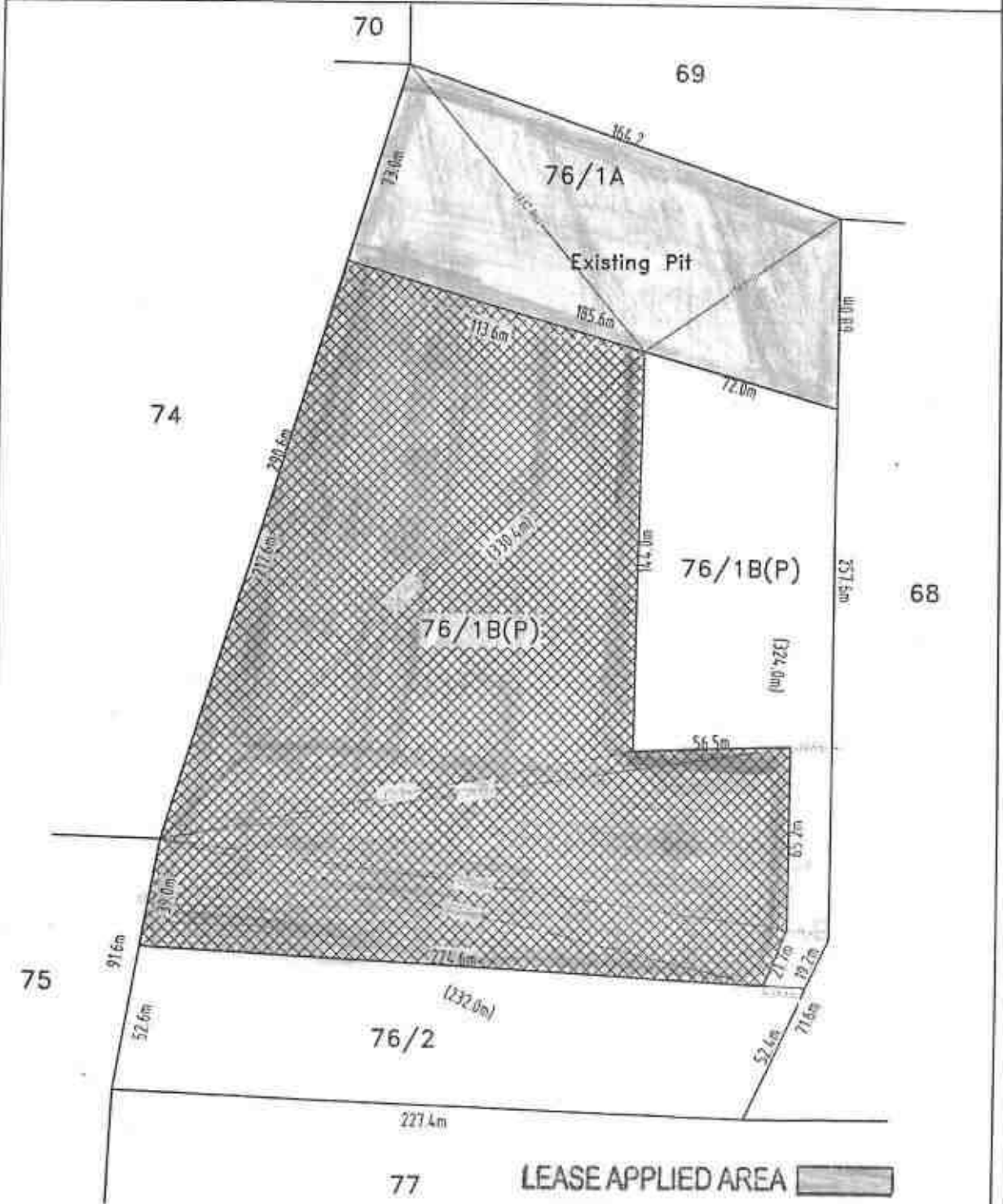
பெறுநர்:
தி/வா.ஸ்ரீ புளூ மெட்டல்ஸ்,
2/241, கண்ணார்பாளையம்,
காரமடை அஞ்சல்,
கோயம்புத்தூர் மாவட்டம்.

29/2/23

- 6 MAR 2023

District : Coimbatore
 Taluk : Mettupalayam
 Village : Sikkarampalayam

Survey No : 76
 Are : Hect 07 Ares 42.50
 Scale : 1:1000



10/05/2022
 வட்டசார் ஆய்வாளர்
 மேட்டுப்பாளையம் வட்டம்.

SF NO- 76/1A : 1.21.50ha
 SF NO- 76/1B(P) : 3.85.70 ha
 TOTAL AREA PROPOSED 5.07.2 ha

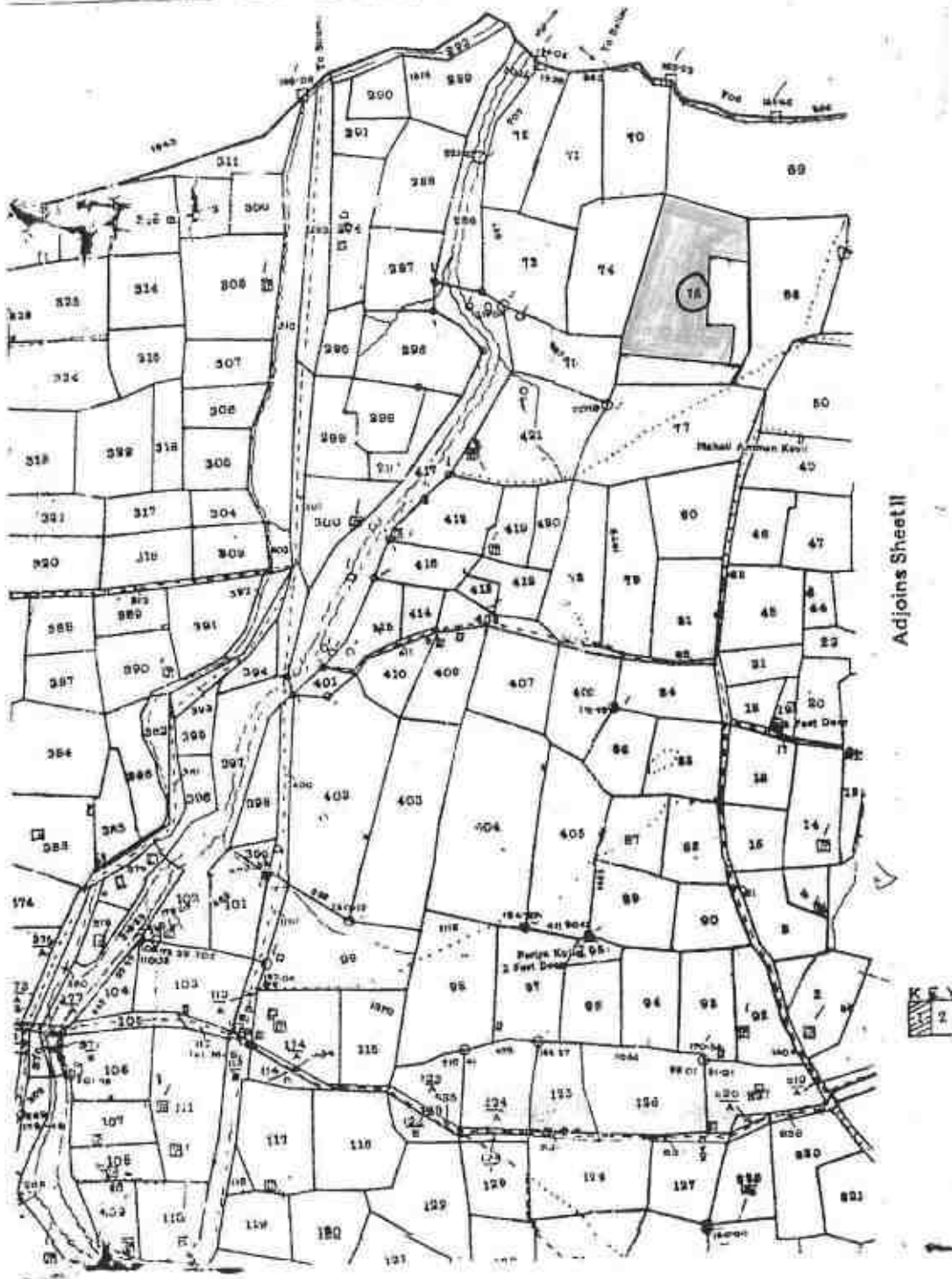


DISTRICT : COIMBATORE

TALUK : METTUPALAYAM

TOPO SKETCH

VILLAGE : IYCHIKKARAI
P.O. : Bys



Adjoins Sheet II

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LEASE APPLIED AREA 

- 6 MAR 2023

31/2/21, 5:27 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - நில உரிமை விபரங்கள்



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : கோயம்புத்தூர்

வட்டம் :

மேட்டுப்பாளையம்

வருவாய் கிராமம் : சிக்காரம்பாளையம்

பட்டா எண் : 2767

உரிமையாளர்கள் பெயர்

1. சாமப்பன்

மகன்

பழனிசாமி

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	
76	1B	4 - 99.50	9.99	--	--	--	--	2021/0103/12/332851-2/1413 -- 12-11-2021
		4 - 99.50	9.99					

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/04/019/02767/20912 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 12-11-2021 அன்று 05:26:36 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : மேட்டுப்பாளையம்

வருவாய் கிராமம் : சிக்காரம்பாளையம்

பட்டா எண் : 2302

உரிமையாளர்கள் பெயர்

1. பழனிச்சாமி மகன் சித்தார்த்தா மெளலி

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
76	1A	1 - 21.50	2.43	--	--	--	--	2018/0103/12/134621-2/1413 -- 30-09-2018
		1 - 21.50	2.43					

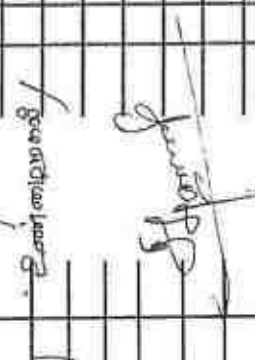
குறிப்பு2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/04/019/02302/20967 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 28-03-2022 அன்று 12:14:05 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode பிடிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



1. - ಸ್ಥಳೀಯ ಸರ್ಕಾರದ ಅಧೀನದಲ್ಲಿರುವ ಸರ್ಕಾರಿ ಹಾಗೂ ಸರ್ಕಾರೀ ಹಿರಿಯ ಅಧಿಕಾರಿಗಳಿಗೆ ಸಂಬಳದ ವಿವರಗಳನ್ನು ಕೊಡುವ ಉದ್ದೇಶದಿಂದ ಈ ಫಾರ್ಮ್ ಸಿದ್ಧಪಡಿಸಿ ಸಲ್ಲಿಸಬೇಕು.

ಕ್ರ. ಸಂ.	ನಾಮ	ಜನನದ ದಿನಾಂಕ	ಪ್ರಧಾನ ಹುದ್ದೆ					ಪ್ರಧಾನ ಹುದ್ದೆ					ಪರಿಶೀಲನೆ	
			1. ಹುದ್ದೆ	2. ವರ್ಗ	3. ವರ್ಗ	4. ವರ್ಗ	5. ವರ್ಗ	6. ಹುದ್ದೆ	7. ವರ್ಗ	8. ವರ್ಗ	9. ವರ್ಗ	10. ವರ್ಗ		
16	19	19	19	19	19	19	19	19	19	19	19	19	19	19
<p style="text-align: center;">  </p>														

ANNEXURE



உ. எண். 19. சி.கா.பா.பா.பா.பா.பா.பா.

15

1	2	3	4	5	6	7	8	9	10	11	12
75	...	75	ர	4	...	8-3	5	2 00	2 47.5	4 96	799 K. P. ராம சுப்பிரமணிய அய்யர்.
76	①	76-பா	ர	4	...	8-3	5	2 00	6 21.0	12. 42	876 ப. முருகைய கவுடர்(1), மு. சாஜம் மான்(2).
	2	-பா	ர	4	...	8-3	5	2 00	1 21.5	2 42	200 மா. சாமக்காள்.
									7 42.5	14 84	
77	①	77-1	ர	4	...	8-3	5	2 00	0 78.5	1 56	631 ப. முருகைய கவுடர்.
	②	-2	ர	4	...	8-3	5	2 00	4 55.5	9 12	120 க. சிருஷ்ண சாமி முதலியார்.
									5 34.0	10 68	
78	1	78-1	ர	4	...	8-2	4	2 77	2 60.0	7 19	799 ப. ராம சுப்பிரமணிய அய்யர்.
	2	-2	அ	நி.ச.த.	...	...	...	-	0 63.0	...	கலில் குடி
									3 23.0	7 19	
79	①	79-பா	ர	4	...	8-2	4	2 77	1 25.0	3 46	416 மா. நஞ்சன்.
	②	Change -பா	ர	4	...	8-2	4	2 77	1 95.5	5 42	877 ஊ. நரசம் மான்(1), ஊ. பத்திரப் பன்(2).
									3 20.5	8 88	
	1	80-பா	ர	4	...	8-2	4	2 77	1 27.0	3 52	26 ப. ஆனந்தியப்ப கவுடர்.
	2	-2	ர	4	...	8-2	4	2 77	1 42.5	3 95	588 ப. மாரவன் கவுடர்.
									2 69.5	7 47	விடு-)

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சென்னை மாநகராட்சி, எண். 19, சி.கா.பா.பா.பா.பா.பா.பா. மாநகராட்சி மன்றம்



19/23 17/20 24 835 200 1010 200 428 2000000000
 19/24 17/20 24 835 200 1010 200 538 2000000000

2000000000
 2000000000
 2000000000

17/20 17/20 24 835 200 1090 203 724 2000000000
 17/20 17/20 24 835 200 1090 203 752 2000000000
 17/20 17/20 24 835 200 1090 203 763 2000000000

4.555 9-12

17/10 17/10 24 834 200 1010 203 724 2000000000
 19/10 19/10 24 829 200 1010 203 410 2000000000

1.250 346

2000000000
 2000000000
 2000000000
 2000000000

76/19 76/19 24 835 200 1.21.5 2.43 1527R 2000000000
 76/19 76/19 24 835 200 4.99.5 9.99 876 2000000000
6.21.0 12.42 2000000000

Chang. 20 2000
 PK 80/2/1413017.6.2003

77/19 77/19 24 835 200 0.74.5 0.10 420 2000000000
 77/19 77/19 24 835 200 0.74.5 0.10 420 2000000000
 0.78.5 1.17 1658 2000000000
 0.78.5 1.17 2000000000

Chang. 20 2000
 PK 80/2/1413017.6.2003
 1.17
 14/7/04

2000000000
 2000000000
 2000000000



17/20	7/20	34	835	2.00	1.010	2.00	4.88	3	2000000000
17/20	7/20	34	873	2.00	0.965	0.114	5.88	4	2000000000
17/20	7/20	34	833	2.00	1.040	2.03	7.26	3	2000000000
17/20	7/20	34	873	2.00	1.070	2.82	7.50	4	2000000000
17/20	7/20	34	835	2.00	0.990	1.18	7.60	3	2000000000

4.555 9.12

17/10	7/10	34	824	2.00	0.160	1.16	7.27	3	2000000000
19/10	7/10	34	824	2.00	0.290	0.50	4.12	3	2000000000

1.250 346

Chang...
 2023
 11/2017
 @...
 2023
 11/2017

76/19	76/1	104	8.35	2.00	1.21.5	2.43	1527	1000000000
76/19	76/1	104	8.3.5	2.00	4.99.5	9.99	876	2000000000
					<u>6.21.0</u>	<u>12.42</u>		2000000000

Chang...
 PK 80/2/1413017.6.2023

77/10	77/10	34	835	2.00	0.745	0.10	4.20	3	2000000000
77/10		34	85	2.00	0.740	1.17	1658	3	2000000000
					0.785	1.57			

Chang...
 11/2017
 11/2017

- 6 MAR 2023



தமிழ்நாடு தமிழ்நாடு TAMIL NADU ஜி. சாந்தா ஜி. சாந்தா
 எண் 2129 SRI BUBB METALS மூ. தாள் விற்பனையாளர் 12AB 897164
 நாள் 12.3.15 2/241, kannaspalayam R.K.S. பிண்டி, பாங்காளமேடு
 காரமடை, கோயம்புத்தூர் மேட்டுப்பாளையம் - 641301.
 உரிமம். எண்: 7333/91/97/எ
 சம்மதகடிதம்

1. கோயம்புத்தூர் மாவட்டம் 2/216 கண்ணார்பாளையம் சீக்கரம்பாளையம் கிராமம் காரமடை என்ற விலாசத்தில் வசிக்கும் திரு S. பழனிசாமி மகன் P. சித்தார்த்த மெட்டலி.
2. கோயம்புத்தூர் மாவட்டம் மேட்டுப்பாளையம் தாலுக்கா, சீக்கரம்பாளையம் கிராமம் க ச எண் 76/1A ல் 1.21.5 ஹெக்டர் பரப்பு காலையானது மட்ட எண் 7825 ன் படி எனக்கு பாத்தியப்பட்டது . மேற்படி கோவை மாவட்டம் 2/246 கண்ணார்பாளையம் சீக்கரம்பாளையம் கிராமம் ,காரமடை என்ற விலாசத்தில் வசிக்கும் திரு D.சாமப்பன் மகன் திரு S. ஞானசேகரன் என்பவர் நடத்தி வரும் "ஸ்ரீ ப்ளூ மெட்டல்ஸ்" நிறுவனத்தின் கோவை மாவட்டம் ஆட்சித்தலைவர் அவர்களால் மேற்படி பூமியில் சாதாரண கற்கள் மற்றும் கிரவால் மண் எடுக்க அனுமதி வழக்க ஒப்புதல் அளிக்கப்பட்ட நாளிலிருந்து பத்து வருடத்திற்கு மேற்படி பூமியில் கிரவால் மண் வெட்டியெடுத்து செல்ல சம்மதம் தெரிவிக்கிறேன் .

இப்படிக்கு

சமீப தபம்மாந் சபாஸபா
- 6 MAR 2023



தமிழ்நாடு தமிழ்நாடு TAMIL NADU

20/- ரூபாய்
ஜி. சாந்தா

12AB 897159

நாள் 2174
17.3.15

SRI BLUE METALS

2/24, kannarpalayam
karamadai, Coimbatore

ஐ. ஞான சிற்பணையாளர்
R.K.S. பிண்டி, பங்களாமேடு
மேட்டுப்பாளையம் - 641301
உரிமம். எண்: 7333/பி1/97/15

சம்மதகடிதம்



1. கோயம்புத்தூர் மாவட்டம் 2/216 கண்ணார்பாளையம் சீக்கரம்பாளையம் கிராமம் காரமடை என்ற விலாசத்தில் வசிக்கும் திரு D.சாமப்பன் மகன் S. பழனிசாமி
2. கோயம்புத்தூர் மாவட்டம் மேட்டுப்பாளையம் தாலுக்கா, சீக்கரம்பாளையம் கிராமம் க ச எண் 76/1B ல் 4.99.50 ஹெக்டர் பரப்பு காலையானது மட்ட எண் 9299,4358 ன் படி எனக்கு பாத்தியப்பட்டது . மேற்படி கோவை மாவட்டம் 2/246 கண்ணார்பாளையம் சீக்கரம்பாளையம் கிராமம் காரமடை என்ற விலாசத்தில் வசிக்கும் திரு D.சாமப்பன் மகன் திரு S. ஞானசேகரன் என்பவர் நடத்தி வரும் "ஸ்ரீ ப்ளூ மெட்டல்ஸ்" திறுவனத்தின் கோவை மாவட்டம் ஆட்சித்தலைவர் அவர்களால் மேற்படி பூமியில் சாதாரண கற்கள் மற்றும் கிரவால் மண் எடுக்க அனுமதி வழங்க ஒப்புதல் அளிக்கப்பட்ட நாளிலிருந்து பத்து வருடத்திற்கு மேற்படி பூமியில் கிரவால் மண் வெட்டியெடுத்து செல்ல சம்மதம் தெரிவிக்கிறேன்.

இப்படிக்கு



सत्यमेव जयते



Government of India
Form GST REG-06
[See Rule 10(1)]

Registration Certificate

Registration Number : 33AFBPG0806J1Z0

1.	Legal Name	SAMAPPA GOWDER GNANASEKARAN			
2.	Trade Name, if any	SRI BLUE METALS			
3.	Constitution of Business	Proprietorship			
4.	Address of Principal Place of Business	2/241, ANNUR ROAD, KANNARPALAYAM, Coimbatore, Tamil Nadu, 641104			
5.	Date of Liability	01/07/2017			
6.	Period of Validity	From	01/07/2017	To	NA
7.	Type of Registration	Regular			
8.	Particulars of Approving Authority				
Signature					
Signature Not Verified Digitally signed by DS GOODS AND SERVICES TAX NETWORK 1 Date: 2018.08.02 09:13:02 IST					
Name					
Designation					
Jurisdictional Office					
9.	Date of issue of Certificate	02/08/2018			
Note: The registration certificate is required to be prominently displayed at all places of business in the State.					

This is a system generated digitally signed Registration Certificate issued based on the deemed approval of application on 01/07/2017.



Annexure A

GSTIN 33AFBPG0806J1Z0
Legal Name SAMAPPA GOWDER GNANASEKARAN
Trade Name, if any SRI BLUE METALS

Details of Additional Places of Business

Total Number of Additional Places of Business in the State 0



GSTIN 33AFBPG0806J1Z0
Legal Name SAMAPPA GOWDER GNANASEKARAN
Trade Name, if any SRI BLUE METALS

Details of Proprietor

1



Name Samappa Gowder Gnanasekaran
Designation/Status PROPRIETOR
Resident of State Tamil Nadu



इस कार्ड के खोने/खोने पर कृपया सूचित करें/Alert:
 आपका पैन सेवा कार्ड, पर एन सी यूए
 5 थो स्टोर, 4थी एस्टोर,
 प्लॉट नं. 341, सर्वे नं. 997/8,
 मॉडल कॉलोनी, नज़र दारु बंगला चौक के पास,
 पुणे - 411 016.

*If this card is lost / someone's lost card is found,
 please inform / return to:*
 Income Tax PAN Services Unit, NSDL
 5th Floor, Main Street Building,
 Plot No. 341, Survey No. 997/8,
 Model Colony, Near Darji Bungalow Chowk,
 Pune - 411 016.
 Tel: 91-20-2721 8080 Fax: 91-20-2721 8081
 e-mail: ininfo@nsdl.com

आयकर विभाग  **भारत सरकार**
INCOME TAX DEPARTMENT **GOVT. OF INDIA**

स्थायी लेखा संख्या कार्ड
Permanent Account Number Card

AFBPG0806J

नाम / Name
GNANASEKARAN S

पिता का नाम / Father's Name
SAMAPPA GOWDER

जन्म की तारीख / Date of Birth
04/03/1962


हस्ताक्षर / Signature



04080017



அறிவியல் புலம்
FACULTY OF SCIENCE

பெரியார் பல்கலைக்கழக ஆட்சிக்குழு 2010 ஆம் ஆண்டு ஏப்ரல் மாதம்
நடந்த பயன்பாட்டுப்புவியமைப்பியல் தேர்வில்
அரசு கலைக் கல்லூரி, சேலம் - 636 007 (தன்னாட்சி) பயின்ற
P விஸ்வநாதன் என்பவர்

முதல் வகுப்பு A++ தரத்தில் தேர்ச்சி பெற்றார் என்று தக்க
தேர்வாளர்கள் சான்றளித்தபடி அறிவியல் நிறைஞர் என்னும்
பட்டத்தை அவருக்குப் பல்கலைக்கழக இலச்சினையுடன் வழங்குகிறது.

*The Syndicate of the Periyar University hereby makes known
that VISWANATHAN P has been*

*admitted to the DEGREE OF MASTER OF SCIENCE in
APPLIED GEOLOGY*

*he/she having been certified by duly appointed Examiners to be qualified
to receive the same and was placed in the FIRST CLASS*

*WITH A++ GRADE at the Examination held in APR-2010 through
GOVERNMENT ARTS COLLEGE, SALEM - 636 007 (AUTONOMOUS).*



நாள்
Dated 28/02/2011
சேலம் 636011, தமிழ்நாடு, இந்தியா.
Salem 636011, Tamil Nadu, India.

Given under the seal of this university



பதிவாளர்
Registrar

துணைவேந்தர்
Vice-Chancellor

TIN. No. : 3312 2703755
C.S.T. No. : 880783 / 29.11.2005
Area Code : 142



SUDHARSHAAN MINING CORPORATION

Mfrs : Dead Burnt Magnesite, Lightly Calcined Magnesite, Dunite Chips & Powder.
S.F. No. 77, Kuduvampatty Road, Vinayagampatti, SALEM - 636 008.

Date : 28.12.2015.....

EXPERIENCE CERTIFICATE

This is to certify that **Shri.P.Viswanathan, S/o. P.Paramasivam, Geologist,** has worked in our Magnesite Mines from **13.09.2010 to 25.11.2015** as our company Geologist. During his service he used to maintain all records and returns submitted to Government Departments.

His nature of work in the mines was to show the plan of working and demarcate Magnesite reserve areas. He was looking after production of Magnesite and was maintaining quality of the Mineral as per the specifications given by the buyers.

During his tenor of his service he was very sincere and prompt in his duties.

I wish him the best of luck in all his future endeavours.

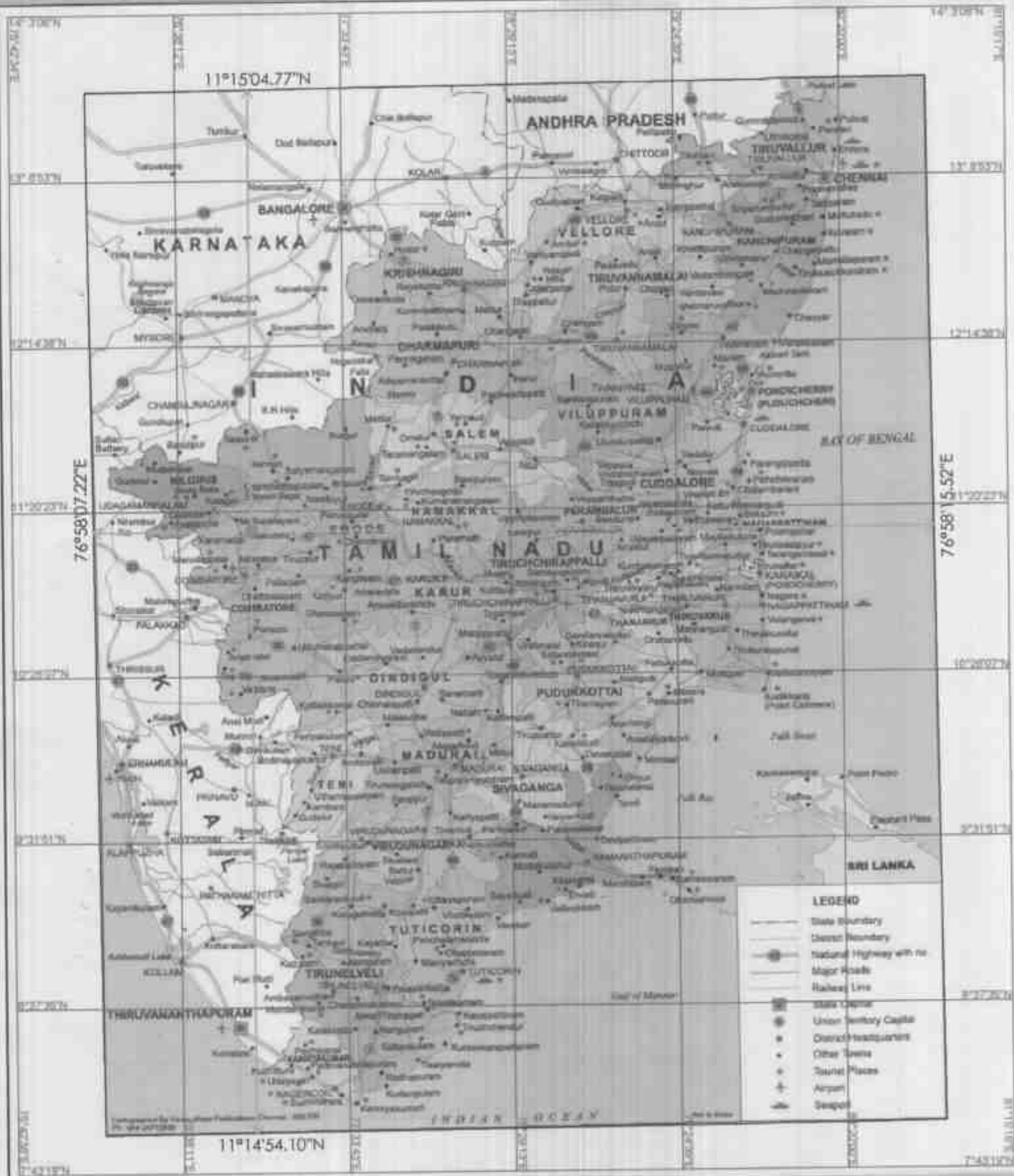
For M/s.SUDHARSHAAN MINING CORPORATION,

SUDHARSHAAN MINING CORPORATION
SF-77, KUDUVAMPATTI ROAD,
SALEM - 636 008. Tamilnadu.


G.PASUPATHY,
Proprietor

28 Dec 2015

Resi : "Garuda" 14/315, Kaliyapillai Garden Ind Cross, Fairlands, Salem - 636 004. Tamilnadu.



INDEX

Q.L.APPLIED AREA : ●
 TOPO SHEET NO. : 58 A/15 & 58 A/16
 LATITUDE : 11°14'54.10"N to 11°15'04.77"N
 LONGITUDE : 76°58'07.22"E to 76°58'15.52"E

APPLICANT :

Tvl. SRI BLUE METALS,
 D.No. 2/ 241, KANNARPALAYAM,
 KARAMADAI POST,
 CHIKKARAMPALAYAM VILLAGE,
 METTUPALAYAM TALUK,
 COIMBATORE DISTRICT .

LOCATION OF Q.L.A. AREA:

S.F.No's : 76/ 1A & 76/ 1B (Part).
 EXTENT : 5.07.22 Ha.
 VILLAGE : CHIKKARAMPALAYM,
 TALUK : METTUPALAYAM,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

PLATE NO - I

DATE OF SURVEY : 31.12.2022

LOCATION PLAN

SCALE: 1:24,00,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLATE IS TRUE AND CORRECT TO THE BEST OF MY
 KNOWLEDGE BASED UPON THE LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT

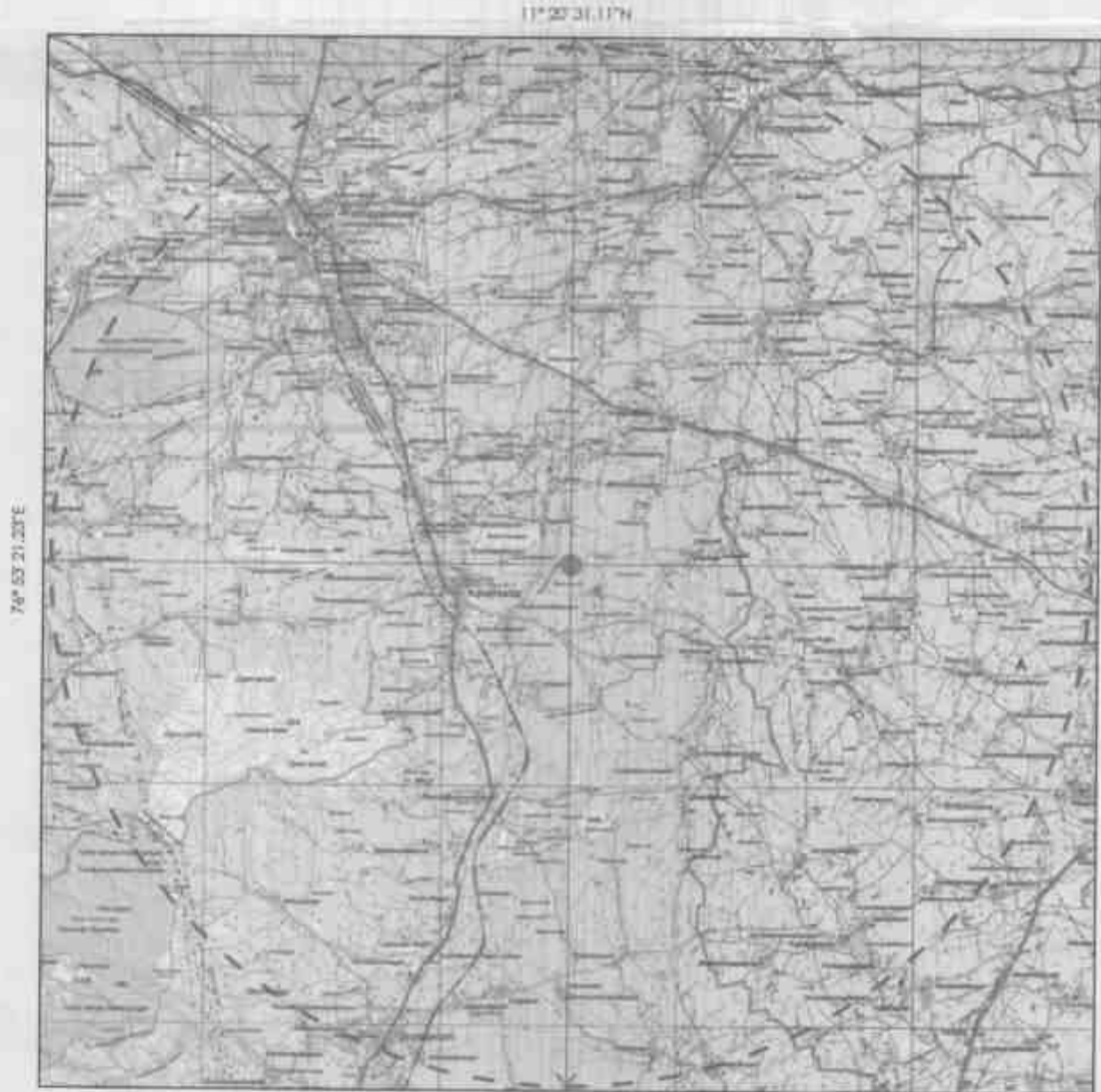
P. Viswanathan, Sc.
 P. VISWANATHAN, Sc.
 QUALIFIED PERSON

INDEX

- Express highway; with toll; with bridge; with distance stone
- Roads metalled; according to importance
- Roads, double cartilageway; according to importance
- Unmetalled road. Cart-track. Pack-track with pass. Foot-path
- Streams; with track in bed; undefined. Canal
- Dams; masonry or rock-filled; earthwork. Weir
- River, dry with water channel; with island & rocks. Tidal river
- Submerged rocks. Shoal. Swamp. Reeds
- Wells; lined, unlined. Tubewell. Spring. Tanks; perennial, dry
- Embankments; road or rail; tank. Broken ground
- Railways, broad gauge; double; single with station; under constr.
- Railways, other gauges; double; single with distance stone; do
- Mineral line or tramway. Kln. Cutting with tunnel
- Contours with sub-features. Rocky slopes. Cliffs
- Sand features: (1)flat, (2)sand-hills(permanent), (3)dunes(shifting)
- Towns or Villages; inhabited; deserted. Fort
- Huts; permanent; temporary. Tower. Antiquities
- Temple, Chhatra, Church, Mosque, Idgah, Tomb, Graves
- Lighthouse, Lightship. Buoys; lighted; unlighted. Anchorage
- Mine. Vine on trellis. Grass. Scrub
- Palms; palmyra, other. Plantain. Coriander. Bamboo. Other trees
- Areas; cultivated; Wooded. Surveyed trees
- Boundary, international
- Boundary, state; demarcated; undemarcated
- Boundary, district; subdivision; tribal or taluk; forest
- Boundary pillars; surveyed; unlocated
- Heights, triangulated; station; point; approximate
- Bench-mark; geodetic; tertiary; canal
- Post office. Telegraph office. Overhead tank
- Rail house or inspection bungalow. Circuit house. Police station
- Camping Ground. Forest; reserved; protected
- Space names; administrative; locality or tribal
- Hospital. Dispensary. Veterinary; Hospital/Dispensary
- Aerodrome. Helipad. Tourist site
- Powerline; with pylons surveyed; with poles unsurveyed

- 6 MAR 2023

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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76° 53' 21.23\"/>

77° 04' 28.77\"/>

11° 07' 29.67\"/>

TOPO SHEET NO. : 58 A/15 & 58 A/16
 LATITUDE : 11°14'54.10\"/>

APPLICANT :
 Tvl. SRI BLUE METALS,
 D.No. 2/ 241, KANNARPALAYAM,
 KARAMADAI POST,
 CHIKKARAMPALAYAM VILLAGE,
 METTUPALAYAM TALUK, COIMBATORE DISTRICT .

LOCATION OF Q.L.A AREA:
 S.F.No's : 76/ 1A & 76/ 1B (Part).
 EXTENT : 5.07.22 Ha.
 VILLAGE : CHIKKARAMPALAYAM,
 TALUK : METTUPALAYAM,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

PLATE NO - I-A
 DATE OF SURVEY : 31.12.2022

TOPO SKETCH OF QUARRY LEASE APPLIED AREA FOR 10Km RADIUS
 SCALE: 1:1,00,000

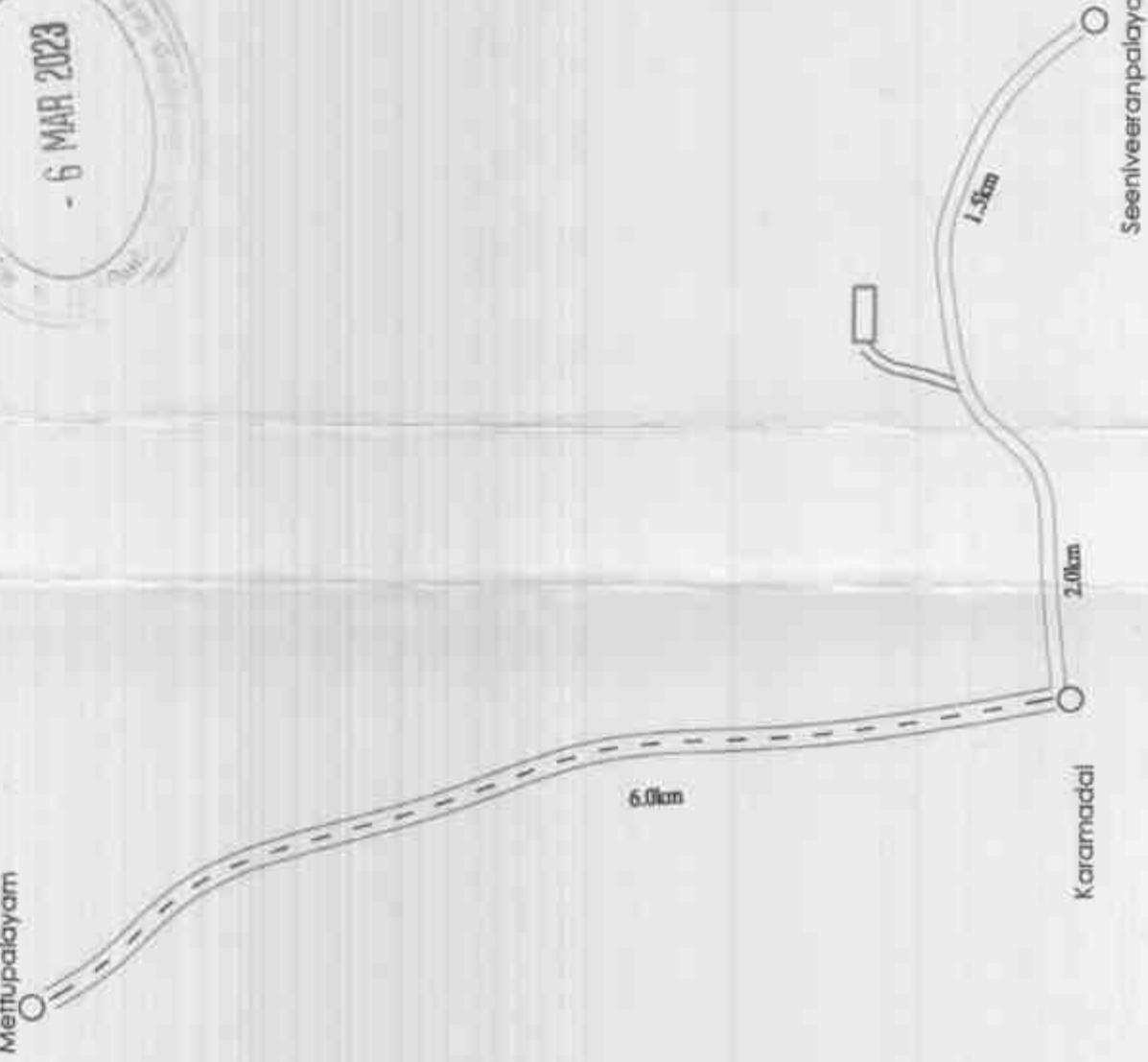
PREPARED BY :
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

 P. VISWANATHAN M.Sc.,
 QUALIFIED PERSON

PLATE NO : I-C
ROUTE MAP



Mettupalayam



6.0km



Karamadai

2.0km

1.5km

Seeniveeranpalayam

INDEX

- LEASE APPLIED AREA 
- NATIONAL HIGHWAY 
- VILLAGE ROAD 

APPLICANT :

Tm. SRI BLUE METALS,
D.No. 2/ 241, KANNARPALAYAM,
KARAMADAI POST,
CHIKKARAMPALAYAM VILLAGE,
METTUPALAYAM TALUK,
COIMBATORE DISTRICT.

LOCATION OF Q.I.A AREA:

S.F.No's : 76/ 1A & 76/ 1B (Part).
EXTENT : 5.07.22 Ha.
VILLAGE : CHIKKARAMPALAYM,
TALUK : METTUPALAYAM,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

SCALE :

NOT TO SCALE

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

P. Vidyanathan
P. VIDYANATHAN, M.Sc.,
QUALIFIED PERSON

INDEX

-  Q.L. APPLIED AREA
-  1 Km RADIUS
-  500m RADIUS
-  SEASONAL AGRICULTURE LAND
-  TREES & COCONUT FARM
-  HABITATION
-  QUARRY PIT & CRUSHER UNIT
-  WIND DIRECTION
-  PANCHAYAT ROAD
-  APPROACH ROAD
-  BARREN LAND
-  ODAI
-  CART TRACK

APPLICANT :

M. SRI BLUE METALS,
D.No. 2/ 241, KANNARPALAYAM,
KARAMADAI POST,
CHIKKAMPALAYAM VILLAGE,
METTUPALAYAM TALUK,
COIMBATORE DISTRICT.

LOCATION OF Q.L.A. AREA:

S.F.No's : 76/ 1A & 76/ 1B (Part).
EXTENT : 5.07.22 Ha.
VILLAGE : CHIKKAMPALAYAM,
TALUK : METTUPALAYAM,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

PLATE NO - I-B

DATE OF SURVEY : 31.12.2022

ENVIRONMENTAL & LAND USE
PLAN

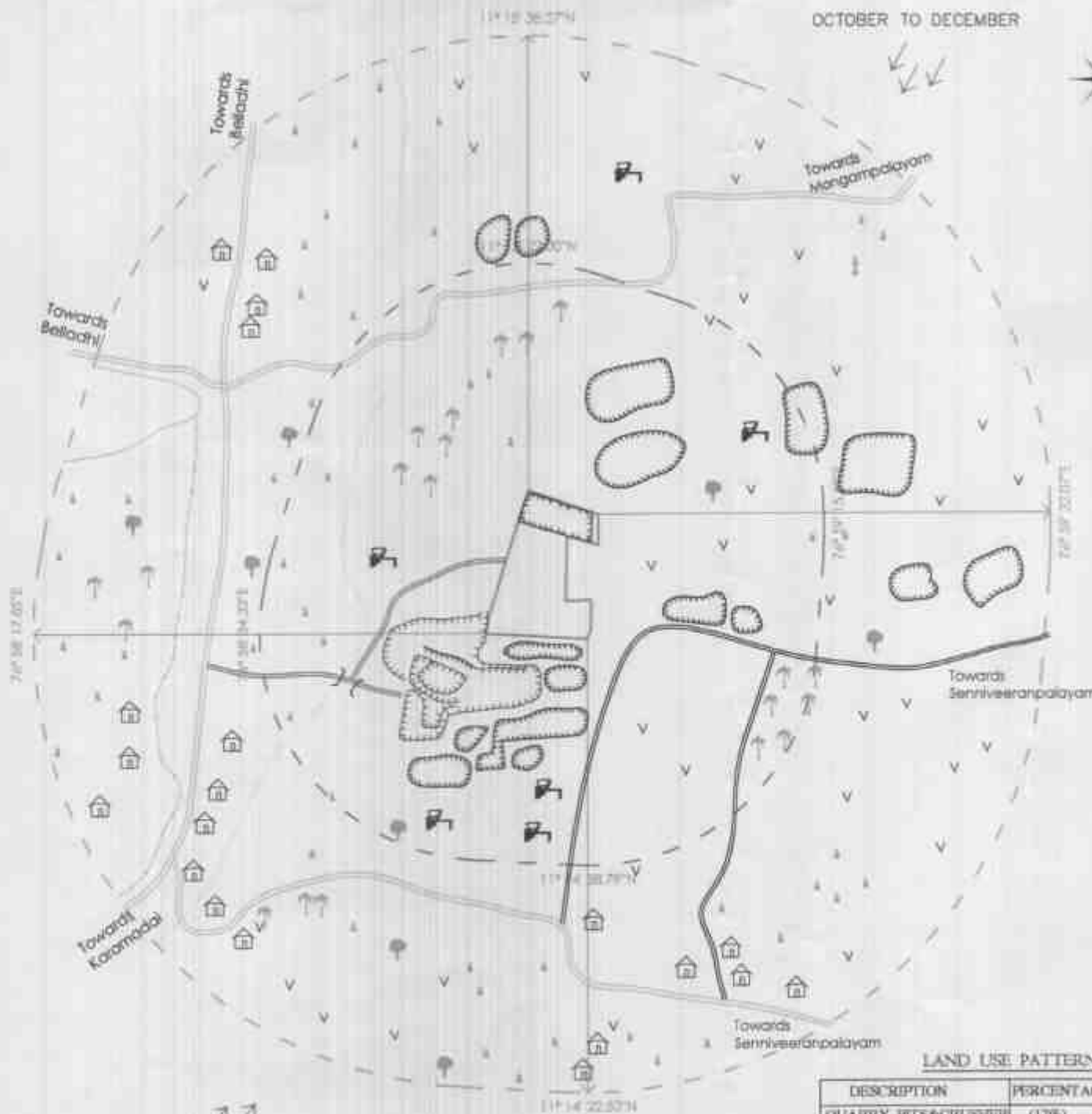
SCALE: 1:10,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLAN IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT.

P. J. Venkatesh
P. J. VENKATESH,
QUALIFIED PERSON







OCTOBER TO DECEMBER



JULY TO SEPTEMBER

TOPO SHEET NO.: 58 A/15 & 58 A/16
LATITUDE : 11°14'54.10\"/>

LAND USE PATTERN

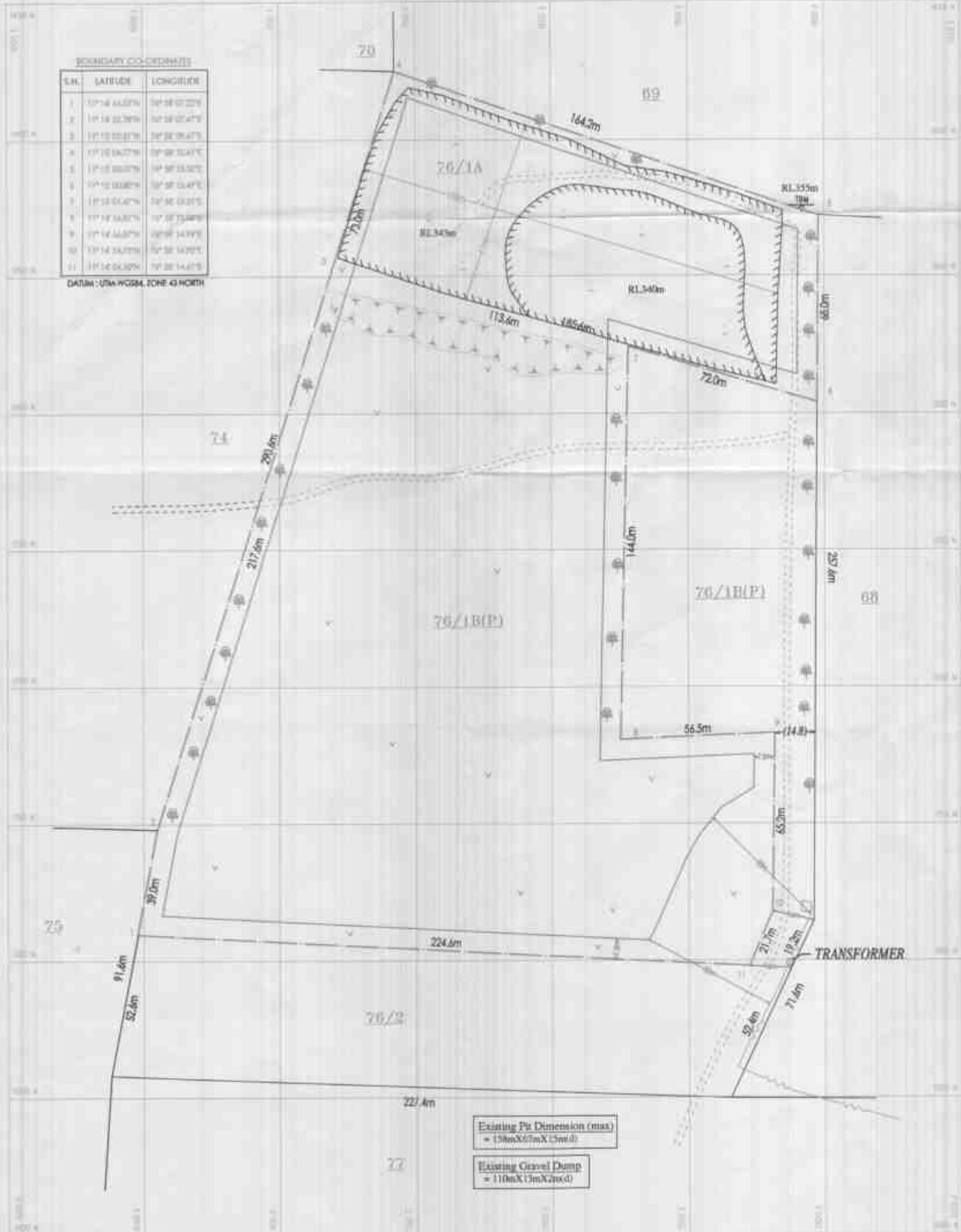
DESCRIPTION	PERCENTAGE	INDEX
QUARRY PITS&CRUSHER	(12%)	
TREES&COCONUT FARM	(09%)	
SEASONAL AGRIC LAND	(20%)	
ROADS/WATER BODIES	(10%)	
HABITATION	(08%)	
BARREN LAND	(12%)	
TOTAL	100%	



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 16' 44.077N	107° 58' 02.227E
2	10° 16' 22.287N	107° 58' 02.472E
3	10° 15' 00.817N	107° 58' 02.472E
4	10° 15' 00.077N	107° 58' 02.472E
5	10° 15' 00.077N	107° 58' 02.472E
6	10° 15' 00.077N	107° 58' 02.472E
7	10° 15' 00.077N	107° 58' 02.472E
8	10° 15' 00.077N	107° 58' 02.472E
9	10° 15' 00.077N	107° 58' 02.472E
10	10° 15' 00.077N	107° 58' 02.472E
11	10° 16' 00.000N	107° 58' 02.472E

DATUM : UTM WGS84 ZONE 43 NORTH



Existing Pit Dimension (max)
= 150mX67mX15m(d)

Existing Gravel Dump
= 110mX13mX2m(d)

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 50m & 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- ROUGHSTONE
- QUARRY PIT
- DUMP
- SHELVES
- QUARRY HAUL ROAD
- APPROACH ROAD
- EB LINE

APPLICANT :

M. SRI BLUE METALS,
D.No. 2/ 241, KANNARPALAYAM,
KARAMADA POST,
CHIKKARAMPALAYAM VILLAGE,
METTUPALAYAM TALUK,
COMBATORE DISTRICT.

LOCATION OF Q.L.A. AREA:

S.F.No.s : 76/ 1A & 76/ 1B (Part).
EXTENT : 8.07.22 Ha.
VILLAGE : CHIKKARAMPALAYAM,
TALUK : METTUPALAYAM,
DISTRICT : COMBATORE,
STATE : TAMIL NADU.

PLATE NO - II

DATE OF SURVEY : 31.12.2022

QUARRY LEASE PLAN & SURFACE PLAN

SCALE : 1:1000

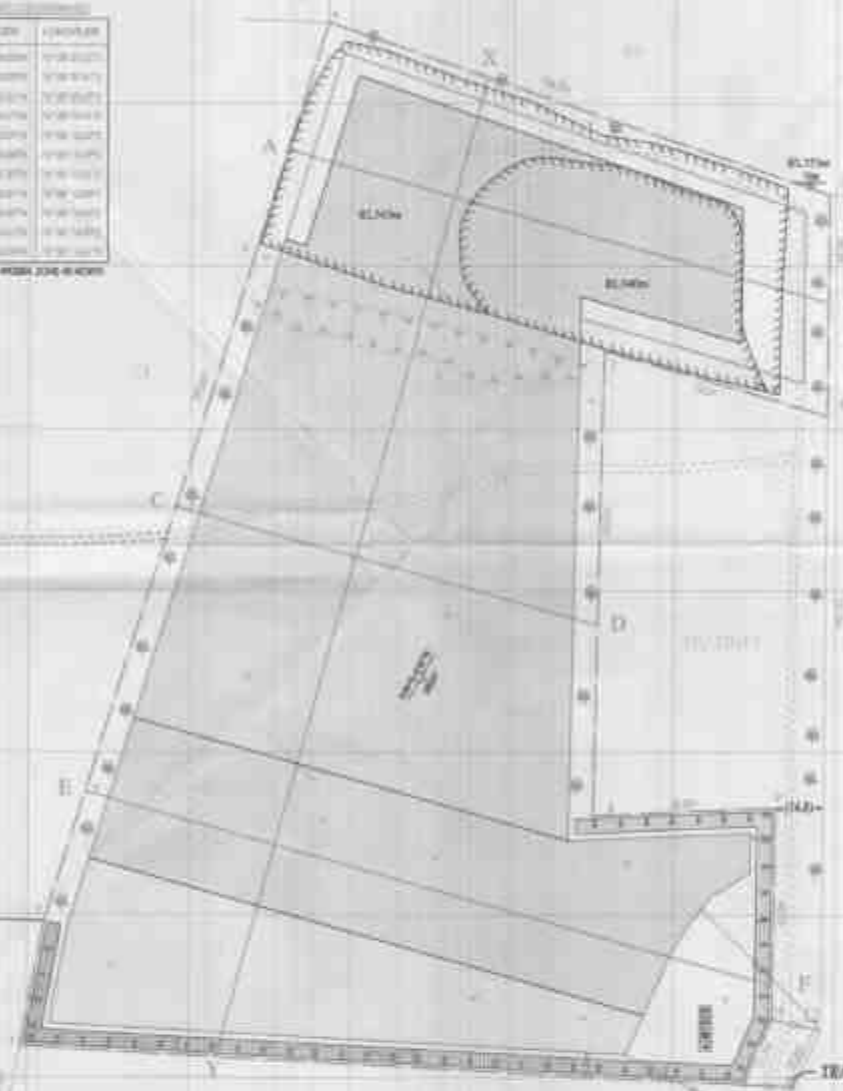
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLAN IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

P. S. Anand
P. S. ANAND
SURVEYOR



LA	WIDTH	NUMBER
1	1.50	10
2	1.50	10
3	1.50	10
4	1.50	10
5	1.50	10
6	1.50	10
7	1.50	10
8	1.50	10
9	1.50	10
10	1.50	10
11	1.50	10
12	1.50	10
13	1.50	10
14	1.50	10
15	1.50	10
16	1.50	10
17	1.50	10
18	1.50	10
19	1.50	10
20	1.50	10



Existing P.C. Dimension Lines
As Shown on the Plans

Existing Ground Level
= 118.00 (at 100m)

SLOPE RATIO	
1	1:1
2	1:1.5
3	1:2
4	1:2.5
5	1:3

1	As Proposed area to be Quoted	(20%)
2	As Proposed area to be Quoted	(20%)
3	As Proposed area to be Quoted	(20%)
4	As Proposed area to be Quoted	(20%)
5	As Proposed area to be Quoted	(20%)

INDEX	
---	AS APPLIED AREA BOUNDARY
---	50% & 75% SWIFT DISTANCE
---	TEMPORARY BENCH MARK
---	DRIVE
---	ROCKSTONE
---	STEEL & CP
---	QUARRY PIT
---	SOUP
---	BRIDGE
---	QUARRY WALL ROAD
---	APPROACH ROAD
---	E.P.W
---	DEPTH OF SEDIMENT

APPLICANT:
M/S SR SRI VENKA
SANKU, 17/10, KANHARIPALAM
KARAIKUDI TOWN,
CHENNAI-600017
METHYLAHARIPALAM,
TIRUPPUR DISTRICT,
TAMIL NADU

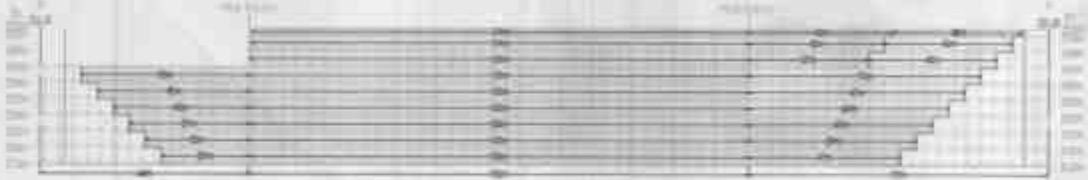
LOCATION OF Q.L.A. AREA:
27.70m x 70.14 x 24.18 (S.W.)
DISTRICT - SRIPUR
VILLAGE - CHENNAI
TALUK - METHYLAHARIPALAM
DISTRICT - TIRUPPUR
STATE - TAMIL NADU

PLATE NO. - III
DATE OF SURVEY - 31.12.2021

**TOPOGRAPHY, GEOLOGICAL PLAN
YEARWISE DEVELOPMENT &
PRODUCTION PLAN & SECTIONS**
SCALE: 1:1000

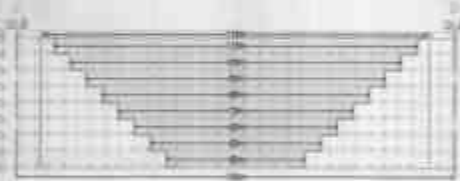
DESIGNED BY:
D. V. Srinivasan
A. Srinivasan
Srinivasan & Associates
105 A

SECTION ALONG X-Y



SECTION ALONG A-B

SECTION ALONG C-D



SECTION ALONG E-F

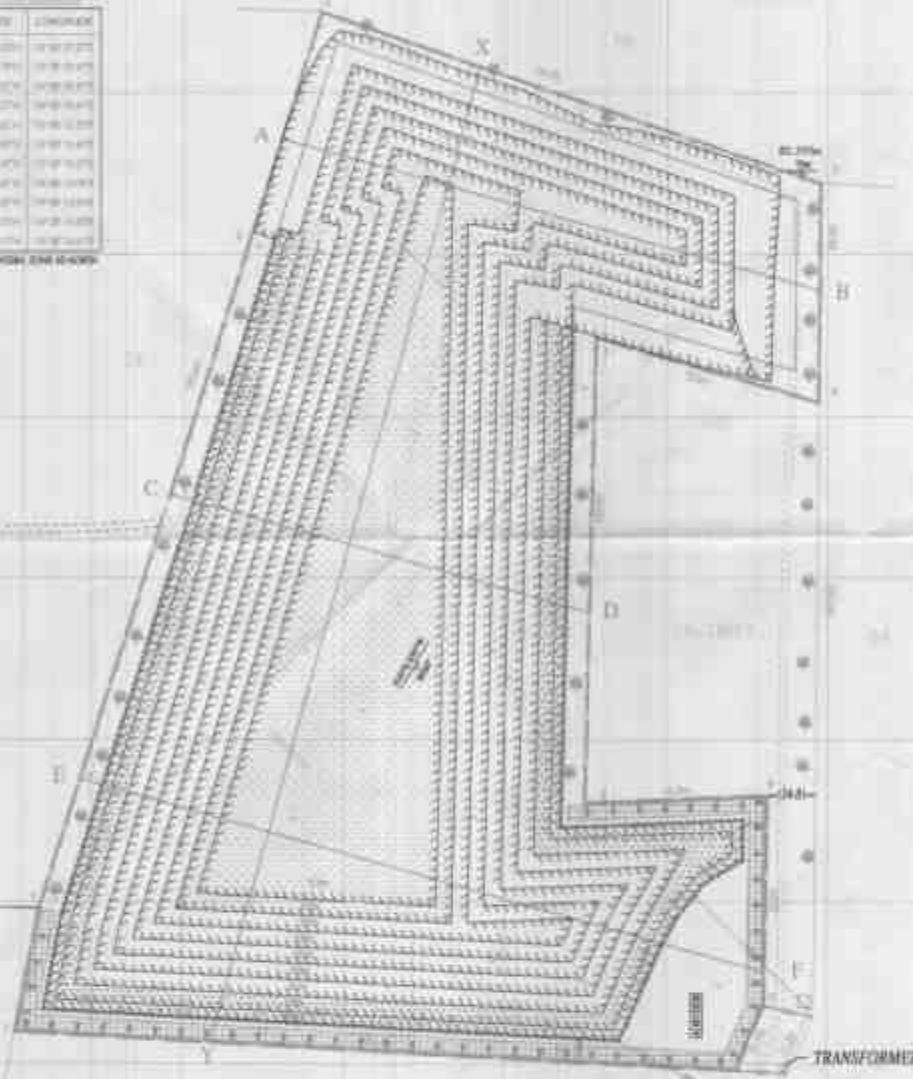


---	As Proposed area to be Quoted	(20%)
---	As Proposed area to be Quoted	(20%)
---	As Proposed area to be Quoted	(20%)
---	As Proposed area to be Quoted	(20%)
---	As Proposed area to be Quoted	(20%)



SL. NO.	AREA	LENGTH
1	17.45.020	17.45.020
2	17.45.020	17.45.020
3	17.45.020	17.45.020
4	17.45.020	17.45.020
5	17.45.020	17.45.020
6	17.45.020	17.45.020
7	17.45.020	17.45.020
8	17.45.020	17.45.020
9	17.45.020	17.45.020
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91	17.45.020	17.45.020
92	17.45.020	17.45.020
93	17.45.020	17.45.020
94	17.45.020	17.45.020
95	17.45.020	17.45.020
96	17.45.020	17.45.020
97	17.45.020	17.45.020
98	17.45.020	17.45.020
99	17.45.020	17.45.020
100	17.45.020	17.45.020

DATA UPON WHICH THIS PLAN IS BASED



SYMBOL	DESCRIPTION
1	APPLICATED AREA BOUNDARY
2	5M & 7.5M SAFETY DISTANCE
3	TRANSFORMER BOUNDARY
4	ORIG. GROUND
5	ROOFTOP
6	DRAIN & D.P.
7	QUARRY PIT
8	DUMP
9	ROAD
10	QUARRY WALK ROAD
11	APPROACH ROAD
12	E.L. LINE
13	1:1:1 PLANTATION
14	BARRIERS WITH TREES
15	EXISTING LAND FORM
16	SOIL LAIRS
17	IMPROVED LAND FORM
18	PROPOSED GARLAND DRINK
19	OLD SURFACE LEVEL
20	FINISHED SURFACE LEVEL
21	RAIL WHEEL STORAGE

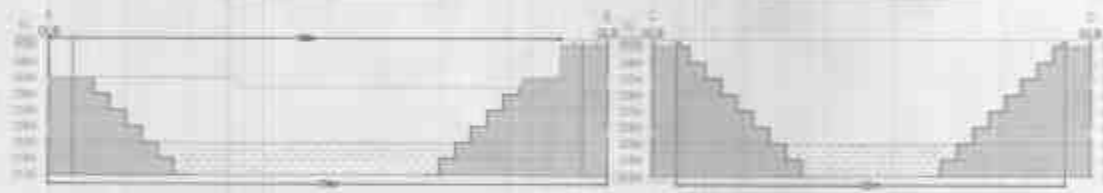
INDEX	
1	APPLICATED AREA BOUNDARY
2	5M & 7.5M SAFETY DISTANCE
3	TRANSFORMER BOUNDARY
4	ORIG. GROUND
5	ROOFTOP
6	DRAIN & D.P.
7	QUARRY PIT
8	DUMP
9	ROAD
10	QUARRY WALK ROAD
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20	FINISHED SURFACE LEVEL
21	RAIL WHEEL STORAGE

SECTION ALONG X-Y



SECTION ALONG A-B

SECTION ALONG C-D



SECTION ALONG E-F



Proposed Pit Dimensions (1000) x (1000) x (1000)

LAND USE PATTERNS		
DESCRIPTION	PROPOSED AREA IN HA	AREA AS TAKEN FROM QUARTERLY FIELD SURVEY
CONCRETE PIT	1.00	1.00
IMPROVED PITS	50	50
ROADS	1000	1000
RAIL WHEEL	50	50
UNUTILIZED AREA	500	500
TOTAL	1000	1000

APPLICANT:
 M. DEEPAK KUMAR,
 CIVIL ENGINEER,
 KARANADA ROAD,
 CHIKKABALLAPUR TALUK,
 CHIKKABALLAPUR DISTRICT.

LOCATION OF Q.L.A. AREA:
 T.P. NO. 172 & 173 (R.P. NO. 172),
 TALUK - CHIKKABALLAPUR,
 DISTRICT - CHIKKABALLAPUR,
 STATE - KARNATAKA.

PLAN NO. - IV
 DATE OF SURVEY - 12.12.2012

PROGRESSIVE QUARRY CLOSURE PLAN & SECTIONS
 SCALE: 1:100

PREPARED BY:
 M. DEEPAK KUMAR
 CIVIL ENGINEER

அனுப்பநர்

செல்வி.சூ.பூமா
வருவாய் கோட்டாட்சியர்,
கோயம்புத்தூர் வடக்கு,
கவுண்டம்பாளையம்,
கோயம்புத்தூர் 641 030.

பெறுநர்

மாவட்ட ஆட்சித்தலைவர்,
கோயம்புத்தூர்.

ந.க.1810/2022/அ3 நாள்: 02.09.2022.

அய்யா,

பொருள்: கனிமங்களும் - சுரங்கங்களும் - சிறுவகை கனிமங்கள் -
மேட்டுப்பாளையம் வட்டம் - சிக்காரம்பாளையம் கிராமம் -
புலஎண் 76/1A-ல் 1.21.50 ஹெக்டேர் மற்றும் 76/1B-ல்
3.85.72 ஹெக்டேர் பூமி ஆக மொத்தம் 5.07.22 ஹெக்டேர்
பரப்பளவுள்ள பட்டா பூமியில் - ஸ்ரீ புளு மெட்டல்ஸ் என்ற
நிறுவனத்தின் உரிமையாளர் திரு.ச.ஞானசேகரன்
என்பவர் சாதாரண கற்கள் மற்றும் குவாரி குத்தகை
உரிமம் கோரியது — அறிக்கை சமர்ப்பித்தல் -
தொடர்பாக.

பார்வை: 1.உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை
ந.க.எண்.312/கனிமம்/2022 நாள்:31.03.2022
2.மேட்டுப்பாளையம் வட்டாட்சியர் அறிக்கை
ந.க.1750/2022/அ1 நாள்: 17.06.2022

கோயம்புத்தூர் மாவட்டம், மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமம்
க.ச எண் 76/1A காலையில் 1.21.50 ஹெக்டேர் பூமி, க.ச எண் 76/1B-ல் காலையில் 3.85.72
(ஒரு பகுதி) ஆக 5.07.22 பரப்பளவுள்ள பட்டா பூமியில் ஸ்ரீ புளு மெட்டல்ஸ் என்ற நிறுவனத்தின்
உரிமையாளர் சாமப்பகவுடர் மகன் திரு.ச.ஞானசேகரன் என்பவர் சாதாரண கற்கள் மற்றும்
குவாரி குத்தகை உரிமம் அனுமதி கோரியுள்ளதன் பேரில் புலத்தணிக்கை மற்றும் விசாரணை
மேற்கொண்டு எனதறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பித்துக் கொள்கிறேன்

மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமம், க.ச எண் 76/1B காலையில்
4.99.50 ஹெக்டேர் விஸ்தீரணமுள்ள புஞ்சை பூமியானது மேட்டுப்பாளையம் சார் பதிவாளர்
அலுவலக கிரைய பத்திர எண்: 435/2019 நாள்:21.05.2019 மற்றும் பத்திர எண்: 9297/2021
நாள்:22.09.2021-ன் படியும், வருவாய்த்துறை ஆவணமான கணினி பட்டா எண்.2767-ன்படியும்
திரு.சாமப்பன் மகன் பழனிசாமி என்பவருக்கு தனியாக பாத்தியப்பட்டுள்ளது.

மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமம், க.ச எண் 76/1A காலையில்
1.21.50 ஹெக்டேர் விஸ்தீரணமுள்ள புஞ்சை பூமியானது மேட்டுப்பாளையம் சார் பதிவாளர்
அலுவலக கிரைய பத்திர எண்: 7825/2018 நாள்:19.09.2018-ன் படியும், வருவாய்த்துறை
ஆவணமான கணினி பட்டா எண். 2302-ன்படியும் திரு.பழனிச்சாமி மகன் சித்தார்த்தா மெளலி
என்பவருக்கு தனியாக பாத்தியப்பட்டுள்ளது.

க.ச. எண் 76/1B காலைக்கு செக்குபந்தி விவரம்:

க.ச. எண் 76/1A பட்டா காலைக்கு	-	தெற்கு
க.ச. எண் 76/2 நெ.காலை பட்டா பூமிக்கு	-	வடக்கு
க.ச. எண் 68 பட்டா காலைக்கு	-	மேற்கு
க.ச. எண் 74 பட்டா பூமிக்கு	-	கிழக்கு

க.ச. எண் 76/1A காலைக்கு செக்குபந்தி விவரம்:

க.ச. எண் 69 நெ.காலை பட்டா பூமிக்கு (கல்குவாரி)	-	தெற்கு
க.ச. எண் 76/1B பட்டா பூமி காலைக்கு	-	வடக்கு
க.ச. எண் 68 பட்டா பூமி காலைக்கு	-	மேற்கு
க.ச. எண் 74 பட்டா பூமி காலைக்கு	-	கிழக்கு

சிக்காரம்பாளையம் கிராமம், கதவு எண் 2/246, கண்ணார்பாளையம் என்ற முகவரியில் வசிக்கும் ஸ்ரீ புளூ மெட்டல்ஸ் நிறுவனத்தார் திரு.ஞானசேகரன் த/பெ சாமப்பா என்பவருக்கு மேற்காண் பூமிகளில் 10 வருடத்திற்கு கருங்கல் மற்றும் கிராவல் மண் வெட்டியெடுத்துச் செல்ல ஒப்புதல் ஆவண எண் 2179/2015 நாள்:17.03.2015-ன்படி சம்மதம் தெரிவித்துள்ளார்.

மேற்படி கிராமத்தில் கல் குவாரி குத்தகை உரிமம் அனுமதி வழங்குவது தொடர்பாக 08.04.2022 அன்று தண்டரா மூலம் அ1 அறிவிப்பு செய்யப்பட்டுள்ளது எனவும், கல் குவாரி குத்தகை உரிமம் அனுமதி வழங்குவது தொடர்பாக ஆட்சேபணை ஏதுமிருப்பின் தெரிவிக்க கோரப்பட்டதில், ஊர் பொதுமக்களிடம் 25.04.2022-ம் தேதி ஆட்சேபணை ஏதுமில்லை என வாக்குமூலம் பெறப்பட்டுள்ளது.

மனுதாரரான சாமப்பகவுடர் மகன் திரு.ச.ஞானசேகரன் என்பவருக்கு கனிம் வரி, வருமான வரி மற்றும் விற்பனை வரி ஏதும் நிலுவையில் இல்லை என கல்குவாரி குத்தகை உரிமம் தொடர்பான உறுதிமொழி அளித்துள்ளார்.

மேலும் பிரஸ்தாப புலத்தில்,

- பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் தொலைவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைப்பிரிவுகளோ/நத்தமனை குடியிருப்புகளோ ஏதும் இல்லை.
- நகர்ப்புற நில உச்சவரம்பு சட்டம்1978-இன் கீழ் கவரப்படுவதில்லை.

- நிலச்சீர்திருத்தச்சட்டம் 1961(தமிழ்நாடு நில உச்சவரம்பு நிர்ணய சட்டம் 58/1961)-ன் கீழ் கவரப்படுவதில்லை.
- நில எடுப்புச் சட்டம் பிரிவு 1984- பிரிவு (1)இன் படி அறிவிப்பு ஏதும் செய்யப்படவில்லை.
- பிரஸ்தாப பூமியில் கோவில்கள், மசூதிகள், தேவாலயங்கள் மற்றும் புராதான சின்னங்கள் ஏதும் இல்லை.
- பிரஸ்தாப புலத்தில் அரசு புறம்போக்கு நிலங்களோ, நீர்நிலை புறம்போக்குகளோ ஏதும் இல்லை.
- மேற்படி நிலத்தின் பேரில், விண்ணப்பதாரர் அரசுக்கு செலுத்த வேண்டிய வரி பாக்கி நிலுவை ஏதும் இல்லை.
- பிரஸ்தாப புலம் வெள்ளப்பெருக்கால் பாதிக்க வாய்ப்பில்லை.
- பிரஸ்தாப புலத்தின் வழியாக உயர் மின்னழுத்த கம்பிகள் மற்றும் தாழ்மின்னழுத்த கம்பிகள் ஏதும் செல்வதில்லை.

எனவே, மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமம் புலஎண்-76/1A-ல் 1.21.50 ஹெக்டேர், 76/1B-ல் 3.85.72 (ஒரு பகுதி) ஆக 5.07.22 பரப்பளவுள்ள பட்டா பூமியில் ஸ்ரீ புரு மெட்டல்ஸ் என்ற நிறுவனத்தினர் சாதாரண கற்கள் மற்றும் கிராவல் மண் எடுக்க அனுமதி வழங்கலாம் என பரிந்துரை செய்கிறேன் எனவும் இத்துடன் தொடர்புடைய ஆவணங்கள் ஆகியவற்றை இத்துடன் இணைத்து அனுப்பியுள்ளேன் என்பதைப் பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

இணைப்பு: தொடர்புடைய ஆவணங்கள்

தங்கள் உண்மையுள்ள,

வருவாய் கோட்டாட்சியர்,
கோயம்புத்தூர் வடக்கு.

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2-9-2022

புலத்தணிக்கை குறிப்பு

வட்டம்	மேட்டுப்பாளையம்
கிராமம்	சிக்காரம்பாளையம்
புல எண்.	76/1A, 76/1B
புலத்தணிக்கை செய்த நாள்	02.09.2022

கோயம்புத்தூர் மாவட்டம், மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமம் க.ச எண் 76/1A காஸையில் 1.21.50 ஹெக்டேர் பூமி, க.ச எண் 76/1B-ல் காஸையில் 3.85.72 (ஒரு பகுதி) ஆக 5.07.22 பரப்பளவுள்ள பட்டா பூமியில் ஸ்ரீ புளு மெட்டல்ஸ் என்ற நிறுவனத்தின் உரிமையாளர் சாமப்பகவுடர் மகன் திரு.ச.ஞானசேகரன் என்பவர் சாதாரண கற்கள் மற்றும் குவாரி குத்தகை உரிமம் அனுமதி கோரியுள்ளதன் பேரில் இன்று (02.09.2022) என்னால் புலத்தணிக்கை செய்யப்பட்டது.

மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமம், க.ச எண் 76/1B காஸையில் 4.99.50 ஹெக்டேர் விஸ்தீரணமுள்ள புஞ்சை பூமியானது மேட்டுப்பாளையம் சார் பதிவாளர் அலுவலக கிரைய பத்திர எண்: 435/2019 நாள்:21.05.2019 மற்றும் பத்திர எண்: 9297/2021 நாள்:22.09.2021-ன் படியும், வருவாய்த்துறை ஆவணமான கணினி பட்டா எண்.2767-ன்படியும் திரு.சாமப்பன் மகன் பழனிசாமி என்பவருக்கு தனியாக பாத்தியப்பட்டுள்ளது.

மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமம், க.ச எண் 76/1A காஸையில் 1.21.50 ஹெக்டேர் விஸ்தீரணமுள்ள புஞ்சை பூமியானது மேட்டுப்பாளையம் சார் பதிவாளர் அலுவலக கிரைய பத்திர எண்: 7825/2018 நாள்:19.09.2018-ன் படியும், வருவாய்த்துறை ஆவணமான கணினி பட்டா எண். 2302-ன்படியும் திரு.பழனிச்சாமி மகன் சித்தார்த்தா மௌலி என்பவருக்கு தனியாக பாத்தியப்பட்டுள்ளது.

க.ச எண் 76/1B காலைக்கு செக்குபந்தி விபரம்:

க.ச எண் 76/1A பட்டா காலைக்கு	-	தெற்கு
க.ச எண் 76/2 நெ.காலை பட்டா பூமிக்கு	-	வடக்கு
க.ச எண் 68 பட்டா காலைக்கு	-	மேற்கு
க.ச எண் 74 பட்டா பூமிக்கு	-	கிழக்கு

க.ச எண் 76/1A காலைக்கு செக்குபந்தி விவரம்:

க.ச எண் 69 நெ.காலை பட்டா பூமிக்கு (கல்குவாரி)	-	தெற்கு
க.ச எண் 76/1B பட்டா பூமி காலைக்கு	-	வடக்கு
க.ச எண் 68 பட்டா பூமி காலைக்கு	-	மேற்கு
க.ச எண் 74 பட்டா பூமி காலைக்கு	-	கிழக்கு

புலத்தணிக்கை குறிப்பு

வட்டம்	மேட்டுப்பாளையம்
கிராமம்	சிக்காரம்பாளையம்
புல எண்.	76/1A, 76/1B
புலத்தணிக்கை செய்த நாள்	02.09.2022

கோயம்புத்தூர் மாவட்டம், மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமம் க.ச எண் 76/1A காலையில் 1.21.50 ஹெக்டேர் பூமி, க.ச எண் 76/1B-ல் காலையில் 3.85.72 (ஒரு பகுதி) ஆக 5.07.22 பரப்பளவுள்ள பட்டா பூமியில் ஸ்ரீ புளூ மெட்டல்ஸ் என்ற நிறுவனத்தின் உரிமையாளர் சமீர்ப்பகவுடர் மகன் திரு.ச.ஞானசேகரன் என்பவர் சாதாரண கற்கள் மற்றும் குவாரி குத்தகை உரிமம் அனுமதி கோரியுள்ளதன் பேரில் இன்று (02.09.2022) என்னால் புலத்தணிக்கை செய்யப்பட்டது.

மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமம், க.ச எண் 76/1B காலையில் 4.99.50 ஹெக்டேர் விஸ்தீரணமுள்ள புஞ்சை பூமியானது மேட்டுப்பாளையம் சார் பதிவாளர் அலுவலக கிரைய பத்திர எண்: 435/2019 நாள்:21.05.2019 மற்றும் பத்திர எண்: 9297/2021 நாள்:22.09.2021-ன் படியும், வருவாய்த்துறை ஆவணமான கணினி பட்டா எண்.2767-ன்படியும் திரு.சாமப்பன் மகன் பழனிசாமி என்பவருக்கு தனியாக பாத்தியப்பட்டுள்ளது.

மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமம், க.ச எண் 76/1A காலையில் 1.21.50 ஹெக்டேர் விஸ்தீரணமுள்ள புஞ்சை பூமியானது மேட்டுப்பாளையம் சார் பதிவாளர் அலுவலக கிரைய பத்திர எண்: 7825/2018 நாள்:19.09.2018-ன் படியும், வருவாய்த்துறை ஆவணமான கணினி பட்டா எண். 2302-ன்படியும் திரு.பழனிச்சாமி மகன் சித்தார்த்தா மௌலி என்பவருக்கு தனியாக பாத்தியப்பட்டுள்ளது.

க.ச எண் 76/1B காலைக்கு செக்குபந்தி விவரம்:

க.ச எண் 76/1A பட்டா காலைக்கு	-	தெற்கு
க.ச எண் 76/2 நெ.காலை பட்டா பூமிக்கு	-	வடக்கு
க.ச எண் 68 பட்டா காலைக்கு	-	மேற்கு
க.ச எண் 74 பட்டா பூமிக்கு	-	கிழக்கு

க.ச எண் 76/1A காலைக்கு செக்குபந்தி விவரம்:

க.ச எண் 69 நெ.காலை பட்டா பூமிக்கு (கல்குவாரி)	-	தெற்கு
க.ச எண் 76/1B பட்டா பூமி காலைக்கு	-	வடக்கு
க.ச எண் 68 பட்டா பூமி காலைக்கு	-	மேற்கு
க.ச எண் 74 பட்டா பூமி காலைக்கு	-	கிழக்கு

சிக்காரம்பாளையம் கிராமம், கதவு எண் 2/246, கண்ணார்பாளையம் வீடாற முகவரியில் வசிக்கும் ஸ்ரீ புளு மெட்டல்ஸ் நிறுவனத்தார் திரு.ஞானசேகரன் த/பெ சாமப்பா என்பவருக்கு மேற்காண் பூமிகளில் 10 வருடத்திற்கு கருங்கல் மற்றும் கிராவல் மண் வெட்டியெடுத்துச் செல்ல ஒப்புதல் ஆவண எண் 2179/2015 நாள்:17.03.2015-ன்படி சம்மதம் தெரிவித்துள்ளார்.

மேற்படி கிராமத்தில் கல் குவாரி குத்தகை உரிமம் அனுமதி வழங்குவது தொடர்பாக 08.04.2022 அன்று தண்டூரா மூலம் அ1 அறிவிப்பு செய்யப்பட்டுள்ளது எனவும், கல் குவாரி குத்தகை உரிமம் அனுமதி வழங்குவது தொடர்பாக ஆட்சேபணை ஏதுமிருப்பின் தெரிவிக்க கோரப்பட்டதில், ஊர் பொதுமக்களிடம் 25.04.2022-ம் தேதி ஆட்சேபணை ஏதுமில்லை என வாக்குமூலம் பெறப்பட்டுள்ளது.

மனுதாரரான சாமப்பகவடர் மகன் திரு.ச.ஞானசேகரன் என்பவருக்கு கனிம வரி, வருமான வரி மற்றும் விற்பனை வரி ஏதும் நிலுவையில் இல்லை என கல்குவாரி குத்தகை உரிமம் தொடர்பான உறுதிமொழி அளித்துள்ளார்.

மேலும் பிரஸ்தாப புலத்தில்,

- பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் தொலைவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைப்பிரிவுகளோ/நத்தமனை குடியிருப்புகளோ ஏதும் இல்லை.
- நகர்ப்புற நில உச்சவரம்பு சட்டம் 1978-இன் கீழ் கவரப்படுவதில்லை.
- நிலச்சீர்திருத்தச்சட்டம் 1961(தமிழ்நாடு நில உச்சவரம்பு நிர்ணய சட்டம் 58/1961)-ன் கீழ் கவரப்படுவதில்லை.
- நில எடுப்புச் சட்டம் பிரிவு 1984- பிரிவு (1)இன் படி அறிவிப்பு ஏதும் செய்யப்படவில்லை.
- பிரஸ்தாப பூமியில் கோவில்கள், மசூதிகள், தேவாலயங்கள் மற்றும் புராதான சின்னங்கள் ஏதும் இல்லை.
- பிரஸ்தாப புலத்தில் அரசு புறம்போக்கு நிலங்களோ, நீர்நிலை புறம்போக்குகளோ ஏதும் இல்லை.
- மேற்படி நிலத்தின் பேரில், விண்ணப்பதாரர் அரசுக்கு செலுத்த வேண்டிய வரி பாக்கி நிலுவை ஏதும் இல்லை
- பிரஸ்தாப புலம் வெள்ளப்பெருக்கால் பாதிக்க வாய்ப்பில்லை.
- பிரஸ்தாப புலத்தின் வாழியாக உயர் மின்னழுத்த கம்பிகள் மற்றும் தாழ்மின்னழுத்த கம்பிகள் ஏதும்செல்வதில்லை.

எனவே, மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமப் புலணை-76/1A-ல் 1.21.50 ஹெக்டேர், 76/1B-ல் 3.85.72 (ஒரு பகுதி) ஆக 5.07.22 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் ஸ்டீ புளு மெட்டல்ஸ் என்ற நிறுவனத்தினர், சாதாரண கற்கள் மற்றும் கிராவல் மண் எடுக்க அனுமதி வழங்குவாம் என பரிந்துரை செய்து மாவட்ட ஆட்சித்தலைவர் அவர்களுக்கு முன்மொழிவுகள் அனுப்பவும்.


வருவாய் கோட்டாட்சியர்,
கோயம்புத்தூர் வடக்கு.

Hydrogeological Report For
Rough Stone and Gravel Quarry
Over an extent of 5.07.22Ha of Patta lands in
S.F.Nos. 76/1A & 76/1B (P) of
Chikkarampalayam Village, Mettupalayam Taluk,
Coimbatore District, Tamil Nadu State

HYDROGEOLOGICAL REPORT FOR CHIKKARAMPALAYAM

ROUGH STONE AND GRAVEL QUARRY

1. INTRODUCTION

NAME OF THE APPLICANT WITH ADDRESS-

Name of the applicant : **Tvl. Sri Blue Metals**
Address : No. 2/241, Kannarpalayam,
Karamadai Post, Coimbatore District.
Pin Code : 641 104
Mobile No : +91 98422 04259
Aadhaar No : 4171 8521 8213
Email ID : sribm276215@gmail.com

DETAILS OF THE AREA-

Land Classification : Patta land
Survey No : 76/1A & 76/1B (P)
Extent : 5.07.22Ha
Village : Chikkarampalayam
Taluk : Mettupalayam,
District : Coimbatore

The Client requires detailed information on ground water occurrences at proposed project site of Chikkarampalayam rough stone and gravel quarry. The objective of the present study is to assess the availability of groundwater and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and water quality. For this purpose all available hydrogeological information of the areas has been analyzed, and a geophysical survey was done.

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Client's requirements.

The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data
- b) State & District Geological and Hydrogeological Reports and Maps.
- c) Technical reports of the area by various organizations.

2. SCOPE OF THE WORKS –

The scope of works includes:

- ❖ Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to proposed mining activities.
- ❖ To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- ❖ To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- ❖ To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

3. BACKGROUND INFORMATION

Geographical information of the study area-

The investigated site falls in the Toposheet No: 58 – A/15 & 58 – A/16 Latitude between 11°14'54.10"N to 11°15'04.77"N and Longitude between 76°58'07.22"E to 76°58'15.52"E on WGS datum-1984.

GEOMORPHOLOGY

Coimbatore district forms part of the upland plateau region of Tamil Nadu with many hill ranges, hillocks and undulating topography with a gentle slope towards east except for the hilly terrain in the west. The undulating topography with innumerable depressions, are used as tanks for storage of rainwater for agriculture.

The prominent geomorphic units in the district are 1) Structural hills, 2) Ridges, 3) Inselbergs, 4) Bazada, 5) Valley fill, 6) Pediment, 7) Shallow Pediments and 8) Deep Pediments.

The Nilgiris on the northwest and Anamalai on the south are the important ranges, which attain a height of over 2513m above mean sea level (MSL) and the highest elevation in the valleys adjoining the hills is 600 M above MSL. The 'Palghat Gap', which is an east-west trending mountain pass, is an important physiographic feature located in the western part of the district.

Soils

The soils of Coimbatore district can be broadly classified into 6 major soils types viz, Red calcareous Soil, Black Soil, Red non-calcareous, Alluvial and Colluvial Soil, Brown Soil, and Forest Soil. About sixty per cent of the district is covered by red soils, of which red calcareous soil is predominant. They occupy most parts of Palladam, Coimbatore, Mettupalayam and Udumalpettaluks. Medium to deep red calcareous soils are found mainly in Pollachi and Udumalpettaluks. Parts of Palladam, Avinashi and Udumalpettaluks are occupied by red non-calcareous soils.

The highlands in Coimbatore, Palladam and Avinashitaluks are mostly occupied by the black soils, which are dark gray to grayish brown in colour.

The Alluvial soils are found in small patches along the Noyil river mainly in the upper reaches. The Colluvial soils are found mainly in Chinnathadagam and Chitrachavadi sub-basins and as scattered patches at the foothills of the Anaimalai. The Forest soils are confined to the reserve forest area and have a surface layer of organic matter.

Rainfall and Climate

The district receives the rain under the influence of both southwest and northeast monsoons. The northeast monsoon chiefly contributes to the rainfall in the district and summer rains are negligible.

Rainfall data from six stations over the period 1901-2000 were utilized and a perusal of the analysis shows that the normal annual rainfall over the district varies from about 550mm to 900mm. It is the minimum around Suler (550 mm) in the eastern part of the district. It gradually increases towards south and attains a maximum around Anaimalai hills.

The district enjoys a tropical climate. The weather is pleasant during the period from November to January. Mornings in general are more humid than the afternoons, with the humidity exceeding 78% on an average. In the period June to November the afternoon humidity exceeds 66% on an average. In the rest of the year the afternoons are drier, the summer afternoons being the driest. The period from April to June is generally hot and dry. The temperature recorded varies from 11.7°C to 42.6°C.

GEOLOGY

Regional Geology of Coimbatore District-

The district is occupied by Charnockite Group of rocks consisting of Charnockite, pyroxene granulites and associated magnetite quartzite, the Knodalite Group comprising gametiferous – sillimanite gneiss, calc-granulite, crystalline limestone, sillimanite quartzites and associated migmatitic gneisses. The fissile hornblende gneisses (Peninsular gneiss –

younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsitge – kyanitequartzites, ferruginous quartzite (Satyamangalam Group) intruded by a number of ultramafic and basic rocks and granites are seen in the Northern portions of the district especially around Mettupalayam, Avinashi and Northern areas of Coimbatore. The granites are Proterozoic age and occupy the Western end and Eastern Part of the District as separate bodies and are recognized as Maruthamalai Granite and Punjapuliyampatti Granites respectively. The quaternary alluvium is seen in the West and Northwestern areas of Udumalaipettai and Western areas of Coimbatore town. The alluvium is more than 30m thick in the Chinnathadagam valley northwest of Coimbatore and in the Siruvani valley west of Coimbatore. In the Udumalaipettaitaluk area, it overlies the kankar deposit.

It is revealed the Coimbatore district is occupied by the rocks of Sathiyamangalam, Peninsular gneissic complex-I and Charnockite group of Archaean age, Peninsular Gneissic Complex-II of Archaean to Palaeoproterozoic age, Basic intrusive of Mesoproterozoic age, Younger intrusive of Neoproterozoic age and recent alluvium.

The Peninsular gneissic complex-I comprising hornblende biotite gneiss and granite area the major rock types exposed. Hornblende biotite granite is medium to coarse grained and mesocratic and considered to be retrograded product of product of Charnockite – Pyroxene granulite. It is medium grained, White to pale pink colored with disseminations of limonitised magnetite. The white colored granite appears to be older and the pink colored cuts across the white colored granite. The younger phase of coarse grained granite occur as thin stringers and lesser in the southern part. The peripheral part of granite close to the gneiss is granitic in nature.

STRATIGRAPHY SUCCESSION

Lithology	Group	Super Group	Age
Gypseous clay			Holocene
Granite	Acid intrusives		Neoproterozoic
Dolerite /basic dyke	Basic intrusives		Mesoproterozoic
Quartzofeldspathic Gneiss Garnet.		Peninsular Gneissic complex- II	Archaean to Palaeoproterozoic
Hornblende biotite gneiss			
Charnockite		Southern Granulite Complex	

Grey HornblendBiotite gneiss		Peninsular Gneissic complex-I	Archaean
Gabbro	Sitampundi		
Amphibolite	Mettupalayam Complex		
Magnetite Quartzite			
Talc – Termolite – Actinolite Schist	Sathiyamanagalam Group		

4. GEOPHYSICAL INVESTIGATION METHODS

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A, expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

$$R = dV/I \text{ (Ohm)}$$

Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

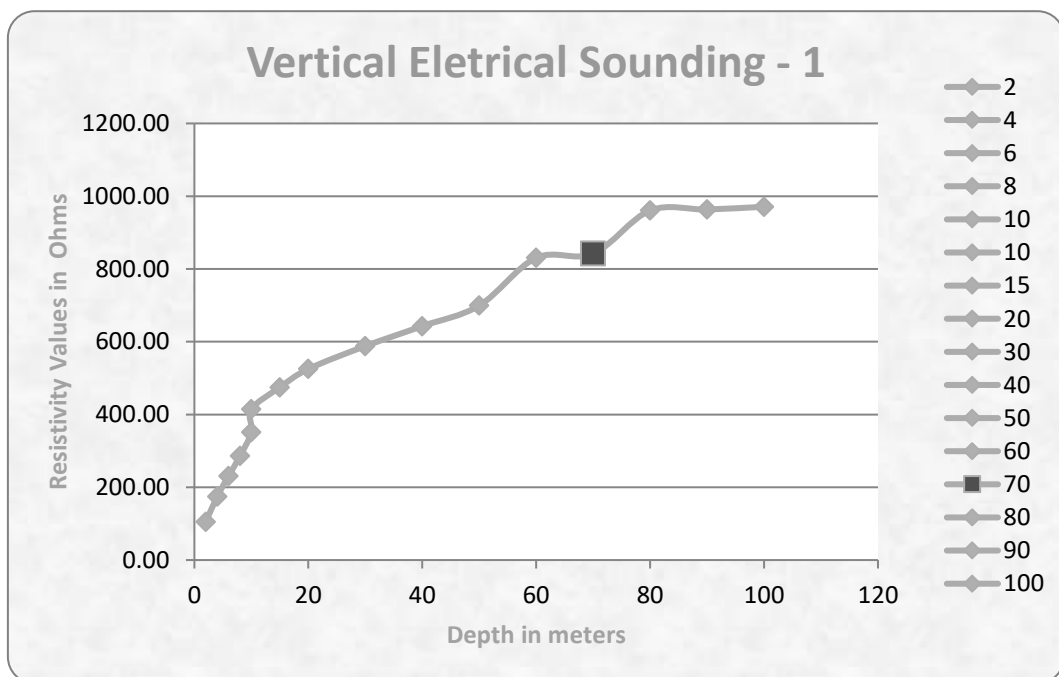
$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

Vertical Electrical Sounding (VES)

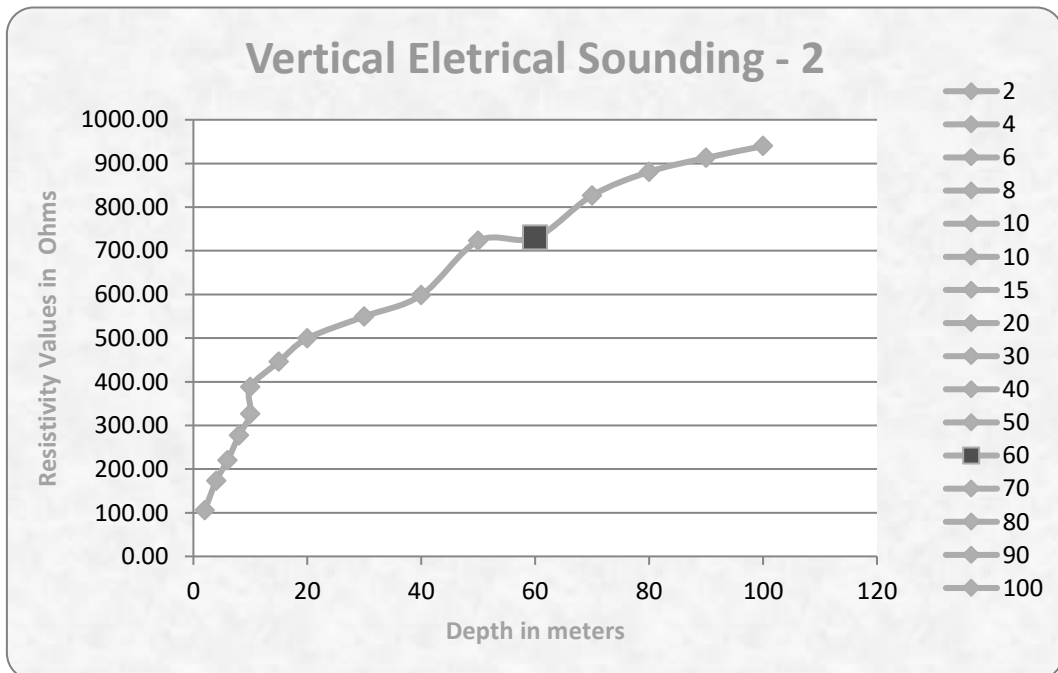
When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

Vertical Electrical Sounding Data's and Graphs

STATION-1					
GPS Coordinates - 11°14'54.10"N 76°58'07.22"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	22.26	104.84
2	4	1	23.55	7.40	174.27
3	6	1	54.95	4.20	230.79
4	8	1	98.91	2.89	285.85
5	10	1	155.45	2.26	351.32
6	10	5	23.55	17.60	414.48
7	15	5	62.80	7.56	474.77
8	20	5	117.75	4.46	525.17
9	30	5	274.75	2.14	587.97
10	40	5	494.55	1.30	642.92
11	50	5	777.15	0.90	699.44
12	60	5	1122.55	0.74	830.69
13	70	5	1530.75	0.55	841.91
14	80	5	2001.75	0.48	960.84
15	90	5	2535.55	0.38	963.51
16	100	5	3132.15	0.31	970.97

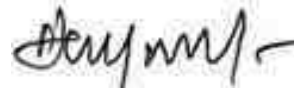


STATION-2					
GPS Coordinates - 11°15'04.77"N 76°58'15.52"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	22.46	105.79
2	4	1	23.55	7.36	173.33
3	6	1	54.95	4.00	219.80
4	8	1	98.91	2.80	276.95
5	10	1	155.45	2.10	326.45
6	10	5	23.55	16.46	387.63
7	15	5	62.80	7.10	445.88
8	20	5	117.75	4.24	499.26
9	30	5	274.75	2.00	549.50
10	40	5	494.55	1.21	598.41
11	50	5	777.15	0.93	722.75
12	60	5	1122.55	0.65	729.66
13	70	5	1530.75	0.54	826.61
14	80	5	2001.75	0.44	880.77
15	90	5	2535.55	0.36	912.80
16	100	5	3132.15	0.30	939.65



5. Conclusion –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium groundwater potential. Productive aquifers are expected at depth of 80m to 85m where minor fractures are observed and shallow aquifers are expected above 65m-70m BGL. The ultimate pit limit as per the approved mining plan depth is 42m (2m Gravel + 40m Rough Stone) 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, Advaita Ashram Road,

Alagapuram, Salem – 636 004, Tamil Nadu

Mobile: +91 - 94433 56539

E-Mail: infogeoexploration@gmail.com



Malar Explosives

BLASTING AGREEMENT

Sub: Regarding blasting work using explosives in your proposed quarry.

Sir,

We are having explosives Magazine, Licence No in form 22 (E94771), Situated Magazine at Mooduthurai, Mettupalayam, Coimbatore,638459.

We are having two explosives road vans for transporting Detonators and Class-2 explosives separately from our magazine to work sites and also we have well experienced licensed blasters and shot firer's for safe blasting works for without any untoward incidents.

We are willing to undertake blasting work on contract basis at your site **Tvl. Sri Blue Metals, S.F.NOS- 76/1A & 76/1B(P) of 5.07.22 hec** in Chikkarampalayam village, Mettupalayam taluk, Coimbatore district, Tamilnadu state.

Thanking you!!!

Date: 10.03.2023

Lic copy enclosed.





भारत सरकार | Government of India

वाणिज्य और उद्योग मंत्रालय | Ministry of Commerce & Industry

पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पेसो) | Petroleum & Explosives Safety Organisation (PESO)

पूर्व नाम- विस्फोटक विभाग | Formerly- Department of Explosives

A और D - विंग, ब्लॉक 1-8, दूसरा तल, शास्त्री भवन | A & D - Wing, Block 1-8, 2nd Floor, Shastri Bhavan

26 हड्डोउस रोड, नुंगम्बक्कम चेन्नै | 26 Haddous Road, Nungambakkam Chennai 600006

फोन (Phone):- 28281021 | फैक्स (Fax):- 28284848

संख्या (No.): E/SC/TN/22/717(E94771)

दिनांक (Date): 08/03/2022

सेवा में | To,

M/s. Malar Explosives,

34128, M. Goundampalayam, Mooduthurai Village, Mettupalayam Taluk, Town/Village - Mooduthurai
District-COIMBATORE, State-Tamil Nadu, Pincode - 638439

विषय: Survey No.329/1, ग्राम Mooduthurai Village, जिला COIMBATORE, राज्य Tamil Nadu में मेसर्स M/s. Malar Explosives द्वारा विस्फोटक के भेगजीन में उपयोग के लिए कब्जा हेतु विस्फोटक नियम, 2008 के अंतर्गत LE-3 में जारी अनुज्ञप्ति सं E/SC/TN/22/717(E94771) के संशोधन संदर्भ में।
(विस्फोटक की मात्रा / मासिक खरीद सीमा में परिवर्तन)

Subject: Possession for Use of Explosives from magazine situated at Survey No.329/1, Mooduthurai Village, Dist. COIMBATORE, Tamil Nadu -Licence No.: E/SC/TN/22/717(E94771) granted in Form LE-3 of Explosives Rules, 2008 -
(Amendment of Quantity of Explosives/Monthly Purchase Limit).

महोदय | Sir,

आपका उपरोक्त विषय पर पत्र संख्या 59103 दिनांक 06/03/2022 का संदर्भ ग्रहण करें।

Please refer to your letter no. 59103 dated 06/03/2022.

अनुज्ञप्ति संख्या E/SC/TN/22/717(E94771) विस्फोटक की मात्रा / मासिक खरीद सीमा में परिवर्तन के संदर्भ में पदा संशोधित कर भेजी जा रही है।

The Licence No.: E/SC/TN/22/717(E94771) is forwarded herewith duly amended in respect of followings :

Quantity of Explosives/Monthly Purchase Limit

किसी भी एक समय में लाइसेंस क्षमता निम्नलिखित वर्ग तथा मात्रा से अधिक नहीं होगी।

The licence capacity at any one time shall not exceed the kinds and quantities mentioned below :

संख्या No	विस्फोटक Explosive(s)	वर्ग Class	प्रभाग Div	उप-प्रभाग Sub Div	क्षमता Capacity	इकाई Unit
1	Nitrate Mixture	2	0	0	550	Kg.
2	Detonating Fuse	6	2	0	3000	Mtrs
3	Electric and/or Ordinary Detonators	6	3	0	44000	Nos.
4	Safety Fuse	6	1	0	1500	Mtrs

किसी एक कैलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3 (ख) और (ग) के अर्थात् अनुज्ञप्ति के लिए लागू) : 20 गुना

Quantity of explosives to be purchased in a calendar month[applicable for licence under article 3(b) and (c)] : 20 times as above.

यह अनुज्ञप्ति दिनांक 31 मार्च 2027 तक प्रवृत्त रहेगी।

This Licence shall remain valid till 31st day of March 2027.

अनुज्ञप्ति के आगामी नवीकरण हेतु कृपया विस्फोटक नियम, 2008 के नियम 112 के अंतर्गत प्रक्रिया का पालन करें। कृपया पावती दें।

For further revalidation(if required), please follow the procedure under Rule 112 of Explosives Rules, 2008. Receipt of this letter may please be acknowledged.

भवदीय | Your's faithfully

(डॉ.टी.एल.थानुलिंगम | Dr. T. L. THANULINGAM)

उप मुख्य विस्फोटक नियंत्रक | Deputy Chief Controller of Explosives

कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives

दक्षिणांचल, चेन्नै | South Circle, Chennai

प्रतिलिपि प्रेषित | Copy Forwarded to:

1. District Magistrate, COIMBATORE, Tamil Nadu with reference to his Noc No: R.Dis.11026/2016/J1 Dated: 12/07/2017

2. Superintendent of Police, COIMBATORE, Tamil Nadu.

कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives

दक्षिणांचल, चेन्नै | South Circle, Chennai

(अधिक जानकारी जैसे आवेदन की स्थिति, शुल्क आदि के लिए हमारी वेबसाइट <http://peso.gov.in> देखें।)

(For more information regarding status, fees and other details please visit our website <http://peso.gov.in>)

Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.

Digitally signed by Dr T L Thanulingam
Reason: Licence No. : E/SC/TN/22/717
Location: Chennai: [E94771]
Date:2022.03.08 02:07:57 +05:30

अनुज्ञप्ति प्ररूप एल. ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)
(See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)

(ग) उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने के लिए अनुज्ञप्ति
Licence to possess : (c) for use, explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazine

अनुज्ञप्ति सं. (Licence No.) : E/SC/TN/22/717(E94771)
वार्षिक फीस रूपए (Annual Fee Rs): 4400/-

1. Licence is hereby granted to

M/s. Mabar Explosives (अधिभोगी / Occupier) : P.ARJUN, 3/412B, M.Goundampalayam, Mooduthurai Village, Mettupalayam Taluk, Town/Village - Mooduthurai, District-COIMBATORE, State-Tamil Nadu, Pincode - 638459



को अनुज्ञप्ति अनुदत्त की जाती है।

2. अनुज्ञप्तिधारी की प्रारिथिति | Status of licensee : Partnership Firm

3. अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमान्य है।
Licence is valid only for the following purpose.

possess for use of Nitrate Mixture, Detonating Fuse, Electric and/or Ordinary Detonators, Safety Fuse, - 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: -- (क) (a)

क्र Sr. No.	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1.	Nitrate Mixture	2,0	0	550 Kg.
2.	Detonating Fuse	6,2	0	3000 Mtrs
3.	Electric and/or Ordinary Detonators	6,3	0	44000 Nos.
4.	Safety Fuse	6,1	0	1500 Mtrs

(ख) किसी एक कलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा | अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञप्ति के लिए

20 times as above.

(b) Quantity of explosives to be purchased in a calendar month applicable for licence under article 3(b) and (c):

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञप्ति परिसर की पृष्टि होती है।
The licensed premises shall conform to the following drawing(s):

रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/717(E94771)
दिनांक (Dated) 08/03/2022

6. अनुज्ञप्ति परिसर निम्नलिखित पते पर स्थित हैं। The licensed premises are situated at following address:

Survey No. 329/1, ग्राम (Town/Village) : Mooduthurai Village

जिला (District) COIMBATORE पुलिस थाना (Police Station) : Srirangal
राज्य (State) Tamil Nadu पिनकोड (Pincode) 638459
दूरभाष (Phone) ई-मेल (E-Mail) फेक्स (Fax)

7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं।
The licensed premises consist of following facilities:

One high Explosives Storage Room, one lobby and one Detonator Room

8. अनुज्ञप्ति समय - समय पर पंचांशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2008 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपाबंधों के अधीन रहते हुए अनुदत्त की जाती है।
The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures.

- उपर्युक्त क्रम से, 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए)।
Drawings (showing site, constructional and other details) as stated in serial No. 5 above.
- अनुज्ञप्ति प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञप्ति की शर्तों और अतिरिक्त शर्तों।
Conditions and Additional Conditions of this licence signed by the licensing authority.
- दूरी प्ररूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञप्ति तारीख 31 मार्च 2022 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2022.

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञप्ति की शर्तों का अधिकरण करने या यदि अनुज्ञप्ति परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिबंधित की जा सकती है, जहाँ 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 - 05/02/2018

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives
South Circle, Chennai

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 13/08/2018
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 10/06/2019
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 02/07/2019
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 08/03/2022

नवीनीकरण के पृष्ठानक के लिए स्थान
Space for Endorsement of Renewal

नवीकरण की तारीख
Date of Renewal

समाप्ति की तारीख
Date of Expiry

अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प
Signature of licensing authority and stamp

25/01/2022

31/03/2022

Sd/-
Jt. Chief-Controller of Explosives, South Circle, Chennai

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चताने या उनका दुरुपयोग विधि के अधीन गंभीर दंडित अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.

Digitally signed by Dr T. L. Thanulingam
Reason: Licence No. : E/SC/TN/22/717
Location: Chennai: [E94771]
Date: 2022.03.08 02:07:38 +05:30

**TOPOGRAPHICAL VIEW OF CHIKKARAMPALAYAM RROUGH STONE
AND GRAVEL QUARRY LEASE APPLIED AREA**



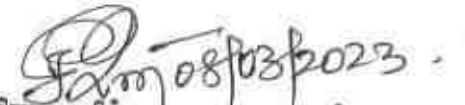
Name of the Applicant : **Tvl. Sri Blue Metals,**
Address : No. 2/241, Kannarpalayam,
Karamadai Post,
Coimbatore District – 641 104.

LOCATION DETAILS

Extent : 5.07.22Ha
S.F.Nos. : 76/1A & 76/1B (P)
Village : Chikkarampalayam
Taluk : Mettupalayam
District : Coimbatore
State : Tamil Nadu

Signature of the applicant
For Tvl. Sri Blue Metals


S. Gnanasekaran
(Proprietor)


கிராம நிர்வாக அலுவலர்,
(Village Administrative Officer)
மேட்டூர் கிராமம்.
Attestation
மேட்டூர் கிராமம் வட்டம்

சி"அறிவுறுத்தல்:

கோயம்புத்தூர் மாவட்டம், மேலடுப்பாணையம் வட்டம், ௧௩-௧௭ சிநிகாரம் பானையம் கிராமம், க.ச சண்: 76/1A ௧௩ கானையம் 1.21.50 ஏக்கர், மற்றும் க.ச 76/1B ௧௩ கானையம் 3.85-72 ஏக்கர் சேக தொகுதி 5-07-22 ஏக்கரில் பரப்பளவுள்ள பட்டா நுழைவி - ௬/௨௩ ௯4௬ மட்டிலின் சிறு விவசாயத்தின் உரிமையாளர் திரு. ச. சதானசேகரன் சம்பவர் சாதாரண கற்கள் மற்றும் குவாரி குத்தகை உரிமை வழங்க கோரி மனு அளிப்பினார்.

மேற்படி விவசாயத்தின் கோரும் மேற்படி கானையம் சாதாரண கற்கள் மற்றும் குவாரி குத்தகை உரிமை வழங்குவது தொடர்பாக மாவட்டக்குகை குத்தகை சம்பந்தமான கருப்பின் கீழ்வறிவுறுத்தல் சண் 15 நம்பகக்குகை ௬௦௨ சம்பந்தமான கோயம்புத்தூர் வட்டம்தொகுதி - கோ, அலைப கிராமம் கிராமம் சம்பவாரி அங்கத்தினர் அறிவிக்கப்பட்டு மேல்க்கொள்ளப்பட்டது - றார்பார். 15 நம்பகக்குகை சம்பந்தமான வட்டம் அறவாரி சண் மாவட்டக்குகை அறிவிக்க சம்பந்தமற்றும் கிராம சண் கட்டு மேற்படி விவசாயத்திற்கு சாதாரண கற்கள் மற்றும் குவாரி குத்தகை உரிமை வழங்குவது தொடர்பாக மேல்க்கொள்ளப்பட்டது தொடர்பும் சண் கட்டு மேல்க்கொள்ளப்பட்டது - மட்டுமேயாகும்.

சுவாமிநாதன்
நில வருவாய் ஆய்வாளர்
காமலம்

11. H. ootayarani
3/15A kalattiyur
karamadai.

12. V. keerthana
5/112 serviveeramalayam
chikkarampalayam (POST)
Karamadai


14. Jaya kumari R s/o Rangasamy
6/139 Vakkavali
Chikkarampalayam

15. K. Vivekkumar S/o Kumara Samy,
4/182 Chittamma thottam
Chikkaram Palayam.

16. K. Karunya
4/109 Chikkaram Palayam
Karamadai

4/8

செங்கண்டி சிறிதீயை துணைவேலி, பி.சி.சி.டி. சம்பந்தம்
கி.கா.பி.பி.யில் சிறப்பில், சா.ச.கி.கி.கி. சை.சை.சை.சை.
செ.சை.சை.சை. சை. சம்பந்தம். சை.சை. சை.சை. சை.சை.
சை.சை.சை. சை.சை.சை.சை. —


சிராம நிர்வாக அலுவலர்,
எண். 19, சி.கா.நி.அ.எ.யம் சிராமம்,
மேட்டுப்பாளையம் வட்டம்



Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), TAMIL NADU)

To,

The owner
SIDDHARTHAMOULI P RSG
Bilichi Village Coimbatore North -641104

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/TN/MIN/401858/2022 dated 16 Nov 2022. The particulars of the environmental clearance granted to the project are as below.

- | | |
|--|--|
| 1. EC Identification No. | EC23B001TN166891 |
| 2. File No. | 8709 |
| 3. Project Type | New |
| 4. Category | B |
| 5. Project/Activity including Schedule No. | 1(a) Mining of minerals |
| 6. Name of Project | C.N.Mani, Rough Stone and Gravel quarry project over an Extent of 2.47.5Ha in S.F.No.75 at Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District |
| 7. Name of Company/Organization | SIDDHARTHAMOULI P RSG |
| 8. Location of Project | TAMIL NADU |
| 9. TOR Date | N/A |

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 14/03/2023

(e-signed)
Thiru.Deepak S.Bilgi
Member Secretary
SEIAA - (TAMIL NADU)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH.Please quote identification number in all future correspondence.

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

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr.No.SEIAA-TN/E.No.8709/1(a)/EC.No:5534/2022 dated:23.02.2023

Sub: SEIAA, TN – Proposed Rough Stone and Gravel Quarry lease over an extent of 2.47.5Ha at S.F.No.75 of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu by Thiru.C.N.Mani – under Category "B1" of Item 1(a) "Mining of Mineral Projects" of the Schedule to the EIA Notification, 2006 issue of Environmental Clearance – Regarding.

- Ref:**
1. Your application submitted Terms of Reference dated: 17.08.2021.
 2. TOR Issued vide letter No.SEIAA.TN/E.No.8709/ToR-1084/2021 Dated: 17.03.2022.
 3. Public Hearing conducted on 26.07.2022
 4. Online Proposal No. SIA/TN/MIN/401858/2022, dt.30.09.2022
 5. Project proponent submitted EIA Report to SEIAA-TN on 28.09.2022
 6. Minutes of the 330th SEAC meeting held on 17.11.2022
 7. Minutes of the 575th SEIAA meeting held on 06.12.2022
 8. The project proponent has furnished reply vide Lr. dt:17.10.2022
 9. Minutes of the 351st SEAC meeting held on 03.02.2023.
 10. Minutes of the 596th SEIAA meeting held on 22.02.2023 & 23.02.2023.

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.


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Sl. No	Details of the Proposal	:	Data Furnished
1	Name of the Owner/Firm	:	Thiru.C.N.Mani S/o.Nanjundagavudar D.No.1/40, Chinnakaranur Belladhi Post, Karamadai Mettupalayam Taluk Coimbatore District-641104
2	Type of quarrying (Savudu/Rough Stone/Sand/Granite)	:	Rough Stone & Gravel
3	S.F No. Of the quarry site with area break-up	:	75
4	Village in which situated	:	Chikkarampalayam
5	Taluk in which situated	:	Mettupalayam
6	District in which situated	:	Coimbatore
7	Extent of quarry (in ha.)	:	2.47.5Ha
8	Latitude & Longitude of all corners of the quarry site	:	11°14'53.04"N to 11°14'57.99"N 76°58'43.03"E to 76°58'51.36"E
9	Topo Sheet No.	:	58-A/16
10	Type of mining	:	Opencast Mechanized of Mining
11	Period of quarrying proposed	:	5 years
12	Production (Quantity in m ³)	:	118616 cu.m of Rough Stone
13	Depth of quarrying	:	47m BGL
14	Depth of water table	:	65m-60m BGL
15	Man Power requirement per day:	:	25 Nos.
16	Source of Water Requirement	:	Water Vendors and Existing borewell
17	Water requirement:	:	3.0 KLD
	1. Drinking & domestic purposes (in KLD)	:	0.5 KLD
	2. Dust suppression , Green Belt & Wet Drilling (in KLD)	:	2.0 KLD 0.5 KLD

18	Power requirement a. Domestic Purpose Industrial Purpose	TNEB 160480Liters of HSD
19	Whether any habitation within 300m distance	: No
20	Precise area communication approved by the Assistant Director, G&M with date	: Na.Ka.No.453/Kanimam/2019, dated:04.09.2020
21	Mining Plan approved by Assistant Director, Department of Geology and Mining with date	: RC.No.453/Mines/2019, dated.07.04.2021.
22	Assistant Director, mines 500m cluster letter	Rc.No.453/Mines/2019, dated.07.04.2021.
23	VAO certificate regarding 300m radius cluster	Letter dated: 30.07.2021
24	Project Cost (excluding EMP cost)	: RS. 44.85 Lakhs
25	EMP cost	: Rs. 116 Lakhs
26	CER cost	Rs. 5 Lakhs
27	Validity: This Environmental Clearance is accorded for the quantity of 118616cu.m of Rough Stone up to depth of 47m BGL as per the approved mining plan and is valid for the approved mine plan period.	

The Proponent has furnished **affidavit** Hundred Rupees stamp paper attested by the Notary stating that

I, C.N.Mani, S/o. Nanjundagavudar, D.No.1/40, Chinnakaranur, Belladhi Post, Karamadai, Mettupalayam Taluk, Coimbatore District – 641 104, solemnly declare and sincerely affirm that:

I have apply for getting Environment Clearance to Appropriate Authorities, Tamil Nadu for quarry lease for quarrying of Rough stone and Gravel Quarry over an extent of 2.47.5Hectares of patta land in S.F.No.75 of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu State.


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1. I swear to state and confirm that within 10km area of the quarry site, I have applied for environment 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 notified,
 - d. Interstate boundaries within 10km radius from the boundary of the proposed site.
2. I will spend the amount of Rs.5 Lakhs towards Corporate Environment Responsibility (Revised CER) for the following activities to the Panchayat Union Primary school, Chinnakaranur, Karamadai - 641 104 before commencement of quarrying activities.

Sl. No.	Description	CER Cost INR
1	Construction of water tank and Providing Drinking water facilitate	Rs.5,00,000/-
2	Renovation of Existing Toilets	
3	Providing Environmental related books to School Library	
4	Carrying out plantation in the School Ground @ 250 Nos	

3. The following quarries are located within the radius of 500m from the periphery of my quarry.

I. Existing Quarries

SL. No.	Name of the Lessee	Village & S.F. Nos.	Extent in Hec.	Lease Period	Remarks
1.	Thiru.Gnanasekaran	Chikkarampalayam S.F.No. 77/2D(P)	1.01.2	01.10.2018 to 30.09.2023	-
2.	Thiru.R.Poorani	Chikkarampalayam S.F.No. 80/1	1.27.0	22.12.2018 to 21.12.2023	-
3.	Tmt.Kaveriammal	Chikkarampalayam S.F.No. 77/2B(P)	0.99.0	24.12.2018 to 23.12.2023	-

II. Expired Quarries

SL. No.	Name of the Lessee	Village & S.F.Nos.	Extent in Hec.	Lease Period	Remarks
1.	Thiru.C.N.Mani	Chikkarampalayam S.F.No. 75	2.47.5	10.06.2014 to 09.06.2019	-
2.	Thiru.C.N.Mani	Chikkarampalayam S.F.No. 77/1B, 421/2B	3.11.0	02.03.2016 to 01.03.2021	-

3.	Thiru.P.K.Palanisamy	Chikkarampalayam S.F.No. 341/3	4.02.0	01.06.2016 to 31.05.2021	-
4.	Thiru.A.Nandhakumar	Chikkarampalayam S.F.No. 78/1, 420	1.17.0	02.06.2016 to 01.06.2021	-

III. Abandoned Quarries

SL. No.	Name of the Lessee	Village & S.F. Nos.	Extent in Hec.	Lease Period	Remarks
-Nil-					

IV. Proposed Quarries

SL. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hec.	Remarks
1.	C.N.Mani	Chikkarampalayam S.F. No. 75	2.47.5	Subject Area Precise area Communicated.
2.	S.Gnanasekaran	Chikkarampalayam S.F. No. 74/2	2.37.0	Pending with SEIAA
3.	Tvl.Palanivel Blue Metals	Chikkarampalayam S.F. No. 428/1A, 60/1B & 61	1.75.5	Pending with SEIAA
4.	M.Muthammal	S.F. No. 77/2E(P), 77/2F(P), 79/1A(P)	1.82.0	Pending with SEIAA

V. Future Proposed Quarries

SL. No.	Name of the Lessee	Village & S.F.Nos.	Extent in Hec.	Lease Period
-Nil-				

4. There will not be hindrance or disturbance to the people living during quarrying activities and transportation of the mineral.
5. There is no approved habitation 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 laborers working in my quarry site.
8. The approach road from the main road to quarry area is already existence and same will be maintained in a good condition for the haulage of quarry materials.
9. I will not engage any child labor in our quarry site and I aware that engaging child labor is punishable under the law.
10. All types of safety / protective equipment will be provided to all the laborers working in my quarry.


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11. No permanent structures, temples etc., are located within 500m radius from the periphery of my quarry.

I ensure to do all the social and Environment commitment as mentioned in the Mining Plan to the best of my knowledge

Details of Quarries located within 500M radius from the proposed quarry:

The Project Proponent has submitted a copy of the letter obtained from the Assistant Director Department of Geology & Mining, Coimbatore District in his letter Rc.No.453/Mines/2019, dated.07.04.2021. has stated that the details of other quarries within a radius 500m from the boundary of the proposed quarry site as follows:

i) Existing Quarries:

Sl.No	Name of the Owner	Village & S.F.No	Extent in hect	Lease Period	Remarks
1	Thiru.Gnanasekaran	Chikkarampalayam S.F.No.77/2D(P)	1.01.2	01.10.2018 to 30.09.2023	
2	Tmt.R.Poorani	Chikkarampalayam S.F.No.80/1	1.27.0	22.12.2018 to 21.12.2023	
3	Tmt.Kaveriammal	Chikkarampalayam S.F.No.77/2B(P)	0.99.0	24.12.2018 to 23.12.2023	

ii) Expired Quarries:

Sl.No	Name of the Owner	Village & S.F.No	Extent in hect	Lease Period	Remarks
1	Thiru.C.N.Mani	Chikkarampalayam S.F.No.75	2.47.5	10.06.2014 to 09.06.2019	
2	Thiru.C.N.Mani	Chikkarampalayam S.F.No.77/1B, 421/2B	3.11.0	02.03.2016 to 01.03.2021	
3	Thiru.R.K.Palanisamy	Chikkarampalayam	4.02.0	01.06.2016	

		S.F.No.341/3		to 31.05.2021	
4	Thiru.A.Nandha Kumar	Chikkarampalayam S.F.No.78/1, 420	1.17.0	02.06.2016 to 01.06.2021	

iii) Abandoned Quarries:

Sl.No	Name of the Owner	Village & S.F.No	Extent in hect	Lease Period	Remarks
Nil					

iv) Proposed Quarries:

Sl.No	Name of the Owner	Village & S.F.No	Extent in Hect	Remarks
1	C.N.Mani	Chikkarampalayam S.F.No.75	2.47.5	Subject area Precise area Communicated
2	S.Gnanasekaran	Chikkarampalayam S.F.No.74/2	2.37.0	Pending with SEIAA
3	Tvl.Palanivel Blue Metals	Chikkarampalayam S.F.No.428/1A, 60/1B & 61	1.75.5	Pending with SEIAA
4	M.Muthammal	S.F.Nos.77/2E(P), 77/2F(P), 79/1A(P)	1.82.0	Pending with SEIAA

V) Future Proposed Quarries:

Sl.No	Name of the Owner	Village & S.F.No	Extent in Hect	Remarks
Nil				

Appraisal by SEAC:-

Proposed Rough Stone and Gravel Quarry lease over an extent of 2.47.5Ha at S.F.No.75 of Chikkarampalayam village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu by Thiru.C.N.Mani - for Environmental Clearance.

(SIA/TN/MIN/401858/2022 Dt:30.09.2022)


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Earlier, the proposal was placed in 330th SEAC meeting held on 17.11.2022. The details of the project furnished by the proponent are available in the website (parivesh.nic.in).

The SEAC noted the following:

1. The proposed quarry/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
2. The ToR was issued vide Lr. No.SEIAA-TN/F.No.8709/ToR-1084/2021 Dated: 17.03.2022 to Thiru.C.N.Mani for the proposed Rough Stone and Gravel Quarry lease over an extent of 2.47.5Ha at S.F.No.75 of Chikkarampalayam village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu.
3. Minutes of public hearing conducted on 26.07.2022.
4. Final EIA report submitted on 28.09.2022
5. Now, the Project Proponent, Thiru.C.N.Mani has applied for Environmental Clearance with EIA report along with minutes of public hearing for the proposed Rough Stone and Gravel Quarry lease over an extent of 2.47.5Ha at S.F.No.75 of Chikkarampalayam village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu.
6. The precise area communication/lease is issued for the period of 5 years. The approved mining plan is for the period of five years & production should not exceed **1,18,616 cu.m of Rough Stone**, and the annual peak production shall not exceed 40,932 m³ of rough stone (1st Year). The ultimate depth is 47m BGL.
7. The salient features of the project are as follows:

Based on the presentation and documents furnished by the project proponent, SEAC decided to ask for the following additional details from the PP.

- i. Revised quantity after formation and stability alignment of benches including photographs shows the fencing & Green belt development.
- ii. Certified compliance report.

Subsequently, the proposal was placed in the 575th Authority meeting held on 05.12.2022. The authority after detailed discussion decided to call for the certain additional particulars from the project proponent in addition to the said additional particulars sought by the SEAC as follows

- i. Details of impact of proposed mining activity including soil erosion on the abutting Canal @ 50m (Western Direction), Belladhi Lake @ 600m (North Western Direction) & Odai @ 450m & 600m (Western & North Western Direction) as per KML file and mitigation measures for the same.

- ii. Details of elephant corridors nearby the proposed mining area. If any the PP shall furnish details of impact and mitigation measures for the same.


In this connection, the project proponent has furnished reply vide Lr. dt:17.10.2022 received on 20.10.2022. The proposal was again placed for appraisal in 351th SEAC meeting held on 03.02.2023.

Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of Environmental Clearance for the ultimate depth of mining upto 47m BGL and the quantity of **1,18,616 cu.m of Rough Stone**, and the annual peak production shall not exceed 40,932 m³ of rough stone subject to the standard conditions as per the **Annexure I** of this minutes & normal conditions stipulated by MOEF &CC, in addition to the following specific conditions:

1. The prior Environmental Clearance granted for this mining project shall be valid for the project life including production value as laid down in the mining plan approved and renewed by competent authority, from time to time, subject to a maximum of thirty years, whichever is earlier vide **MoEF&CC Notification S.O. 1807(E) dated 12.04.2022**.
2. The mine manager and other statutory competent persons such as blaster (or) mine mate shall be appointed before the commencement of mining operation as per the provisions of Mines Act 1952 and Metalliferrous Mines Regulations, 1961.
3. The PP shall submit the 'Notice of Opening' of the quarry to the Regional Inspector/Director of Mines Safety, Chennai Region under the section 16 of the Mines Act, 1952 and in accordance with the Reg. 3 of MMR 1961 before obtaining the CTO.
4. The proponent shall create a separate bank account and shall deposit the cost allocated for the committed EMP activities every year and the said expenditure details spent on the committed EMP activities shall be maintained & periodically submitted to TNPCB.
5. The PP shall carry out the scientific studies within a period of six months from the commencement of mining operations, for reducing the 'Cumulative impact of blast-induced ground/air vibrations, fly rock and dust by adopting suitable Controlled Blasting Operations', by involving a reputed Research and Academic Institution such as CSIR-Central Institute of Mining & Fuel Research (CIMFR) / Dhanbad, NIRM, IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus, etc. A copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance without deviation.


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6. The Project Proponent (PP) shall submit a 'Slope stability action plan' incorporating the haul road ramp keeping the existing benches properly aligned for the proposed quarry lease after it is duly vetted by the concerned AD (Mines) before obtaining CTO from TNPCB.
7. However, the PP shall carry out the scientific studies to assess the slope stability of the benches and quarry wall when the depth of the quarry touches 35 m (or) after the completion of 3 years of operation whichever is earlier, by involving a reputed Research and Academic Institution such as CSIR-Central Institute of Mining & Fuel Research (CIMFR) / Dhanbad, NIRM, IIT-Madras, NIT-Dept of Mining Engg. Surathkal, and Anna University Chennai-CEG Campus, etc. A copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance without any deviation.
8. Further, the PP shall furnish necessary application to the Regional Inspector of Mines, DGMS, Chennai Region (DMS, Chennai) for obtaining the relaxation as per the provisions given in the Reg. 106 & Reg. 111 of MMR 1961 while working in the cluster situation within a period of six months from the commencement of mining operation.
9. Since the quarry site lies in the cluster situation, the PP shall furnish a 'Standard Operating Procedure' for carrying out the safe method of carrying out the controlled blasting operation to the concerned DEE/TNPCB before obtaining the CTO from the TNPCB.
10. The PP shall use the jack hammer drill machine fitted with the dust extractor for the drilling operations such that the fugitive dust is controlled effectively at the source.
11. The PP shall ensure that the blasting operations are carried out by only the statutory persons like Blaster/Mine Mate/Mine Foreman directly employed by him as per the provisions of MMR 1961 and it shall not be carried out by the persons other than the above statutory personnel.
12. The PP shall ensure that adequate measures are taken to control the propagation of dust at the source level along the haulroads leading to the highways & village panchayat roads where the trucks are plying with loaded material.
13. The PP shall meticulously carry out the mitigation measures as spelt out in the revised EMP.
14. The PP shall undertake suitable measures for the socio-economic development in the villages situated around the quarry.
15. Proper barriers to reduce noise level and dust pollution should be established by providing greenbelt along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.


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16. 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 adhere EMP furnished.
17. As accepted by the Project proponent the CER cost is Rs. **5 lakhs** and the amount shall be spent for the Panchayat Union Primary School, Chinnakaranur, Karamadai – 641104 as committed, before obtaining CTO from TNPCB.

ANNEXURE-I

1. The proponent shall mandatorily appoint the required number of statutory officials and the competent persons in relevant to the proposed quarry size as per the provisions of Mines Act 1952 and Metalliferrous Mines Regulations, 1961.
2. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit before the commencement of the operation and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
3. Perennial maintenance of haulage road/village / Panchayat Road shall be done by the project proponent as required in connection with the concerned Govt. Authority.
4. The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form of Short Term Permit (STP), Query license or any other name.
5. The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.
6. The proponent shall ensure that the slope of dumps is suitably vegetated in scientific manner with the native species to maintain the slope stability, prevent erosion and surface run off. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps.


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7. Perennial sprinkling arrangement shall be in place on the haulage road for fugitive dust suppression. Fugitive emission measurements should be carried out during the mining operation at regular intervals and submit the consolidated report to TNPCB once in six months.
8. The Project Proponent shall carry out slope stability study by a reputed academic/research institution such as NIRM, IIT, Anna University for evaluating the safe slope angle if the proposed dump height is more than 30 meters. The slope stability report shall be submitted to concerned Regional office of MoEF&CC, Govt. of India, Chennai as well as SEIAA, Tamilnadu.
9. The Proponent shall ensure that the Noise level is monitored during mining operation at the project site for all the machineries deployed and adequate noise level reduction measures undertaken accordingly. The report on the periodic monitoring shall be submitted to TNPCB once in 6 months.
10. Proper barriers to reduce noise level and dust pollution should be established by providing greenbelt along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
11. 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 and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
12. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted in proper escapements 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.
13. **Noise and Vibration Related:** (i) The Proponent shall carry out only the Controlled Blasting operation using NONEL shock tube initiation system during daytime. Usage of other initiation systems such as detonating cord/fuse, safety fuse, ordinary detonators, cord relays, should be avoided in the blasting operation. The mitigation measures for control of ground vibrations and to arrest fly rocks should be implemented meticulously under the supervision of statutory competent persons possessing the I / II Class Mines Manager / Foreman / Blaster certificate issued by the DGMS under MMR 1961, appointed in the quarry. No secondary blasting of boulders shall be carried out in any occasions and only the Rock Breakers (or) other suitable non-

- explosive techniques shall be adopted if such secondary breakage is required. The Project Proponent shall provide required number of the security sentries for guarding the danger zone of 500 m radius from the site of blasting to ensure that no human/animal is present within this danger zone and also no person is allowed to enter into (or) stay in the danger zone during the blasting.
- (ii) Appropriate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs, (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone.
14. Ground water quality monitoring should be conducted once in every six months and the report should be submitted to TNPCB.
 15. The operation of the quarry should not affect the agricultural activities & water bodies near the project site and a 50 m safety distance from water body should be maintained without carrying any activity. The proponent shall take appropriate measures for "Silt Management" and prepare a SOP for periodical de-siltation indicating the possible silt content and size in case of any agricultural land exists around the quarry.
 16. The proponent shall provide sedimentation tank / settling tank with adequate capacity for runoff management.
 17. The proponent shall ensure that the transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village Road and shall take adequate safety precautionary measures while the vehicles are passing through the schools / hospital. The Project Proponent shall ensure that the road may not be damaged due to transportation of the quarried rough stones; and transport of rough stones will be as per IRC Guidelines with respect to complying with traffic congestion and density.
 18. 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.
 19. After mining operations are completed, the mine closure activities as indicated in the mine closure plan shall be strictly carried out by the Proponent fulfilling the necessary actions as assured in the Environmental Management Plan.
 20. 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.


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21. The Project Proponent shall comply with the provisions of the Mines Act, 1952, MMR 1961 and Mines Rules 1955 for ensuring safety, health and welfare of the people working in the mines and the surrounding habitants.
22. The project proponent shall ensure that the provisions of the MMRD, 1956, the MCDR 2017 and Tamilnadu Minor Mineral Concession Rules 1959 are complied by carrying out the quarrying operations in a skillful, scientific and systematic manner keeping in view proper safety of the labour, structure and the public and public works located in that vicinity of the quarrying area and in a manner to preserve the environment and ecology of the area.
23. 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 informed to the District AD/DD (Geology and Mining) District Environmental Engineer (TNPCB) and the Director of Mines Safety (DMS), Chennai Region by the proponent without fail.
24. The Project Proponent shall abide by the annual production scheduled specified in the approved mining plan and if any deviation is observed, it will render the Project Proponent liable for legal action in accordance with Environment and Mining Laws.
25. 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, as per the existing law from time to time.
26. All the conditions imposed by the Assistant/Deputy Director, Geology & Mining, concerned District in the mining plan approval letter and the Precise area communication letter issued by concerned District Collector should be strictly followed.
27. 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.
28. The Project proponent shall install a Display Board at the entrance of the mining lease area/abutting the public Road, about the project information as shown in the **Appendix -II** of this minute.

Appendix - I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	வில்லம்
2	<i>Adenanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்குன்றிமணி
3	<i>Albizia lebeck</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathi	ஆத்தி
7	<i>Bauhinia tomentos</i>	Iruvathi	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமா
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax coiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punnai	புன்னை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon sweitenia</i>	Purasamaram	புரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவுளி
18	<i>Creteva adansoni</i>	Mavalingum	மாலைலங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சிறு உசா
21	<i>Diospyro sebenum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகனை
23	<i>Ficus amplissima</i>	Kalltchi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆறுறுப்புலரக
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயா மரம், ஆயிலி
27	<i>Lannea coromandelica</i>	Odhiam	ஒதியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottaimaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	விலா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	பிசின்பட்டை
32	<i>Madhuca longifolia</i>	Iluppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	சச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்

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40	<i>Premna mollissima</i>	Munnai	முல்லை
41	<i>Premna serratifolia</i>	Narumunnai	நறு முல்லை
42	<i>Premna tomentosa</i>	Malaipoovarasu	மலைப் பூவரசு
43	<i>Prosopis cinerea</i>	Vanni maram	வண்டி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Veruangu, Tada	வேண்டாங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	பூவு
47	<i>Putranjiva roxburghii</i>	Karipala	கரிபலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Manipungan, Soapukai	மணிப்புகள் சோபுகாய்
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Streblus asper</i>	Piray maram	பிரய மரம்
52	<i>Strychnos nuxvomica</i>	Yetti	எட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தாங் கொட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தாந்தி
56	<i>Terminalia arjuna</i>	Ven marudhu	வெண் மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சந்தன வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsuratrifoliata</i>	valsura	வாலசூரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பாலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்காப்பூளி

Appendix-II
Display Board
(Size 6' x5' with Blue Background and White Letters)

கார்ப்பம்

கர்ப்பங்களில் குவாரி செயல்பாடுகளுக்கான சுற்றுச்சூழல் அழிவைத் தடுக்கவும், நடுத்தரவர்களுக்கு உட்பட்டு வறியல் செயல்பாடுகளை மேம்படுத்தவும், தேயிலை உட்பட்டு சுற்றுச்சூழல் அழிவைத் தடுக்கவும் செயல்பாடுகளை மேம்படுத்தவும் உட்பட்டு

பகலில் பகுதி வளர்ச்சி செயல்பாடுகளை கர்ப்பத் திட்டம்	குவாரியின் எல்லைவளை சுற்றி வேலி அமைக்க வேண்டும். கர்ப்பப்பகுதியின் ஆழம் தரையில் திழிவிடத்து மீட்டிற்கு மேலாக இருக்க வேண்டும். சுற்றுலா மரம் ஏற்படாதவாறு கர்ப்ப பரப்பின் மேற்பகுதி வேண்டும்.
நட்டல் பராமரிக்கக்கூடிய வேண்டிய மரங்கள் எண்ணிக்கை	கர்ப்பங்களில் செயல்பாடுகள் பரம்பலில் மரம் ஏற்படாத அளவிற்கு தண்ணீர் முறைப்பாக தண்ணீர் வாரிகளின் மூலமாக தரப்படவேண்டுமென வேண்டும். இரைச்சல் அமைப்பில் தூசி மாசுபட்டால் குறைப்படுத்தும் குவாரியின் எல்லைவளை சுற்றி அடத்தியான பகலில் பகுதியை ஏற்படுத்த வேண்டும்.
கர்ப்பத்தில் சேலா சைக்கிள்கள்/குடிநீர் திட்டத்திற்குள் ஏற்படாதவாறு மற்றும் கர்ப்பப் பகுதிக்குள் புகுபுகுபுகுக்காமல் இருப்பதை உறுதிப்படுத்த வேண்டும்.	கர்ப்பத்தில் இருந்து ஏற்படும் இரைச்சல் அல்லது 85 DB (அ) அளவிற்கு மேல் ஏற்படாதவாறு தகுந்த எட்டுப்பாடுகளை மேற்பகுதி வேண்டும்.
கர்ப்பப் பகுதி விதிக்கப்பட்ட கர்ப்பத்தின் உட்கர்ப்புகளுக்கு தகுந்த பகுதியை கர்ப்பத்தில் வரையறுப்பதற்கு உறுதிப்படுத்த வேண்டும்.	கர்ப்பப் பகுதியை வரையறுப்பதற்கு உட்கர்ப்புகள் மற்றும் திட்டத்தின் கீழ் பரம்பலில் பகுதிக்குள் புகுபுகுபுகுக்காமல் இருப்பதை உறுதிப்படுத்த வேண்டும்.
கர்ப்பப்பகுதியின் முடிக்கப்பட்டபகுதி கர்ப்பப் பகுதி திட்டத்தில் உட்கர்ப்புகள் கர்ப்பத்தின் கீழ் பரம்பலில் பகுதிக்குள் புகுபுகுபுகுக்காமல் இருப்பதை உறுதிப்படுத்த வேண்டும்.	கர்ப்பப்பகுதியின் முடிக்கப்பட்டபகுதி கர்ப்பப் பகுதி திட்டத்தில் உட்கர்ப்புகள் கர்ப்பத்தின் கீழ் பரம்பலில் பகுதிக்குள் புகுபுகுபுகுக்காமல் இருப்பதை உறுதிப்படுத்த வேண்டும்.
கர்ப்பப் பகுதியின் முடிக்கப்பட்டபகுதி கர்ப்பப் பகுதி திட்டத்தில் உட்கர்ப்புகள் கர்ப்பத்தின் கீழ் பரம்பலில் பகுதிக்குள் புகுபுகுபுகுக்காமல் இருப்பதை உறுதிப்படுத்த வேண்டும்.	கர்ப்பப் பகுதியின் முடிக்கப்பட்டபகுதி கர்ப்பப் பகுதி திட்டத்தில் உட்கர்ப்புகள் கர்ப்பத்தின் கீழ் பரம்பலில் பகுதிக்குள் புகுபுகுபுகுக்காமல் இருப்பதை உறுதிப்படுத்த வேண்டும்.
கர்ப்பப் பகுதியின் முடிக்கப்பட்டபகுதி கர்ப்பப் பகுதி திட்டத்தில் உட்கர்ப்புகள் கர்ப்பத்தின் கீழ் பரம்பலில் பகுதிக்குள் புகுபுகுபுகுக்காமல் இருப்பதை உறுதிப்படுத்த வேண்டும்.	கர்ப்பப் பகுதியின் முடிக்கப்பட்டபகுதி கர்ப்பப் பகுதி திட்டத்தில் உட்கர்ப்புகள் கர்ப்பத்தின் கீழ் பரம்பலில் பகுதிக்குள் புகுபுகுபுகுக்காமல் இருப்பதை உறுதிப்படுத்த வேண்டும்.

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Discussion by SEIAA and the Remarks:-

The proposal was placed in the 596th Authority meeting held on 22.02.2023 & 23.02.2023. The authority noted that the subject was appraised in 351st meeting of SEAC held on 03.02.2023. SEAC has furnished its recommendations for granting Environmental Clearance subject to the conditions stated therein.

After detailed discussions, the Authority taking into account the safety aspects and to ensure sustainable, scientific and systematic mining, decided to grant Environmental Clearance for the quantity of 1,18,616 cu.m of Rough Stone and the annual peak production shall not exceed 40,932 m³ of rough stone and by restricting the depth of mining 47m BGL as per the mine plan approved by the Department of Geology & Mining. This is also subject to the standard conditions as per Annexure - (I) of SEAC minutes, other normal conditions stipulated by MOEF&CC & all other specific conditions as recommended by SEAC in addition to the following conditions and the conditions in Annexure 'A' of this minutes.

1. Keeping in view of MoEF&CC's notification S.O.1533(E) dated.14.09.2006 and S.O. 1807(E) dated 12.04.2022, this Environmental Clearance is valid as per the approved mine plan period.
2. The EC granted is subject to review by District Collector, Mines Dept. and TNPCB on completion of every 5 years till the project life. They should also review the EC conditions to ensure that they have all been adhered to and implemented.
3. The project proponent shall furnish a Certified Compliance Report obtained from MoEF&CC while seeking a renewal of the mining plan to cover the project life.
4. The progressive and final mine closure plan including the green belt implementation and environmental norms should be strictly followed as per the EMP.
5. The project proponent shall spend **EMP cost of Rs. 116 Lakhs** as committed for the period of 5 Years.
6. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 accepted by the Project proponent, the **revised CER cost is Rs. 5 Lakhs** and the amount shall be spent for the committed activities before SEAC such as 1. Construction of water tank and providing drinking water facility., 2. Renovation of existing toilets.3.Providing Environmental related books to school library., & 4.Carrying out plantation in the school ground @ 250 Nos. to the Panchayat Union Primary School, Chinnakaranur, Karamadai - 641104 before obtaining CTO from TNPCB.


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7. The project proponent shall obtain prior permission from Director of Mine safety & Regional Inspector of Mines, Directorate General of Mines Safety, Chennai region before obtaining CTO from TNPCB.

Annexure-'A'

EC Compliance

1. The Environmental Clearance is accorded based on the assurance from the project proponent that there will be full and effective implementation of all the undertakings given in the Application Form, Pre-feasibility Report, mitigation measures as assured in the Environmental Impact Assessment/ Environment Management Plan and the mining features including Progressive Mine Closure Plan as submitted with the application.
2. All the conditions as presented by the proponent in the PPT during SEAC appraisal should be addressed in Full.
3. The proponent shall submit Compliance Reports on the status of compliance of the stipulated EC conditions including results of monitored data. It shall be sent to the respective Regional Office of Ministry of Environment, Forests and Climate Change, Govt. of India and also to the Office of State Environment Impact Assessment Authority (SEIAA).
4. Concealing the factual data or submission of false/fabricated data and 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.

Applicable Regulatory Frameworks

5. The project proponent shall strictly adhere to the provisions of 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, 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

Safe mining Practices

6. The AD/DD, Dept. of Geology & Mining shall ensure operation of the proposed quarry after the submission slope stability study conducted through the reputed research & Academic Institutions such as NIRM, IITs, NITS Anna University, and any CSIR Laboratories etc.
7. The AD/DD, Dept. of Geology & Mining & Director General of Mine safety shall ensure strict compliance and implementation of bench wise recommendations/action plans as recommended in the scientific slope stability study of the reputed research & Academic Institutions as a safety precautionary measure to avoid untoward accidents during mining operation.
8. A minimum buffer distance specified as per existing rules and statutory orders shall be maintained from the boundary of the quarry to the nearest dwelling unit or other structures, and from forest boundaries or any other ecologically sensitive and archeologically important areas or the specific distance specified by SEIAA in EC as per the recommendations of SEAC depending on specific local conditions.

Water Environment – Protection and mitigation measures

9. The proponent shall ensure that the activity does not disturb the water bodies and natural flow of surface and groundwater, nor cause any pollution, to water sources in the area.
10. The proponent shall ensure that the activities do not impact the water bodies/wells in the neighboring open wells and bore wells. The proponent shall ensure that the activities do not in any way affect the water quantity and quality in the open wells and bore wells in the vicinity or impact the water table and levels. The proponent shall ensure that the activities do not disturb the river flow, nor affect the Odai, Water bodies, Dams in the vicinity.
11. Water level in the nearest dug well in the downstream side of the quarry should be monitored regularly and included in the Compliance Report.
12. Quality of water discharged from the quarry should be monitored regularly as per the norms of State Pollution Control Board and included in the Compliance Report.
13. Rain Water Harvesting facility should be installed as per the prevailing provisions of TNMBR/TNCDBR, unless otherwise specified. Maximum possible solar energy generation and utilization shall be ensured as an essential part of the project.


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14. Regular monitoring of flow rates and water quality upstream and downstream of the springs and perennial nallahs flowing in and around the mine lease area shall be carried out and reported in the compliance reports to SEIAA.
15. Regular monitoring of ground water level and water quality shall be carried out around the mine area during mining operation. At any stage, if it is observed that ground water table is getting depleted due to the mining activity; necessary corrective measures shall be carried out.
16. Garland drains and silt traps are to be provided in the slopes around the core area to channelize storm water. De-silting of Garland canal and silt traps have to be attended on a daily basis. A labour has to be specifically assigned for the purpose. The proponent shall ensure the quality of the discharging storm water as per the General Effluent Discharge Standards of CPCB.

Air Environment – Protection and mitigation measures

17. The activity should not result in CO₂ release and temperature rise and add to micro climate alternations.
18. The proponent shall ensure that the activities undertaken do not result in carbon emission, and temperature rise, in the area.
19. The proponent shall ensure that Monitoring is carried out with reference to the quantum of particulate matter during excavation; blasting; material transport and also from cutting waste dumps and haul roads.

Soil Environment – Protection and mitigation measures

20. The proponent shall ensure that the operations do not result in loss of soil biological properties and nutrients.
21. The proponent shall ensure that activity does not deplete the indigenous soil seed bank and disturb the mycorrhizal fungi, soil organism, soil community nor result in eutrophication of soil and water.
22. The activities should not disturb the soil properties and seed and plant growth. Soil amendments as required to be carried out, to improve soil health.
23. Bio remediation using microorganisms should be carried out to restore the soil environment to enable carbon sequestration.
24. The proponent shall ensure that the mine restoration is done using mycorrhizal VAM, vermin-composting, Biofertilizers to ensure soil health and biodiversity conservation.

25. The proponent shall ensure that the topsoil is protected and used in planting activities in the area.
26. The proponent shall ensure that topsoil to be utilized for site restoration and Green belt alone within the proposed area.
27. The top soil shall be temporarily stored at earmarked place (s) and used for land reclamation and plantation. The over burden (OB) generated during the mining operations shall be stacked at earmarked dump site(s) only. The OB dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. At critical points, use of geotextile shall be undertaken for stabilization of the dump. Protective wall or gabions should be made around the dump to prevent erosion / flow of sediments during rains. The entire excavated area shall be backfilled.

Noise Environment – Protection and mitigation measures

28. The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
29. The sound at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Hence, the PP shall ensure that the biological clock of the villages are not disturbed because of the mining activity.

Biodiversity - Protection and mitigation measures

30. The proponent should ensure that there is no disturbance to the agriculture plantations, social forestry plantations, waste lands, forests, sanctuary or national parks. There should be no impact on the land, water, soil and biological environment and other natural resources due to the mining activities.
31. No trees in the area should be removed and all the trees numbered and protected. In case trees fall within the proposed quarry site the trees may be transplanted in the Greenbelt zone. The proponent shall ensure that the activities in no way result in disturbance to forest and trees in vicinity. The proponent shall ensure that the activity does not disturb the movement of grazing animals and free ranging wildlife. The proponent shall ensure that the activity does not disturb the biodiversity, the flora & fauna in the ecosystem. The proponent shall ensure that the activity does not result in invasion by invasive alien species. The proponent shall ensure that the activities do not disturb the resident and migratory


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- birds. The proponent shall ensure that the activities do not disturb the vegetation and wildlife in the adjoining reserve forests and areas around.
32. The proponent shall ensure that the activities do not disturb the agro biodiversity and agro farms. Actions to be taken to promote agroforestry, mixed plants to support biodiversity conservation in the mine restoration effort.
33. The proponent shall ensure that all mitigation measures listed in the EIA/EMP are taken to protect the biodiversity and natural resources in the area.
34. The proponent shall ensure that the activities do not impact green lands/grazing fields of all types surrounding the mine lease area which are food source for the grazing cattle.

Climate Change

35. The project activity should not in any way impact the climate and lead to a rise in temperature.
36. There should be least disturbance to landscape resulting in land use change, contamination and alteration of soil profiles leading to Climate Change.
37. Intensive mining activity should not add to temperature rise and global warming.
38. Operations should not result in GHG releases and extra power consumption leading to Climate Change.
39. Mining through operational efficiency, better electrification, energy use, solar usage, use of renewable energy should try to decarbonize the operations.
40. Mining Operation should not result in droughts, floods and water stress, and shortages, affecting water security both on site and in the vicinity.
41. Mining should not result in water loss from evaporation, leaks and wastage and should support to improve the ground water.
42. Mining activity should be flood proof with designs and the drainage, pumping techniques shall ensure climate-proofing and socio-economic wellbeing in the area and vicinity.

Green Belt Development

43. The proponent shall ensure that in the green belt development more indigenous trees species (Appendix as per the SEAC Minutes) are planted.
44. The proponent shall ensure the area is restored and rehabilitated with native trees as recommended in SEAC Minutes (in Appendix).

Workers and their protection

45. The project proponent is responsible for implementing all the provisions of labour laws applicable from time to time to quarrying /Mining operations. The workers on the site should be provided with on-site accommodation or facilities at a suitable boarding place, protective equipment such as ear muffs, helmet, etc.
46. 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.
47. The workers shall be employed for working in the mines and the working hours and the wages shall be implemented/enforced as per the Mines Act, 1952.

Transportation

48. No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a bypass road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.
49. The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.


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Storage of wastes

50. The project proponent shall store/dump the granite waste generated within the earmarked area of the project site for mine closure as per the approved mining plan.

CER/EMP

51. The CER Should be fully Implemented and fact reflected in the Half-yearly compliance report.
52. The EMP Shall also be implemented in consultation with local self-government institutions.
53. The follow-up action on the implementation of CER Shall be included in the compliance report.

Directions for Reclamation of mine sites

54. The mining closure plan should strictly adhere to appropriate soil rehabilitation measures to ensure ecological stability of the area. Reclamation/Restoration of the mine site should ensure that the Geotechnical, physical, chemical properties are sustainable that the soil structure composition is buildup, during the process of restoration.
55. The proponent shall ensure that the mine closure plan is followed as per the mining plan and the mine restoration should be done with native species, and site restored to near original status. The proponent shall ensure that the area is ecologically restored to conserve the ecosystems and ensure flow of goods and services.
56. A crucial factor for success of reclamation site is to select sustainable species to enable develop a self-sustaining eco system. Species selected should easily establish, grow rapidly, and possess good crown and preferably be native species. Species to be planted in the boundary of project site should be un palatable for cattle's/ goats and should have proven capacity to add leaf-litter to soil and decompose. The species planted should be adaptable to the site conditions. Should be preferably pioneer species, deciduous in nature to allow maximum leaf-litter, have deep root system, fix atmospheric nitrogen and improve soil productivity. Species selected should have the ability to tolerate altered pit and toxicity of and site. They should be capable of meeting requirement of local people in regard to fuel fodder and should be able to attract bird, bees and butterflies. The species should be planted in mixed association.

57. For mining area reclamation plot culture experiments to be done to identify/ determine suitable species for the site.
58. Top soil with a mix of beneficial microbes (Bacteria/Fungi) to be used for reclamation of mine spoils. AM Fungi (Arbuscular mycorrhizal fungi), plant growth promoting Rhizo Bacteria and nitrogen fixing bacteria to be utilized.
59. Soil and moisture conservation and water harvesting structures to be used where ever possible for early amelioration and restoration of site.
60. Top soil is most important for successful rehabilitation of mined sites. Topsoil contains majority of seeds and plant propagation, soil microorganism, Organic matter and plant nutrients. Wherever possible the topsoil should be immediately used in the area of the for land form reconstruction, to pre mining conditions.
61. Over burdens may be analyzed and tested for soil characteristics and used in the site for revegetation. Wherever possible seeds, rhizome, bulbs, etc of pioneering spices should be collected, preserved and used in restoring the site.
62. Native grasses seeds may be used as colonizers and soil binders, to prevent erosion and allow diverse self- sustaining plant communities to establish. Grasses may offer superior tolerance to drought, and climatic stresses.
63. Reclamation involves planned topographical reconstruction of site. Care to be taken to minimize erosion and runoff. Topsoils should have necessary physical, chemicals, ecological, properties and therefore should be stored with precautions and utilized for reclamation process. Stocked topsoil should be stabilized using grasses to protect from wind. Seeds of various indigenous and local species may be broad casted after topsoil and treated overburden are spread.
64. Alkaline soils, acidic soils, Saline soils should be suitably treated/amended using green manure, mulches, farmyard manure to increase organic carbon. The efforts should be taken to landscape and use the land post mining. The EMP and mine closure plan should provide adequate budget for re-establishing the site to pre-mining conditions. Effective steps should be taken for utilization of over burden. Mine waste to be used for backfilling, reclamation, restoration, and rehabilitation of the terrain without affecting the drainage and water regimes. The rate of rehabilitation should be similar to rate of mining. The land disturbed should be reshaped for long term use. Mining should be as far as possible be ecofriendly. Integration of rehabilitation strategies with mining plan will enable speedy restoration.


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65. Efforts should be taken to aesthetically improve the mine site. Generally, there are two approaches to restoration i.e Ecological approach which allows tolerant species to establish following the succession process allowing pioneer species to establish. The other approach i.e plantation approach is with selected native species are planted. A blend of both methods may be resorted to restore the site by adding soil humus and mycorrhiza.

66. Action taken for restoration of the site should be specifically mentioned in the EC compliances.

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.
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.


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- 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.
 - 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, Govt 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.

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 the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
35. 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.
36. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
37. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Bunds to be provided at the boundary of the project site.
39. 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.
40. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
41. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
42. The Project Proponent shall provide solar lighting system to the nearby villages.


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43. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
44. Safety equipments to be provided to all the employees.
45. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
46. 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.
47. 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.
48. 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.
49. 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.
50. 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.
51. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
52. 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.
53. 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.
54. 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.
55. All the commitment made by the project proponent in the proposal shall be strictly followed.
56. 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.
57. 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 & 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).

58. All required sanitary and hygienic measures should be in place before starting construction activities and they have to be maintained throughout the construction phase.
59. The company shall stress upon the preventive aspects of occupational health.
60. 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.
61. A scientific site/ ecological rehabilitation and restoration plan on long term basis should be drawn to carryout restoration with native species and Bio diversity.
62. 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.
63. The existing water bodies should not be disturbed to ensure sustainable environment for aquatic life forms.
64. The proponent should completely implement all environmental pollution control measures as detailed in the EIA report and in the additional report.
65. Avenue plantation wherever needed has to be carried out along the route for dust suppression.
66. 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.
67. 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.
68. 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.
69. 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.
70. Hydro geological study including infiltration test shall be conducted by any reputed agency to estimate leachate quantity.


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71. Regular medical check-up for mine workers and nearby residents around the project site involving community medical centre/NIMH shall be conducted.
72. As per norms, the health study should be conducted through competent/approved health organization and report submitted for one year.
73. 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.
74. NOC from the State GWA for drawing ground water shall be obtained, if ground water table is intersected.
75. Green belt shall be provided as per norms of MoEF & CC, GOI, in consultation with local DFO.
76. All the recommendations made in the EIA report of the project shall be effectively implemented.
77. 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.
78. All the environmental protection measures and safeguards as recommended in the EIA report shall be complied with.
79. 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.
80. 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.
81. 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, NO_x 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.


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 drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.


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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, 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.


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Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Additional Chief 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, Coimbatore District.
8. The Commissioner of Geology and Mines, Guindy, Chennai - 32.
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.

Signature Not Verified

Digitally signed by Thiru.Deepak
S.Bilgi
Member Secretary
Date: 3/14/2023 7:57:32 PM
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Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), TAMIL NADU)

To,

The Proprietor
M MUTHAMMAL
Chikkarampalayam, Mettupalayam Taluk Coimbatore District -641104

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/TN/MIN/405297/2022 dated 13 Dec 2022. The particulars of the environmental clearance granted to the project are as below.

- | | |
|--|---|
| 1. EC Identification No. | EC23B001TN114290 |
| 2. File No. | 8393 |
| 3. Project Type | New |
| 4. Category | B |
| 5. Project/Activity including Schedule No. | 1(a) Mining of minerals |
| 6. Name of Project | Tmt.M. MUTHAMMAL ROUGH STONE & GRAVEL QUARRY over an Extent of 1.82..0 ha of Patta land in S.F.Nos: 77/2E (P), 77/2F (P), 79/1A (P) of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamilnadu State |
| 7. Name of Company/Organization | M MUTHAMMAL |
| 8. Location of Project | TAMIL NADU |
| 9. TOR Date | N/A |

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 13/02/2023

(e-signed)
Thiru.Deepak S.Bilgi
Member Secretary
SEIAA - (TAMIL NADU)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH.Please quote identification number in all future correspondence.

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

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.8393/EC.No:5492/2023 dated: 09.01.2023

Sir/Madam,

Sub SEIAA-TN – Proposed Rough Stone and Gravel quarry lease over an extent of 1.82.0 Ha at S.F.No. 77/2E (P), 77/2F (P) & 79/1A (P) of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu by Tmt.M.Muthammal – issue of Environmental Clearance – Regarding.

- Ref:**
1. ToR issued vide Lr No.SEIAA-TN/F.No.8393/SEAC/ToR-973/2021 Dated: 05.07.2021.
 2. Public Hearing conducted on 26.07.2022.
 3. Online Proposal No. SIA/TN/MIN/405297/2022 dated: 04.11.2022.
 4. Project proponent submitted EIA Report to SEIAA-TN on 07.11.2022.
 5. Minutes of the 337th SEAC meeting held on 13.12.2022.
 6. Minutes of the 582nd SEIAA meeting held on 09.01.2023.


Details of Minor Mineral Activity: -

This has reference to your application third and fourth 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.

S.No	Particulars	Details furnished
I.	Name of the Owner/Firm.	Tmt. M. Muthammal, W/o. R. Mahendran, No.64-G, Sirumugai Road,


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		Siva Nagar, Karamadai, Mettupalayam Taluk, Coimbatore District - 641 104.
2.	Type of quarrying	Rough Stone and Gravel
3.	S.F No. of the quarry site up	77/2E (P), 77/2F (P) & 79/1A (P)
4.	Village in which situated	Chikkarampalayam
5.	Taluk in which situated	Mettupalayam
6.	District in which situated	Coimbatore
7.	Extent of quarry (in ha.)	1.82.0 Ha
8.	Period of quarrying proposed	5 years
9.	Type of mining	Opencast Mechanized Mining
10.	Production (Quantity in m ³)	63,384 m ³ of Rough Stone with annual peak production 19,388 m ³
11.	Depth of quarrying	31m BGL
12.	Latitude & Longitude of all corners of the quarry site	11°14'45.62"N to 11°14'50.65"N 76°58'49.83"E to 76°58'57.68"E
13.	Topo Sheet No.	58 – A/16
14.	Man Power requirement	15 Nos.
15.	Precise area communication	Na.Ka.No.267/Kanimam/2020, Dated:31.12.2020
16.	Mining Plan	Rc.No.267/Mines/2020, Dated:29.01.2021
17.	500m cluster letter	Rc.No.267/Mines/2020, Dated:29.01.2021
18.	Water requirement:	2.0 KLD
	1. Drinking & Domestic Purpose	0.5 KLD
	2. Dust suppression	1.0 KLD
	3. Green Belt	0.5 KLD
19.	Power requirement	
	a. Domestic Purpose	TNEB
	b. Industrial Propose	100 Liters of HSD / day
20.	Depth of water table	60-65m bgl


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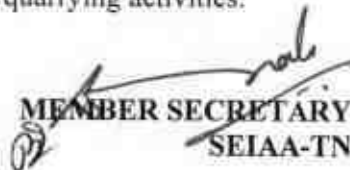
21.	Project Cost (including EMP cost)	Rs. 27.57 lakhs
22.	EMP cost	Capital Cost – Rs. 30,43,814/- Recurring Cost – Rs. 12,73,960/-
23.	CER cost	Rs. 7.5 lakhs
24.	VAO certificate regarding habitation within 300m radius	Letter dated: 04.02.2021
25.	ToR Issued	Lr No.SEIAA-TN/F.No.8393/SEAC/ ToR-973/2021 Dated: 05.07.2021
26.	Public hearing	26.07.2022
27.	EIA report submitted on	07.11.2022
28.	Validity: This Environmental Clearance is granted for the production of 63,384 m³ of Rough Stone for the period of 5 Years from the date of execution of the mining lease and ultimate depth of mining upto 31m BGL.	

The Proponent has furnished affidavit in stamp paper attested by the Notary stating that

I, M.Muthammal, W/o. R.Mahendran, residing at No.64-G, Sirumugai Road, Siva Nagar, Karamadai, Mettupalayam Taluk, Coimbatore District – 641 104, Tamil Nadu State, solemnly declare and sincerely affirm that:

I have apply for getting Environment Clearance to SEIAA, Tamil Nadu State for quarry lease for quarrying of Rough stone and Gravel Quarry over an extent 1.82.0ha of Patta lands in S.F.Nos.77/2E (P), 77/2F (P) & 79/1A (P) of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu State.

1. I swear to state and confirm that within 10km area of the quarry site, I have applied for environment 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 notified,
 - d. Interstate boundaries within 10km radius from the boundary of the proposed site.
2. I spend the amount of Rs.7,50,000/- towards Corporate Environment Responsibility (Revised CER) for the following activities to the Panchayat Union Middle School, Chikarampalayam, Karamadai before commencement of quarrying activities.


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Sl. No.	Description	CER Cost INR
1	Renovation of Existing toilet	Rs.7,50,000/-
2	Carrying out plantation in around school compound 250 Nos	
3	Providing Environmental related books to school library	
4	Renovation of Roof	
5	Construction of Kitchen in the School	

3. The total area of following quarries located within 500m radius from the periphery of my quarry site details as shown below:

Existing Quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect	Lease Period	Remarks
1.	Tmt.Poorani	Chikkarampalayam 80/1	1.27.0	22.12.2018 To 21.12.2023	-
2.	Thiru.A.Nandakumar	Chikkarampalayam 78/1, 420	1.17.0	02.06.2016 To 01.06.2021	-
3.	Thiru.C.N.Mani	Chikkarampalayam 77/1B, 421/2B	3.11.0	02.03.2016 TO 01.03.2021	-
4.	Tmt.Kaveriammal	Chikkarampalayam 77/2B	0.99.0	24.12.2018 To 23.12.2023	-
5.	Thiru.S.Gnanasekaran	Chikkarampalayam 77/2D	1.01.2	01.10.2018 To 30.09.2023	-

Expired Quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect	Lease Period	Remarks
1.	Thiru.Rangaraj	Chikkarampalayam 76/1(P)	1.21.0	26.05.1998 To 25.05.2003	-
2.	Thiru.R.Venkitasamy	Chikkarampalayam 67/2	0.61.0	09.06.2003 To 08.06.2008	-
3.	Thiru.T.Rajendran	Chikkarampalayam 67	0.90.5	07.07.1996 To 06.07.2001	-

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Abandoned Quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect	Lease Period	Remarks
-- NIL --					

Proposed Quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect	Remarks
1.	Tmt.M.Muthammal	Chikkarampalayam 77/2(E) (P)	1.82.0	Subject Area Precise area communicated
2.	Thiru.C.N.Mani	Chikkarampalayam 75	2.47.5	Precise area communicated
3.	Thiru.P.Siddarthamouli	Chikkarampalayam 76/1A	1.21.50	Precise area communicated

Future Proposed Quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect	Remarks
-- NIL --				

4. There will not be hindrance or disturbance to the people living during quarrying activities and transportation of the mineral.
5. There is no approved habitation 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 laborers working in my quarry site.
8. The existing road from the main road to quarry is in good condition. The same will be maintained and utilized for Transportation of quarry materials and machineries.
9. I will not engage any child labor in my quarry site and I aware that engaging child labor is punishable under the law.
10. All types of safety / protective equipment will be provided to all the laborers working in my quarry.
11. No permanent structures, temples etc., are located within 500m radius from the periphery of my quarry.

I ensure to do all the social and Environment commitment as mentioned in the Mining Plan to the best of my knowledge.


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Details of 500M radius Proposed quarry:

The Project Proponent has submitted a copy of the letter obtained from Assistant Director, Department of Geology & Mining, Coimbatore District in his letter Re.No.267/Mines/2020, Dated:29.01.2021 has stated that the details of other quarries (Proposed / Existing / Abandoned Quarries) within a radius 500m from the boundary of the proposed quarry site as follows:

i) Existing Quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect.	Lease period	Remarks
1.	Tmt.Poorani	Chikkarampalayam 80/1	1.27.0	22.12.2018 to 21.12.2023	
2.	Thiru.A.Nandakumar	Chikkarampalayam 78/1 420	1.17.0	02.06.2016 to 01.06.2021	
3.	Thiru.C.N.Mani	Chikkarampalayam 77/1B 421/2B	3.11.0	02.03.2016 to 01.03.2021	
4.	Tmt.Kaveriammal	Chikkarampalayam 77/2B	0.99.0	24.12.2018 to 23.12.2023	
5.	Thiru.S.Gnanasekaran	Chikkarampalayam 77/2D	1.01.2	01.10.2018 to 30.09.2023	

ii) Expired Quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect.	Lease period	Remarks
1.	Thiru.Rangaraj	Chikkarampalayam 76/1 (P)	1.21.0	26.05.1998 to 25.05.2003	
2.	Thiru.R.Venkitasamy	Chikkarampalayam 67/2	0.61.0	09.06.2003 to 08.06.2008	
3.	Thiru.T.Rajendran	Chikkarampalayam 67	0.90.5	07.07.1996 to 06.07.2001	

iii) Abandoned quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect.	Lease period	Remarks
--Nil--					

iv) Proposed quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect.	Remarks
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1.	Tmt.M.Muthammal	Chikkarampalayam 77/2E(P) 77/2F(P) and 79/1A(P)	1.82.0	Subject Area Precise area communicated
2.	Thiru.C.N.Mani	Chikkarampalayam 75	2.47.5	Precise area communicated
3.	Thiru.P.Siddarthamouli	Chikkarampalayam 76/1A	1.21.50	Precise area communicated

v) **Future Proposed quarries**

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect.	Remarks
---NIL---				

Appraisal by SEAC: -

Proposed Rough Stone & Gravel quarry lease over an extent of 1.82.0 Ha in S.F.Nos. 77/2E, 77/2F(P), 79/1A, Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu by Tmt. M. Muthammal - For Environmental Clearance.

The proposal was placed for appraisal in this 337th meeting of SEAC held on 13.12.2022. The details of the project furnished by the proponent are available on the website (parivesh.nic.in). The project proponent gave detailed presentation.

SEAC noted the following:

1. The project proponent, **Tmt. M. Muthammal** has applied for Environmental Clearance for the proposed Rough Stone & Gravel quarry lease over an extent of 1.82.0 Ha in S.F.Nos. 77/2E, 77/2F(P), 79/1A, Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu.
2. The project/activity is covered under Category "B2" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006, as amended

Based on the presentation made by the proponent, SEAC decided to recommend the proposal for the grant of Environmental Clearance for the total production of 63,384 m³ Rough stone with annual peak production 19388 m³ and the ultimate depth of mining restricted upto 31m below ground level, subject to the standard conditions as per the Annexure I of this minutes & normal conditions stipulated by MOEF &CC, in addition to the following specific conditions:

1. **The prior Environmental Clearance granted for this mining project shall be valid for the project life including production value as laid down in the mining plan approved and renewed by competent authority, from time to time, subject to a maximum of**


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thirty years, whichever is earlier, vide MoEF&CC Notification S.O. 1807(E) dated 12.04.2022.

2. The proponent shall mandatorily appoint the statutory competent persons such as Blaster, Mine Mate, Mine Foreman in relevant to the proposed quarry size as per the provisions of Mines Act 1952 and Metalliferous Mines Regulations, 1961 respectively.
3. The PP shall communicate the 'Notice of Opening' of the quarry to the Director of Mines Safety, Chennai Region before obtaining the CTO from the TNPCB.
4. The proponent shall construct the 'S3 (or) G2' type of fencing all around the boundary of the proposed working quarry with gates for entry/exit before the commencement of the operation as recommended in the DGMS Circular, 11/1959 and shall furnish the photographs showing the same before obtaining the CTO from TNPCB.
5. Further, the PP shall construct the garland drain with proper size, gradient and length along the boundary of the pit leaving behind the mandatory safety zone of 7.5 m as it is designed to take care of run-off water (size, gradient and length) before obtaining the CTO from TNPCB.
6. Since the quarry is located in the cluster, the Project Proponent shall ensure strict compliance of the provisions given under the Mines Rules, 1955 for the health and welfare of the persons employed therein.
7. The PP shall furnish **slope stability action plan** to the concerned AD (Mines) for the systematic working by maintaining proper benches incorporating the haul road with proper gradient as the depth of the proposed quarry is exceeding 30 m, before obtaining CTO from TNPCB.
8. The PP shall carry out the green belt development including the plantation within the mine lease area before obtaining the CTO from the TNPCB.
9. The PP shall undertake suitable measures for welfare amenities of the workers employed in the quarry as per the provisions laid under the Mines Rules 1955.
10. The PP shall carry out the scientific studies to assess the slope stability of the benches and quarry wall when the depth of the quarry touches 30 m (or) after the completion of 4 years of operation whichever is earlier, by involving a reputed Research and Academic Institution such as CSIR-Central Institute of Mining & Fuel Research (CIMFR) / Dhanbad, NIRM, IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus, etc. A copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB,


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AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance without any deviation.

11. The PP shall use the jack hammer drill machine fitted with the dust extractor for the drilling operations such that the fugitive dust is controlled effectively at the source.
12. The PP shall ensure that the blasting operations are carried out by only the statutory persons like Blaster/Mine Mate/Mine Foreman directly employed by him as per the provisions of MMR 1961 and it shall not be carried out by the persons other than the above statutory personnel.
13. The PP shall meticulously carry out the mitigation measures as spelt out in the revised EMP.
14. The Project Proponent shall ensure that 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 MoEF& CC Ministry and its Integrated Regional Office (IRO) located in Chennai.
15. The Project Proponent shall send a copy of the clearance letter marked to concerned Panchayat from whom any suggestion/representation has been received while processing the proposal.
16. As per the MoEF&CC Office Memorandum F.No. 22-65/2017-1A.III dated: 30.09.2020 and 20.10.2020 the proponent shall adhere to the EMP as committed.
17. As accepted by the Project Proponent the CER cost is **Rs.7.5 Lakh** and the amount shall be spent on the committed activities for Government School, before obtaining CTO from TNPCB.


ANNEXURE-I

1. The proponent shall mandatorily appoint the required number of statutory officials and the competent persons in relevant to the proposed quarry size as per the provisions of Mines Act 1952 and Metalliferrous Mines Regulations, 1961.
2. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit before the commencement of the operation and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
3. Perennial maintenance of haulage road/village / Panchayat Road shall be done by the project proponent as required in connection with the concerned Govt. Authority.
4. The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total


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excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form of Short Term Permit (STP), Query license or any other name.

5. The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.
6. The proponent shall ensure that the slope of dumps is suitably vegetated in scientific manner with the native species to maintain the slope stability, prevent erosion and surface run off. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps.
7. Perennial sprinkling arrangement shall be in place on the haulage road for fugitive dust suppression. Fugitive emission measurements should be carried out during the mining operation at regular intervals and submit the consolidated report to TNPCB once in six months.
8. The Project Proponent shall carry out slope stability study by a reputed academic/research institution such as NIRM, IIT, Anna University for evaluating the safe slope angle if the proposed dump height is more than 30 meters. The slope stability report shall be submitted to concerned Regional office of MoEF&CC, Govt. of India, Chennai as well as SEIAA, Tamilnadu.
9. The Proponent shall ensure that the Noise level is monitored during mining operation at the project site for all the machineries deployed and adequate noise level reduction measures undertaken accordingly. The report on the periodic monitoring shall be submitted to TNPCB once in 6 months.
10. Proper barriers to reduce noise level and dust pollution should be established by providing greenbelt along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.


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11. 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 and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
12. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted in proper escapements 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.
13. **Noise and Vibration Related:** (i) The Proponent shall carry out only the Controlled Blasting operation using NONEL shock tube initiation system during daytime. Usage of other initiation systems such as detonating cord/fuse, safety fuse, ordinary detonators, cord relays, should be avoided in the blasting operation. The mitigation measures for control of ground vibrations and to arrest fly rocks should be implemented meticulously under the supervision of statutory competent persons possessing the I / II Class Mines Manager / Foreman / Blaster certificate issued by the DGMS under MMR 1961, appointed in the quarry. No secondary blasting of boulders shall be carried out in any occasions and only the Rock Breakers (or) other suitable non-explosive techniques shall be adopted if such secondary breakage is required. The Project Proponent shall provide required number of the security sentries for guarding the danger zone of 500 m radius from the site of blasting to ensure that no human/animal is present within this danger zone and also no person is allowed to enter into (or) stay in the danger zone during the blasting. (ii) Appropriate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs, (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone.
14. Ground water quality monitoring should be conducted once in every six months and the report should be submitted to TNPCB.
15. The operation of the quarry should not affect the agricultural activities & water bodies near the project site and a 50 m safety distance from water body should be maintained without carrying any activity. The proponent shall take appropriate measures for "Silt Management"


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and prepare a SOP for periodical de-siltation indicating the possible silt content and size in case of any agricultural land exists around the quarry.

16. The proponent shall provide sedimentation tank / settling tank with adequate capacity for runoff management.
17. The proponent shall ensure that the transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village Road and shall take adequate safety precautionary measures while the vehicles are passing through the schools / hospital. The Project Proponent shall ensure that the road may not be damaged due to transportation of the quarried rough stones; and transport of rough stones will be as per IRC Guidelines with respect to complying with traffic congestion and density.
18. 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.
19. After mining operations are completed, the mine closure activities as indicated in the mine closure plan shall be strictly carried out by the Proponent fulfilling the necessary actions as assured in the Environmental Management Plan.
20. 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.
21. The Project Proponent shall comply with the provisions of the Mines Act, 1952, MMR 1961 and Mines Rules 1955 for ensuring safety, health and welfare of the people working in the mines and the surrounding habitants.
22. The project proponent shall ensure that the provisions of the MMRD, 1956, the MCDR 2017 and Tamilnadu Minor Mineral Concession Rules 1959 are complied by carrying out the quarrying operations in a skillful, scientific and systematic manner keeping in view proper safety of the labour, structure and the public and public works located in that vicinity of the quarrying area and in a manner to preserve the environment and ecology of the area.
23. 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 informed to the District AD/DD (Geology and Mining) District Environmental Engineer (TNPCB) and the Director of Mines Safety (DMS), Chennai Region by the proponent without fail.


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24. The Project Proponent shall abide by the annual production scheduled specified in the approved mining plan and if any deviation is observed, it will render the Project Proponent liable for legal action in accordance with Environment and Mining Laws.
25. 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, as per the existing law from time to time.
26. All the conditions imposed by the Assistant/Deputy Director, Geology & Mining, concerned District in the mining plan approval letter and the Precise area communication letter issued by concerned District Collector should be strictly followed.
27. 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.
28. The Project proponent shall install a Display Board at the entrance of the mining lease area/abutting the public Road, about the project information as shown in the **Appendix –II** of this minute.

Appendix

List of Native Trees Suggested for Planting

1. *Aegle marmelos* – Vilvam
2. *Adenanthera pavonina* - Manjadi
3. *Albizia lebbek* – Vaagai
4. *Albizia amara* - Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa* – Iruvathi
8. *Buchanania axillaris* - Kattuma
9. *Borassus flabellifer* - Panai
10. *Butea monosperma* - Murukka maram
11. *Bobax ceiba* – Ilavu, Sevvilavu
12. *Calophyllum inophyllum* - Punnai
13. *Cassia fistula* - Sarakondrai
14. *Cassia roxburghii*- Sengondrai
15. *Chloroxylon sweitenia* - Purasa maram


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16. *Cochlospermum religiosum* – Kongu, Manjal Ilavu
17. *Cordia dichotoma* – Mookuchali maram
18. *Creteva adansonii* – Mavalingum
19. *Dillenia indica* – Uva, Uzha
20. *Dillenia pentagyna* – Siru Uva, Sitruzha
21. *Diospyros ebenum* - Karungali
22. *Diospyros chloroxylon* – Vaganai
23. *Ficus amplissima* – Kal Itchi
24. *Hibiscus tiliaceus* – Aatru poovarasu
25. *Hardwickia binata* – Aacha
26. *Holoptelia integrifolia* - Aayili
27. *Lannea coromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthus tetraphylla* - Neikottai maram
30. *Limonia acidissima* - Vila maram
31. *Litsea glutinosa* –Pisin pattai
32. *Madhuca longifolia* - Illuppai
33. *Manilkara hexandra* – Ulakkai Paalai
34. *Mimusops elengi* - Magizha maram
35. *Mitragyna parvifolia* - Kadambu
36. *Morinda pubescens* – Nuna
37. *Morinda citrifolia* – Vellai Nuna
38. *Phoenix sylvestre* - Eachai
39. *Pongamia pinnata* – Pungam
40. *Premna mollissima* – Munnai
41. *Premna serratifolia* – Narumunnai
42. *Premna tomentosa* - Purangai Naari, Pudanga Naari
43. *Prosopis cinerea* - Vanni maram
44. *Pterocarpus marsupium* - Vengai
45. *Pterospermum canescens* – Vennangu, Tada
46. *Pterospermum xylocarpum* - Polavu
47. *Puthranjiva roxburghii* – Puthranjivi
48. *Salvadora persica* – Ugaa Maram

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production 19388 m³ shall not exceed as per approved modified mining plan issued by the Department of Geology & Mining subject to the standard conditions as per Annexure - (I) & all other specific conditions as recommended by SEAC & other normal conditions stipulated by MOEF & CC in addition to the following conditions & Conditions stated vide Annexure 'A'.

1. The project proponent shall store/dump the and Top soil/Weathered Rock generated within the earmarked area of the project site and the utilize the same for mine closure as per the approved mining plan.
2. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 accepted by the Project proponent, the revised CER cost is Rs. 7.5 Lakhs and the amount shall be spent for the committed activities to the Panchayat Union Middle School, Chikkrampalayam Village before obtaining CTO from TNPCB.
3. The project proponent shall obtain prior permission from Regional Inspector of *Directorate General of Mines Safety, Chennai* before obtaining CTO from TNPCB.

Annexure-'A'

1. The AD/DD, Dept. of Geology & Mining shall ensure operation of the proposed quarry after the submission slope stability study conducted through the reputed research & Academic Institutions such as NIRM, IITs, NITS Anna University, and any CSIR Laboratories etc.
2. The AD/DD, Dept. of Geology & Mining & Director General of Mine safety shall ensure strict compliance and implementation of bench wise recommendations/action plans as recommended in the scientific slope stability study of the reputed research & Academic Institutions as a safety precautionary measure to avoid untoward accidents during mining operation.
3. No trees in the area should be removed and all the trees numbered and protected. In case trees fall within the proposed quarry site the trees may be transplanted in the Greenbelt zone. The proponent shall ensure that the activities in no way result in disturbance to forest and trees in vicinity. The proponent shall ensure that the activity does not disturb the movement of grazing animals and free ranging wildlife. The proponent shall ensure that the activity does not disturb the biodiversity, the flora & fauna in the ecosystem. The proponent shall ensure that the activity does not result in invasion by invasive alien species. The proponent shall ensure that the activities do not disturb the resident and migratory birds. The proponent shall ensure that the activities do not disturb the vegetation and wildlife in the adjoining reserve forests and areas around.


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4. The proponent shall ensure that the operations do not result in loss of soil biological properties and nutrients.
5. The activity should not result in CO₂ release and temperature rise and add to micro climate alternations.
6. The proponent shall ensure that the activity does not disturb the water bodies and natural flow of surface and ground water, nor cause any pollution, to water sources in the area.
7. The proponent shall ensure that the activities undertaken do not result in carbon emission, and temperature rise, in the area.
8. The proponent shall ensure that Monitoring is carried out with reference to the quantum of particulate matter during excavation; blasting; material transport and also from cutting waste dumps and haul roads.
9. The proponent shall ensure that the activities do not disturb the agro biodiversity and agro farms. Actions to be taken to promote agro forestry, mixed plants to support biodiversity conservation in the mine restoration effort.
10. The proponent shall ensure that activity does not deplete the indigenous soil seed bank and disturb the mycorrhizal fungi, soil organism, soil community nor result in eutrophication of soil and water.
11. The activities should not disturb the soil properties and seed and plant growth. Soil amendments as required to be carried out, to improve soil health
12. Bio remediation using microorganisms should be carried out to restore the soil environment to enable carbon sequestration.
13. The proponent shall ensure that all mitigation measures listed in the EIA/EMP are taken to protect the biodiversity and natural resources in the area.
14. The proponent shall ensure that the activities do not impact the water bodies/wells in the neighboring open wells and bore wells. The proponent shall ensure that the activities do not in any way affect the water quantity and quality in the open wells and bore wells in the vicinity or impact the water table and levels. The proponent shall ensure that the activities do not disturb the river flow, nor affect the Odai, Water bodies, Dams in the vicinity.
15. The proponent shall ensure that in the green belt development more indigenous trees species (Appendix as per the SEAC Minutes) to be planted.
16. The proponent shall ensure the area is restored and rehabilitated with native trees as recommended in SEAC Minutes (in Appendix).


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17. The proponent shall ensure that the mine restoration is done using mycorrhizal VAM, vermin-composting, Biofertilizers to ensure soil health and biodiversity conservation.
18. The proponent shall ensure that the topsoil is protected and used in planting activities in the area.
19. The proponent should ensure that there is no disturbance to the agriculture plantations, social forestry plantations, waste lands, forests, sanctuary or national parks. There should be no impact on the land, water, soil and biological environment and other natural resources due to the mining activities.
20. The proponent shall ensure that topsoil to be utilized for site restoration and Green belt alone within the proposed area.
21. The proponent shall ensure that the activities do not impact green lands/grazing fields of all types surrounding the mine lease area which are food source for the grazing cattle.
22. The project proponent shall store/dump the waste generated within the earmarked area of the project site for mine closure as per the approved mining plan.

Directions for Reclamation of mine sites

1. The mining closure plan should strictly adhere to appropriate soil rehabilitation measures to ensure ecological stability of the area. Reclamation/Restoration of the mine site should ensure that the Geotechnical, physical, chemical properties are sustainable that the soil structure composition is buildup, during the process of restoration.
2. The proponent shall ensure that the mine closure plan is followed as per the mining plan and the mine restoration should be done with native species, and site restored to near original status. The proponent shall ensure that the area is ecologically restored to conserve the ecosystems and ensure flow of goods and services.
3. A crucial factor for success of reclamation site is to select sustainable species to enable develop a self-sustaining eco system. Species selected should easily establish, grow rapidly, and possess good crown and preferably be native species. Species to be planted in the boundary of project site should be un palatable for cattle's/ goats and should have proven capacity to add leaf-litter to soil and decompose. The species planted should be adaptable to the site conditions. Should be preferably pioneer species, deciduous in nature to allow maximum leaf-litter, have deep root system, fix atmospheric nitrogen and improve soil productivity. Species selected should have the ability to tolerate altered pit and toxicity of and site. They should be capable of meeting requirement of local people in regard to fuel


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fodder and should be able to attract bird, bees and butterflies. The species should be planted in mixed association.

4. For mining area reclamation plot culture experiments to be done to identify/ determine suitable species for the site.
5. Top soil with a mix of beneficial microbes (Bacteria/Fungi) to be used for reclamation of mine spoils. AM Fungi (Arbuscular mycorrhizal fungi), plant growth promoting Rhizo Bacteria and nitrogen fixing bacteria to be utilized.
6. Soil and moisture conservation and water harvesting structures to be used where ever possible for early amelioration and restoration of site.
7. Top soil is most important for successful rehabilitation of mined sites. Topsoil contains majority of seeds and plant propagation, soil microorganism, Organic matter and plant nutrients. Wherever possible the topsoil should be immediately used in the area of the for land form reconstruction, to pre mining conditions.
8. Over burdens may be analyzed and tested for soil characteristics and used in the site for revegetation. Wherever possible seeds, rhizome, bulbs, etc of pioneering spices should be collected, preserved and used in restoring the site.
9. Native grasses seeds may be used as colonizers and soil binders, to prevent erosion and allow diverse self- sustaining plant communities to establish. Grasses may offer superior tolerance to drought, and climatic stresses.
10. Reclamation involves planned topographical reconstruction of site. Care to be taken to minimize erosion and runoff. Topsoils should have necessary physical, chemicals, ecological, properties and therefore should be stored with precautions and utilized for reclamation process. Stocked topsoil should be stabilized using grasses to protect from wind. Seeds of various indigenous and local species may be broad casted after topsoil and treated overburden are spread.
11. Alkaline soils, acidic soils, Saline soils should be suitably treated/amended using green manure, mulches, farmyard manure to increase organic carbon. The efforts should be taken to landscape and use the land post mining. The EMP and mine closure plan should provide adequate budget for reestablishing the site to pre-mining conditions. Effective steps should be taken for utilization of over burden. Mine waste to be used for backfilling, reclamation, restoration, and rehabilitation of the terrain without affecting the drainage and water regimes. The rate of rehabilitation should be similar to rate of mining. The land disturbed


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- should be reshaped for long term use. Mining should be as far as possible be ecofriendly. Integration of rehabilitation strategies with mining plan will enable speedy restoration.
12. Efforts should to taken to aesthetically improve the mine site. Generally there are two approaches to restoration i.e Ecological approach which allows tolerant species to establish following succession process allowing pioneer species to establish. The other approach i.e plantation approach is with selected native species are planted. A blend of both methods may be resorted to restore the site by adding soil humas and mycorrhiza.
13. Action taken for restoration of the site should be specifically mentioned in the EC compliances.

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.**


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6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 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.


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- 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.
 - 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.


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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.
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 the total extent of nearby quarries (existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
35. 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.
36. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
37. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Bunds to be provided at the boundary of the project site.


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39. 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.
40. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
41. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
42. The Project Proponent shall provide solar lighting system to the nearby villages.
43. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
44. Safety equipments to be provided to all the employees.
45. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
46. 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.
47. 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.
48. 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.
49. 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.
50. 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.
51. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
52. 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.
53. 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.


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54. 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.
55. All the commitment made by the project proponent in the proposal shall be strictly followed.
56. 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.
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.


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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.
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


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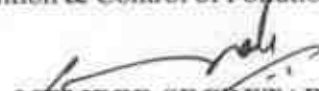
the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF at Chennai, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; RSPM, SO₂, NO_x or critical sector parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

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


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- workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
 13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
 14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
 15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
 16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
 17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
 18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
 19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
 20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
 21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution)


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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, 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.


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Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Additional Chief Secretary to Government, Environment, Climate Change and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Industries, Investment Promotion & Commerce 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, Coimbatore District.

8. The Commissioner of Geology and Mines, Guindy, Chennai - 32.
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.



Signature Not Verified
Digitally signed by Thiru.Deepak
S.Bilgi
Member Secretary
Date: 2/13/2023 5:48:36 PM
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TMT. P. RAJESWARI, L.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU
3rd Floor, Panagal Maafigai,
No.1 Jeenis Road, Saidapet,
Chennai-15.
Phone No.044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr.No.SEIAA-TN/F.No.9011/SEAC/ToR-1161/2022 Dated: 06.06.2022

To

Thiru. A Nandakumar
S/o. Arukutty Gounder
No.79D, Avinashi Road, Annur
Coimbatore District – 641653

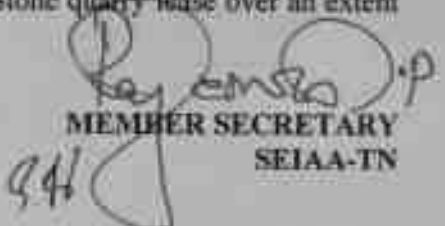
Sir,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone quarry lease over an extent of 3.46.0 Ha in S. F. Nos. 78/I (P), 419, 420 Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu by Thiru A. Nandakumar - under project category – “B1” and Schedule S.No: 1(a) – ToR issued along with Public Hearing- preparation of EIA report – Regarding.

- Ref:**
1. Online proposal No.SIA/TN/MIN/ 72349/2022, dated: 17.02.2022
 2. Your application seeking Terms of Reference submitted on: 21.02.2022
 3. Minutes of the 273rd Meeting of SEAC held on 14.05.2022
 4. Minutes of the 518th Meeting of SEIAA held on 06.06.2022.

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

The project proponent, Thiru A. Nandakumar has submitted application seeking ToR for B1 category project in Form-I, for the Proposed Rough Stone quarry lease over an extent


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of 3.46.0 Ha in S. F. Nos. 78/1 (P), 419, 420 Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu and has furnished Pre-feasibility report.

The proposal was placed in 273rd SEAC meeting held on 14.5.2022. The project proponent gave detailed presentation. SEAC noted the following:


1. The Project Proponent, Thiru A. Nandakumar has applied for Terms for Reference for the proposed Rough stone quarry lease over an extent of 3.46.0 Ha in S. F. Nos. 78/1 (P), 419, 420 Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item I(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. As per the mining plan, the lease period is 5 year. The production as per mining plan for 5 years not to exceed -386746 m³ of Rough Stone and 28470 m³ of Gravel . The Annual peak production as per mining plan is 80200 m³ of Rough Stone (2nd year) and 14094 m³ of Gravel (1st year) with ultimate depth of 47 BGL.

Based on the presentation made by the proponent and the documents furnished, SEAC decided to recommend the proposal for the grant of Terms of Reference (TOR) with Public Hearing, subject to the following TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & UC to be included in EIA/EMP Report:

1. The Proponent shall carry out the cumulative & comprehensive impact study due to mining operations carried out in the quarry cluster specifically with reference to the environment in terms of air pollution, water pollution & health impacts, accordingly the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
2. The PP shall carry out controlled blasting & vibration study with the reputed institution and furnish the same along with EIA report.
3. Certified EC compliance report shall be included in the EIA report.


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4. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
 - a) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 - b) Quantity of minerals mined out.
 - c) Highest production achieved in any one year
 - d) Detail of approved depth of mining
 - e) Actual depth of the mining achieved earlier.
 - f) Name of the person already mined in that leases area.
 - g) If EC and CTO already obtained, the copy of the same shall be submitted.
 - h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
5. 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).
6. The PP shall carry out Drone video survey covering the cluster, Green belt , fencing etc.,
7. 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.
8. 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.
9. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure


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- safety and to protect the environment.
10. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
 11. 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.
 12. 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.
 13. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
 14. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
 15. The PP shall produce/display the EIA report, Executive summary and other related with respect to public hearing should in Tamil Language also.
 16. The recommendation for the issue of "Terms of Reference" is subjected to the outcome of the Hon'ble NGT, Principal Bench, New Delhi in O.A No.186 of 2016 (M.A.No.350/2016) and O.A. No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No. 758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A. No. 843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No. 981/2016, M.A.No.982/2016 & M.A.No.384/2017).
 17. 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


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in the **appendix** in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.

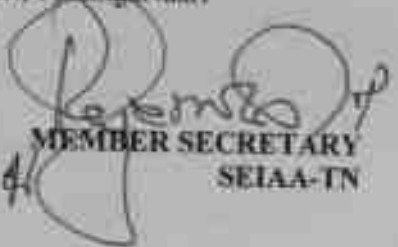
18. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted in proper espacement as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.
19. A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
20. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report.
21. The specific flora & fauna studies shall be carry out with the help of local School/College students and the same shall be included in EIA Report.
22. 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.
23. 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.
24. 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.

Appendix -I
List of Native Trees Suggested for Planting

1. *Aeglemarmelos*-Vilvam
2. *Adenantherapavonina*-Manjadi


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3. *Albizialebbeck*-Vaagai
4. *Albiziaamara*-Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa*-Iruvathi
8. *Buchananiaaillariy*-Kattuma
9. *Borassusflabellifer*- Panai
10. *Buteamonosperma* - Murukkamarum
11. *Bobaxcelha*- Ilavu, Sevilavu
12. *Calophylluminophyllum* - Punnai
13. *Cassia fistula*- Sarakondrai
14. *Cassia roxburghii*- Sengondrai
15. *Chloroxylonswietenia* - Purasamaram
16. *Cochlospermumreligiosum* - Koogu, Manjalilavu
17. *Cordiudichotoma*- Mookuchalimaram
18. *Cretevuandansonii*-Mavalingum
19. *Dilleniaindica*- Uva, Uzha
20. *Dilleniapentagyna*- SiruUva, Sitruzha
21. *Diospyrosebenum*- Karungali
22. *Diospyroschloroxylon*- Vaganai
23. *Ficusamplissima*- Kalltchi
24. *Hibiscus tiliaceous*-Aatrupoovarasu
25. *Hardwickiablnatu*- Aacha
26. *Holoptellaintegrifolia*-Aayili
27. *Lanneacromandellica* - Odhian
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthustetraphylla*- Neikottaimaram
30. *Limoniaacidissima* - Vila maram
31. *Litsea glutinosa*-Pisinpattai
32. *Madhucalongifolia* - Illuppai
33. *Manilkara hexandra*-UlakkaiPaalai
34. *Mimusopselengi* - Magizhamaram
35. *Mitragynaparvifolia* - Kadambu
36. *Morindapubescens*-Nuna
37. *Morindacitrifolia*- VellaiNuna
38. *Phoenix sylvestre*-Eachai
39. *Pongamiapinnata*-Pungam
40. *Premnamollissima*- Munnai
41. *Premnaserratifolia*- Narumunnai
42. *Premnatomentosa*-PuraogaiNaari, PudangaNaari
43. *Prosopiscinerea* - Vannimaram


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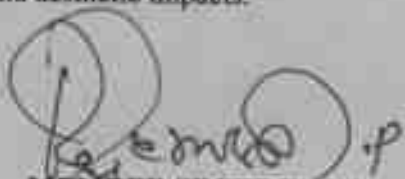
44. Pterocarpus marsupium - Vengai
45. Pterospermum canescens - Vennangu, Tada
46. Pterospermum xylocarpum - Polavu
47. Puthranjivaroxburghii - Puthranjivi
48. Salvadorapersica - UgaMaram
49. Sapindusemarginatus - Manipungan, Soapukai
50. Saracausoca - Asoca
51. Streblus asper - Pirayamaram
52. Strychnos nuxvomica - Yetti
53. Strychnos potatorum - TherthangKottai
54. Syzygium cumini - Naval
55. Terminalia bellerica - Thandri
56. Terminalia arjuna - Venmarudhu
57. Toona ciliata - Sandhanavembu
58. Thespesia populnea - Puvarasu
59. Walsuratrifoliata - valsura
60. Wrightia tinctoria - Vep

The proposal was placed in the 518th Authority meeting held on 06.06.2022. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal condition in addition to the following conditions:

1. Detailed study shall be carried out regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
2. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological structures etc.
3. 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.
4. The Environmental Impact Assessment shall study in detail on the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon


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- sinks and temperature reduction including control of other emission and climate mitigation activities.
5. 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.
 6. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
 7. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the nearby water body and Reservoir.
 8. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
 9. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
 10. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
 11. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.
 12. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.
 13. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.
 14. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.
 15. The project proponent shall study and furnish the impact of project on plantations in adjoin patta lands, Horticulture, Agriculture and livestock.
 16. The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.
 17. 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.


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18. 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.
19. The project proponent shall study on impact of mining on Reserve forests free ranging wildlife.
20. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
 - a) Soil health & bio-diversity.
 - b) Climate change leading to Droughts, Floods etc.
 - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - 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.
21. 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.
22. 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.
23. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.


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

A. STANDARD TERMS OF REFERENCE

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/


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


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


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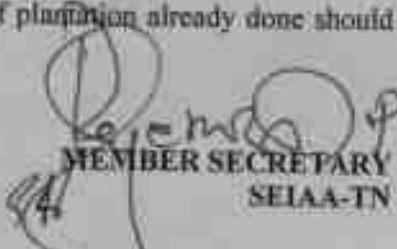
- furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
 - 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.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


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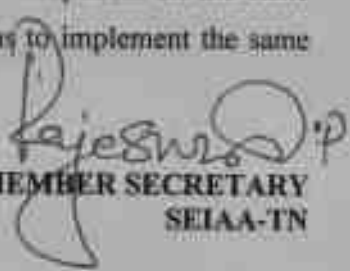
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also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


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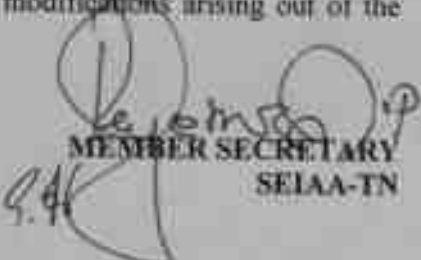
- receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the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


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


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- should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
 - 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
 - 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
 - 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
 - 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
 - g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-H013/41/2006-1A.II(T) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
 - h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the


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- P.H. process) will entail conducting the PH again with the revised documentation.
- i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
 - ii) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.


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11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.


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30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J - 11013/77/2004-IA-II(1) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
 - After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.


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


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Copy to:

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



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

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

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.9309/SEAC/ToR-1242/2022 Dated:30.08.2022

To

Thiru. R.K. Palanisamy,
S/o. T.Karivaradha Goundar,
No. 4/51, Ramapalayam,
Jadayampalayam,
Mettupalayam Taluk,
Coimbatore - 641302.

Sir / Madam,

Sub: SEIAA, Tamil Nadu - Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone and Gravel quarry lease area over an extent of 4.90.0 Ha at S.F.No. 340 (Part) & 341/3 (Part) in Bellathi Village, Mettupalayam Taluk, Coimbatore District - Tamil Nadu by Thiru. R.K. Palanisamy - under project category - "B1" and Schedule S.No. 1(a) - ToR issued along with Public Hearing- preparation of EIA report - Regarding

- Ref:** 1. Online proposal No.SIA/TN/MIN/ 77789/2022, Dt. 04.06.2022
2. Your application submitted for Terms of Reference dated: 10.06.2022
3. Minutes of the 302nd Meeting of SEAC held on 18.08.2022
4. Minutes of the 547th meeting of Authority held on 30.08.2022.

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


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The proponent, Thiru. R.K. Palanisamy has submitted application for ToR, in Form-I, Pre-Feasibility report for the Rough Stone and Gravel quarry lease area over an extent of 4.90.0 Ha at S.F.No. 340 (Part) & 341/3 (Part) in Bellathi Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Proposed Rough Stone and Gravel quarry lease area over an extent of 4.90.0 Ha at S.F.No. 340 (Part) & 341/3 (Part) in Bellathi Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu by Thiru. R.K. Palanisamy - For Terms of Reference.

(SIA/TN/MIN/77789/2022, dated: 30.05.2022).

The proposal was placed in this 302nd Meeting of SEAC held on 18.08.2022. The details of the project furnished by the proponent are available in the website (www.paryesh.nic.in).

The SEAC noted the following:

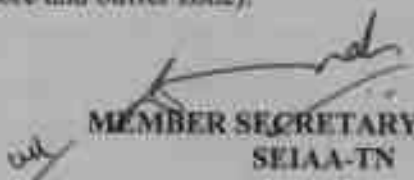
1. The project/activity is covered under Category "BI" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.

Based on the presentation made by the proponent, SEAC recommended grant of Terms of Reference (TOR) with Public Hearing subject to the following TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:


1. The PP shall provide a certified compliance report obtained from MOEF&CC on existing EC.
2. The PP shall furnish DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., upto a radius of 25 km from the proposed site.
3. The PP shall enumerate the all structures located within 500m radius from the project site and discuss the impact on the them by this project in the EIA report.
4. The project proponent shall upload the essential documents such as the mining plan, precise area communication, mining plan letter etc along with the Powerpoint presentation in the PARIVESH portal before placing the subject to SEIAA.
5. The PP shall provide conceptual design for carrying out the NONEL initiation based controlled blasting operation involving muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled within the permissible limits as stipulated by the DGMS as well as no fly rock travel beyond 30 m from the blast site.


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6. In the case of proposed lease in an existing (or old) quarry where the benches are nonexistent (or) partially formed critical of the bench geometry approved in the Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the 'highwall' benches to ensure slope stability in the proposed quarry lease which shall be vetted by the concerned Asst. Director of Geology and Mining as a part of the Mining Plan, during the time of appraisal for obtaining the EC.
7. The Proponent shall submit a conceptual 'Slope Stability Plan' for the existing quarried area and the proposed mine indicating the possible stabilizing measures as a part of the Mining Plan during the appraisal while obtaining the EC, as 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, H/I Class mines manager appointed by the proponent.
9. 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.
10. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines.
 - a) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 - b) Quantity of minerals mined out.
 - c) Highest production achieved in any one year.
 - d) Detail of approved depth of mining.
 - e) Actual depth of the mining achieved earlier.
 - f) Name of the person already mined in that leases area.
 - g) If EC and CTO already obtained, the copy of the same shall be submitted.
 - h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
11. 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).


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12. The PP shall carry out Drone video survey covering the cluster, Green belt , fencing etc.,
13. 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.
14. 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.
15. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
16. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
17. 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.
18. 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.
19. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
20. 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.



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Impact, if any, of change of land use should be given.

21. 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.
22. 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.
23. 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.
24. Impact on local transport infrastructure due to the Project should be indicated.
25. 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.
26. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
27. Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF & CC accordingly.
28. The Public hearing advertisement shall be published in one major National daily and one most circulated Tamil daily.
29. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
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


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- 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 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.
 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.


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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.
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.


Discussion by SEIAA and the Remarks:-

The proposal was placed in the 547th Authority meeting held on 30.08.2022. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal condition in addition to the following conditions:

1. Restricting the ultimate depth of mining upto 37m and quantity of 2,63,254 cu.m of Rough stone & 22,512 cu.m of Gravel are permitted for mining over a period of five years considering the environmental impacts due to the mining, safety precautionary measures of the working personnel and following the principle of the sustainable mining.
2. 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.
3. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological structures etc.
4. 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.
5. 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.
6. 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.
7. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.


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8. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
9. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
10. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
11. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
12. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.
13. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.
14. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.
15. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.
16. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.
17. The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.
18. 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.
19. 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.
20. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
21. 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


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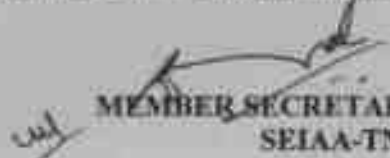
- a) Soil health & bio-diversity.
 - b) Climate change leading to Droughts, Floods etc.
 - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - d) Possibilities of water contamination and impact on aquatic ecosystem health.
 - e) Agriculture, 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.
22. 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.
23. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/unfavorable 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.
24. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.
25. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.
26. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

A. STANDARD TERMS OF REFERENCE

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



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


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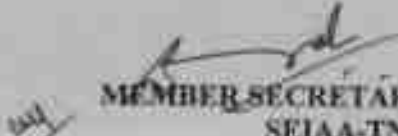
any, of change of land use should be given.

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


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and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

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


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transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

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



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


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

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


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

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility. (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population


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


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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-LA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.


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e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J-11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.

- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
- The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
- The TORs with public hearing prescribed shall be valid for a period of three years from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.


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Copy to:

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



MINING PLAN FOR CHIKKARAMPALAYAM ROUGH STONE AND GRAVEL QUARRY

(PREPARED UNDER RULE 19 OF TAMILNADU MINOR MINERAL CONCESSION RULES, 1959 & AS PER
AMENDMENT UNDER RULE 41 & 42)
(Lease Period - Five years)

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 1.01.2Ha
S.F.NO : 77/2D(P)
VILLAGE : CHIKKARAMPALAYAM
TALUK : METTUPALAYAM
DISTRICT : COIMBATORE
STATE : TAMILNADU

FOR APPLICANT

Thiru.S.Gnanasekaran,
S/o.Sammappa Gowder,
No.2/241, Kannarpalayam,
Karamadai(Po), Mettupalayam Taluk,
Coimbatore District.

PREPARED BY
S. ILAVARASAN, M.Sc.,
Qualified Person
RQP/MAS/253/2013/A

Old.No.260-B, New No: 17,
Advaitha Ashram Road, Alagapuram Post,
Salem - 636 004.
Cell: 94433 56539.
E-mail: geothangam@gmail.com,

S.Gnanasekaran,
S/o.Sammappa Gowder,
No.2/241, Kannarpalayam,
Karamadai(Po), Mettupalayam Taluk,
Coimbatore District.



CONSENT LETTER FROM THE APPLICANT

The Mining Plan in respect of Rough Stone and Gravel Quarry lease Applied area in S.F.No.77/2D(P) over an extent of 1.01.2Ha in Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamilnadu State has been prepared by

S.ILAVARASAN, M.Sc.,
RQP/MAS/253/2013/A

I request the District Collector, Coimbatore to make further correspondence regarding the modification of the Mining Plan with the said qualified person at his following address.

S.ILAVARASAN, M.Sc.,
Old.No.260-B, New No: 17,
Advaitha Ashram Road,
Alagapuram post,
Salem - 636 004.
Cell: 94433 56539.

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

Signature of Applicant


S.Gnanasekaran

Place: Coimbatore

Date: 23.06.217

S.Gnanasekaran,
S/o.Sammappa Gowder,
No.2/241, Kannarpalayam,
Karamadai(Po), Mettupalayam Taluk,
Coimbatore District.



DECLARATION OF THE APPLICANT

The Mining Plan in respect of Rough Stone and Gravel Quarry lease Applied area in S.F.No.77/2D(P) over an extent of 1.01.2Ha in Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamilnadu 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 Applicant



S.Gnanasekaran

Place: Coimbatore

Date: 23.06.2017

S.ILAVARASAN, M.Sc.,
Old.No.260-B, New No: 17,
Advaltha Ashram Road,
Alagapuram post,
Salem - 636 004,
Cell: 94433 56539.



CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of Rule Prepared Under Rule 19 Of Tamilnadu Minor Mineral Concession Rules, 1959 & As Per Amendment Under Rule 41 & 42 Have Been Observed in the preparation of Mining Plan for Rough Stone and Gravel Quarry lease Applied area in S.F.No.77/2D(P) over an extent of 1.01.2Ha in Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamilnadu State has been prepared for

Thiru.S.Gnanasekaran,
S/o.Sammappa Gowder,
No.2/241, Kannarpalayam,
Karamadai(Po), Mettupalayam Taluk,
Coimbatore District.

Whenever specific permissions / exemptions / relaxations and approvals are required, the Applicant will approach the concerned authorities of the District Collectorate, Coimbatore, Tamilnadu 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.

Qualified Person Signature


S.ILAVARASAN, M.Sc.,
RQP/MAS/253/2013/A

Place: Salem
Date: 03.07.2017

S.ILAVARASAN, M.Sc.,
Old.No.260-B, New No: 17,
Advaitha Ashram Road,
Alagapuram post,
Salem - 636 004.
Cell: 94433 56539.



CERTIFICATE FROM THE QUALIFIED PERSON


Certified that the Provisions of Mines Act, Rules and Regulations and Orders made there under have been observed in the preparation of Mining Plan for Rough Stone and Gravel Quarry lease Applied area in S.F.No.77/2D(P) over an extent of 1.01.2Ha in Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamilnadu State has been prepared for

Thiru.S.Gnanasekaran,
S/o.Sammappa Gowder,
No.2/241, Kannarpalayam,
Karamadal(Po), Mettupalayam Taluk,
Coimbatore District.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of Director General of Mines Safety (DGMS), No. 5, IInd Street, Block - AA, Anna Nagar, Chennai-40, Tamilnadu 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.

Qualified Person Signature


S.ILAVARASAN, M.Sc.,
RQP/MAS/253/2013/A

Place: Salem
Date: 03.07.2017



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MINING PLAN FOR CHIKKARAMPALAYAM ROUGH STONE AND GRAVEL QUARRY OVER AN EXTENT OF 1.01.2HA IN CHIKKARAMPALAYAM VILLAGE, METTUPALAYAM TALUK, COIMBATORE DISTRICT, TAMILNADU

(PREPARED UNDER RULE 19 OF TAMILNADU MINOR MINERAL CONCESSION RULES, 1959 & AS PER AMENDMENT UNDER RULE 41 & 42)

INTRODUCTION AND EXECUTIVE SUMMARY

The present Mining Plan and Environmental Management plan is prepared for Thiru.S.Gnanasekaran, S/o.Sammappa Gowder, No.2/241, Kannarpalayam, Karamadai(Po), Mettupalayam Taluk, Coimbatore District.

The applicant applied to quarry Rough stone and Gravel in the S.F.Nos.77/2D(P) over an extent of 1.01.2Ha in Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.

The application was processed by the District Collector Coimbatore and passed a letter vide **Rc.No. 83/ Mines/2017 dated 22.06.2017** to submit Mining Plan for the approval in Department of Geology and Mining, Coimbatore, Environmental Clearance from the District Level Environment Impact Assessment Authority, Tamil Nadu.

Short Notes of Mining plan

- a. Village Panchayat - Chikkarampalayam
- b. Panchayat Union - Mettupalayam
- c. The Total Mineable Reserves are **34,130m³** of Rough stone and **1104m³** of Gravel in the entire area.
- d. The proposed quantity of reserves/ (level of production) for Five year plan period is to be mined is **34,130m³** of Rough stone and **1104m³** of Gravel.
- e. Total extent of the lease applied area = 1.01.2Ha.
- f. Topography of the area = The area exhibits almost plain topography (quarried out pits is observed).
- g. Existing Depth = 12m Depth below ground level.
- h. Proposed Depth of mining = 32m Depth below ground level.
- i. Lease period = Five years.
- j. It is a fresh lease (the area has been quarrying earlier during previous lease period)



- k. Method of mining / level of mechanization
Opencast semi mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.
- l. Type of machineries proposed in the quarrying operation.
Excavators attached with rock breaker
Jack hammers 30-32mm dia
Tractor mounted compressor (2 jack hammer capacity).
- m. No trees will be uprooted due to this quarrying operation.
- n. The existing road from the main road to quarry is in good condition and the same will be maintained and utilized for Transportation of Rough stone and Gravel.
- 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, archeological importance, places of worships is marked and enclosed as Plate No IA and IB.
- q. The lease applied area is about 1.01.2Ha bounded by Nine corners; the corners are designated as 1-9 Clock wise from the South Western corner the Co-ordinates for the all the corners are clearly marked in the Topography, Geological Plan and section enclosed as (Plate No-III)
- r. The diagram showing the Mining area, dimensions of the pit, its proposed depth of mining for the lease period are enclosed as Plate No III.
- s. The lease applied area is 10Km away from the interstate boundary, protected area under wild life protection ACT 1972, critically polluted areas as identified by CPCB and notified Eco sensitive areas.
- t. There are no wastages anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- u. Around 11 employees are deploying in the quarrying operation.
- v. Total Cost of the project is about **Rs.43,17,400/-**



1. GENERAL INFORMATION

1.1 a) Name of the Applicant : Thiru.S.Gnanasekaran

b) Address of the Applicant (With Phone No and E-mail Address)

Address : S.Gnanasekaran,
S/o.Sammappa Gowder,
No.2/241, Kannarpalayam,
Karamadal(Po), Mettupalayam Taluk,
Coimbatore District.

Mobile No : 97867 96039, 98422 04259

Pin Code : 641 104

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

The Applicant is an Individual.

1.2 a) Mineral which the Applicant intends to mine

The Applicant intends to quarry Rough stone and Gravel only. No other Minerals observed in the lease applied area.

b) Precise area communication letter details received from the Competent authority of the Government.

The precise area communication letter was received from the District Collector Coimbatore vide **Rc.No. 83/ Mines/2017 dated 22.06.2017** to obtain mining plan and obtain Environmental Clearance from the DEIAA, Tamilnadu.

C) Period of permission / lease to be granted.

The applicant applied permission to quarry Rough stone and Gravel for the period of five years/ The District Collector considered for the Grant of quarry lease for the period of five years.



d) Name and address of the Qualified Person/ Authorized person preparing the mining plan.

Name : S.Ilavarasan, M.Sc.,
 Qualified Person
 Address : Regd.off.Old No.260-B, New No. 17,
 Advaita Ashram Road,
 Alagapuram, Salem.
 Mobile : 94433 56539.
 Tele Fax : 0427- 2431989
 Registration No : RQP/MAS/253/2013/A
 Email : geothangam@gmail.com

2.0 Location

a) Details of the area with location map

The lease applied area is about 6.5Km South Eastern Side of Mettupalayam and 26Km Northern side of Coimbatore, the lease applied area located along Chikkarampalayam Village at the distance of 2Km (South Eastern Side).



Fig. 1.0 Location Map of the Lease applied area

TABLE - 1

District	Taluk	Village	S.F.No.	Area in Ha.
Coimbatore	Mettupalayam	Chikkarampalayam	77/2D (P)	1.01.2Ha
Total Extent				1.01.2Ha

b) Classification of the area (Ryotwari, Poramboke / others).

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

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

It is a Patta land Registered in the name applicant (Tmt.Chandra & Tmt.Muthammal) vide patta No.1711. The Applicant has obtain consent from the pattadhars. (Refer Annexure No.IV)

d) Toposheet No. with latitude and longitude.

The lease applied area falls in the Toposheet **No.58-A/16** Latitude between **11°14'49.77"N to 11°14'53.70"N** and Longitude between **76°58'48.20"E to 76°58'54.52"E** on WGS datum-1984. Please refer the Plate No (Plate No I to II).

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

There is an existing metal road is on the Eastern side, this metal road connecting in the Ranga Nagar Village Road at a distance of 150m.

The road from the quarry to main road is already in exists, the same road will be maintained and utilized for transportation besides trees will be planted on the either side of the road to prevent dust and noise to the nearby areas. The area in and around the quarry is devoid of Vegetation and plantation.

The Nearest Railway line is Coimbatore- Mettupalayam which is about 2.5Km from the South Western side of the area.

PART - A

3. GEOLOGY AND MINERAL RESERVES.

3.1 Brief description of the Topography and general Geology of the area (with plans).

The Topography of the area is almost plain terrain covered by the Gravel , the thickness of the Gravel Formation is about 2m, Charnockite formation is noticed followed by the Gravel formation.

The crystalline rocks of the district are derived through a complex evolutionary history during Archaean and Proterozoic times with multiple deformations, anatexis, intrusions and polyphase metamorphic events.

28 JUL 2017



Fig.2.0. Topographical View of lease applied area

The massive Charnockite formation is clearly inferred from the existing pit. The slope is gentle towards Southern side. The altitude of the area is above 356m (Maximum) from MSL.

Water table is found at a depth of 60m in summer and at 57m in rainy seasons. Average annual rainfall is about 900mm during NE monsoon. Archaean forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite body trends N30°E- S30°W with dipping towards SE60°.

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

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

3.2 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 Coimbatore District. Besides, the Qualified Person and his team members made a detailed geological study of the area. The Rough stone formation is clearly inferred from the existing quarry pit.

3.3 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 Five sections have been drawn, Two sections drawn Length wise as (X-Y) & (X1-Y1) and another Three sections drawn Width wise as (A-B), (C-D) & (E-F) to cover the maximum area considered for lease.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough stone (Charnockite) deposit has been prepared in 1:1000 and vertical as 1:500 scale (please refer the Geological plan and sections Plate No- III. As the sale of Rough stone are in terms of cubic metres (Volume) only and not in terms of tonnage.

Geological Resources (Plate No. III)

Geological Resources of Rough stone is calculated upto a depth of 32m below the ground level.

Geological Resources are calculated in area method.

Total Extent of the area	=	1.01.2Ha
Area in square meter	=	1.01.2Ha X 10,000 = 10,120Sqm
Gravel	=	2m below the ground level
	=	10,120Sqm X 2m Depth
	=	20,240m³ of Gravel.
Rough Stone formation	=	30m below the ground level.
	=	10,120Sqm X 30m Depth below the Ground level.
	=	3,03,600m³ of Rough stone upto a depth of 30m.
Total Geological Resources of Rough Stone	:	3,03,600m³
Total Geological Resources of Gravel	:	20,240m³

Already Excavated.

The area has been quarried in earlier the existing pit dimensions are follow

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Table-2

Pit.No	Length Avg in (m)	Width Max in (m)	Depth Max in (m)
I	128m	44m	12m

Available Mineable Reserves.

The available mineable reserves are calculated after leaving 7.5m & 10m safety distance to the adjacent patta lands & Quarry Road and Bench loss.

Table-3

MINABLE RESERVES							
Section	Bench	Length in m	Width in m	Depth in m	Volume in m ³	Mineable Reserves of Rough Stone in m ³	Gravel in m ³
XY-AB	IV	43	36	5	7740	7740	
	V	38	26	5	4940	4940	
	VI	33	16	5	2640	2640	
	VII	28	6	5	840	840	
	TOTAL						16160
XY-CD	IV	50	30	5	7500	7500	
	V	50	20	5	5000	5000	
	VI	45	10	5	2250	2250	
	TOTAL						14750
XY-EF	IV	28	13	5	1820	1820	
	TOTAL						1820
X1Y1-GH	I	46	12	2	1104		1104
	II	40	7	5	1400	1400	
	TOTAL						1400	1104
GRAND TOTAL						34130	1104

The Available mineable reserves have been computed as **34,130m³** of Rough stone and **1104m³** of Gravel Formation at the rate of 100% recovery upto depth of 32m below the ground level for a period of Five years.

4.0 Mining.**4.1 Method of mining (opencast / underground).**

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

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

4.2 Mode of working (mechanized, semi-mechanized, manual).

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

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

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

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

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

4.3 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.

4.4 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 formation, the Gravel will be directly loaded into tippers for the filling and leveling 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 tipper to the needy customers.

The Composite plan, Development plan and section indicating the Pit lay out, Green belt development are shown in Plate No-III.

Year wise development and Production table

Table-4

YEARWISE PRODUCTION DETAILS								
Year	Section	Bench	Length in m	Width in m	Depth in m	Volume in m ³	Recoverable Reserves of Rough stone in m ³	Gravel in m ³
I-YEAR	XY-AB	IV	38	36	5	6840	6840	
		TOTAL						6840
II-YEAR	XY-CD	IV	5	36	5	900	900	
		IV	40	30	5	6000	6000	
		TOTAL						6900
III-YEAR	XY-EF	IV	10	30	5	1500	1500	
		IV	28	13	5	1820	1820	
	XY-CD	V	35	20	5	3500	3500	
		TOTAL						6820
IV-YEAR	XY-AB	V	15	20	5	1500	1500	
		V	38	26	5	4940	4940	
		TOTAL						6440
V-YEAR	XY-CD	VI	33	16	5	2640	2640	
		VII	28	6	5	840	840	
	XY-CD	VI	45	10	5	2250	2250	
	X1Y1-GH	I	46	12	2	1104		1104
		II	40	7	5	1400	1400	
	TOTAL						7130	1104
GRAND TOTAL						34130	1104	

The Recoverable Reserves have been computed as **34,130m³** of Rough stone and **1104m³** of Gravel.

4.5 Machineries to be used.

a) For Mining

It is a fresh lease (the area has been quarrying earlier during previous lease period),

1. Excavator of 0.90Cbm bucket capacity (with Rock breaker attachment).
2. Tractor mounted compressor attached with Jackhammer (2 jack hammer capacity).

b) Loading Equipment

The quarried out Rough stone will be loaded with the help of hired excavator.

[Signature]
ASSISTANT DIRECTOR
DEPARTMENT OF GEOLOGY &
COIMBATORE DISTRICT

c) 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 10/20Tons capacity tippers.

4.6 Disposal of Overburden/Waste

The overburden in the form of Gravel formation, 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. The excavated rough stone will be directly loaded into tipper to the needy customers.

4.7 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 five years, the ultimate pit limit (dimension) at the end of lease period is given below.

Table-5

Description	Length (Max) (m)	Width (Avg) (m)	Depth (Max) (m)
Pit-I	129	44	32m
Pit-II	64	12	7m

Afforestation has proposed on the 7.5m safety barrier by planting neem 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 Norms. Please refer plat No.III & IV.

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



5.0 BLASTING

5.1 Blasting pattern

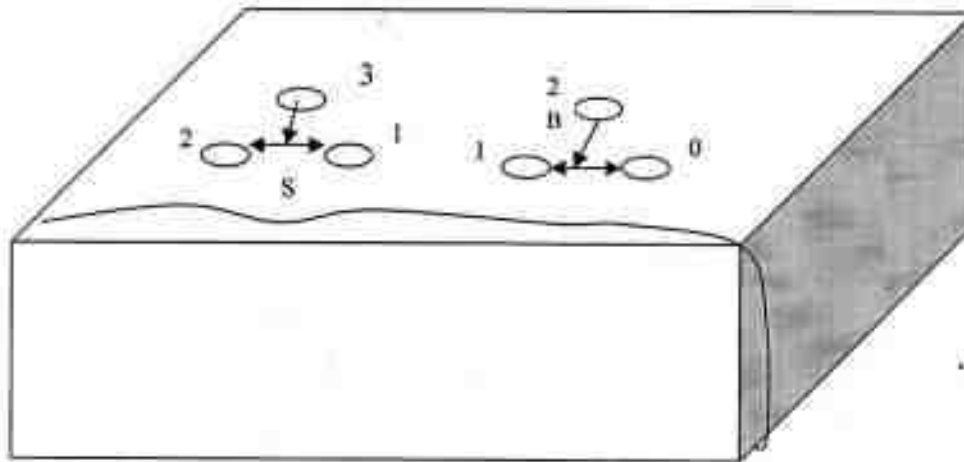
The quarrying operation is proposed to be carried out by Semi Mechanized Opencast Method in conjunction with conventional method of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone.

Drilling and Blasting pattern

Drilling and blasting parameters are as follows

- Depth of Each hole : 1.2m-1.5m
- Diameter of hole : 30-32mm
- Spacing between holes : 0.5m
- Burden for hole : 0.5m
- Pattern of hole : Zigzag
- Inclination of holes : 80° from horizontal
- Use of delay detonators : 25millisecond delays.
- Detonating fuse : "Detonating" Cord
- Hole pattern : Staggered in two to three rows

BLASTING PATTERN DRAWING



- Spacing (S) : 0.5m
- Burden (B) : 0.5m
- Delay Detonators : 0,1,2 ...

5.2 Type of explosives to be used

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



5.3 Measures proposed to minimize ground vibration due to blasting

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

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

Delay detonators

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

The major advantage 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	= 22Holes
Yield	= 66Tons
Powder factor	= 6 tons/Kg of explosives
Total explosive required	= 11Kg-Slurryexplosives
Charge/ hole	= 0.5 Kg
Blasted at day time	= 5-6p.m.(whenever required)

5.4 Storage and safety measures to be taken while blasting

They 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 will have experienced blaster. He will explode in the quarry site. After the completion of Blasting the explosives Agencies will take it out back the remaining quantity of Explosives. Magazine is available at the quarry site to temporarily store the explosives.



6.0 Mine Drainage

6.1 Depth of water table (based on nearby wells and water bodies).

The water table in the area is 60m BGL in summer season and 57m in Rainy season which is observed from the nearby wells and the data obtained from existing Government and private boreholes.

Table -6

S.No	Type	Distance & Direction	Location
1	Bore Well	500m SE side	11°14'35.04"N 76°58'58.13"E

Hence the ground water will not be affected in any manner due to the quarrying operation during the entire life period.

6.2 Arrangements and places where the mine water is finally proposed to be discharged.

Quarry operations are confined well above the water table during the entire lease period.

If water is encountered at due to rain water and seepage, the same will be pumped out by 5HP water pumps to the afforestation and Green belt development areas. Besides the water will also be used for dust suppression on haul roads during Haulage of machineries.

7.0 OTHER PERMANENT STRUCTURES (also shown in the map)

7.1 Habitations/ Villages natham.

There is no houses within the radius of 300m from the periphery of the lease applied area.

7.2 Power Lines (HT/LT)

There is no LT/ HT line within the radius of 50m from the periphery of the quarry site.

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

Odal present in the 200m Radius of the Western Side. No major other water bodies like river, pond, lake odai etc., water bodies within the radius of 500m.

7.4 Archaeological / historical monuments.

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

7.5 Road (NH, SH others)

The nearest National Highway (NH - 67) Coimbatore- Nagapattinam is about 2.5Km from the South Western side of the area.

The State Highway (SH-168) Karamadal- Kariampalayam is 1.5Km from the South Western side of the area.

7.6 Places of worships.

There is no places of worships within the radius of 500m.

7.7 Reserved forest / forest / social forest / wild life sanctuary etc.

There is no Reserved forest / forest / social forest / wild life sanctuary etc., within radius of 500m.

SALIENT FEATURES

S. No.	Salient Features Present around site	Prescribed safety distance	Actual Distance from the site															
1.	Railways, Highways, Reservoirs or Canal	50m	Railway line - 2.5Km (Coimbatore- Mettupalayam) South Western side. Highways- National Highway (NH-67) Coimbatore- Nagapattinam 2.5Km from South Western side of area. Reservoir - No reservoir within 10Km radius. Canal- No canals within 1Km Radius.															
2.	Village Road	10m	Ranga Nagar village road is 150m from the Eastern side of the area.															
3.	Habitation / Village	300m	There is no houses within the radius of 500m. Actual distance are clearly marked in the Plate No I-B.															
			<table border="1"> <thead> <tr> <th>S.No</th> <th>Name of the Village</th> <th>Approximate distance & Direction from lease applied area</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Mongampalayam</td> <td>2.0Km - NE</td> </tr> <tr> <td>2.</td> <td>Chikkarampalayam</td> <td>2.0Km - SE</td> </tr> <tr> <td>3.</td> <td>Karamadal</td> <td>3.0Km - SW</td> </tr> <tr> <td>4.</td> <td>Chinna Thottipalayam</td> <td>2.0Km - NW</td> </tr> </tbody> </table>	S.No	Name of the Village	Approximate distance & Direction from lease applied area	1.	Mongampalayam	2.0Km - NE	2.	Chikkarampalayam	2.0Km - SE	3.	Karamadal	3.0Km - SW	4.	Chinna Thottipalayam	2.0Km - NW
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3.	Karamadal	3.0Km - SW																
4.	Chinna Thottipalayam	2.0Km - NW																
4.	Adjacent Patta Land		North -S.F.No. 77/1,77/1A East -S.F.No. 77/2B, 2F, 2C, 2D(P) South - S.F.No. 77/2E West -S.F.No. 421 7.5m safety distance has been maintained from the patta land.															

5.	Housing area, EB line (HT & LT Line)	50m	There is no houses within the radius of 300m. LT Line. There is no LT Line within the radius of 50m.															
6.	Boundaries of the permitted area	7.5m & 10m	The boundaries of the permitted areas is as follows <table border="1"> <thead> <tr> <th>Direction</th> <th>S.F.No</th> <th>Classification</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>77/1,77/1A</td> <td>Patta Land</td> </tr> <tr> <td>East</td> <td>77/2B, 2F, 2C,2D(P)</td> <td>Patta land</td> </tr> <tr> <td>South</td> <td>77/2E</td> <td>Patta land</td> </tr> <tr> <td>West</td> <td>42I</td> <td>Patta land</td> </tr> </tbody> </table>	Direction	S.F.No	Classification	North	77/1,77/1A	Patta Land	East	77/2B, 2F, 2C,2D(P)	Patta land	South	77/2E	Patta land	West	42I	Patta land
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South	77/2E	Patta land																
West	42I	Patta land																
7.	Reserve forest / protected area / ECO sensitive area	10Km	No reserved forest within the radius of 10Km.															

8. EMPLOYMENT POTENTIAL & WELFARE MEASURES

8.1 Employment potential (skilled, semi skilled, un skilled).

The following manpower are proposed to carry out the day-to-day quarrying activities 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/

Permit Mines Manager : 1

Jack hammer operator : 2

Excavator Operator : 1

Blaster/ mate : 1

b. Semi-skilled :

watchman : 1

c. Unskilled- helper : 5

Total : 11

Allowing 10% absenteeism the man power would be around 10, 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.

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8.2 Welfare Measures**a) Drinking Water**

Packaged drinking water is available from the nearby approved water vendors in KaramadaI which is about 3Km from the South Western side of the area, Drinking water shall be readily available at conveniently accessible points during the whole of the working shift.

b) Sanitary Facilities

Hygienic modern Sanitary facilities will be constructed with in the quarrying area as permanent structure and it will be maintained periodically.

c) First aid facility

First aid kits are kept in Mines office room, In case of such eventualities the victim will be given first aid immediately at the site and injured person will be taken to the hospital. Hospital is available at distance of 3Km South Western in KaramadaI the competent and Statutory foreman/ permit manager will be in charge of first aid.

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.

All the quarry workers will be provided with safety equipments like helmets, Mine Goggles, Ear plugs, Ear muffs, Dust mask, reflector jackets and Safety Shoes as personal protective device 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 induction will be given by qualified and experienced safety officer to all employees about the safe and systematic Rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically to carry out the quarrying operations scientifically to safe guard the men machinery and mineral and to create awareness of conventional opencast quarrying operations.

PART - B**9. ENVIRONMENT MANAGEMENT PLAN****9.1 Existing Land use pattern**

The quarry lease applied area exhibits almost plain topography. The area is a dry barren land devoid of Agriculture and Habitations. The land is not used for any specific vegetation.

LAND USE TABLE-7

Description	Present area in (Ha)	Area at the end of Lease period (Ha.)
Area under quarrying	0.45.0	0.50.0
Infrastructure	Nil	0.01.0
Roads	0.01.0	0.02.0
Green Belt	Nil	0.15.0
Unutilized	0.55.2	0.33.2
Grand Total	1.01.2	1.01.2

9.2 Water Regime

Ground water occurrence in this area is 60m depth. The quarrying operation is proposed upto a depth of 32m below the ground level, Hence the quarry operation will not be affected by the ground water.

9.3 Flora and Fauna:

There are no trees observed in the area. Thorny bushes, Neem and Palm are found in around the area. No plants of botanical interest or animals of zoological interest are noticed. There are no cultivation, plantation or agriculture found within the vicinity of the area.

9.4 Climatic Conditions

The area receives rainfall of about 900mm/per annum and the rainy season is mainly from Oct - Jan during North East, monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 23°C.

9.5 Human settlement

There is no houses within the radius of 300m, There are few villages located in this area within 5km radius, the approximate distance and population are given below.



Table - 8

S.No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Mongampalayam	2.0Km - NE	500
2.	Chikkarampalayam	2.0Km - SE	200
3.	Karamadaí	3.0Km - SW	1500
4.	Chinna Thottipalayam	2.0Km - NW	400

Basic human welfare Amenities such as Health Center, Schools, Communication Facilities, and Commercial Centers etc are available at Karamadaí located at a distance of 3km on the South Western side of the area.

9.6 Plan for air, dust suppression

The air quality will be affected by the Suspended Particulate Matter (SPM) this will be generated by the blasting, jack hammer drilling, Loading and unloading during the quarrying Rough stone quarry operation.

The following Mitigations measures will be carried out

- Mist Water spraying will be carried out by means of water sprinklers to suppress the dust emission in the Haul roads.
- Vegetations will be planted on the exposed surface.
- Avoiding spillages during the transportation.

Air quality will be monitored periodically as per Norms and Mitigation Measures will be carried out to prevent dust and Air propagation in to air. The estimated budget for dust suppression would be around **Rs 52,000/year**.

9.7 Plan for Noise level control.

The noise level increased due to the excavation, Drilling, Blasting and Transportation.

Engineering Noise control:

Noise will be created due to the usage of Machineries and Vehicles. The Noise will be controlled in the following manner.

- Selection of new low - noise equipments for the Rough stone quarry operation.
- Modifications of older equipments
- Implementation of effective preventive maintenance which reduces noise more than 50%.



Mining Plan for Rough Stone and Gravel Quarry

Chikkampalayam Village

- Developing Green belts which act as Acoustic barrier, Pollution absorbent and noise controller.
- The drivers will be strictly Inducted to move the vehicle during the transportation not exceed 40 km per hour.
- Sentries with flags & whistle will posted in village junction and populated area to control and regulate traffic.

Shallow holes of 32mm diameter and 1.5m depth will be drilled and conventional low power explosives such as Slurry Explosives, ordinary safety fuse only will be used for rough stone. Hence, ground vibration and noise pollution will be minimal and restricted within the quarry workings.

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.**

9.8 Environmental impact assessment statement describing impact of mining on the next five years.

The mining plan proposed is for a small production of Rough stone without involving deep hole drilling and heavy blasting. Such limited mining activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned, anyhow environmental impact studies will be conducted as per EIA notification issued by MoEF. It is B2 Category mine. The estimated budget would be around **Rs. 7,10,000/-**

9.9 Proposal for waste management

There is no waste in this Rough stone and gravel quarry operation.

9.10 Proposal for reclamation of land affected during mining activities and at the end of mining (refilling / fencing etc.)

In the mining plan only a maximum depth of 32m has been envisaged as workable depth for safe & economic mining during the lease period. After quarry reaches the ultimate depth 32m and the end of the lease period fencing will be constructed around the quarried pits to prevent inherent entry of the public and cattle. There is no proposal for reclamation and rehabilitation, the barbed wire fencing cost would be around **Rs.50,000/-**



9.11 Programme of afforestation (indicate extent, number, name of species to be afforested).

The 7.5m safety distance along the lease boundary has been identified to be utilized for afforestation. Appropriate native species of neem trees will be planted in a phased manner as described below.

Table - 9

Year	No. of trees proposed to be planted	Survival %	Area to be covered Sq.m	Name of the species	No. of trees expected to be grown
I	30	80%	300	Neem/ Casuarina	24
II	30	80%	300	Neem/ Casuarina	24
III	30	80%	300	Neem/ Casuarina	24
IV	30	80%	300	Neem/ Casuarina	24
V	30	80%	300	Neem/ Casuarina	24

Nearly 1500Sq.m area is proposed to use under afforestation by planting 30 Nos of neem/ Casuarina trees every year with an anticipated survival rate of 80%. (Please refer Plate No.III). The estimated budget for plantation and maintenance of Green belt development would be around **Rs. 30,000/-** for the period of five years.

9.12 Proposed financial estimate / budget for (EMP) environment management:

Budget Provision for the entire quarrying period.

Table -10

S, No	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year
1	Ambient air quality monitoring	6500	4	26000	52000
2	Noise level monitoring	250	4	1000	2000
3	Ground vibration monitoring	1000	2	2000	4000
4	Water sampling and analysis	9000	1	9000	18000
Total EMP Cost/ year					76,000

The EMP cost would be around **Rs 3,80,000/-** for the period of five years.

Project cost / investment

i)	Land cost	It is patta land, the present land cost is about Rs.2,00,000/Ha , hence the total land cost is calculated about Rs 2,02,400/-
ii)	Machinery to be used	Excavators attached with rock breaker (Rental Basis) = Rs. 15,00,000/- Tractor mounted compressor with jack Hammer and loose tools. = Rs. 6,00,000/-



		<p>Tipppers (10/20 Tons Capacity) 1 No = Rs 10,00,000/-</p>
iii)	Refilling / Fencing	<p>Fencing will be constructed around the quarry pit to prevent the inherent entry of public and cattles cost would be around Rs.50,000/-</p>
iv)	Laboureres shed	<p>Labour sheds will be constructed as semi permanent structure. The cost would be around Rs 50,000/-</p>
v)	Sanitary facility	<p>Adequate latrine and urinal accommodation shall be provided at conveniently accessible places the cost would be around Rs. 50,000/-</p>
vi)	Others items	<p>First aid room & accessories = Rs. 50,000/-</p>
vii)		<p>A. Fixed asset :- Land cost = Rs 2,02,400/- Labour shed = Rs 50,000/- First aid room and accessories = Rs 50,000/- Sanitary facilities = Rs 50,000/- Total Fixed asset = Rs 3,52,400/- B. Operational Cost :- Machinaries to be used = Rs 31,00,000/- Fencing cost = Rs 50,000/- Total operational cost =Rs. 31,50,000/-</p>
(a) Expenditure		
i)	Drinking water facility for the laborers	<p>Packaged drinking water is being provided for all the labours. Drinking water is readily available at conveniently accessible points during the whole of the working shift the cost would be around Rs.1,00,000/-</p>
ii)	Sanitary arrangement,	<p>The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around Rs.50,000/- for the entire period.</p>
iii)	Safety kits	<p>All the Safety kits such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided by the applicant own cost the cost would be around Rs. 50,000/-</p>



iv) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around Rs.1,00,000/-
v) Afforestation etc.	Afforestation program will be carried out in the boundary barrier the cost would be around Rs.30,000/- for the five year plan period.
Total Cost = RS. 3,30,000/-	

	<p>C. EMP Cost :- (Per year)</p> <p>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/-</p> <p>Total EMP Cost for the five year period is Rs. 3,80,000/-</p> <p>Total Expenditure and EMP cost (Including EMP Studies) = Rs. 7,10,000/-</p> <p>A+B+C=</p> <p>A. Fixed asset cost = Rs 3,52,400/- B. Operational cost = Rs 31,50,000/- C. EMP Cost = Rs 7,10,000/- Total Project Cost (A+B+C) = Rs 42,12,400/-</p> <p>The applicant ensures to involve corporate social responsibilities (CSR) like providing note books to nearby school, providing drinking water facilities to the nearby villages etc., at around 2.5% from the total project cost the cost would be around Rs.1,05,000/-</p> <p>Total Project cost = Rs. 42,12,400/- CSR Cost (2.5%) = Rs. 1,05,000/- Total cost = Rs. 43,17,400/-</p> <p>(The Total cost of the project including EMP Cost is Rupees Forty Three Lakhs Seventeen Thousand and Four Hundred Rupees only)</p>
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10. MINE CLOSURE PLAN

10.1 Steps proposed for phased restoration, reclamation of already mined out areas.

There is no proposal for back filling, reclamation and rehabilitation. The quarried pits after the end of the life of lease will be fenced to prevent inherent entry of public and cattles. After treating the water the same will be utilized for nearby agriculture purpose to the nearby agriculture lands.

10.2 Measures to be under taken on mine closure as per Act & Rules.

Measure will be taken as per Act & Rules, There is no proposal for back filling, reclamation and rehabilitation. The quarry pit will be fenced by barbed wire to prevent inherent entry of public and cattle.

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.

10.3 Mitigation Measure To Be Undertaken For Safety And Restoration / Reclamation Of The Already Mined Out Area.

Air quality: (Air quality will be degrade due to the drilling, blasting, mining operation and transportation).

Mitigation measures:

Drilling will be carried out by wet drilling mode to control the dust propagation into the air. Blasting will be carried out on limited scale. Mist Water spraying on haul road is proposed to prevent the dust propagation into the air. Air quality will be monitored periodically as per norms.

NOISE AND VIBRATION: (The noise will be formed due to the drilling, blasting, loading and movement of Machineries.

Mitigation measures :

The applicant proposed to carry out the plantation all along the boundary to prevent Noise besides wet drilling will be practiced to prevent dust. All the machineries will be maintained in good conditions as per RTO and TNPCC Norms to prevent Noise, Smoke and vibration.

**WATER REGIME :****Mitigation Measures :**

The quarry operation proposed upto a depth of 32m below the ground level for the five year period, the proposed depth is well above the water table (Summer in 60m and rainy seasons in 57m), hence the water table will not be affected in any..

The seepage and rain water will be drained out from the pit by the 5H.P motor pump and will be discharged through filter media to boundary barrier for afforestation and excess water will be sprayed on haul roads to prevent dust propagation in to the atmosphere. The rough stone quarry will not produce any harmful toxic effluence in the form of solid liquid or gas.

HUMAN HEALTH & SAFETY: Dust will be limited due to the mine operation.

All the labours has been provided with safety equipment's like helmet, Safety Goggles, Ear muff, Hand Glouse, safety jacket, safety belt, and Mine boots etc., at Applicant own cost, As per the specifications of Director of mines safety. The competent qualified person foreman/Permit Mines Manager will provide first aid and will take care of small & minor injuries. If any accident happens, the victim will be taken to the nearby hospital by the Applicant van which is always kept in the mines office. The hospital is about 3Km in Karamadai (SW).

Mining Plan for Rough Stone and Gravel Quarry

Chikkamalayam Village



11. ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

This Mining plan for Rough stone (Charnockite) and Gravel is prepared under rule 19 of Tamilnadu Minor Mineral concession rules, 1959 & as per amendment under rule 41 & 42. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied with, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Department.

Prepared by

A handwritten signature in black ink, appearing to read "S. Ilavarasan".

S. Ilavarasan, M.Sc.,
RQP/MAS/253/2013/A

Place : Salem
Date : 03.07.2017

A handwritten signature in black ink, appearing to read "H. R. R. R.".

**ASSISTANT DIRECTOR
DEPARTMENT OF GEOLOGY & MINING
COIMBATORE DISTRICT**



From

Thiru T N Hanumanth, I.A.S.,
District Collector,
Coimbatore District,
Coimbatore - 18.

To

Thiru S. Gnanasekaran,
S/o. Saamappa Gowder,
2/241, Kannampalayam,
Karamadai (Po),
Mettupalayam Taluk,
Coimbatore District.

R.C. 83/Mine/2017 Dated 22.06.2017

Re

Sub: **Mines & Minerals - Minor Mineral - Coimbatore District - Mettupalayam Taluk - Chikkarampalayam Village - over an extent of 1.012 hectares out of 1.040 hectares of patta land - Survey No. 772D (Part) - Application preferred by Thiru S. Gnanasekaran for quarrying Roughstone and gravel - precise area communicated - mining plan called for.** Reg.

- Ref:
1. Quarry lease application dated 30.01.2017 preferred by Thiru S. Gnanasekaran, S/o. Saamappa Gowder, 2/241, Kannampalayam, Karamadai (Po), Mettupalayam Taluk, Coimbatore District.
 2. This office letter even number dated 17.02.2017 addressed to the Revenue Divisional Officer, Coimbatore North.
 3. Revenue Divisional Officer, Coimbatore North Letter RC.No.8837/11775 dated 24.04.2017.
 4. Inspection report of the Assistant Director Geology and Mining Department dated 9.01.2017.
 5. G.O.Mc.No.104/2016 (Geo-1) Department dated 06.04.2016.

The quarry lease application preferred by Thiru S. Gnanasekaran, S/o. Saamappa Gowder, 2/241, Kannampalayam, Karamadai (Po), Mettupalayam Taluk, Coimbatore for the grant of quarry lease for quarrying rough stone and gravel over an extent of 1.012 hectares out of 1.040 hectares of patta land R.C.No. 772D (part) in Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District has been taken up for consideration under rule 16 of Tamil Nadu Minor Mineral Concession Rules, 1960 and the following precise area is considered for the grant of quarry lease for a period of 5 years with the conditions stipulated below:



Taluk	Village	SF.No	Extent (in hect.)	Area applied for (in Hect.)
Mettupalayam	Chikkarampalayam	77/2D (Part)	1.04.0	1.01.2
Total			1.04.0	1.01.2

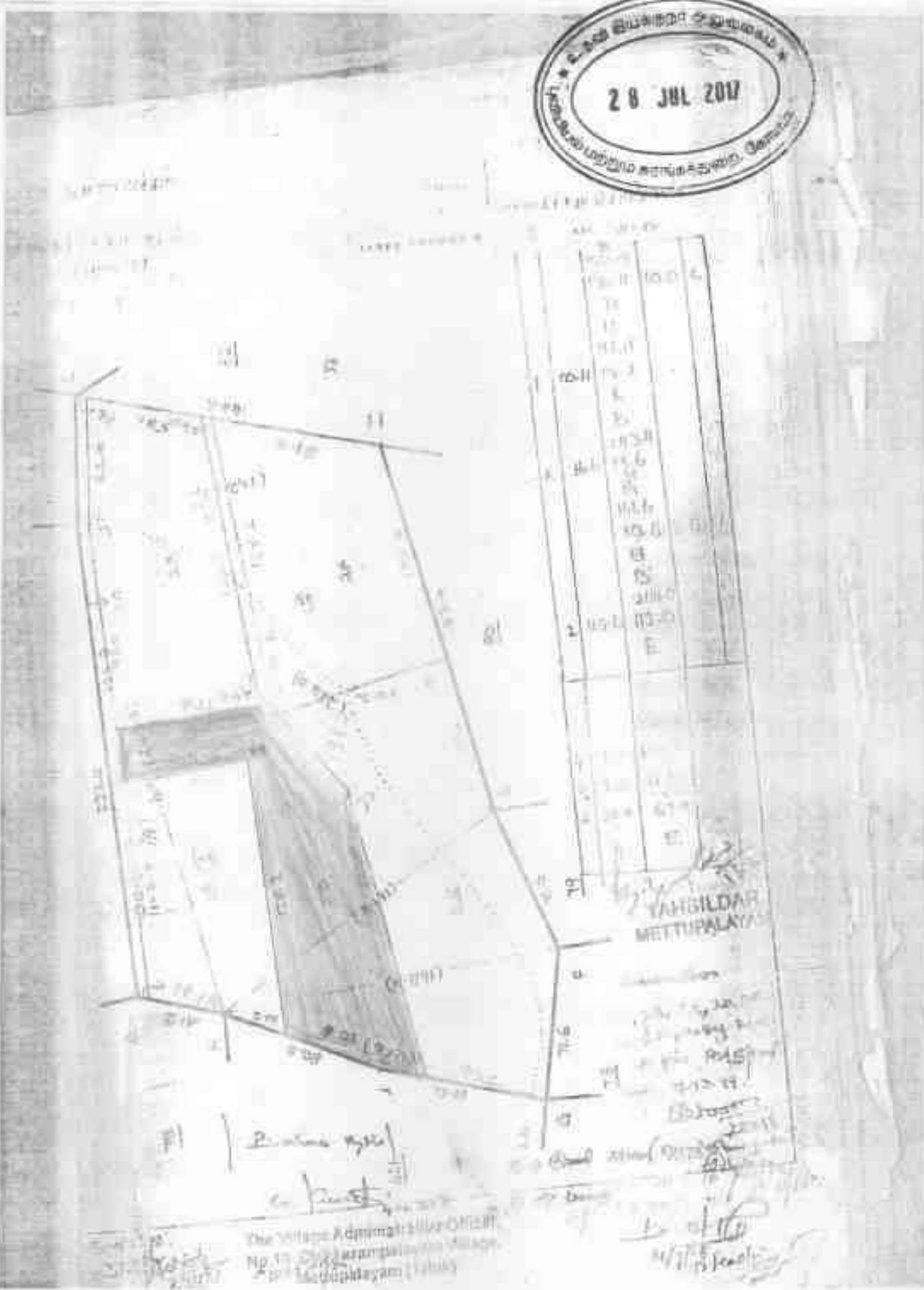
1. A safety distance of 10 meters should be provided for the approach road passing on the South and Eastern side of the applied area and a safety clearance of 7.5 meters should be provided all along the boundary of the area applied for lease.
2. While carry out construction, no clearance shall be given to the adjoining public road.
3. The applicant should fence the area with barbed wire before execution of lease deed.
4. Environmental clearance should be obtained from the District Level Environmental Impact Assessment Authority in respect of the subject area in per the orders of the Hon'ble Supreme court dated 27.02.2012 in IA No. 12-13/2011 in SLP (C) No. 19629/2009 and office memorandum No. 1.11011/47/2011, 1A II (M) dated 18.05.2012 of the Ministry of Environment and Forest.

In this regard you are directed to prepare a mining plan for the above mentioned area through the help of Recognized Qualified Person (RQP) and to submit the same before the Assistant Director for getting approval within a period of 30 days from the date of receipt of this letter as required under rule 41 of Karnataka Minor Mineral Concession Rules, 1959.

Sd/-
District Collector,
Chimbatore.

(True Copy By Order)

For District Collector,
Chimbatore.



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98	10.0	C
99	10.0	C
100	10.0	C

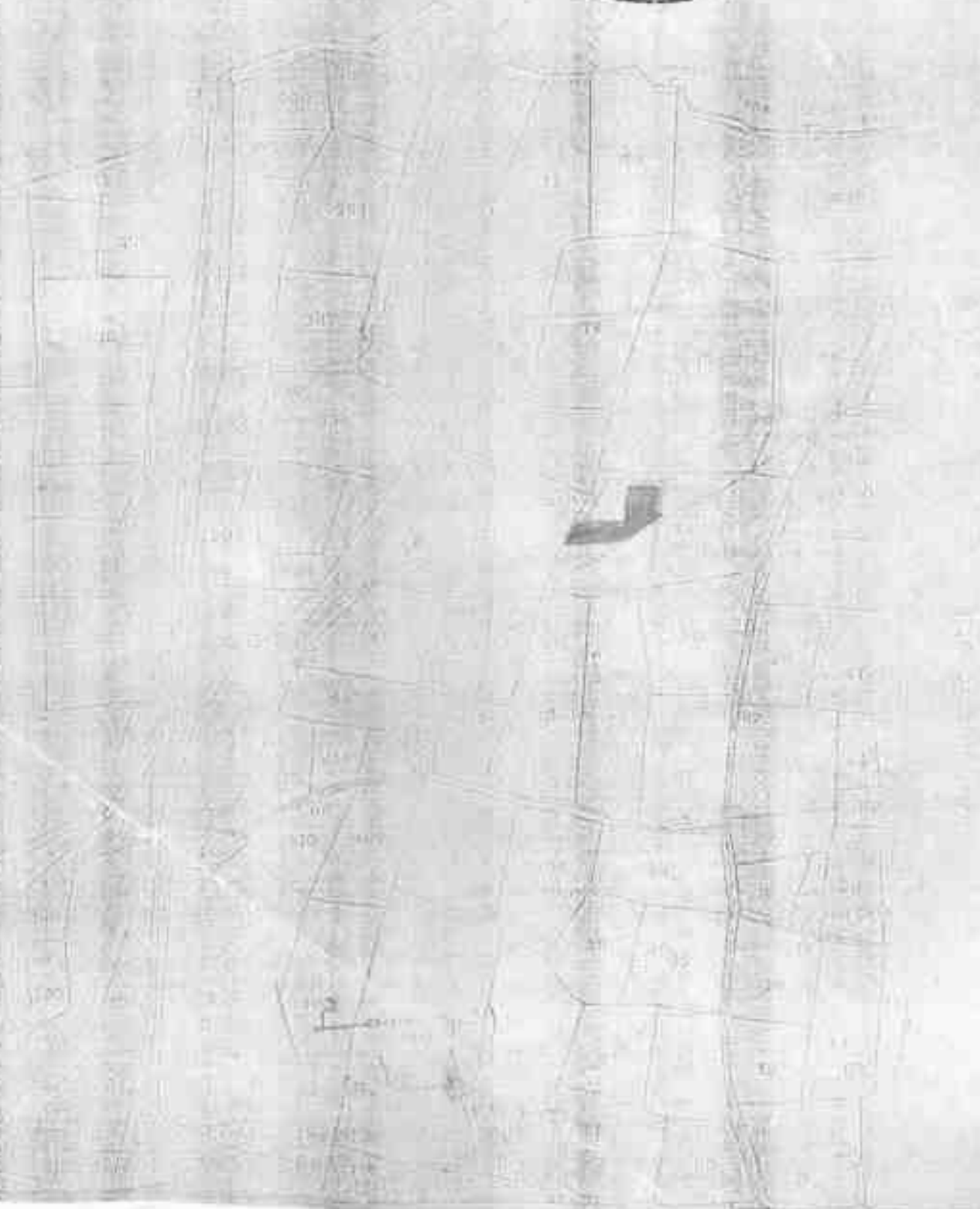
TAHSILDAR
METTUPALAYAM

The Village Administrative Officer,
No. 17, Changanallur Village,
Mettupalayam (Tamil)

LEASE APPLIED AREA

Handwritten text at the top of the page, possibly including a title or reference number.

ANNEXURE - III



LEASE APPLIED AREA 



தமிழ்நாடு அரசு
வருவாய்துறை

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

மாவுட்டம் : கோயம்புத்தூர்
மேட்டுப்பாளையம்
வருவாய் இராஜம் : கித்தாரப்பாளையம்
1711

வட்டம் :

பட்டினம் :

உரிமையாளர்கள் பெயர்

- | | | | |
|----|------------|--------|-------------|
| 1. | சாணசேகரன் | பாண்டி | சந்திரா |
| 2. | மகேந்திரன் | பாண்டி | (முத்துமணி) |

பெயர்	நகரம்		பகுதி		மொத்தம்	
	பெயர்	நகரம்	பெயர்	நகரம்	பெயர்	நகரம்
பெயர் : உயிரிவ தெரு - 8	பெயர் : 8	பெயர் : 8	பெயர் : 8	பெயர் : 8	பெயர் : 8	பெயர் : 8
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			1-4.00	2.00		

குறிப்பு 2 :



1. மேல்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் பின் பதிவேட்டில் பதிவு செய்து பெறப்பட்டவை. இவற்றை காண்க <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 17/04/019/01711/10950 என்ற குறியீடு வசதி உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
2. இது தகவல்கள் 10-01-2017 அன்று 12:40:22 PM நேரத்தில் அச்சிடப்பட்டது.
3. சைபர்செல் கோர்ட்டில் 2017-04-08 11:40:22 AM நேரத்தில் 3G: 0000000000000000 என்ற இணையதளத்தில் சரிபார்க்கவும்.

தமிழ்நாடு அரசு
வருவாய்துறை
கோயம்புத்தூர்



Table 2: Summary of the work done during the period from 01-01-2017 to 31-03-2017.

Sl. No.	Name of the person	Work done during the period					Total
		01-01-2017 to 31-01-2017	01-02-2017 to 31-02-2017	01-03-2017 to 31-03-2017	01-04-2017 to 31-04-2017	01-05-2017 to 31-05-2017	
1	Dr. M. S.	100
2	Dr.
3	Dr.
4	Dr.
5	Dr.
6	Dr.
7	Dr.
8	Dr.
9	Dr.
10	Dr.
11	Dr.
12	Dr.
13	Dr.
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20	Dr.
21	Dr.
22	Dr.
23	Dr.
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38	Dr.
39	Dr.
40	Dr.
41	Dr.
42	Dr.
43	Dr.
44	Dr.
45	Dr.
46	Dr.
47	Dr.
48	Dr.
49	Dr.
50	Dr.

Dr. ...
 Dr. ...
 28-7-2017

Table 3: Summary of the work done during the period from 01-01-2017 to 31-03-2017.

Sl. No.	Name of the person	Work done during the period					Total
		01-01-2017 to 31-01-2017	01-02-2017 to 31-02-2017	01-03-2017 to 31-03-2017	01-04-2017 to 31-04-2017	01-05-2017 to 31-05-2017	
1	Dr.
2	Dr.
3	Dr.
4	Dr.
5	Dr.
6	Dr.
7	Dr.
8	Dr.
9	Dr.
10	Dr.
11	Dr.
12	Dr.
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32	Dr.
33	Dr.
34	Dr.
35	Dr.
36	Dr.
37	Dr.
38	Dr.
39	Dr.
40	Dr.
41	Dr.
42	Dr.
43	Dr.
44	Dr.
45	Dr.
46	Dr.
47	Dr.
48	Dr. ...	...	...	...	...	...	...
49	Dr. ...	...	...	...	...	...	...
50	Dr. ...	...	...	...	...	...	...



ANNEXURE - VI

28 JUL 2017

அ-பதிவேடு விவரங்கள்

மாவட்டம் : கோயம்புத்தூர்
வட்டம் : மேட்டுப்பாளையம்
கிராமம் : சிக்காரம்பாளையம்

1. புல எண்	77	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	20	10. மண் தரம்	5
3. பழைய புல - உட்பிரிவு எண்	77	11. தீர்வை (ரூ - ஹெ)	2.00
4. பகுதி	P	12. பரப்பு (ஹெக்டொ - ள்)	1 - 4.00
5. அரக / ரயத்துவாரிரயத்துவாரி		13. மொத்த தீர்வை (ரூ - ள்)	2.08
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1711
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. திரு போகமா	-	16. பெயர்	1.சந்திரா 2.முத்தம்மாள்

குறிப்பு 1:



1. பெறகண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் பின் பதிவேட்டிலிருந்து பெறப்படலாம். இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 70950 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

बास रुपय

रु.20



Rs.20

TWO
RUPEES

INDIA NON JUDICIAL

சமீபம்: 272
 08/07/2017
 சமீபம்: 272
 08/07/2017

சந்திரா
 யிட குளசேசுவரன்
 2241 கண்ணாப்பாளையம்
 சி.கே.டி.பாளையம் (பு)
 சம்பலக் கட்டம்

S. Ganesha Srinivasan
 S. Ganesha Srinivasan 32AB 900/82

கேயம்புத்தூர் மாவட்டம், மேட்டுப்பாளையம் வட்டம், காரமலை அட்டை, 2241-கண்ணாப்பாளையம் என்ற முகவரியில் வசிக்கும் திரு. S. ஞானசேகரன் மனைவி திருமதி. S. சந்திரா ஆகிய நான் எனது கணவரும், மனுதாரருமான திரு. S. ஞானசேகரன் என்பவருக்கு வழங்குவதற்கும் சம்பலக் கட்டம் என்னவென்றால்,

கேயம்புத்தூர் மாவட்டம், மேட்டுப்பாளையம் வட்டம், சிக்காரம்பாளையம் கிராமம், பட்டா எண் 1711-ன் படி க.ச.எண் 77/2D காலையில் மொத்தம் 1.04.0 ஏக்கர்பேர் பரப்பளவு எனக்கு பாய்ந்தியப்பட்டது. மேற்படி காலையில் சாதாரணக்கல் மற்றும் மண் வெட்டி எடுக்க கோவை மாவட்ட ஆட்சியர் அவர்களால் குத்தகை ஒப்பந்தப்பத்திரம் நிறைவேற்றப்படும் நாளிலிருந்து கந்து ஆண்டுகளுக்கு சாதாரணக்கல் மற்றும் மண் வெட்டி எடுக்க எனது கணவரும், மனுதாரருமான திரு. S. ஞானசேகரன் என்பவருக்கு குத்தகை உரிமை வழங்க எவ்வித ஆட்சேபமும் இல்லை என்பதை இச்சம்பலக் கட்டத்தின் மூலம் தெரிவித்துக் கொள்கிறேன்.

இப்படிக்கு

G. Srinivasan



- தகவல்**
- ஆதார் அடையாளத்திற்கான சான்று குடியியலமைப்பு அடையாளம்.
 - அடையாள சான்ற இலையைதமிழ் மொழி உறுதிப்படுத்திக் கொள்ளலாம்.



உடர் - மூலம்/Enrollment No. : 2043/00910/09437

To
Gnanasekaran B
30241
KANNARAPELAKAM
KARNATAKA
CHIKKARAMEPELAKAM
Karnataka, Coimbatore
Tamil Nadu - 641104
0942204220



KH472513555FT
47300000



- INFORMATION**
- Aadhaar is proof of identity, not of citizenship.
 - To establish identity, authenticate online.

- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்.
- வருங்காலத்தில் அரசு மற்றும் அரசு சார்பு சேவைகளை பயன்படுத்திக் கொள்ள ஆதார் உதவியளிக்க இருக்கும்.
- Aadhaar is valid throughout the country.
- Aadhaar will be helpful in availing Government and Non-Government services in future.

உங்கள் ஆதார் எண் / Your Aadhaar No.

4171 8521 8213

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

கேள்விகளுக்கு மின்னஞ்சல் அனுப்பி
கேள்விகளுக்கு மின்னஞ்சல் அனுப்பி
www.aadhaar.gov.in

ஆ - 30241
www.aadhaar.gov.in
Kannaraapelakam, 30241,
Karnataka, Coimbatore,
Tamil Nadu - 641104

Address: B/O
Gnanasekaran B, 30241,
KANNARAPELAKAM,
KARNATAKA,
CHIKKARAMEPELAKAM,
Karnataka, Coimbatore,
Tamil Nadu, 641104

4171 8521 8213



Gnanasekaran B

DOB: 008/06/1977
பிறப்பு - 008/06/1977

4171 8521 8213



ஆதார் - சாதாரண மனிதனின் அதிகாரம்

भारत सरकार / GOVERNMENT OF INDIA
 खान मंत्रालय / MINISTRY OF MINES
 भारतीय खान ब्यूरो / INDIAN BUREAU OF MINES



S. S. S.

अर्हताप्राप्त व्यक्ति के रूप में मान्यता प्रमाण पत्र
 (खनिज रियायत नियमावली, 1960 के नियम 22सी के तहत)
CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON
 (Under Rule 22C of Mineral Concession Rules, 1960)

श्री एस. इलवरसन, पिता यू. सन्तानम, 7सी, मेट्टु स्ट्रट, बीमा नगर, तिरुची - 9, तमिलनाडु, जिनका फोटो और हस्ताक्षर ऊपर दिया हुआ है, तथा जिनहोंने अपनी अर्हता और अनुभव का संतोषजनक साक्ष्य दिया है, को खनन योजना तैयार करने हेतु खनिज रियायत नियमावली 1960 के नियम 22सी के तहत अर्हताप्राप्त व्यक्ति के रूप में मान्यता प्रदान की जाती है।

Shri S.Iyavarasan, S/o.U.Santhanam, 7C, Mettu Street, Beema Nagar, Tridhy -1, Tamilnadu, whose **Photograph and signature** is affixed herein above, having given satisfactory evidence of his qualifications & experience hereby **RECOGNISED** under Rule 22C of the Mineral Concession Rule, 1960 as a Qualified Person to prepare Mining Plans.

उनकी पंजीयन संख्या है
 His registration number is

RQP /MAS/253/2013/A

यह मान्यता 10 वर्षों की अवधि के लिए मान्यता है जो दिनांक 27.08.2023 को समाप्त होगी।
 This recognition is valid for a period of 10 years ending on 27.08.2023.

उनके द्वारा प्रस्तुत खनन योजना में गलत जानकारी / दस्तावेज पाए जाने की स्थिति में यह प्रमाण पत्र वापस लिया जाएगा / निरस्त किया जाएगा।

This certificate will liable to be withdrawn / cancelled in the event of furnishing the wrong information / documents in the Mining Plan submitted by him.

स्थान / Place : Chennai
 दिनांक / Date : 28.08.2013.

S. S. S.
 क्षेत्रीय खान नियंत्रक / Regional Controller of Mines
 भारतीय खान ब्यूरो / Indian Bureau of Mines
 चेन्नई क्षेत्र / Chennai Region

From
Dr.A. Kalaiselvan,
Joint Director /
Assistant Director(i/c),
Dept of Geology and Mining,
Coimbatore.

To
Thiru.S.Gnanasekaran,
S/o.Samappagowder,
No.2/241, Kannarpalayam,
Karamadai,
Coimbatore District.

Rc.No.328/Mines/2018, Dated: 18.02.2019

Sir,

Sub: Mines & Minerals - Minor Mineral - Coimbatore District - Mettupalayam Taluk - Chikkarampalayam Village - Survey No.74/2 - over an extent of 2.37.0 hectares of patta land - Application preferred by Thiru.S.Gnanasekaran for quarrying Roughstone and Gravel - Submission of mining plan for approval - Approved - Regarding.

- Ref: 1. Quarry lease application dated 14.06.2018 preferred by Thiru.S.Gnanasekaran, S/o.Samappagowder, No.2/241, Kannarpalayam, Karamadai, Coimbatore District.
2. District Collector, Coimbatore Letter Rc.No.328/Mines/2018, Dated: 11.01.2019.
3. Mining Plan submitted by Thiru. S.Gnanasekaran dated: 22.01.2019 received this office on 24.01.2019

In response to the precise area communicated by the District Collector, Coimbatore, the applicant Thiru.S.Gnanasekaran vide reference 3rd cited has submitted three copies of mining plan for the area applied for the grant of quarry lease for Roughstone and Gravel over an extent of 2.37.0hectares of patta land in Survey No. 74/2 of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.

2. The mining plan submitted for the grant of quarry lease for Roughstone and Gravel over an extent of 2.37.0 hectares of patta land in

Survey No. 74/2 of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District has been verified in detail.

3. As per the guidelines/ instructions issued by the Commissioner of Geology and Mining, Chennai vide letter Rc.No.3868/LC/2012, dated 19.11.2012, the mining plan is hereby approved, subject to the following conditions:

- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way imply the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Amended Act, 2015, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv) As per the District Collector, Coimbatore letter Rc.No.328/Mines/2018, Dated: 11.01.2019 the following conditions have been incorporated in the Mining Plan .
 - a) A safety distance of 7.5 meters should be provided for the adjacent patta land from the applied area.
- v) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws

are made by the Central Government, State Government or any other authority.

Encl: Two copy of Approved Mining Plan.

2. சுவாமிநாதன்
13.2.2015
Joint Director /
Assistant Director (i/c),
Dept. of Geology and Mining,
Coimbatore.

Copy submitted to:

The Director of Geology and Mining, Chennai-32.

Thiru.T.N. Hariharan I.A.S.,
CHAIRMAN/
DISTRICT COLLECTOR.

District Level Environment Impact
Assessment Authority - Coimbatore,
Second Floor,
Collectorate New Building,
Coimbatore - 641018.

ENVIRONMENTAL CLEARANCE

Lr.No.DEIAA - CBE - IV/F.No. 364/1(a&b)/ EC.No.32/2018 dated 04.10.2018

To

Tmt. R.Poorani,
W/o. R.Rajamani,
85/54, Kondasamy Naidu Nagar,
Karamadai Post,
Mettupalayam Taluk,
Coimbatore District.

Sir,

Sub: DEIAA - CBE - Proposed Roughstone & Gravel quarry located at S.F.No. 80/1 of Chickkarampalayam Village, Mettupalayam Taluk, Coimbatore District - **Tmt. R.Poorani** - Issue of Environmental Clearance - Reg.

- Ref: 1. Your application for Environmental Clearance dated 21.07.2018
2. Minutes of the 4th DEAC meeting held on 08.09.2018.
3. Minutes of the 4th DEIAA meeting held on 04.10.2018.

-oOo-

Details of Minor mineral Activity:-

This has reference to your application first cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of category 'B2' minor mineral based on the particulars furnished in your application as shown below:

1.	Name of Project Proponent and address	:	Tmt. R.Poorani, W/o. R.Rajamani, 85/54, Kondasamy Naidu Nagar, Karamadai Post, Mettupalayam Taluk, Coimbatore District.
2.	Location of the Proposed Activity	:	
	Survey Number	:	S.F.No. 80/1
	Latitude and Longitude	:	11°14'45.54"N to 11°14'48.39"N 76°58'52.31"E to 76°58'58.33"E


CHAIRMAN
DEIAA - CBE

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Village	:	Chikkarampalayam
Taluk	:	Mettupalayam
District	:	Coimbatore
3. Proposed Activity		
i. Minor Mineral	:	Roughstone & Gravel
ii. Quarrying Lease Area	:	1.27.0Ha.
iii. Approved quantity	:	Roughstone = 77355 cu.m Gravel = 7068 cu.m
iv. Depth of quarrying	:	42m
v. Type of quarrying	:	Open cast, Mechanised
vi. Category (B1/ B2)	:	"B2" category.
vii. Precise Area Communication	:	District Collector, Coimbatore Letter No. 364/Mines/2017 Dated. 05.07.2018
viii. Mining Plan approval	:	Joint Director / Assistant Director (i/c) of Geology and Mining, Coimbatore letter Rc.No. 364/Mines/2018 Dated 18.07.2018
ix. Quarrying lease period	:	Rough Stone - 5 Years Gravel - 3 Years
4. Whether Project area attracts any general conditions specified in the EIA notification, 2006 as amended:-	:	Not attracted. Affidavit furnished.
5. Man power requirement per day:	:	18 Nos.
6. Utilities		
i. Source of Water	:	Water vendors
ii. Water requirement ⁷	:	
1. Drinking & domestic purposes (in KLD)		0.2 KLD
2. Dust suppression (in KLD)		0.4 KLD
3. Green Belt (in KLD)		0.4 KLD
iii. Power requirement	:	Fuel is used for operating machineries and vehicles during quarrying process and electricity will be used only for mine office.
a. Domestic purposes		
b. Industrial Purpose		

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DEIAA - CBE

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7.	Cost	
i.	Project cost	: Rs.37,01,550/-
ii.	EMP cost	: Rs.3,80,000/-
8.	Public Consultation	: Not required as per O.M. dated 24.12.2013 of MoEF, GOI
9.	Date of Appraisal by DEAC: Agenda No.	: 08.09.2018 IV - 18
10.	Date of review / discussion by DEIAA and the Remarks:- The proposal was placed before the DEIAA in its 4 th DEIAA meeting held on 04.10.2018 and the Authority after careful consideration, decided to grant Environmental Clearance to the said project Mining of "Roughstone & Gravel" subject to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.	
11.	Validity: This Environmental Clearance is granted to quarrying of "Roughstone & Gravel" for the production quantity of 77,355 cu.m of Rough Stone for the period of "five years" and 7,068 cu.m of Gravel for the period of "three years" from the date of execution of the quarry lease deed.	

Conditions to be Complied before / during commencing quarrying operations:-

- 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
 - The project has been accorded Environmental Clearance.
 - Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
 - Environmental Clearance may also be seen on the website of the District Level Environment Impact Assessment Authority.
 - 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 DEIAA.
- The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
- NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
- The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Mineral Concession Rules, 1959.
- 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.


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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 7 AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 15 mts. from any civil structure shall be kept from the periphery of any excavation area.
14. Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.
15. 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.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
19. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
20. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
21. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
22. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - (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.
23. 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.


 CHAIRMAN
 DEIAA - CBE

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24. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, Govt to control noise to the prescribed levels.
 25. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with the Regional Director, CGWP suitable measures should be taken for rainwater harvesting.
 26. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
 27. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
 28. The following measures are to be adopted to control erosion of dumps:-
 - (i) Retention/ toe walls shall be provided at the foot of the dumps.
 - (ii) Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
 29. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
 30. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
 31. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
 32. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the (lease area and only the overflow after allowing setting of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
 33. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the ground water table is getting depleted due to the quarrying activity; necessary corrective measures shall be carried out. The Assistant Director Ground water Division, PWD Salem shall monitor, the ground water related issues.
 34. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
 35. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic institution.
 36. Ground water quality monitoring should be conducted once in 3 Months.
 37. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.


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38. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI
39. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
40. Bunds to be provided at the boundary of the project site.
41. 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 and progress report shall be submitted once in 3 months.
42. At least 10 Neem trees should be planted around the boundary of the quarry site.
43. Floor of excavated pit to be leveled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
44. The Project Proponent shall ensure a minimum of 2.5 of the annual turnover will be utilized for the CSR Activity
45. The CSR funds should be channelized for planning programme, nature conservation support, tribal development and activities that support forest and environment.
46. The Project Proponent shall provide solar lighting system to the nearby villages
47. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
48. Rainwater shall be pumped out Via Settling Tank only.
49. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
50. As per MoEF & CC, GoI, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from standing committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.
51. 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.
52. Safety equipments to be provided to all the employees.
53. Safety distance of 50 m has to be provided in case of railway, reservoir, canal/odai
54. The Assistant / Deputy Director, Department of Geology and Mining shall ensure that the proponent has engaged the blaster with valid Blasting license / certificate obtained from the competent authority before execution of mining lease.
55. 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.
56. 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 quarrying lease.
57. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh case before commencing quarrying operation.


 CHAIRMAN
 DEIAA - CBE

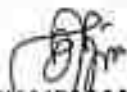
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58. The proponent has to display the name board at the quarry site showing the details of proponent, leased period, extent etc., with respect to the existing activity before execution of mining.
59. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
60. The proponent shall ensure that project activity including blasting, mining transportation etc., should in no way in adverse impact to the forests, such as reserve forest and social forests, tree plantation and bio diversity, surrounding water bodies etc.,
61. The environmental norms shall be adhered by the Project Proponent and shall furnish a report periodically to the authority concerned.
62. Ground Water Level and quality shall be monitored by the Assistant Director, Public Works Department (WRO), Salem.
63. NOC for sanitary certificate obtained from the Deputy Director of Health Services, Salem should be submitted by the proponent.
64. Periodical medical examination of the quarry workers should be carried out by a registered medical practitioner and the report should be filed in the quarry office in a separate file and copy should be sent to the Health Department.
65. Machinery equipments friction / wear and cost of things have to be monitored then and there alongwith maintenance.
66. Staff secure will be maintained by the proponent as per labour act and rules in force.
67. Proper bench should be maintained by the proponent as per norms. proper safety measures should be provided by the proponent while quarrying.

B. General Conditions:

- 1) EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
- 2) The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
- 3) No change in mining technology and scope of working should be made without prior approval of the DEIAA, Salem District, Tamil Nadu.
- 4) No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
- 5) Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- 6) Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
- 7) A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
- 8) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.


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- 9) Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying them mineral shall not be overloaded.
- 10) Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
- 11) All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
- 12) Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
- 13) Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
- 14) The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
- 15) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
- 16) The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
- 17) This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.
- 18) The DEIAA, Salem District may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
- 19) The DEIAA, Salem District 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 DEIAA Salem District that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
- 20) Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
- 21) The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.


 CHAIRMAN
 DEIAA - CBE

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- 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 proponent has to provide / maintain proper bench formation during mining operation.


 CHAIRMAN, DEIAA - CBE/
 DISTRICT COLLECTOR,
 COIMBATORE

Copy to:-

- 2/6*
4/12/19
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4/12/19
1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi
 2. The Principal Secretary, Environment and Forest Department, Government of Tamil Nadu, Tamil Nadu.
 3. The Principal Secretary to Government, Industries Department, Government of Tamil Nadu, Tamil Nadu.
 4. The Additional Principal Chief Conservator of Forests, Regional Office (S2), 34, HEPC Building 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai-34.
 5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex East Arjun Nagar, New Delhi 110 032.
 6. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
 7. The Member Secretary, State Level Environmental Impact Assessment Authority, Tamil Nadu, 3rd Floor, Panagal maalgai, No. 1 Jeenis Road, Saldapet, Chennai-15.
 8. The Director of Geology and Mining, Guindy, Chennai-32.
 9. E1 Division, Ministry of Environment and Forests Paryavaran Bhawan, New Delhi.
 10. Spare.

Thiru.T.N. Hariharan I.A.S.,
CHAIRMAN/
DISTRICT COLLECTOR.

District Level Environment Impact
Assessment Authority - Coimbatore,
Second Floor,
Collectorate New Building,
Coimbatore - 641018.

ENVIRONMENTAL CLEARANCE

Lr.No.DEIAA - CBE - IV/F.No.364/1(a&b)/ EC.No.32/2018 dated 04.10.2018

To

Tmt. R.Poorani,
W/o. R.Rajamani,
85/54, Kondasamy Naidu Nagar,
Karamadai Post,
Mettupalayam Taluk,
Coimbatore District.

Sir,

Sub: DEIAA - CBE - Proposed Roughstone & Gravel quarry located at S.F.No. 80/1 of Chickkarampalayam Village, Mettupalayam Taluk, Coimbatore District - **Tmt. R.Poorani** - Issue of Environmental Clearance - Reg.

- Ref: 1. Your application for Environmental Clearance dated 21.07.2018
2. Minutes of the 4th DEAC meeting held on 08.09.2018.
3. Minutes of the 4th DEIAA meeting held on 04.10.2018.

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Details of Minor mineral Activity:-

This has reference to your application first cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of category 'B2' minor mineral based on the particulars furnished in your application as shown below;

1.	Name of Project Proponent and address	:	Tmt. R.Poorani, W/o. R.Rajamani, 85/54, Kondasamy Naidu Nagar, Karamadai Post, Mettupalayam Taluk, Coimbatore District.
2.	Location of the Proposed Activity		
	Survey Number	:	S.F.No. 80/1
	Latitude and Longitude	:	11°14'45.54"N to 11°14'48.39"N 76°58'52.31"E to 76°58'58.33"E


CHAIRMAN
DEIAA - CBE

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Village	:	Chilkarampalayam
Taluk	:	Mettupalayam
District	:	Coimbatore
3. Proposed Activity		
i. Minor Mineral	:	Roughstone & Gravel
ii. Quarrying Lease Area	:	1.27.0Ha.
iii. Approved quantity	:	Roughstone = 77355 cu.m Gravel = 7068 cu.m
iv. Depth of quarrying	:	42m
v. Type of quarrying	:	Open cast, Mechanised
vi. Category (B1/ B2)	:	"B2" category.
vii. Precise Area Communication	:	District Collector, Coimbatore Letter No. 364/Mines/2017 Dated 05.07.2018
viii. Mining Plan approval	:	Joint Director / Assistant Director (i/c) of Geology and Mining, Coimbatore letter Rc.No. 364/Mines/2018 Dated 18.07.2018
ix. Quarrying lease period	:	Rough Stone - 5 Years Gravel - 3 Years
4. Whether Project area attracts any general conditions specified in the EIA notification, 2006 as amended:-	:	Not attracted. Affidavit furnished.
5. Man power requirement per day:	:	18 Nos.
6. Utilities		
i. Source of Water	:	Water vendors
ii. Water requirement"	:	
1. Drinking & domestic purposes (in KLD)		0.2 KLD
2. Dust suppression (in KLD)		0.4 KLD
3. Green Belt (in KLD)		0.4 KLD
iii. Power requirement:	:	
a. Domestic purposes		
b. Industrial Purpose		
	:	Fuel is used for operating machineries and vehicles during quarrying process and electricity will be used only for mine office.

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DEIAA - CBE

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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 7 AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 15 mts. from any civil structure shall be kept from the periphery of any excavation area.
14. Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.
15. 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
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
19. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
20. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
21. The Proponent shall take appropriate measures to ensure that the G.C shall comply with the revised NAAQ norms notified by MoEF, Govt on 16.11.2009.
22. 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.
23. 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.


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7.	Cost	
i.	Project cost	: Rs.37,01,550/-
ii.	EMP cost	: Rs.3,00,000/-
8.	Public Consultation	: Not required as per O.M. dated 24.12.2013 of MoEF, GOI
9.	Date of Appraisal by DEAC: Agenda No.	: 08.09.2018 IV - 18
10.	Date of review / discussion by DEIAA and the Remarks:- The proposal was placed before the DEIAA in its 4 th DEIAA meeting held on 04.10.2018 and the Authority after careful consideration, decided to grant Environmental Clearance to the said project Mining of "Roughstone & Gravel" subject to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.	
11.	Validity: This Environmental Clearance is granted to quarrying of "Roughstone & Gravel" for the production quantity of 77,355 cu.m of Rough Stone for the period of "five years" and 7,068 cu.m of Gravel for the period of "three years" from the date of execution of the quarry lease deed.	

Conditions to be Complied before / during commencing quarrying operations:-

- 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
 - The project has been accorded Environmental Clearance.
 - Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
 - Environmental Clearance may also be seen on the website of the District Level Environment Impact Assessment Authority.
 - 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 DEIAA.
- The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
- NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
- The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Mineral Concession Rules, 1959.
- 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.


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24. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, GoI to control noise to the prescribed levels.
25. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with the Regional Director, CGWP suitable measures should be taken for rainwater harvesting.
26. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
27. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
28. The following measures are to be adopted to control erosion of dumps:-
 - (i). Retention/ toe walls shall be provided at the foot of the dumps.
 - (ii). Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
29. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
30. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
31. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
32. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the (lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
33. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the ground water table is getting depleted due to the quarrying activity; necessary corrective measures shall be carried out. The Assistant Director Ground water Division, PWD Salem shall monitor, the ground water related issues.
34. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
35. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
36. Ground water quality monitoring should be conducted once in 3 Months.
37. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.


 CHAIRMAN
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38. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI
39. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
40. Bunds to be provided at the boundary of the project site.
41. 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 and progress report shall be submitted once in 3 months.
42. At least 10 Neem trees should be planted around the boundary of the quarry site.
43. Floor of excavated pit to be leveled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
44. The Project Proponent shall ensure a minimum of 2.5 of the annual turnover will be utilized for the CSR Activity
45. The CSR funds should be channelized for planning programme, nature conservation support, tribal development and activities that support forest and environment.
46. The Project Proponent shall provide solar lighting system to the nearby villages
47. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
48. Rainwater shall be pumped out Via Settling Tank only.
49. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
50. As per MoEF & CC, GoI, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from standing committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, the project site is located within 10KM from National Park and Sanctuaries.
51. 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.
52. Safety equipments to be provided to all the employees.
53. Safety distance of 50 m has to be provided in case of railway, reservoir, canal/odai
54. The Assistant / Deputy Director, Department of Geology and Mining shall ensure that the proponent has engaged the blaster with valid Blasting license / certificate obtained from the competent authority before execution of mining lease.
55. 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.
56. 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 quarrying lease.
57. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh case before commencing quarrying operation.


 CHAIRMAN
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58. The proponent has to display the name board at the quarry site showing the details of proponent, leased period, extent etc., with respect to the existing activity before execution of mining.
59. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
60. The proponent shall ensure that project activity including blasting, mining transportation etc., should in no way in adverse impact to the forests, such as reserve forest and social forests, tree plantation and bio diversity, surrounding water bodies etc.,
61. The environmental norms shall be adhered by the Project Proponent and shall furnish a report periodically to the authority concerned.
62. Ground Water Level and quality shall be monitored by the Assistant Director, Public Works Department (WRO), Salem.
63. NOC for sanitary certificate obtained from the Deputy Director of Health Services, Salem should be submitted by the proponent.
64. Periodical medical examination of the quarry workers should be carried out by a registered medical practitioner and the report should be filed in the quarry office in a separate file and copy should be sent to the Health Department.
65. Machinery equipments friction / wear and cost of things have to be monitored then and there alongwith maintenance.
66. Staff secure will be maintained by the proponent as per labour act and rules in force.
67. Proper bench should be maintained by the proponent as per norms. proper safety measures should be provided by the proponent while quarrying.

B. General Conditions:

- 1) EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
- 2) The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
- 3) No change in mining technology and scope of working should be made without prior approval of the DEIAA, Salem District, Tamil Nadu.
- 4) No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
- 5) Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- 6) Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
- 7) A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
- 8) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.


 CHAIRMAN
 DEIAA - CBE

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- 9) Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying them mineral shall not be overloaded.
- 10) Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
- 11) All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
- 12) Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
- 13) Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
- 14) The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
- 15) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
- 16) The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
- 17) This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.
- 18) The DEIAA, Salem District may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
- 19) The DEIAA, Salem District 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 DEIAA Salem District that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
- 20) Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
- 21) The above conditions will be enforced Inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

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 CHAIRMAN
 DEIAA - CBE

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- (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 proponent has to provide / maintain proper bench formation during mining operation.


 CHAIRMAN, DEIAA - CBE/
 DISTRICT COLLECTOR,
 COIMBATORE.

Copy to:-

- 26
4/12/19
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2/10/19
1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi
 2. The Principal Secretary, Environment and Forest Department, Government of Tamil Nadu, Tamil Nadu.
 3. The Principal Secretary to Government, Industries Department, Government of Tamil Nadu, Tamil Nadu.
 4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building 1st & 2nd Floor, Cathedral Garden Road, Nungambakam, Chennai-34.
 5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex East Arjun Nagar, New Delhi 110 032.
 6. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Saifai, Guindy, Chennai-600 032.
 7. The Member Secretary, State Level Environmental Impact Assessment Authority, Tamil Nadu, 3rd Floor, Panagal maalgai, No. 1 Jeenis Road, Saidapet, Chennai-15.
 8. The Director of Geology and Mining, Guindy, Chennai-32.
 9. E1 Division, Ministry of Environment and Forests Paryavaran Bhawan, New Delhi.
 10. Spare.

Thiru.T.N. Hariharan I.A.S.,
CHAIRMAN/
DISTRICT COLLECTOR.

District Level Environment Impact
Assessment Authority - Coimbatore,
Second Floor,
Collectorate New Building,
Coimbatore - 641018.

ENVIRONMENTAL CLEARANCE

Lr.No.DEIAA - CBE - IV/F.No. 1544/1(a)/ EC.No31/2018 dated 04.10.2018

To

Tmt. T. Kaveriammal Thangavelu,
W/o. Thangavelu,
24/11, Bellathi road,
Karamadai,
Coimbatore District.

Sir,

Sub: DEIAA - CBE - Proposed **Roughstone** quarry located at S.F.No. 77/2B(P) of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District - **Tmt. T. Kaveriammal Thangavelu** - Issue of Environmental Clearance - Reg.

- Ref: 1. Your application for Environmental Clearance dated 21.07.2018
2. Minutes of the 4th DEAC meeting held on 08.09.2018.
3. Minutes of the 4th DEIAA meeting held on 04.10.2018.

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Details of Minor mineral Activity:-

This has reference to your application first cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of category 'B2' minor mineral based on the particulars furnished in your application as shown below:

1.	Name of Project Proponent and address	:	Tmt. T. Kaveriammal Thangavelu, W/o. Thangavelu, 24/11, Bellathi road, Karamadai, Coimbatore District.
2.	Location of the Proposed Activity	:	
	Survey Number	:	S.F.No. 77/2B(P)
	Latitude and Longitude	:	11°14'51.16"N to 11°14'53.59"N 76°58'54.62"E to 76°58'59.82"E


CHAIRMAN
DEIAA - CBE

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	Village	:	Chikkarampalayam
	Taluk	:	Mettupalayam
	District	:	Coimbatore
3.	Proposed Activity		
	i. Minor Mineral	:	Roughstone
	ii. Quarrying Lease Area	:	0.99.0Ha.
	iii. Approved quantity	:	Roughstone = 71075 cu.mt
	iv. Depth of quarrying	:	42m
	v. Type of quarrying	:	Open cast, Mechanized
	vi. Category (B1/ B2)	:	"B2" category.
	vii. Precise Area Communication	:	District Collector, Coimbatore Letter No. 1544/Mines/2017 Dated 05.07.2018
	viii. Mining Plan approval	:	Joint Director/Assistant Director(i/c) of Geology and Mining, Coimbatore letter Rc.No. 1544/Mines/2017 Dated 18.07.2018
	ix. Quarrying lease period	:	Roughstone - 5 Years. Gravel - 3 Tears
4.	Whether Project area attracts any general conditions specified in the EIA notification, 2006 as amended:-	:	Not attracted. Affidavit furnished.
5.	Man power requirement per day:	:	18Nos.
6.	Utilities		
	i. Source of Water	:	Water vendors
	ii. Water requirement"	:	
	1. Drinking & domestic purposes (in KLD)		0.2 KLD
	2. Dust suppression (in KLD)		0.4 KLD
	3. Green Belt (in KLD)		0.4 KLD
	iii. Power requirement:	:	Fuel is used for operating machineries and vehicles during quarrying process and electricity will be used only for mine office.
	a. Domestic purposes		
	b. Industrial Purpose		

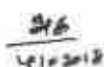

CHAIRMAN
DEIAA - CBE

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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 7 AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 15 mts. from any civil structure shall be kept from the periphery of any excavation area.
14. Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.
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21. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
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 - (i) Roads shall be graded to mitigate the dust emission.
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 - (i) Proper and regular maintenance of vehicles and other equipment.
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 - (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.


CHAIRMAN
DEIAA - CBE


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7.	Cost		
	i.	Project cost	: Rs.33,31,085/-
	ii.	EMP cost	: Rs.3,80,000/-
8.		Public Consultation	: Not required as per O.M. dated 24.12.2013 of MoEF, GOI
9.		Date of Appraisal by DEAC: Agenda No.	: 08.09.2018 IV -17
10.		Date of review / discussion by DEIAA and the Remarks:- The proposal was placed before the DEIAA in its 4 th DEIAA meeting held on 04.10.2018 and the Authority after careful consideration, decided to grant Environmental Clearance to the said project Mining of "Roughstone & Gravel" subject to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.	
11.		Validity: This Environmental Clearance is granted to quarrying of "Roughstone" for the production quantity of 71075 cu.mt of Rough Stone for the period of "five years" from the date of execution of the quarry lease deed.	

Conditions to be Complied before / during commencing quarrying 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 District Level Environment Impact Assessment Authority.
 - 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 DEIAA.
2. The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Mineral 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.


CHAIRMAN
DEIAA - CBE

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- 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 proponent has to provide / maintain proper bench formation during mining operation.

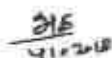

 CHAIRMAN, DEIAA - CBE/
 DISTRICT COLLECTOR,
 COIMBATORE.

Copy to:-

- 26
41020
- 7
41011
1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi
 2. The Principal Secretary, Environment and Forest Department, Government of Tamil Nadu, Tamil Nadu.
 3. The Principal Secretary to Government, Industries Department, Government of Tamil Nadu, Tamil Nadu.
 4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai-34.
 5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex East Arjun Nagar, New Delhi 110 032.
 6. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
 7. The Member Secretary, State Level Environmental Impact Assessment Authority, Tamil Nadu, 3rd Floor, Panagal maalgai, No. 1 Jeenis Road, Saidapet, Chennai-15.
 8. The Director of Geology and Mining, Guindy, Chennai-32.
 9. E1 Division, Ministry of Environment and Forests Paryavaran Bhawan, New Delhi.
 10. Spare.

24. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, GoI to control noise to the prescribed levels.
25. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with the Regional Director, CGWP suitable measures should be taken for rainwater harvesting.
26. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
27. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
28. The following measures are to be adopted to control erosion of dumps:-
 - (i). Retention/ toe walls shall be provided at the foot of the dumps.
 - (ii). Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
29. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
30. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
31. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
32. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
33. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the ground water table is getting depleted due to the quarrying activity; necessary corrective measures shall be carried out. The Assistant Director Ground water Division, PWD Salem shall monitor, the ground water related issues.
34. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
35. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
36. Ground water quality monitoring should be conducted once in 3 Months.
37. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.


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38. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI
39. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
40. Bunds to be provided at the boundary of the project site.
41. 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 and progress report shall be submitted once in 3 months.
42. At least 10 Neem trees should be planted around the boundary of the quarry site.
43. Floor of excavated pit to be leveled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
44. The Project Proponent shall ensure a minimum of 2.5 of the annual turnover will be utilized for the CSR Activity
45. The CSR funds should be channelized for planning programme, nature conservation support, tribal development and activities that support forest and environment.
46. The Project Proponent shall provide solar lighting system to the nearby villages
47. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
48. Rainwater shall be pumped out Via Settling Tank only.
49. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
50. As per MoEF & CC, GoI, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from standing committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.
51. 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.
52. Safety equipments to be provided to all the employees.
53. Safety distance of 50 m has to be provided in case of railway, reservoir, canal/odai
54. The Assistant / Deputy Director, Department of Geology and Mining shall ensure that the proponent has engaged the blaster with valid Blasting license / certificate obtained from the competent authority before execution of mining lease.
55. 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.
56. 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 quarrying lease.
57. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh case before commencing quarrying operation.


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58. The proponent has to display the name board at the quarry site showing the details of proponent, leased period, extent etc., with respect to the existing activity before execution of mining.
59. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
60. The proponent shall ensure that project activity including blasting, mining transportation etc., should in no way in adverse impact to the forests, such as reserve forest and social forests, tree plantation and bio diversity, surrounding water bodies etc.,
61. **The environmental norms shall be adhered by the Project Proponent and shall furnish a report periodically to the authority concerned.**
62. **Ground Water Level and quality shall be monitored by the Assistant Director, Public Works Department (WRO), Salem.**
63. **NOC for sanitary certificate obtained from the Deputy Director of Health Services, Salem should be submitted by the proponent.**
64. **Periodical medical examination of the quarry workers should be carried out by a registered medical practitioner and the report should be filed in the quarry office in a separate file and copy should be sent to the Health Department.**
65. **Machinery equipments friction / wear and cost of things have to be monitored then and there alongwith maintenance.**
66. **Staff secure will be maintained by the proponent as per labour act and rules in force.**
67. **Proper bench should be maintained by the proponent as per norms. proper safety measures should be provided by the proponent while quarrying.**

B. General Conditions:

- 1) EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
- 2) The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
- 3) No change in mining technology and scope of working should be made without prior approval of the DEIAA, Salem District, Tamil Nadu.
- 4) No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
- 5) Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- 6) Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
- 7) A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
- 8) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.


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- 9) Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying them mineral shall not be overloaded.
- 10) Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
- 11) All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
- 12) Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
- 13) Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
- 14) The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
- 15) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
- 16) The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
- 17) This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.
- 18) The DEIAA, Salem District may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
- 19) The DEIAA, Salem District 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 DEIAA Salem District that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
- 20) Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
- 21) The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.


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Thiru M. Harinaran I.A.S.,
CHAIRMAN,
DISTRICT COLLECTOR.

District Level Environment Impact
Assessment Authority - Coimbatore,
Second Floor,
Collectorate New Building,
Coimbatore - 611018.

ENVIRONMENTAL CLEARANCE

In No DEIAA-CBE-III/E.No. 627/1(a&b)/EA.No.6/2018 dated 10.07.2018

To
Tvl. Technomax Building Solution India Pvt. Ltd.
Represented by its Managing Director,
Thiru. E. Raju,
1/302, Meenpalayam Road,
Meenpalayam,
Peace Colony Post,
Coimbatore District.

Sub: DEIAA - CBE - Proposed Roughstone & Gravel quarry
located at S.P.No.345/3(P), Bellathi Village, Meenpalayam
Taluk, Coimbatore District - Tvl. Technomax Building
Solution India Pvt. Ltd.
request for Environmental Clearance - reg.

- Ref: 1. Your application for Environmental Clearance dated
24.10.2017
2. Minutes of the 3rd DEAC meeting held on 28.06.2018
3. Minutes of the 3rd DEIAA meeting held on date
10.07.2018

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Details of Minor mineral Act/Type:

This has reference to your application filed dated . The proposal is for obtaining
Environmental clearance for mining / quarrying of category 'B2' minor mineral based on
the particulars furnished in your application as shown below:

1.	Name of Project/Proposer and address:	Tvl. Technomax Building Solution India Pvt Ltd, Represented by its Managing Director, Thiru. E. Raju.
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		1/382/Mettupalayam Road, Mathampalayam, Press Colony Post, Coimbatore District.
2.	Location of the Proposed Activity	
	Survey Number	: S.F.Nos. 345/3(P)
	Latitude and Longitude	: 11°15'07"N to 11°15'13"N 76°59'14"E to 76°59'17"E
	Village	: Bellathi
	Taluk	: Mettupalayam
	District	: Coimbatore
3.	Proposed Activity	
i.	Minor Mineral	: Roughstone & Gravel
ii.	Quarrying Lease Area	: 1.45.8 Ha.
iii.	Approved quantity	: Roughstone = 1,06,085 cu.m Gravel = 19,060 cu.m
iv.	Depth of quarrying	: 32m
v.	Type of quarrying	: Open cast, Semi-mechanized
vi.	Category (B1/ B2)	: "B2" category.
vii.	Precise Area Communication	: District Collector, Coimbatore Letter No. 627/mines/2017 dated 06.09.2017
viii.	Mining Plan approval	: Assistant Director of Geology and Mining, Coimbatore letter Rc.No. 627/mines/2017 Dated 12.10.2017
ix.	Quarrying lease period	: 5 Years.
4.	Whether Project area attracts any general conditions specified in the EIA notification, 2006 as amended:	: Not attracted. Affidavit furnished.
5.	Man power requirement per day:	: 14 Nos.
6.	Utilities	
i.	Source of Water	: Water vendors


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	ii	Water requirement*	:	
		1. Drinking & domestic purposes (in KLD)		1.0 KLD
		2. Dust suppression (in KLD)		2.0 KLD
		3. Green Belt (in KLD)		1.5 KLD
	ii	Power requirement:	:	
	i	a. Domestic purposes		Fuel is used for operating machineries and vehicles during quarrying process and electricity will be used only for mine office.
		b. Industrial Purpose		
7.		Cost		
	i	Project cost	:	Rs.25,29,000/-
	ii	EMP cost	:	Rs.4,29,000/-
8.		Public Consultation	:	Not required as per O.M. dated 24.12.2013 of MoEF, GOI
9.		Date of Appraisal by DEAC: Agenda No.	:	25.06.2018 3 - 6
10.		Date of review / discussion by DEIAA and the Remarks:- The proposal was placed before the DEIAA in its 3 rd DEIAA meeting held on 10.07.2018 and the Authority after careful consideration, decided to grant Environmental Clearance to the said project Mining of "Roughstone & Gravel" subject to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.		
11.		Validity: This Environmental Clearance is granted to quarrying of "Roughstone & Gravel" for the production quantity of 1,06,085 cu.m Rough Stone and 19,060 cu.m of Gravel for the period of "five years" from the date of execution of the quarrying lease period.		

Conditions to be Complied before / during commencing quarrying 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


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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 District Level Environment Impact Assessment Authority.
 - 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 DEIAA.
2. The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
 3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
 4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Mineral 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 7 AM and 5 PM.
 12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
 13. A minimum distance of 15 metres from any civil structure shall be kept from the periphery of any excavation area.
 14. Depth of quarrying shall be 3m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.
 15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.


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16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
19. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
20. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
21. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009. (GLC = Ground Level Concentration), (NAAQ = Noise and Ambient Air Quality)
22. 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.
23. 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.
24. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 Issued by the MoE&F, GoI to control noise to the prescribed levels.
25. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with the Assistant Director, Ground Water Division, PWD, Coimbatore.
26. Suitable measures should be taken for rainwater harvesting.
27. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
28. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
29. The following measures are to be adopted to control erosion of dumps:-


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(i). Retention/ toe walls shall be provided at the foot of the dumps.

(ii). Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.

30. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
31. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
32. 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.
33. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the (lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
34. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the ground water table is getting depleted due to the quarrying activity; necessary corrective measures shall be carried out. The Assistant Director Ground water Division, PWD Coimbatore shall monitor, the ground water related issues.
35. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
36. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
37. Ground water quality monitoring should be conducted once in 3 Months.
38. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
39. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining; and Regional Director, MoEF, GOI once in three months.
40. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI periodically once in six months.


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- 41. Bunds should be provided at the boundary of the project site and it should be properly maintained.
- 42. 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 and progress report shall be submitted once in 3 months.
- 43. At least 10 Neem trees should be planted around the boundary of the quarry site.
- 44. Floor of excavated pit to be leveled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
- 45. The Project Proponent shall ensure a minimum of 2.5 of the annual turnover will be utilized for the CSR Activity
- 46. The Project Proponent shall provide solar lighting system to the nearby villages
- 47. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
- 48. Rainwater shall be pumped out Via Settling Tank only.
- 49. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
- 50. As per MoEF & CC, Gol, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from standing committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.
- 51. 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.
- 52. Safety equipments to be provided to all the employees.
- 53. Safety distance of 50 m has to be provided in case of railway, reservoir, canal/odai
- 54. The Deputy Superintendent of Police, Revenue Divisional Officer and the Tahsildar concerned shall ensure that the proponent has engaged the blaster with valid Blasting license / certificate obtained from the competent authority before execution of mining lease.
- 55. 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.
- 56. 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 quarrying lease.
- 57. The proponent shall furnish the data obtained from the Public Works Department regarding the details of ground water table in the quarry site.


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58. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh case before commencing quarrying operation.
59. The proponent has to display the name board at the quarry site showing the details of proponent, leased period, extent etc., with respect to the existing activity before execution of mining.
60. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
61. The Environmental norms shall be monitored by the District Environmental Engineer, Tamil Nadu Pollution Control Board, Coimbatore.
62. Blasting shall be carried out after announcing to the public through adequate public address system to avoid any accident.
63. Artificial recharge structure should be constructed nearby the lease area to harvest the rain water.
64. The environmental norms shall be adhered by the Project Proponent and shall furnish a report periodically to the authority concerned.
65. Ground Water Level and quality shall be monitored by the Assistant Director, Public Works Department (WRO), Coimbatore.
66. NOC for sanitary certificate obtained from the Deputy Director of Health Services, Coimbatore should be submitted by the proponent.
67. Periodical medical examination of the quarry workers should be carried out by a registered medical practitioner and the report should be filed in the quarry office in a separate file and copy should be sent to the Health Department.
68. Machinery equipments friction / wear and cost of things have to be monitored then and there alongwith maintenance.
69. Staff secure will be maintained by the proponent as per labour act and rules in force.
70. Proper bench should be maintained by the proponent as per norms, proper safety measures should be provided by the proponent while quarrying.

B. General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non-judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the DEIAA, Coimbatore District, 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


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in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying them mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
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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.
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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.


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DEIAA - CBE

18. The DEIAA, Coimbatore District may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The DEIAA, Coimbatore District 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 DEIAA Coimbatore District that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
22. Any other conditions stipulated by other Statutory/ Government authorities shall be complied.
23. Any appeal against this environmental clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under section 16 of the National Green Tribunal Act, 2010.

CHAIRMAN, BEIAA - CBE/
DISTRICT COLLECTOR,
COIMBATORE.

Copy to:-

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary, Environment and Forest Department, Government of Tamil Nadu, Tamil Nadu.
3. The Principal Secretary to Government, Industries Department, Government of Tamil Nadu, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai-34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex East Arjun Nagar, New Delhi 110 032.



Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), TAMIL NADU)

To,

The owner
SIDDHARTHAMOULI P RSG
Bilichi Village Coimbatore North -641104

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/TN/MIN/401916/2022 dated 16 Nov 2022. The particulars of the environmental clearance granted to the project are as below.

1. EC Identification No.	EC23B000TN118323
2. File No.	8834
3. Project Type	New
4. Category	B
5. Project/Activity including Schedule No.	N/A
6. Name of Project	M/s. Sri Blue Metals, over an Extent of 3.11.0 ha of Patta land in S.F.No. 77/1B and 421/2B (Part) of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District
7. Name of Company/Organization	SIDDHARTHAMOULI P RSG
8. Location of Project	TAMIL NADU
9. TOR Date	N/A

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 18/01/2023

(e-signed)
Thiru.Deepak S.Bilgi
Member Secretary
SEIAA - (TAMIL NADU)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH.Please quote identification number in all future correspondence.

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

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU

3rd Floor, Panagal Maaligai,
No.1, Jeemis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/E.No.8834/EC.No:5444/2022 dated: 06.12.2022

Sir/Madam,

Sub: SEIAA-TN – Proposed Rough Stone quarry lease area over an extent of 3.11.0 Ha at S.F. No. 77/1B & 421/2B (Part), Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu by M/s. Sri Blue Metals – issue of Environmental Clearance – Regarding.

- Ref:**
1. ToR issued vide Lr No,SEIAA-TN/F.No,8834/ToR-1087/2021 Dated:17.03.2022.
 2. Public Hearing conducted on 26.07.2022.
 3. Online Proposal No. SLA/TN/MIN/401916/2021 Dated: 30.09.2022.
 4. Project proponent submitted EIA Report to SEIAA-TN on 28.09.2022.
 5. Minutes of the 330th SEAC meeting held on 17.11.2022.
 6. Minutes of the 575th SEIAA meeting held on 06.12.2022.

Details of Minor Mineral Activity:-

This has reference to your application third and fourth 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	Details furnished
1.	Name of the Owner/Firm	M/s. Sri Blue Metals, Proprietor Thiru. S. Gnanasekaran, D.No.2/241, Kannarpalayam, Karamadal Post,


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		Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District - 641 104.
2.	Type of quarrying (Savudu/Rough Stone/Sand/Granite)	Rough Stone
3.	S.F No. of the quarry site with area break-up	77/1B & 421/2B (Part)
4.	Village in which situated	Chikkarampalayam
5.	Taluk in which situated	Mettupalayam
6.	District in which situated	Coimbatore
7.	Extent of quarry (in ha.)	3.11.0 Ha
8.	Period of quarrying proposed	5 years
9.	Type of mining	Opencast Mechanized Mining
10.	Production (Quantity in m ³)	223397 m ³ of Rough Stone.
11.	Depth of quarrying	40m BGL
12.	Latitude & Longitude of all corners of the quarry site	11°14'47.63"N to 11°14'54.52"N 76°58'44.12"E to 76°58'53.96"E
13.	Top Sheet No.	58-A/16
14.	Man Power requirement per day:	35 Nos.
15.	Precise area communication	Na.Ka.No.1442/Kanimam/2020, dated:19.08.2021
16.	Mining Plan	Re.No.1442/Mines/2020, dated.15.09.2021
17.	500m cluster letter	Re.No.1442/Mines/2020, dated.15.09.2021
18.	Water requirement:	3.5 KLD
	1. Drinking & domestic purposes (in KLD)	0.8 KLD
	2. Dust suppression (in KLD)	1.2 KLD
	3. Green Belt (in KLD)	1.5 KLD
19.	Power requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	150 Liters of HSD/day

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20.	Depth of water table	65m-60m BGL
21.	Whether any habitation within 300m distance	No
22.	Project Cost (excluding EMP cost)	Rs. 56.33 Lakhs
23.	EMP cost	Rs. 133 Lakhs
24.	CER cost	Rs. 5 Lakhs
25.	VAO certificate regarding 300m radius cluster	Letter dated: 03.12.2020
26.	ToR Details:	Lr No. SEIAA-TN/F.No.8834/ToR-1087/2021 Dated:17.03.2022
27.	Public Hearing	26.07.2022
28.	EIA Submission	28.09.2022
29.	Validity: This Environmental Clearance is granted for the restricted production – 223397 m³ Rough Stone for the period of 5 Years from the date of execution of the mining lease.	

The Proponent has furnished affidavit in Hundred Rupees stamp paper attested by the Notary stating that:

I, M/s. SRI BLUE METALS, Proprietor Thiru.S.Gnanasekaran, having office at D.No.2/241, Kannarpalayam, Karamadai Post, Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu State – 641 104, solemnly declare and sincerely affirm that:

I have apply for getting Environment Clearance to SEIAA, Tamil Nadu State for quarry lease for quarrying of Rough stone Quarry over an extent 3.11.0ha of Patta land in S.F.Nos. 77/1B and 421/2B(Part) of Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu State.

1. I swear to state and confirm that within 10km area of the quarry site, I have applied for environment 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 notified,
 - d. Interstate boundaries within 10km radius from the boundary of the proposed site.


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2. I will spend the amount of Rs.5,00,000/- towards Corporate Environment Responsibility (Revised CER) for the following activities to the Government Higher Secondary School, Kannarpalayam before commencement of quarrying activities.

Sl. No.	Description	CER Cost INR
1	Renovation of Existing toilet	5,00,000/-
2	Carrying out plantation in around school compound 250 Nos	
3	Providing Environmental related books to school library	
4	Laying tiles for class room	

3. The total area of following quarries located within 500m radius from the periphery of my quarry site details as shown below:

Existing Quarries

SL. No.	Name of the Owner	Village & S.Nos.	Extent Hect	Lease Period	Remarks
1.	Thiru.S.Gnanasekaram	Chikkarampalaym S.F.No.77/2D(P)	1.01.2	01.10.2018 To 30.09.2023	-
2.	Tmt.R.Poorani	Chikkarampalaym S.F.No.80/1	1.27.0	22.12.2018 To 21.12.2023	-
3.	Tmt.Kaveriammal	Chikkarampalaym S.F.No.77/2B(P)	0.99.0	24.12.2018 To 23.12.2023	-
4.	Thiru.R.K.Selvakumar	Chikkarampalaym S.F.No.69 (Part)	2.19.0	17.10.2017 To 16.10.2022	-

Expired Quarries

SL. No.	Name of the Owner	Village & S.Nos.	Extent Hect	Lease Period	Remarks
1.	Thiru.A.Nandhakumar	Chikkarampalaym S.F.No.78/1, 420	1.17.0	02.06.2016 To 01.06.2021	-

Abandoned Quarries

SL. No.	Name of the Owner	Village & S.Nos.	Extent Hect	Lease Period	Remarks
--- NIL ---					

Proposed Quarries

S. No.	Name and Address of the applicant	Village & S.F. No.	Extent (in Hects)	Classification of land
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1.	M/s. Sri Blue Metals	Chikkarampalayam Village, 77/1B & 421/2B(P)	3.11.0	Subject Area precise area communicated
2.	C.N. Mani	Chikkarampalayam Village, 75	2.47.5	Pending With SEIA
3.	S.Gnanasekaran	Chikkarampalayam Village, 74/2	2.37.0	Pending With SEIA
4.	Tvl.Palanivel Blue Metals	Chikkarampalayam Village, 428/1A, 60/1B & 61	1.75.5	Pending With SEIA
5.	M.Muthanmal	77/2E(P), 77/2F(P), 79/1A(P)	1.82.0	Pending With SEIA

Future Proposed Quarries

Sl. No.	Name of the Owner	Village & S.Nos.	Extent Hect	Lease Period	Remarks
-- NIL --					

4. There will not be hindrance or disturbance to the people living during quarrying activities and transportation of the mineral.
5. There is no approved habitation 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 laborers working in my quarry site.
8. The existing road from the main road to quarry is in good condition. The same will be maintained and utilized for Transportation of quarry materials and machineries.
9. I will not engage any child labor in my quarry site and I aware that engaging child labor is punishable under the law.
10. All types of safety / protective equipment will be provided to all the laborers working in my quarry.
11. No permanent structures, temples etc., are located within 500m radius from the periphery of my quarry.

I ensure to do all the social and Environment commitment as mentioned in the Mining Plan to the best of my knowledge.


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Details of 500M radius Proposed quarry:

The Project Proponent has submitted a copy of the letter obtained from the Assistant Director, Department of Geology & Mining, Coimbatore District in his letter Re.No.1442/Mines/2020, dated.15.09.2021 has stated that the details of other quarries (Proposed / Existing / Abandoned Quarries) within a radius 500m from the boundary of the proposed quarry site as follows:

i) Existing Quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease Period	Remarks
1.	Thiru.S.Gnanasekaran	Chikkarampalayam S.F.No.77/2D(P)	1.01.2	01.10.2018 to 30.09.2023	-
2.	Tmt.R.Poorani	Chikkarampalayam S.F.No.80/1	1.27.0	22.12.2018 to 21.12.2023	-
3.	Tmt.Kaveriammal	Chikkarampalayam S.F.No.77/2B(P)	0.99.0	24.12.2018 to 23.12.2023	-
4.	Thiru.R.K.Selvakumar	Chikkarampalayam S.F.No.69 (Part)	2.19.0	17.10.2017 to 16.10.2022	-

ii) Expired Quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease Period	Remarks
1.	Thiru.A.Nandhakumar	Chikkarampalayam S.F.No.78/1, 420	1.17.0	02.06.2016 to 01.06.2021	-

iii) Abandoned Quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease Period	Remarks
-- NIL --					

iv) Proposed Quarries

Sl. No.	Name of the Owner	Village & S.F. Nos.	Extent in Hect.	Remarks
1.	M/s. Sri Blue Metals	Chikkarampalayam,	3.11.0	Subject Area Precise area communicated


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		S.F.Nos.77/1B, 421/2B(Part)		
2.	C.N. Mani	Chikkarampalayam, S.F.No.75	2.47.5	Pending with SEIAA
3.	S.Gnanasekaran	Chikkarampalayam, S.F.No.74/2	2.37.0	Pending with SEIAA
4.	Tvl.Palanivel Blue Metals	Chikkarampalayam, S.F.Nos.428/1A, 60/1B & 61	1.75.5	Pending with SEIAA
5.	M.Muthammal	S.F.Nos.77/2E(P), 77/2F(P), 79/1A(P)	1.82.0	Pending with SEIAA

v) Future Proposed Quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Remarks
--- Nil ---				

Appraisal by SEAC:-

Proposed Rough stone project over an extent of 3.11.0 Ha in S.F.No. 77/1B & 421/2B Part, Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu by M/s. Sri Blue Metals - For Environmental Clearance.

The proposal was placed for appraisal in this 330th meeting of SEAC held on 17.11.2022. The details of the project furnished by the proponent are given in the website(www.parivesh.nic.in).

The SEAC noted the following:

1. The project proponent, **M/s. Sri Blue Metals** applied for Environmental Clearance for the proposed Rough stone project over an extent of 3.11.0 Ha in S.F.No. 77/1B&421/2B Part Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Mineral Projects" of the Schedule to the EIA Notification, 2006.

Based on the presentation made by the proponent, SEAC consider the safety aspects of the mining and decided to recommend the proposal for the grant of Environmental Clearance for the total production of 273414 m³ of Rough Stone with an ultimate depth restricted up to 47 m below ground level and not exceeding the annual peak production of 60830 m³ of


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rough stone, subject to the standard conditions as per the Annexure I of this minutes & normal conditions stipulated by MOEF &CC, in addition to the following specific conditions:

1. The prior Environmental Clearance granted for this mining project shall be valid for the project life including production value as laid down in the mining plan approved and renewed by competent authority, from time to time, subject to a maximum of thirty years, whichever is earlier, vide MoEF&CC Notification S.O. 1807(E) dated 12.04.2022.
2. The proponent shall mandatorily appoint the statutory Mines Manager and other statutorily competent persons such as Blaster, Mine Mate, Mine Foreman in relevant to the proposed quarry size as per the provisions of Mines Act 1952 and Metalliferous Mines Regulations, 1961 respectively.
3. The PP shall communicate the 'Notice of Opening' of the quarry to the Director of Mines Safety, Chennai Region before obtaining the CTO from the TNPCB.
4. The proponent shall construct the 'S3 (or) G2' type of fencing all around the boundary of the proposed working quarry with gates for entry/exit before the commencement of the operation as recommended in the DGMS Circular, 11/1959 and shall furnish the photographs showing the same before obtaining the CTO from TNPCB.
5. Further, the PP shall construct the garland drain with proper size, gradient and length along the boundary of the pit leaving behind the mandatory safety zone of 7.5 m as it is designed to take care of run-off water (size, gradient and length) before obtaining the CTO from TNPCB.
6. Since the quarry is located in the cluster, the Project Proponent shall ensure strict compliance of the provisions given under the Mines Rules, 1955 for the health and welfare of the persons employed therein.
7. The PP shall furnish slope stability action plan to the concerned AD (Mines) for the systematic working by maintaining proper benches incorporating the haul road with proper gradient as the depth of the proposed quarry is exceeding 30 m, before obtaining CTO from TNPCB.
8. The PP shall carry out the scientific studies to assess the slope stability of the benches and quarry wall during the 3rd year, by involving a reputed Research and Academic Institution such as CSIR-Central Institute of Mining & Fuel Research (CIMFR) / Dhanbad, NIRM, IIT-Madras, NIT-Dept of Mining Engg, Surathkal and Anna University – CEG Campus. A



MEMBER SECRETARY
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- copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance.
9. The PP shall carry out the shallow depth Jack hammer drilled holes (of 32-34 mm dia & 1.5 m depth) & NONEL, initiation based 'controlled' blasting operation involving muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled within the permissible limits as stipulated by the DGMS as well as no fly rock travel beyond 20 m from the blast site.
 10. Since the habitations are situated at a distance range of 350 to 800 m from the mine lease boundary, the PP shall carry out the scientific studies on controlled blasting within one year from the commencement of mining operations, for reducing the impact of blast-induced ground/air vibrations and fly rock, by involving a reputed Research and Academic Institution such as CSIR-Central Institute of Mining & Fuel Research (CIMFR) / Dhanbad, NIRM, IIT-Madras, NIT-Dept of Mining Engg, Surathkal and Anna University – CEG Campus. A copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance.
 11. The PP shall use the jack hammer drill machine fitted with the dust extractor for the drilling operations such that the fugitive dust is controlled effectively at the source.
 12. The PP shall ensure that the blasting operations are carried out by the blaster/Mine Mate/Mine Foreman employed by him as per the provisions of MMR 1961.
 13. The Project Proponent shall ensure that 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 MoEF& CC, Ministry and its Integrated Regional Office (IRO) located in Chennai.
 14. The Project Proponent shall send a copy of the clearance letter marked to concerned Panchayat from whom any suggestion/representation has been received while processing the proposal.
 15. As per the MoEF&CC Office Memorandum F.No. 22-65/2017-1A.III dated: 30.09.2020 and 20.10.2020 the proponent shall adhere to the EMP as committed.
 16. As accepted by the Project Proponent the CER cost is Rs.5.0 lakhs and the amount shall be spent on the committed activities for Government Hr. Sec School, Kannarpalayam before obtaining CTO from TNPCB.


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ANNEXURE-1

1. The proponent shall mandatorily appoint the required number of statutory officials and the competent persons in relevant to the proposed quarry size as per the provisions of Mines Act 1952 and Metalliferous Mines Regulations, 1961.
2. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit before the commencement of the operation and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
3. Perennial maintenance of haulage road/village / Panchayat Road shall be done by the project proponent as required in connection with the concerned Govt. Authority.
4. The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form of Short Term Permit (STP), Query license or any other name.
5. The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.
6. The proponent shall ensure that the slope of dumps is suitably vegetated in scientific manner with the native species to maintain the slope stability, prevent erosion and surface run off. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps.
7. Perennial sprinkling arrangement shall be in place on the haulage road for fugitive dust suppression. Fugitive emission measurements should be carried out during the mining operation at regular intervals and submit the consolidated report to TNPCB once in six months.


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8. The Project Proponent shall carry out slope stability study by a reputed academic/research institution such as NIRM, IIT, Anna University for evaluating the safe slope angle if the proposed dump height is more than 30 meters. The slope stability report shall be submitted to concerned Regional office of MoEF&CC, Govt. of India, Chennai as well as SEIAA, Tamilnadu.
9. The Proponent shall ensure that the Noise level is monitored during mining operation at the project site for all the machineries deployed and adequate noise level reduction measures undertaken accordingly. The report on the periodic monitoring shall be submitted to TNPCB once in 6 months.
10. Proper barriers to reduce noise level and dust pollution should be established by providing greenbelt along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
11. 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 and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
12. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted in proper escapements 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.
13. **Noise and Vibration Related:** (i) The Proponent shall carry out only the Controlled Blasting operation using NONEL shock tube initiation system during daytime. Usage of other initiation systems such as detonating cord/fuse, safety fuse, ordinary detonators, cord relays, should be avoided in the blasting operation. The mitigation measures for control of ground vibrations and to arrest fly rocks should be implemented meticulously under the supervision of statutory competent persons possessing the I / II Class Mines Manager / Foreman / Blaster certificate issued by the DGMS under MMR 1961, appointed in the quarry. No secondary blasting of boulders shall be carried out in any occasions and only the Rock Breakers (or) other suitable non-explosive techniques shall be adopted if such secondary breakage is required. The Project


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Proponent shall provide required number of the security sentries for guarding the danger zone of 500 m radius from the site of blasting to ensure that no human/animal is present within this danger zone and also no person is allowed to enter into (or) stay in the danger zone during the blasting. (ii) Appropriate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs. (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone.

14. Ground water quality monitoring should be conducted once in every six months and the report should be submitted to TNPCB.
15. The operation of the quarry should not affect the agricultural activities & water bodies near the project site and a 50 m safety distance from water body should be maintained without carrying any activity. The proponent shall take appropriate measures for "Silt Management" and prepare a SOP for periodical de-siltation indicating the possible silt content and size in case of any agricultural land exists around the quarry.
16. The proponent shall provide sedimentation tank / settling tank with adequate capacity for runoff management.
17. The proponent shall ensure that the transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village Road and shall take adequate safety precautionary measures while the vehicles are passing through the schools / hospital. The Project Proponent shall ensure that the road may not be damaged due to transportation of the quarried rough stones; and transport of rough stones will be as per IRC Guidelines with respect to complying with traffic congestion and density.
18. 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.
19. After mining operations are completed, the mine closure activities as indicated in the mine closure plan shall be strictly carried out by the Proponent fulfilling the necessary actions as assured in the Environmental Management Plan.
20. 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.


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21. The Project Proponent shall comply with the provisions of the Mines Act, 1952, MMR 1961 and Mines Rules 1955 for ensuring safety, health and welfare of the people working in the mines and the surrounding habitants.
22. The project proponent shall ensure that the provisions of the MMRD, 1956, the MCDR 2017 and Tamilnadu Minor Mineral Concession Rules 1959 are complied by carrying out the quarrying operations in a skillful, scientific and systematic manner keeping in view proper safety of the labour, structure and the public and public works located in that vicinity of the quarrying area and in a manner to preserve the environment and ecology of the area.
23. 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 informed to the District AD/DD (Geology and Mining) District Environmental Engineer (TNPCB) and the Director of Mines Safety (DMS), Chennai Region by the proponent without fail.
24. The Project Proponent shall abide by the annual production scheduled specified in the approved mining plan and if any deviation is observed, it will render the Project Proponent liable for legal action in accordance with Environment and Mining Laws.
25. 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, as per the existing law from time to time.
26. All the conditions imposed by the Assistant/Deputy Director, Geology & Mining, concerned District in the mining plan approval letter and the Precise area communication letter issued by concerned District Collector should be strictly followed.
27. 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.
28. The Project proponent shall install a Display Board at the entrance of the mining lease area/abutting the public Road, about the project information as shown in the **Appendix –II** of this minute.


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Appendix

List of Native Trees Suggested for Planting

1. *Aegle marmelos* – Vilvam
2. *Adenanthera pavonina* - Manjadi
3. *Albizia lebbek* – Vaagai
4. *Albizia amara* - Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa* – Iruvathi
8. *Buchanania axillaris* - Kattuma
9. *Borassus flabellifer* - Pannai
10. *Butea monosperma* - Murukka maram
11. *Bobax ceiba* – Ilavu, Sevvilavu
12. *Calophyllum inophyllum* - Punnai
13. *Cassia fistula* - Sarakondrai
14. *Cassia raxburghii*- Sengondrai
15. *Chloroxylon swietenia* - Purasa maram
16. *Cochlospermum religiosum* – Kongu, Manjal Ilavu
17. *Cordia dichotoma* – Mookuchali maram
18. *Creteva adansonii* – Mavalangum
19. *Dillenia indica* – Uva, Uzha
20. *Dillenia pentagyna* – Siru Uva, Sitruzha
21. *Diospyros ebenum* - Karungali
22. *Diospyros chloroxylon* – Vaganai
23. *Ficus amplissima* – Kal Itchi
24. *Hibiscus tiliaceus* – Aitru poovarasu
25. *Hardwickia binata* – Aacha
26. *Holoptelia integrifolia* - Aayili
27. *Lannea coromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthus tetraphylla* - Neikottai maram
30. *Limonia acidissima* - Vila maram


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31. *Litsea glutinosa* - Pisin pattai
32. *Madhuca longifolia* - Illuppai
33. *Munilkara hexandra* - Ulakkai Paalai
34. *Mimusops elengi* - Magizha maram
35. *Mitragyna parvifolia* - Kadambu
36. *Morinda pubescens* - Nuna
37. *Morinda citrifolia* - Vellai Nuna
38. *Phoenix sylvestre* - Eachai
39. *Pongamia pinnata* - Pungam
40. *Premna mollissima* - Munrai
41. *Premna serratifolia* - Narumunai
42. *Premna tomentosa* - Purangai Naari, Pudanga Naari
43. *Prosopis cinerea* - Vanri maram
44. *Pterocarpus marsupium* - Vengai
45. *Pterospermum caulescens* - Vennangu, Tada
46. *Pterospermum xylocarpum* - Polavu
47. *Puthranjiva roxburghii* - Puthranjivi
48. *Salvadora persica* - Uga Maram
49. *Sapindus emarginatus* - Manipungan, Soapu kai
50. *Saraca asoca* - ASOCA
51. *Streblus asper* - Piraya maram
52. *Strychnos nuxvomica* - Yetti
53. *Strychnos potatorum* - Therthang Kottai
54. *Syzygium cumini* - Naval
55. *Terminalia bellerica* - Thandri
56. *Terminalia arjuna* - Ven marudhu
57. *Toona ciliate* - Sandhana vembu
58. *Thespesia populnea* - Puvarasu
59. *Walsuratrifoliata* - valsura
60. *Wrightia tinctoria* - Veppalai
61. *Pithecellobium dulce* - Kodukkapuli

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Annexure-A

1. The AD/DD, Dept. of Geology & Mining shall ensure operation of the proposed quarry after the submission slope stability study conducted through the reputed research & Academic Institutions such as NIRM, IITs, NITS Anna University, and any CSIR Laboratories etc.
2. The AD/DD, Dept. of Geology & Mining & Director General of Mine safety shall ensure strict compliance and implementation of bench wise recommendations/action plans as recommended in the scientific slope stability study of the reputed research & Academic Institutions as a safety precautionary measure to avoid untoward accidents during mining operation.
3. No trees in the area should be removed and all the trees numbered and protected. In case trees fall within the proposed quarry site the trees may be transplanted in the Greenbelt zone. The proponent shall ensure that the activities in no way result in disturbance to forest and trees in vicinity. The proponent shall ensure that the activity does not disturb the movement of grazing animals and free ranging wildlife. The proponent shall ensure that the activity does not disturb the biodiversity, the flora & fauna in the ecosystem. The proponent shall ensure that the activity does not result in invasion by invasive alien species. The proponent shall ensure that the activities do not disturb the resident and migratory birds. The proponent shall ensure that the activities do not disturb the vegetation and wildlife in the adjoining reserve forests and areas around.
4. The proponent shall ensure that the operations do not result in loss of soil biological properties and nutrients.
5. The activity should not result in CO₂ release and temperature rise and add to micro climate alternations.
6. The proponent shall ensure that the activity does not disturb the water bodies and natural flow of surface and ground water, nor cause any pollution, to water sources in the area.
7. The proponent shall ensure that the activities undertaken do not result in carbon emission, and temperature rise, in the area.
8. The proponent shall ensure that Monitoring is carried out with reference to the quantum of particulate matter during excavation; blasting; material transport and also from cutting waste dumps and haul roads.


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9. The proponent shall ensure that the activities do not disturb the agro biodiversity and agro farms. Actions to be taken to promote agro forestry, mixed plants to support biodiversity conservation in the mine restoration effort.
10. The proponent shall ensure that activity does not deplete the indigenous soil seed bank and disturb the mycorrhizal fungi, soil organism, soil community nor result in eutrophication of soil and water.
11. The activities should not disturb the soil properties and seed and plant growth. Soil amendments as required to be carried out, to improve soil health
12. Bio remediation using microorganisms should be carried out to restore the soil environment to enable carbon sequestration.
13. The proponent shall ensure that all mitigation measures listed in the EIA/EMP are taken to protect the biodiversity and natural resources in the area.
14. The proponent shall ensure that the activities do not impact the water bodies/wells in the neighboring open wells and bore wells. The proponent shall ensure that the activities do not in any way affect the water quantity and quality in the open wells and bore wells in the vicinity or impact the water table and levels. The proponent shall ensure that the activities do not disturb the river flow, nor affect the Odai, Water bodies, Dams in the vicinity.
15. The proponent shall ensure that in the green belt development more indigenous trees species (Appendix as per the SEAC Minutes) to be planted.
16. The proponent shall ensure the area is restored and rehabilitated with native trees as recommended in SEAC Minutes (in Appendix).
17. The proponent shall ensure that the mine restoration is done using mycorrhizal VAM, vermin-composting, Biofertilizers to ensure soil health and biodiversity conservation.
18. The proponent shall ensure that the topsoil is protected and used in planting activities in the area.
19. The proponent should ensure that there is no disturbance to the agriculture plantations, social forestry plantations, waste lands, forests, sanctuary or national parks. There should be no impact on the land, water, soil and biological environment and other natural resources due to the mining activities.
20. The proponent shall ensure that topsoil to be utilized for site restoration and Green belt alone within the proposed area.


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21. The proponent shall ensure that the activities do not impact green lands/grazing fields of all types surrounding the mine lease area which are food source for the grazing cattle.
22. The project proponent shall store/dump the waste generated within the earmarked area of the project site for mine closure as per the approved mining plan.

Directions for Reclamation of mine sites

1. The mining closure plan should strictly adhere to appropriate soil rehabilitation measures to ensure ecological stability of the area. Reclamation/Restoration of the mine site should ensure that the Geotechnical, physical, chemical properties are sustainable that the soil structure composition is buildup, during the process of restoration.
2. The proponent shall ensure that the mine closure plan is followed as per the mining plan and the mine restoration should be done with native species, and site restored to near original status. The proponent shall ensure that the area is ecologically restored to conserve the ecosystems and ensure flow of goods and services.
3. A crucial factor for success of reclamation site is to select sustainable species to enable develop a self-sustaining eco system. Species selected should easily establish, grow rapidly, and possess good crown and preferably be native species. Species to be planted in the boundary of project site should be un palatable for cattle's/ goats and should have proven capacity to add leaf-litter to soil and decompose. The species planted should be adaptable to the site conditions. Should be preferably pioneer species, deciduous in nature to allow maximum leaf-litter, have deep root system, fix atmospheric nitrogen and improve soil productivity. Species selected should have the ability to tolerate altered pit and toxicity of and site. They should be capable of meeting requirement of local people in regard to fuel fodder and should be able to attract bird, bees and butterflies. The species should be planted in mixed association.
4. For mining area reclamation plot culture experiments to be done to identify/ determine suitable species for the site.
5. Top soil with a mix of beneficial microbes (Bacteria/Fungi) to be used for reclamation of mine spoils. AM Fungi (Arbuscular mycorrhizal fungi), plant growth promoting Rhizo Bacteria and nitrogen fixing bacteria to be utilized.
6. Soil and moisture conservation and water harvesting structures to be used where ever possible for early amelioration and restoration of site.


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7. Top soil is most important for successful rehabilitation of mined sites. Topsoil contains majority of seeds and plant propagation, soil microorganism, Organic matter and plant nutrients. Wherever possible the topsoil should be immediately used in the area of the for land form reconstruction, to pre mining conditions.
8. Over burdens may be analyzed and tested for soil characteristics and used in the site for revegetation. Wherever possible seeds, rhizome, bulbs, etc of pioneering spices should be collected, preserved and used in restoring the site.
9. Native grasses seeds may be used as colonizers and soil binders, to prevent erosion and allow diverse self- sustaining plant communities to establish. Grasses may offer superior tolerance to drought, and climatic stresses.
10. Reclamation involves planned topographical reconstruction of site. Care to be taken to minimize erosion and runoff. Topsoils should have necessary physical, chemicals, ecological, properties and therefore should be stored with precautions and utilized for reclamation process. Stocked topsoil should be stabilized using grasses to protect from wind. Seeds of various indigenous and local species may be broad casted after topsoil and treated overburden are spread.
11. Alkaline soils, acidic soils, Saline soils should be suitably treated/amended using green manure, mulches, farmyard manure to increase organic carbon. The efforts should be taken to landscape and use the land post mining. The EMP and mine closure plan should provide adequate budget for reestablishing the site to pre-mining conditions. Effective steps should be taken for utilization of over burden. Mine waste to be used for backfilling, reclamation, restoration, and rehabilitation of the terrain without affecting the drainage and water regimes. The rate of rehabilitation should be similar to rate of mining. The land disturbed should be reshaped for long term use. Mining should be as far as possible be ecofriendly. Integration of rehabilitation strategies with mining plan will enable speedy restoration.
12. Efforts should to taken to aesthetically improve the mine site. Generally there are two approaches to restoration Le Ecological approach which allows tolerant species to establish following succession process allowing pioneer species to establish. The other approach i.e plantation approach is with selected native species are planted. A blend of both methods may be resorted to restore the site by adding soil humas and mycorrhiza.
13. Action taken for restoration of the site should be specifically mentioned in the EC compliances.



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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.


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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.


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- 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, Govt 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.


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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 the total extent of nearby quarries (existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
35. 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.
36. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
37. Air sampling at intersection point should be conducted and reported to TNPCB; Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Bunds to be provided at the boundary of the project site.
39. 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.
40. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
41. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
42. The Project Proponent shall provide solar lighting system to the nearby villages.



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43. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
44. Safety equipments to be provided to all the employees.
45. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
46. 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.
47. 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.
48. 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.
49. 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.
50. 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.
51. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
52. 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.
53. 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.
54. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCC once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
55. All the commitment made by the project proponent in the proposal shall be strictly followed.
56. 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.


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activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.

57. 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 & 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).
58. All required sanitary and hygienic measures should be in place before starting construction activities and they have to be maintained throughout the construction phase.
59. The company shall stress upon the preventive aspects of occupational health.
60. 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.
61. A scientific site/ ecological rehabilitation and restoration plan on long term basis should be drawn to carryout restoration with native species and Bio diversity.
62. 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.
63. The existing water bodies should not be disturbed to ensure sustainable environment for aquatic life forms.
64. The proponent should completely implement all environmental pollution control measures as detailed in the EIA report and in the additional report.
65. Avenue plantation wherever needed has to be carried out along the route for dust suppression.
66. 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.
67. 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.


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68. 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.
69. 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.
70. Hydro geological study including infiltration test shall be conducted by any reputed agency to estimate leachate quantity.
71. Regular medical check-up for mine workers and nearby residents around the project site involving community medical centre/NIMH shall be conducted.
72. As per norms, the health study should be conducted through competent/approved health organization and report submitted for one year.
73. 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.
74. NOC from the State GWA for drawing ground water shall be obtained, if ground water table is intersected.
75. Green belt shall be provided as per norms of MoEF & CC, GOI, in consultation with local DFO.
76. All the recommendations made in the EIA report of the project shall be effectively implemented.
77. 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.
78. All the environmental protection measures and safeguards as recommended in the EIA report shall be complied with.
79. 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.
80. 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.


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81. 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, NO_x 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.

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.


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11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.


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SEIAA-TN

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, 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 Additional Chief Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief 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, Coimbatore District.
8. The Commissioner of Geology and Mines, Guindy, Chennai - 32.
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.

Signature Not Verified

Digitally signed by Thiru.Deepak
S.Bilgi
Member Secretary
Date: 1/18/2023 11:05:30 AM
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TEST REPORT

Report No	EHS360/TR/2022-23/001	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/001
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ1 Project Area		

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)
05.12.2022	7:00-7:00	44.2	19.9	7.1	19.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	44.5	19.7	6.9	18.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	43.2	19.6	6.2	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	43.8	19.4	6.4	19.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	43.5	19.3	6.5	18.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	43.2	19.9	6.9	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	43.8	19.5	6.7	18.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	43.5	19.2	6.0	19.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	43.2	18.7	7.2	18.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	42.9	18.3	7.6	18.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	42.2	20.2	6.6	18.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	43.2	19.5	7.5	19.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	42.8	18.9	6.5	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	43.5	19.1	6.1	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	43.1	19.6	6.5	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	44.8	19.7	6.3	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	43.2	19.9	6.5	18.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	45.6	19.5	6.9	19.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	45.5	19.6	6.7	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	45.1	19.3	6.4	18.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	44.5	19.2	6.1	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.02.2023	7:15-7:15	44.0	19.3	6.5	19.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	44.3	19.4	6.6	18.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	43.6	19.6	6.2	19.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/001	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/001
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ1 Project Area		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
05.12.2022	7:00-7:00	62.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	62.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	62.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	64.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	63.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	62.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	64.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.02.2023	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by

[Signature]



Authorised Signatory

[Signature]
Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/002	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/002
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Near Existing Quarry (East)		

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)
05.12.2022	7:00-7:00	39.3	19.8	7.3	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	41.5	20.1	7.1	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	39.6	20.3	7.6	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	40.7	18.5	7.2	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	41.3	18.8	7.5	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	39.8	18.7	7.6	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	38.9	18.2	7.3	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	40.4	20.7	7.5	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	42.6	20.0	7.6	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	41.2	20.3	7.4	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	40.2	19.9	7.8	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	41.5	19.3	7.3	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	42.2	19.5	7.2	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	41.9	20.6	7.2	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	41.3	20.5	7.4	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	40.2	20.7	7.6	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	40.5	19.2	7.7	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	41.7	20.3	7.3	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	41.3	21.9	7.5	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	41.5	20.1	7.6	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	41.5	20.7	7.9	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.02.2023	7:15-7:15	40.2	21.2	8.2	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	40.3	20.3	7.7	20.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	40.7	19.9	7.6	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/002	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/002
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Near Existing Quarry (East)		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
05.12.2022	7:00-7:00	57.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	57.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	58.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	58.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	58.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	58.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	57.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	57.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	57.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	57.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	58.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	58.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	58.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	59.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	56.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	56.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	56.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	56.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	56.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	55.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	55.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.02.2023	7:15-7:15	56.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	56.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	56.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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[Signature]



Authorised Signatory

[Signature]
Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/003	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/003
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ – 3 Therampalayam (NE)		

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)
	7:00-7:00	43.2	19.7	5.3	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	41.8	19.6	5.7	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	42.6	18.4	5.9	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	43.5	21.6	6.3	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	40.9	19.6	6.8	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	41.6	20.4	6.4	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	40.1	21.6	6.9	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	41.7	18.6	6.8	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	42.5	18.5	6.7	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	41.8	19.7	6.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	41.9	20.5	7.3	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	42.4	21.6	7.5	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	40.6	21.8	7.6	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	40.3	19.6	7.9	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	40.7	19.7	7.1	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	41.8	21.5	6.6	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	42.2	20.4	6.8	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	42.4	18.8	6.9	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	41.6	19.7	6.1	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	41.8	21.5	6.7	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	40.7	20.9	5.9	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.02.2023	7:15-7:15	43.3	22.1	6.8	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	42.7	21.7	7.3	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	40.8	20.8	7.5	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/003	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/003
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ – 3 Therampalayam (NE)		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
05.12.2022	7:00-7:00	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	63.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.02.2023	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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[Signature]



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/004	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/004
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 – Karamadai (SW)		

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)
05.12.2022	7:00-7:00	40.5	19.6	5.3	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	39.2	18.9	5.5	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	40.6	18.5	5.6	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	41.0	18.2	5.8	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	40.8	18.1	5.1	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	41.5	18.9	5.9	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	40.1	19.1	5.3	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	41.7	19.5	5.2	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	40.0	19.8	5.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	40.1	19.5	5.8	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	40.9	18.3	5.2	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	40.4	18.8	5.4	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	40.6	19.6	5.6	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	40.9	18.1	5.4	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	40.2	19.9	5.3	20.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	41.7	18.5	5.1	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	40.1	18.3	5.8	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	41.6	18.8	5.6	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	41.5	19.2	5.1	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	40.8	18.5	5.5	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	41.1	19.8	5.6	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.02.2023	7:15-7:15	41.5	19.6	5.4	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	40.3	19.2	5.2	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	40.9	18.6	5.7	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/004	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/004
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 – Karamadai (SW)		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
05.12.2022	7:00-7:00	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	62.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	62.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	62.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	62.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	63.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	63.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	63.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	62.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	62.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	62.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	62.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	61.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	61.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	61.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.02.2023	7:15-7:15	63.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	63.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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[Signature]



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/005	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/005
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Onnipalayam (SE)		

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)
05.12.2022	7:00-7:00	41.3	20.7	8.3	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	42.4	20.4	8.5	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	41.8	21.5	8.7	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	42.4	20.9	8.1	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	44.3	20.5	8.6	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	43.7	21.9	8.7	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	40.6	21.7	7.3	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	42.5	21.5	8.5	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	43.6	20.6	7.2	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	42.7	20.8	7.1	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	41.6	20.4	7.6	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	42.9	21.3	7.8	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	43.8	20.8	7.1	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	42.5	21.7	7.8	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	41.9	21.6	6.6	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	41.3	22.8	6.3	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	42.7	21.2	6.1	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	41.3	21.3	6.5	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	43.6	20.5	6.8	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	42.5	20.3	6.5	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	44.8	21.7	7.6	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.02.2023	7:15-7:15	42.5	21.3	7.1	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	41.3	20.8	7.8	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	42.7	21.5	7.1	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/005	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/005
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Onnipalayam (SE)		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
05.12.2022	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	63.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	63.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.02.2023	7:15-7:15	63.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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[Signature]



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/006	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/006
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 – Bellaipalayam (NE)		

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)
05.12.2022	7:00-7:00	39.5	18.3	6.2	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	39.2	18.8	6.5	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	38.5	19.4	6.4	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	38.8	18.9	6.8	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	38.6	18.3	6.8	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	38.7	19.7	7.2	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	39.6	19.7	7.5	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	39.8	18.2	7.4	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	38.6	19.8	7.5	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	38.1	20.3	7.7	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	38.5	19.3	7.4	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	38.4	20.1	7.1	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	39.2	20.2	6.8	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	39.3	20.4	6.5	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	39.2	20.9	6.6	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	39.6	20.3	7.2	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	39.7	19.5	7.6	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	38.2	19.7	7.9	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	39.5	19.4	7.2	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	38.3	19.5	7.1	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	38.5	20.3	6.2	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.02.2023	7:15-7:15	39.5	20.7	6.5	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	39.3	20.2	6.5	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	40.5	18.3	6.8	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by




Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/006	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/006
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 – Bellaipalayam (NE)		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
05.12.2022	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	66.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.02.2023	7:15-7:15	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]
Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/007	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/007
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ7 – Bodithimmampalayam (S)		

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)
05.12.2022	7:00-7:00	41.7	20.4	6.9	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	40.9	20.9	6.4	20.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	40.3	20.3	6.3	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	41.7	20.5	6.8	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	42.3	20.7	6.6	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	41.7	20.6	7.2	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	40.2	21.3	7.7	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	42.6	21.4	7.5	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	40.5	21.8	7.8	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	41.3	21.5	7.5	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	41.7	21.9	7.8	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	42.3	21.3	6.3	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	41.3	20.9	6.8	20.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	42.7	20.1	6.7	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	42.9	22.5	6.9	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	41.6	21.9	7.9	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	43.5	23.3	7.3	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	42.3	24.6	7.2	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	41.9	22.8	6.8	20.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	43.3	21.8	7.5	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	42.5	25.3	7.6	20.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.02.2023	7:15-7:15	44.7	23.9	7.7	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	43.6	23.4	7.8	20.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	42.8	21.6	7.9	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/007	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/007
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ7 – Bodithimmampalayam (S)		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
05.12.2022	7:00-7:00	60.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	60.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	61.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	61.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	61.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	61.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	60.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	69.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	69.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	69.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	69.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	69.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	60.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	60.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	61.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	61.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	61.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	61.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	62.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	62.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.02.2023	7:15-7:15	62.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	62.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	61.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

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Authorised Signatory

[Signature]
Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/008	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/008
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ8 – Bettadapuram (SW)		

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)
05.12.2022	7:00-7:00	40.3	18.7	6.3	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	39.6	19.6	6.4	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	39.7	19.7	6.5	25.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	39.5	19.5	6.1	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	38.3	19.2	6.7	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	38.4	19.3	6.8	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	38.2	19.1	6.7	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	38.1	18.6	5.3	26.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	40.6	18.7	5.8	26.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	40.5	18.3	5.9	26.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	40.7	20.7	5.7	26.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	40.5	20.7	5.6	26.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	40.6	19.3	5.1	26.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	40.8	19.7	6.2	26.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	39.7	19.6	6.7	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	39.5	19.8	6.8	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	39.1	20.3	6.5	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	40.2	20.4	6.6	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	40.3	20.9	6.1	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	40.7	19.6	5.7	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	40.5	19.8	5.3	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.02.2023	7:15-7:15	41.6	18.3	5.8	25.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	41.7	18.2	5.9	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	41.3	18.7	5.1	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

Page 1 of 1

Verified by




Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/008	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/008
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ8 – Bettadapuram (SW)		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
05.12.2022	7:00-7:00	59.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	58.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	57.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	57.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	57.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	57.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	57.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	57.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	57.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	57.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	58.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	58.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	56.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	56.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	56.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	56.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	58.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	58.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	57.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	57.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	57.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.02.2023	7:15-7:15	56.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	56.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	56.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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[Signature]



Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/009	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/009
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ9 – Bargur (NE)		

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)
05.12.2022	7:00-7:00	48.2	23.8	7.6	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	47.6	24.6	7.4	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	45.7	25.7	7.5	25.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	45.5	23.6	6.8	25.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	42.8	23.1	7.2	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	44.9	24.7	7.1	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	46.5	25.9	8.2	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	44.4	23.9	8.8	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	45.7	24.3	7.6	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	43.6	25.1	7.7	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	42.8	25.3	7.2	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	45.4	24.7	7.1	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	46.7	23.2	7.9	24.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	46.9	25.8	6.6	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	45.7	23.6	6.4	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	45.9	24.9	6.2	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	42.7	22.8	6.3	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	43.6	23.7	6.9	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	43.5	21.6	6.6	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	43.6	22.5	7.7	24.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	42.5	23.6	6.6	25.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
25.02.2023	7:15-7:15	44.6	25.4	7.1	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	46.8	25.8	7.0	25.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	46.7	22.9	7.5	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/009	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/009
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ9 – Bargur (NE)		

Date	Period. hrs	SPM ($\mu\text{g}/\text{m}^3$)	As (ng/m^3)	C6H6 ($\mu\text{g}/\text{m}^3$)	BaP (ng/m^3)	Pb ($\mu\text{g}/\text{m}^3$)	Ni (ng/m^3)
05.12.2022	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	62.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	62.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	63.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	63.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	62.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	64.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	63.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	62.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	63.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	64.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
25.02.2023	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

*****End of Report*****

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[Signature]



Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 010	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 010
Sample Description	Ambient Noise	Sample Collected Date	21.02.2023

Location	N1 – Near Project Area			N2 – Near Project Area (NE)		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	37.9	41.6	40.1	31.5	38.1	35.9
07:00-08:00	38.9	42.8	41.3	32.6	40.7	38.3
08:00-09:00	39.6	42.6	41.4	33.9	41.4	39.1
09:00-10:00	38.9	45.5	43.3	31.4	39.5	37.1
10:00-11:00	38.5	47.3	44.8	32.5	40.2	37.9
11:00-12:00	38.1	48.7	46.1	33.8	41.4	39.1
12:00-13:00	37.6	43.1	41.2	35.6	43.6	41.2
13:00-14:00	37.6	39.2	38.5	31.8	38.4	36.2
14:00-15:00	37.2	45.2	42.8	33.9	41.7	39.4
15:00-16:00	38.5	49.5	46.8	32.5	40.9	38.5
16:00-17:00	39.2	46.3	44.1	34.8	43.6	41.1
17:00-18:00	41.6	41.7	41.7	32.6	40.4	38.1
18:00-19:00	41.8	39.1	40.7	35.1	43.1	40.7
19:00-20:00	42.5	40.7	41.7	36.1	40.2	38.6
20:00-21:00	33.7	41.3	39.0	34.2	43.6	41.1
21:00-22:00	38.2	44.7	42.6	36.5	47.1	44.5
22:00-23:00	34.4	36.2	35.4	33.8	41.2	38.9
23:00-00:00	34.6	36.1	35.4	33.9	42.1	39.7
00:00-01:00	35.8	37.8	36.9	31.5	39.4	37.0
01:00-02:00	36.2	39.9	38.4	32.9	40.2	37.9
02:00-03:00	35.6	39.4	37.9	33.4	41.7	39.3
03:00-04:00	34.8	38.5	37.0	31.7	38.5	36.3
04:00-05:00	35.5	36.9	36.3	32.6	40.8	38.4
05:00-06:00	36.4	38.4	37.5	31.3	38.6	36.3
Result	Day Means		41.8	Day Means		39.2
	Night Means		37.1	Night Means		37.9

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 011	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 011
Sample Description	Ambient Noise	Sample Collected Date	21.02.2023

Location	N3 - Near Existing Quarry (E)			N4 – Therampalayam (NE)		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	31.9	38.4	36.3	34.5	38.6	37.0
07:00-08:00	33.5	31.6	32.7	35.6	38.6	37.4
08:00-09:00	31.6	38.4	36.2	34.2	40.5	38.4
09:00-10:00	32.7	41.2	38.8	35.5	41.5	39.5
10:00-11:00	34.9	43.4	41.0	31.5	41.5	38.9
11:00-12:00	36.2	45.7	43.2	32.2	35.5	34.2
12:00-13:00	34.1	43.9	41.3	34.5	38.5	36.9
13:00-14:00	32.9	40.4	38.1	33.9	38.1	36.5
14:00-15:00	38.4	46.1	43.8	31.4	32.2	31.8
15:00-16:00	34.6	43.3	40.8	36.8	40.2	38.8
16:00-17:00	32.9	40.8	38.4	35.7	40.4	38.7
17:00-18:00	34.1	43.4	40.9	32.3	38.2	36.2
18:00-19:00	33.6	41.6	39.2	33.4	40.5	38.3
19:00-20:00	32.8	40.8	38.4	31.9	42.2	39.6
20:00-21:00	34.1	43.4	40.9	35.7	40.3	38.6
21:00-22:00	36.9	45.5	43.1	33.4	42.5	40.0
22:00-23:00	32.7	41.9	39.4	38.4	40.2	39.4
23:00-00:00	34.2	39.7	37.8	32.9	37.8	36.0
00:00-01:00	32.6	35.1	34.0	34.6	39.8	37.9
01:00-02:00	31.3	35.5	33.9	35.5	36.7	36.1
02:00-03:00	32.3	38.7	36.6	31.5	35.6	34.0
03:00-04:00	33.4	36.9	35.5	32.2	35.8	34.4
04:00-05:00	31.2	36.7	34.8	35.5	36.8	36.2
05:00-06:00	32.6	35.8	34.5	34.5	35.5	35.0
Result	Day Means		39.5	Day Means		37.6
	Night Means		35.3	Night Means		35.7

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

*****End of Report*****



Verified by

Authorised Signatory

Name: Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 012	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 012
Sample Description	Ambient Noise	Sample Collected Date	21.02.2023

Location	N5 – Bellaipalayam (NE)			N6 – Karamadai (SW)		
	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	32.6	38.8	36.7	31.5	38.1	35.9
07:00-08:00	34.9	37.6	36.5	32.6	40.7	38.3
08:00-09:00	32.6	34.5	33.7	33.9	41.4	39.1
09:00-10:00	33.6	36.8	35.5	31.4	39.5	37.1
10:00-11:00	32.8	40.2	37.9	32.5	40.2	37.9
11:00-12:00	31.2	41.5	38.9	33.8	41.4	39.1
12:00-13:00	36.4	43.5	41.3	35.6	43.6	41.2
13:00-14:00	33.9	41.4	39.1	31.8	38.4	36.2
14:00-15:00	32.7	43.9	41.2	33.9	41.7	39.4
15:00-16:00	36.5	42.2	40.2	32.5	40.9	38.5
16:00-17:00	32.3	40.9	38.5	34.8	43.6	41.1
17:00-18:00	34.2	43.2	40.7	32.6	40.4	38.1
18:00-19:00	34.7	44.9	42.3	35.1	43.1	40.7
19:00-20:00	31.6	40.7	38.2	36.1	40.2	38.6
20:00-21:00	32.8	40.3	38.0	34.2	43.6	41.1
21:00-22:00	33.6	41.4	39.1	36.5	47.1	44.5
22:00-23:00	32.5	40.3	38.0	33.8	41.2	38.9
23:00-00:00	36.4	45.2	42.7	33.9	42.1	39.7
00:00-01:00	33.6	35	34.4	31.5	39.4	37.0
01:00-02:00	34.9	35.8	35.4	32.9	40.2	37.9
02:00-03:00	31.5	34.2	33.1	33.4	41.7	39.3
03:00-04:00	32.3	35.5	34.2	31.7	38.5	36.3
04:00-05:00	31.7	34.8	33.5	32.6	40.8	38.4
05:00-06:00	32.2	34.5	33.5	31.3	38.6	36.3
Result	Day Means		38.6	Day Means		39.4
	Night Means		35.2	Night Means		39.2

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

*****End of Report*****



Verified by

[Signature]

Authorised Signatory

[Signature]

Name: Santhosh Kumar A
Designation: Quality Manager

- Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/ 013	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 013
Sample Description	Ambient Noise	Sample Collected Date	21.02.2023

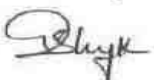
Location	N7 – Onnipalayam (SE)		
Parameter	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)
06:00-07:00	32.6	36.6	35.0
07:00-08:00	34.5	40.2	38.2
08:00-09:00	35.2	39.5	37.9
09:00-10:00	36.8	38.4	37.7
10:00-11:00	36.9	37.6	37.3
11:00-12:00	38.1	45.5	43.2
12:00-13:00	34.9	40.5	38.5
13:00-14:00	37.2	41.3	39.7
14:00-15:00	36.2	43.6	41.3
15:00-16:00	35.9	44.8	42.3
16:00-17:00	36.5	38.4	37.6
17:00-18:00	32.5	40.9	38.5
18:00-19:00	34.4	43.4	40.9
19:00-20:00	31.2	39.7	37.3
20:00-21:00	36.9	46.5	43.9
21:00-22:00	32.5	40.8	38.4
22:00-23:00	36.1	44.3	41.9
23:00-00:00	34.1	39.9	37.9
00:00-01:00	32.9	37.8	36.0
01:00-02:00	33.5	36.9	35.5
02:00-03:00	33.7	35.8	34.9
03:00-04:00	32.5	34.5	33.6
04:00-05:00	33.4	36.6	35.3
05:00-06:00	33.5	35.5	34.6
Result	Day Means		39.4
	Night Means		35.4

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

*****End of Report*****



Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 014	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 014
Sample Description	Soil 2	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 KG	Sample Received On	22.02.2023
Sample Condition	Good	Test Commenced On	22.02.2023
Sampling Location	Soil – 1 – Near Project Area		

S. No	Test Parameters	Protocols	Results
1.	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2019)	8.10
2.	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2019)	547 µmhos/cm
3.	Water Holding Capacity	By Gravimetric Method	38.5 %
4.	Bulk Density	By Cylindrical Method	1.02 g/cm ³
5.	Porosity	By Gravimetric Method	21.3 %
6.	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	144.1 mg/kg
7.	Magnesium as Mg		20.5 mg/kg
8.	Chloride as Cl		142 mg/kg
9.	Soluble Sulphate as SO ₄		124.1 %
10.	Total Phosphorus as P		42.5 mg/kg
11.	Available Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	188 mg/kg
12.	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.27 %
13.	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.74 %

*****End of Report*****

Page 1 of 1

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Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 014	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 014
Sample Description	Soil 2	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 KG	Sample Received On	22.02.2023
Sample Condition	Good	Test Commenced On	22.02.2023
Sampling Location	Soil – 1 – Near Project Area		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	42.4 %
	Sand		42.1 %
	Silt		15.5 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	27.3 mg/kg
16	Zinc as Zn		0.30 mg/kg
17	Boron as B		0.51 mg/kg
18	Potassium as K		40.1 mg/kg
19	Cadmium as Cd		BDL (DL : 0.003 mg/kg)
20	Total Chromium as Cr		BDL (DL : 0.05 mg/kg)
21	Copper as Cu		BDL (DL : 0.05 mg/kg)
22	Lead as Pb		0.56 mg/kg
23	Iron as Fe		1.99 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

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[Signature]
Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 015	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 015
Sample Description	Soil 2	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 KG	Sample Received On	22.02.2023
Sample Condition	Good	Test Commenced On	22.02.2023
Sampling Location	Soil – 2 – Bettadapuram		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2019)	7.46
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2019)	410 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	38.5 %
04	Bulk Density	By Cylindrical Method	1.02 g/cm ³
05	Porosity	By Gravimetric Method	21.3 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	144.1 mg/kg
07	Magnesium as Mg		20.5 mg/kg
08	Chloride as Cl		142 mg/kg
09	Soluble Sulphate as SO ₄		124.1 %
10	Total Phosphorus as P		42.5 mg/kg
11	Available Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	188 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.27 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.74 %

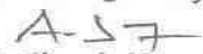
*****End of Report*****

Page 1 of 1

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Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 015	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 015
Sample Description	Soil 2	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 KG	Sample Received On	22.02.2023
Sample Condition	Good	Test Commenced On	22.02.2023
Sampling Location	Soil – 2 – Bettadapuram		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	37.7 %
	Sand		43.5 %
	Silt		18.8 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	25.5 mg/kg
16	Zinc as Zn		0.31 mg/kg
17	Boron as B		0.73 mg/kg
18	Potassium as K		28.8 mg/kg
19	Cadmium as Cd		BDL (DL : 0.003 mg/kg)
20	Total Chromium as Cr		BDL (DL : 0.05mg/kg)
21	Copper as Cu		BDL (DL : 0.05 mg/kg)
22	Lead as Pb		0.33 mg/kg
23	Iron as Fe		1.59mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	34.7 meq/100g of soil

*****End of Report*****

Page 1 of 1

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Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 019	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 019
Sample Description	Soil 2	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 KG	Sample Received On	22.02.2023
Sample Condition	Good	Test Commenced On	22.02.2023
Sampling Location	Soil – 3 – Therampalayam		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2019)	7.10
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2019)	488 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.4 %
04	Bulk Density	By Cylindrical Method	1.37 g/cm ³
05	Porosity	By Gravimetric Method	26.9 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	108.3 mg/kg
07	Magnesium as Mg		25.5 mg/kg
08	Chloride as Cl		154 mg/kg
09	Soluble Sulphate as SO ₄		111 %
10	Total Phosphorus as P		37.7 mg/kg
11	Available Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	350.1 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.10 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.22 %

*****End of Report*****

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Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 019	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 019
Sample Description	Soil 2	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 KG	Sample Received On	22.02.2023
Sample Condition	Good	Test Commenced On	22.02.2023
Sampling Location	Soil – 3 – Therampalayam		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	54.8 %
	Sand		37.7%
	Silt		7.5 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	31.9 mg/kg
16	Zinc as Zn		0.52 mg/kg
17	Boron as B		0.64 mg/kg
18	Potassium as K		30.0 mg/kg
19	Cadmium as Cd		BDL (DL : 0.003 mg/kg)
20	Total Chromium as Cr		BDL (DL : 0.05 mg/kg)
21	Copper as Cu		BDL (DL : 0.05 mg/kg)
22	Lead as Pb		0.67 mg/kg
23	Iron as Fe		2.64 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986


*****End of Report*****

Page 1 of 1

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Authorised Signatory


 Name : Santhosh Kumar A
 Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 017	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 017
Sample Description	Soil 2	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 KG	Sample Received On	22.02.2023
Sample Condition	Good	Test Commenced On	22.02.2023
Sampling Location	Soil – 4 – Onnipalayam		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2019)	8.27
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2019)	607 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.2 %
04	Bulk Density	By Cylindrical Method	1.26 g/cm3
05	Porosity	By Gravimetric Method	28.9 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	138 mg/kg
07	Magnesium as Mg		28.8 mg/kg
08	Chloride as Cl		146 mg/kg
09	Soluble Sulphate as SO ₄		117 %
10	Total Phosphorus as P		41.4 mg/kg
11	Available Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	366.7 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.74 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.59 %

*****End of Report*****

Page 1 of 1

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Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 017	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 017
Sample Description	Soil 2	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 KG	Sample Received On	22.02.2023
Sample Condition	Good	Test Commenced On	22.02.2023
Sampling Location	Soil – 4 – Onnipalayam		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	53.5 %
	Sand		37.7 %
	Silt		8.8 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	41.1 mg/kg
16	Zinc as Zn		0.43 mg/kg
17	Boron as B		0.80 mg/kg
18	Potassium as K		41.3 mg/kg
19	Cadmium as Cd		BDL (DL : 0.003 mg/kg)
20	Total Chromium as Cr		BDL (DL : 0.05 mg/kg)
21	Copper as Cu		BDL (DL : 0.05mg/kg)
22	Lead as Pb		0.51 mg/kg
23	Iron as Fe		2.84 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	42.2 meq/100g of soil


*****End of Report*****

Page 1 of 1

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Authorised Signatory


 Name : Santhosh Kumar A
 Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 018	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 018
Sample Description	Soil 2	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 KG	Sample Received On	22.02.2023
Sample Condition	Good	Test Commenced On	22.02.2023
Sampling Location	Soil – 5 –Bargur		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2019)	7.89
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2019)	710 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	40.2 %
04	Bulk Density	By Cylindrical Method	1.02 g/cm3
05	Porosity	By Gravimetric Method	26.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	121.4 mg/kg
07	Magnesium as Mg		27 mg/kg
08	Chloride as Cl		161.2 mg/kg
09	Soluble Sulphate as SO ₄		102 %
10	Total Phosphorus as P		37.5 mg/kg
11	Available Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	250.8 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.05 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.61 %

*****End of Report*****

Page 1 of 1

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Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 018	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 018
Sample Description	Soil 2	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 KG	Sample Received On	22.02.2023
Sample Condition	Good	Test Commenced On	22.02.2023
Sampling Location	Soil – 5 –Bargur		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	18.5 %
	Sand		68.8 %
	Silt		12.7 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	38.7 mg/kg
16	Zinc as Zn		0.31 mg/kg
17	Boron as B		0.66 mg/kg
18	Potassium as K		37.6 mg/kg
19	Cadmium as Cd		BDL (DL : 0.003 mg/kg)
20	Total Chromium as Cr		BDL (DL : 0.05 mg/kg)
21	Copper as Cu		BDL (DL : 0.05 mg/kg)
22	Lead as Pb		0.47 mg/kg
23	Iron as Fe		1.66 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	33.0 meq/100g of soil

*****End of Report*****

Page 1 of 1

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Authorised Signatory


 Name : Santhosh Kumar A
 Designation : Quality Manager

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TEST REPORT

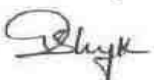
Report No	EHS360/TR/2022-23/019	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/019
Sample Description	Surface Water (SW-1)	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	22.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	22.02.2023
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	10 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.40
4	Conductivity @ 25°C	IS 3025 Part 14:2013	539 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	5.1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	318 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	197 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	33.2 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	27.9 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	163 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	69.5 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	24.1 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.27 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:2.0 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.34 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	12 mg/l

*****End of Report*****

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Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

TEST REPORT

Report No	EHS360/TR/2022-23/019	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/019
Sample Description	Surface Water (SW-1)	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	22.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	22.02.2023
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019)(Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	6.2 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	24 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	7.5 mg/l
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.1 mg/l)
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	5.7 mg/l
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	100 MPN/100ml
41	Escherichia coli	APHA 23 rd Edn. 2017:9221F	20 MPN/100ml

*****End of Report*****

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Authorised Signatory

 Name: Santhosh Kumar A
 Designation: Quality Manager

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TEST REPORT



TC-9583

Report No	EHS360/TR/2022-23/020	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/020
Sample Description	Surface Water (SW-2)	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	22.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	22.02.2023
Sampling Location	Belladhi Lake		

S.No.	Parameters	Test Method	RESULTS
Discipline: Chemical			
1	Colour	IS 3025 Part 4:1983	5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.83
4	Conductivity @ 25°C	IS 3025 Part 14:2013	758 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	5.8 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	440 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	145.9 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	30 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	17.3 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	161.2 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	101.2 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	32.2 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.19 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:2.0 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.12 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	5.1 mg/l

*****End of Report*****

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Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/020	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/020
Sample Description	Surface Water (SW-2)	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	22.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	22.02.2023
Sampling Location	Belladhi Lake		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019)(Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	7.2 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	32 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	6.1 mg/l
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	2.3 mg/l
36	Sulphide as H ₂ S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	6.6 mg/l
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	Present
41	Escherichia coli	APHA 23 rd Edn. 2017:9221F	Present

*****End of Report*****



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Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/021	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/021
Sample Description	Ground Water (WW-1)	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	22.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	22.02.2023
Sampling Location	Therampalayam		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	<5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.44
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	568 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	<1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	335 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	192.88 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	33.8 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	26.4 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	135 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	72.7 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	25.7 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	BDL (DL:0.1 mg/l)
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.20 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	8.3 mg/l

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Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/021	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/021
Sample Description	Ground Water (WW-1)	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	22.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	22.02.2023
Sampling Location	Therampalayam		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39:1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	<2 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 2MPN/100ml


*****End of Report*****

Page 1 of 1

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 Name: Santhosh Kumar A
 Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/022	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/022
Sample Description	Ground Water (WW-2)	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	22.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	22.02.2023
Sampling Location	Bellaipalayam		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	<5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.54
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	613 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	<1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	362 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	172.59 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	31.6 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	22.8 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	142 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	75.8 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	26.7 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	BDL (DL:0.1 mg/l)
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.25 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	7.6 mg/l

*****End of Report*****

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Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/022	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/022
Sample Description	Ground Water (WW-2)	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	22.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	22.02.2023
Sampling Location	Bellaipalayam		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	<2 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 2MPN/100ml

*****End of Report*****

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 Name: Santhosh Kumar A
 Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/023	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/023
Sample Description	Ground Water (BW -1)	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	22.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	22.02.2023
Sampling Location	Onnipalayam		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	<5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.59
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	725 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	<1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	428 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	213.62 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	37.5 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	29.2 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	164 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	90.1 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	29.2 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.22 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.46 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	11.9 mg/l

*****End of Report*****

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Verified by




Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/023	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/023
Sample Description	Ground Water (BW -1)	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	22.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	22.02.2023
Sampling Location	Onnipalayam		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	<2 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 2MPN/100ml

*****End of Report*****

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Verified by




Authorised Signatory

 Name: Santhosh Kumar A
 Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/024	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/024
Sample Description	Ground Water (BW -2)	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	22.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	22.02.2023
Sampling Location	Suravilandur		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	<5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.10
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	682 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	<1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	402 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	259.14 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	41.9 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	37.6 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	177 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	85.3 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	28.3 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.17 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.39 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	9.5 mg/l

*****End of Report*****

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Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/024	Report Date	25.02.2023
Site Location	M/s. Belladhi & Chikkarampalayam Rough Stone & Gravel Quarries, Belladhi & Chikkarampalayam Village, Mettupalayam Taluk, Coimbatore District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/024
Sample Description	Ground Water (BW -2)	Sample Collected Date	21.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	22.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	22.02.2023
Sampling Location	Suravilandur		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C ₆ H ₅ OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H ₂ S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	Group: Water	
37	Total Coliform	APHA 23 rd Edn. 2017:9221B	<2 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 2MPN/100ml


*****End of Report*****

Page 1 of 1

Verified by




Authorised Signatory


 Name: Santhosh Kumar A
 Designation: Quality Manager

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National Accreditation Board for Education and Training



Certificate of Accreditation

Geo Exploration & Mining Solutions, Salem

No. 17, Advaita Ashram Road, Fairlands, Salem – 636 004, Tamilnadu, India.

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S.No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals opencast only	1	1 (a) (i)	A
2	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	B
3	Building and construction projects	38	8(a)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Jan 06, 2023 and posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2684 dated Feb 20, 2023. The accreditation needs to be renewed before the expiry date by Geo Exploration & Mining Solutions, Salem following due process of assessment.

Sr. Director, NABET
Dated: Feb 20, 2023

Certificate No.
NABET/EIA/2225/RA 0276

Valid up to
August 06, 2025

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