
**DRAFT ENVIRONMENTAL IMPACT ASSESSMENT
&
ENVIRONMENT MANAGEMENT PLAN**

“B1” CATEGORY – MINOR MINERAL – PATTA LAND – NON-FOREST LAND

**M/s. SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY
ROUGH STONE & GRAVEL QUARRY**

IN CLUSTER OVER AN EXTENT OF 10.23.36 Ha

At

Bilichi Village, Coimbatore North Taluk, Coimbatore District, Tamil Nadu State

For Obtaining

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

Project Proponent	Proposed Project	Extent
M/s. Sri Rajalakshmi Samappa Building Materials Company, No. 677/1A, Vellamadai, Annoor Taluk Coimbatore District - 641 110.	S.F. Nos:1118/1, Bilichi Village, Coimbatore North Taluk, Coimbatore District.	3.00.36 ha
ToR obtained vide Letter No. SEIAA- TN/F.No.10130/SEAC/ToR-1516/2023 Dated: 07.08.2023		

Environmental Consultant

GEO EXPLORATION AND MINING SOLUTIONS



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Accredited for sector 1 Category ‘A’, 31 Category ‘B’ & 38 Category ‘B’

Certificate No : NABET/EIA/2225/RA 0276 Dated: 06.08.2025



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ENVIRONMENTAL LAB

EHS 360 LABS PRIVATE LIMITED,

10/2 Ground floor, 50th street, 7th Avenue,

Ashok Nagar, Chennai – 600 083.

Baseline Monitoring Season – Dec 2022 to Feb 2023

MAY 2023

For the easy representation the proposed quarry and existing quarry are designated as below –

PROPOSED QUARRIES				
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	Status
P1	M/s. Sri Rajalakshmi Samappa Building Materials Company, No. 677/1A, Vellamadai, Annoor Taluk Coimbatore District - 641 110.	1118/1, Bilichi Village, Coimbatore North Taluk	3.00.36	Letter No. SEIAA-TN/F.No.10130/SEAC/ToR-1516/2023 Dated: 07.08.2023
P2	Tvl. Sri Rajalakshmi Samappa Building Materials Company, No. 677/1A, Vellamadai, Annoor Taluk Coimbatore District - 641 110.	1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk	2.60.5	Public Hearing Completed on 01.08.2023
TOTAL			5.60.86	
EXISTING QUARRIES				
CODE	Name of the Proponent and Address	S.F. Nos & Village	Extent in Ha	Lease Period
E-1	Thiru.S.Palanisamy	1119, 1120,1121 & Bilichi	4.62.50	10.11.2020 to 09.11.2025
E-2	N.S.Selvaraj	676/1D & Vellamadai	1.31.0	15.11.2006 to 14.11.2026
TOTAL			5.93.50	
TOTAL CLUSTER EXTENT			10.23.36	

Note: -

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

As per above notification S.O.2269(E) dated : 01.07.2016 in para (b) in Appendix XI,- (ii) (5): The lease not operative for three years or more and leases which have got environmental clearance as on 15th January, 2016 shall not be counted for calculating the area of cluster, but shall be included in the Environment Management Plan and the Regional Environmental Management Plan”

TERMS OF REFERENCE (ToR) COMPLIANCE

P1- M/s.Sri Rajalakshmi Samappa Roughstone & Gravel Quarry

Letter No. SEIAA- TN/F.No.10130/SEAC/ToR-1516/2023 Dated: 07.08.2023

SPECIFIC CONDITIONS		
1	The PP shall furnish ownership details of all survey numbers in EIA report.	Noted and agreed
2	The PP shall submit the 'Action Plan' on the issues raised during the Public Hearing with budgetary provisions for the same.	Noted and agreed
3	The PP shall submit the controlled blasting measures for reducing the impacts due to the blasting operation in the proposed quarries within 1 km of the proposed quarry.	Noted and agreed
4	The PP shall submit a 'Conceptual Mining Plan' indicating the accessible ramp from the surface to the pit bottom keeping the benches intact for the dimension as stipulated in the Approved Mining Plan.	Noted and agreed
5	The PP shall submit the nature of buildings/structures, occupants and their profession, etc located within 500 m radius of the proposed quarry.	Noted and agreed
ANNEXURE I		
1	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	It is a Fresh Quarry
2	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the	VAO letter attached in the Draft EIA Report

	periphery of the site.	
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 shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.	Noted and agreed
4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the water bodies like lake, water tanks, etc are located within 1 km of the proposed quarry.	Hydro-geological study considering the contour map of the water table detailing Chapter-3
5	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	Bio diversity study study considering inChapter-3
6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	The DFO Letter will be submitted in the final EIA report
7	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	Noted and agreed
8	However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.	Noted and agreed
9	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	The affidavit stating that the blasting operation will be submitted in the final EIA report

	foreman, II/I Class mines manager appointed by the proponent.	
10	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
11	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 Covering the cluster area clearly stating the extent of the operation will be submitted in the final EIA report
12	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,	Noted and agreed It is a Fresh Quarry
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Noted and agreed It is a Fresh Quarry
14	Quantity of minerals mined out. <ul style="list-style-type: none"> • Highest production achieved in any one year • Detail of approved depth of mining. • Actual depth of the mining achieved earlier. • Name of the person already mined in that leases area. • If EC and CTO already obtained, the copy of the same shall be submitted. • Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches. 	Noted and agreed It is a Fresh Quarry
15	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).	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
16	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
17	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.	Fencing erected around the boundary barrier.

18	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.	Total Mineable Reserves, Proposed production and working methodology given in the Chapter No.2
19	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act' 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Organization chart indicating Proposal for the appointment of Statutory officials is given in the Chapter No.7
20	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	Hydro-geological study considering the contour map of the water table detailing Chapter-3
21	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 study furnished chapter-3
22	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.	Environment Management plan in chapter-10
23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	During rainy season rain water will be collected in the quarry pit and later used for greenbelt development and for the water sprinkling in the haul roads. In chapter-4
24	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water	Details in Land use of the study area in chapter 3

	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.	
25	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.	It is Stored in Safety area 7.5m radius.
26	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.	It is a Patta Land.
27	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.
28	Impact on local transport infrastructure due to the Project should be indicated.	Transportation details mentioned in Chapter -2
29	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.	Greenbelt details in Chapter-4. It is proposed to plant 1800trees along boundary and panchayat roads.
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	Mine Closure in Chapter -2
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.	Chapter 3-flora and fauna details in the EIA reprot
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. 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.	Noted and Agreed

33	Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	The proposed project is Existing lease. Around 1800 trees are proposed to plant in the 1 st year
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.	Disaster management Plan details in 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.	A Risk Assessment and management Plan Chapter-7
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 occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts chapter- 10
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.	It is explained in Chapter -4- Impact of socio-economic study
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.	It is explained in Chapter -3- socio economic study
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 against the project
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.	It is explained in Chapter -3- socio economic study
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	Noted & agreed.

	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 of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	Noted & 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.
NORMAL CONDITIONS		
1	Considering the environmental impacts due to the mining , safety of the working personnel and following the principle of the sustainable mining the depth of mining is restricted from 50m to 45m and consequently the revised quantity shall be spelt out in the 'modified Production and Development Plan' to be submitted during the EIA appraisal.	Noted, 45m (3m Weathered Rock +2m Gravel + 40m Rough Stone) Rough Stone in 4,86,300m ³ Gravel 48,672m ³ Weathered Rock 67,266 m ³ Enclosed approved mining plan
ADDITIONAL CONDITIONS-Annexure-B		
<i>Cluster Management committee</i>		
1.	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Details chapter 7 salient features of quarry with existing quarry.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc..	Noted & agreed
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Noted & agreed
4	Detailed operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	Transport details in chapter-2
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan	Noted & agreed
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Noted & agreed

7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Noted & agreed
8	The committee shall furnish the Emergency Management 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.
<i>Impact study of mining</i>		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood of the local people. 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.
<i>Agriculture & Agro-Biodiversity</i>		
13	Impact on surrounding agricultural fields around the proposed mining Area.	Detailed discussed in chapter 4.
14	Impact on soil flora & vegetation around the project site.	Detailed discussed in chapter 4.
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	Details in Chapter 2,3 and 7
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora. fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Details in Chapter 3
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted & agreed
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands. Horticulture, Agriculture and livestock.	The project area is bounded by Existing quarries on the East 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.	Noted & agreed
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 in 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.22-65/2017-1A.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 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	Details of carbon emission and mitigation activities are given int the Chapter No.4

investigated and reported.	
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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 projects 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° 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 government 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	Not Applicable. There are No National Parks, Biosphere Reserves,

	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.	Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 KM of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished	Not Applicable. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
18	A detailed biological study of the study area [core zone and buffer zone (10 KM radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	Detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] was carried out and discussed under Chapter No. 3. There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area. 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	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.

	sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	
22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season); December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	Baseline Data were collected for One Season Dec-Feb 2023 (Winter Season) as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
23	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD 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	The ground water table is at 60-65m below ground level. In these projects, ultimate depth is 50m Maximum from the general ground profile. It is inferred the quarrying activities in the

	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.	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 427m AMSL Ultimate depth of the mine is 50m AMSL Water level in the area is 65m BGL to 60m 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 commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	Traffic density survey was carried out to analyse the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no much significant impact due to the proposed transportation from the project area. Details in Chapter 2.
32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease and the same has been discussed in the Chapter No.2.
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Discussed in chapter No 2.
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Details in Chapter 10.
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation	Occupational health impact and details of the medical examination to the workers given in the Details in Chapter 10.

	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.	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	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) Dated: 4th August, 2009

	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.	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 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.

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1. INTRODUCTION

1.0 PREAMBLE

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

Rough Stone & Gravel is the major requirements for construction industry. This EIA report is prepared by considering Cumulative load of proposed & existing Quarry of M/s. Sri Rajalakshmi Samappa Buiding Material Company Rough Stone & Gravel Quarry cluster consisting of Two Proposed and Two Existing Quarry with total extent of Cluster of. 10.23.36 ha in Bilichi Village, Coimbatore North Taluk, Coimbatore District, Tamil Nadu State, cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016.

This EIA Report is prepared in compliance with ToR obtained vide Letter No: SEIAA-TN/F.No.10130/SEAC/ToR-1516/2023 Dated: 07.08.2023.

Baseline Monitoring study has been carried out during the period of Dec 2022 to Feb 2023 and this EIA/EMP report is prepared for considering cumulative impacts arising out of this project, the Cumulative Environmental Impact Assessment study is undertaken, which is followed by preparation of a detailed Environmental Management Plan (EMP) individually to minimize those adverse impacts.

1.1 PURPOSE OF THE REPORT

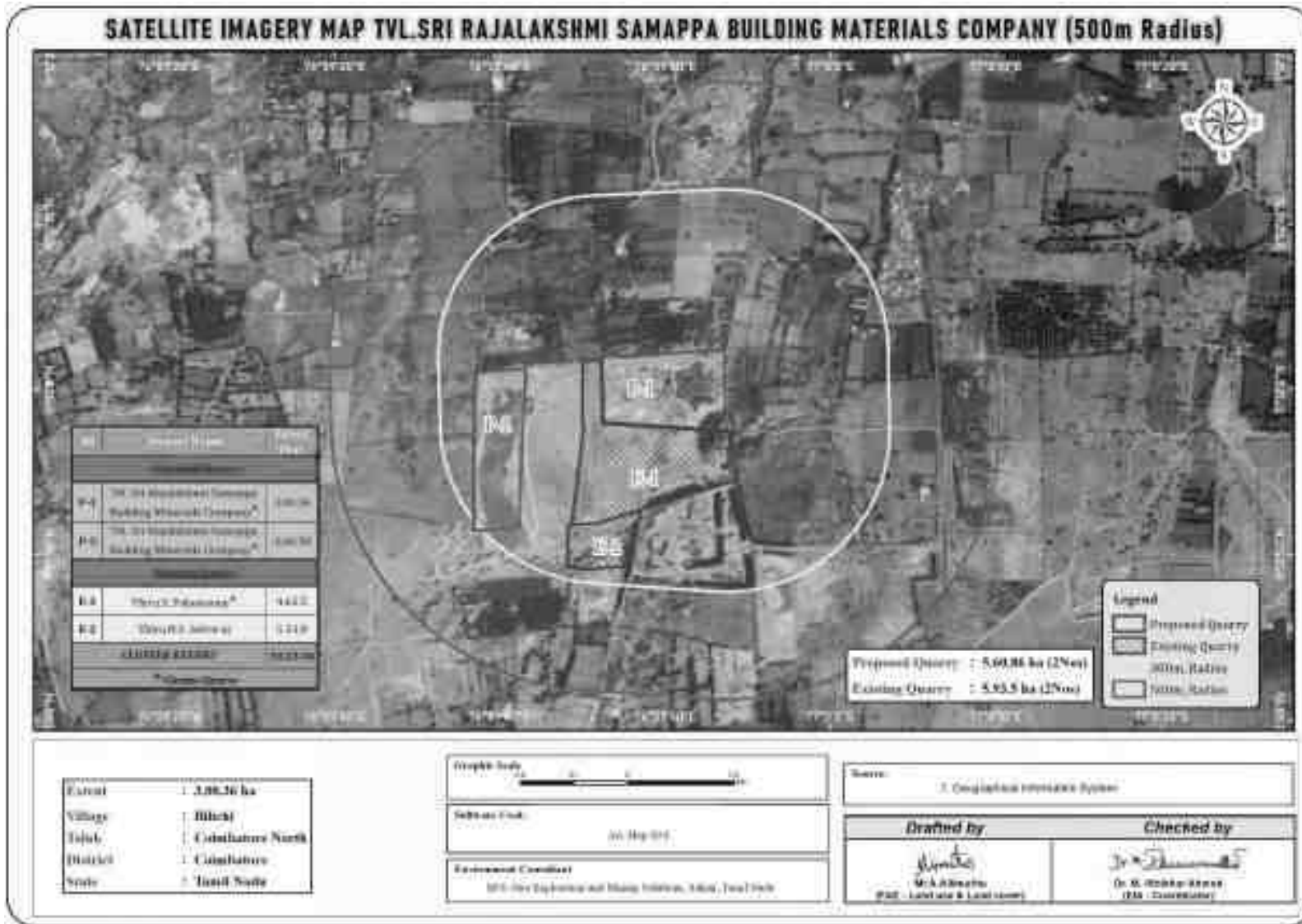
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14thSeptember 2006 and its subsequent amendments as per Gazette Notification S.O. 3977 (E) of 14thAugust 2018, Mining Projects are classified under two categories i.e. A (> 100 Ha) and B (\leq 100 Ha), 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 B- 1 and appraised by SEAC/ SEIAA as well as for cluster situation.

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

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

FIGURE.1.1SATELLITE IMAGERY CLUSTER QUARRY



1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

1.2.1 Identification of Project

TABLE 1.1: SALIENT FEATURES OF THE PROPOSED PROJECT

Name of the Project	M/s. Sri Rajalakshmi Samappa Building Material Company Rough Stone & Gravel Quarry
S.F. No.	1118/1,
Extent	3.00.36 ha
Land Type	Patta Land
Village Taluk and District	Bilichi Village, Coimbatore North Taluk, Coimbatore District

Source: Approved Mining Plan.

1.2.2 Identification of Project PropONENT

TABLE 1.2: DETAILS OF PROJECT PROPONENT

Name of the Company	M/s. Sri Rajalakshmi Samappa Building Material Company (Thiru S. Gnanasekaran is Authorised Signatory)
Address	No. 677/1A, Vellamadai, Annoor Taluk, Coimbatore District - 641 110.
Mobile	99763 64777 and 86673 84540
Status	Partnership firm

Source: Approved Mining Plan.

1.3 BRIEF DESCRIPTION OF THE PROJECT

1.3.1 Nature and Size of the Project

Common Mining Methodology is proposed for one proposed mine.

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

TABLE 1.3: BRIEF DESCRIPTION OF THE PROJECT

Name of the Quarry	M/s. Sri Rajalakshmi Samappa Building Material Company Rough Stone & Gravel Quarry		
Toposheet No	58-A/16		
Latitude between	11°11'57.48"N to 11°12'01.32"N		
Longitude between	76°59'46.14"E to 76°59'53.66"E		
Highest Elevation	427m AMSL		
Proposed Depth of Mining as per Tor	45m (3m Weathered Rock +2m Gravel + 40m Rough Stone)		
Geological Resources	Rough Stone in m ³	Gravel m ³	Weathered Rock m ³

	13,50,720	60,032	90,048
Mineable Reserves	Rough Stone in m ³	Gravel m ³	Weathered Rock m ³
	4,86,300	48,672	67,266
Yearwise production for first five years	Rough Stone in m ³	Gravel m ³	Weathered Rock m ³
	2,45,000	48,672	40,293
Yearwise production for Second five years	Rough Stone in m ³	Gravel m ³	Weathered Rock m ³
	2,26,800	-	26,973
Ultimate Pit Dimension	210m (L) x 119m (W) x 50m (D) Bgl		
Water Level in the surrounds area	65 - 60m bgl		
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting		
Topography	The lease applied area is plain terrain. The area has gentle sloping towards Northern side and altitude of the area is 427m (max) above from Mean Sea level. The area is covered by 2m thickness of Gravel and 3m of weathered rock and followed by Massive Charnockite which is clearly inferred from the nearby existing quarry pits. The Water level in the surrounding area is 65m in summer and at 60m in rainy seasons below general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 1213mm.		
Machinery proposed	Jack Hammer	6 Nos	
	Compressor	2 Nos	
	Excavator with bucket and rock breaker	2 Nos	
	Tipper	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	31 Nos		
Project Cost	Rs.1,06,27,000/-		
CER Cost	Rs 5,00,000/-		
Nearby Water Bodies	Water bodies	Distance & Direction	
	Odai	250m West	
	Odai	660m West	
	Belladhi Lake	750mNW	
	Tank	1km NE	
	Odai	1.6km SE	
	Bhavani River	6.8km NE	

Greenbelt Development Plan	Proposed to plant 1800 trees in the 7.5m Safety Zone, Village Road and panchayat roads.
Proposed Water Requirement	1.5 KLD
Nearest Habitation	310m NW

Source: Approved Mining Plan

1.3.2 Location of the Project

- The proposed quarry project falls in Bilichi Village, Coimbatore North Taluk and Coimbatore District.
- M/s. Sri Rajalakshmi Samappa quarry is located about 4 km Eastern side of Bilichi Village.
- The Bilichi Village is located about 20km Northern side of Coimbatore North Taluk.
- The area is marked in the Survey of India, Toposheet No. 58-A/16. The area lies between the Latitudes of 11°11'57.48"N to 11°12'02.32"N and Longitudes of 76°59'46.14"E to 76°59'53.66"E.

FIGURE 1.1A KEY MAP SHOWING THE LOCATION OF THE PROJECT SITE

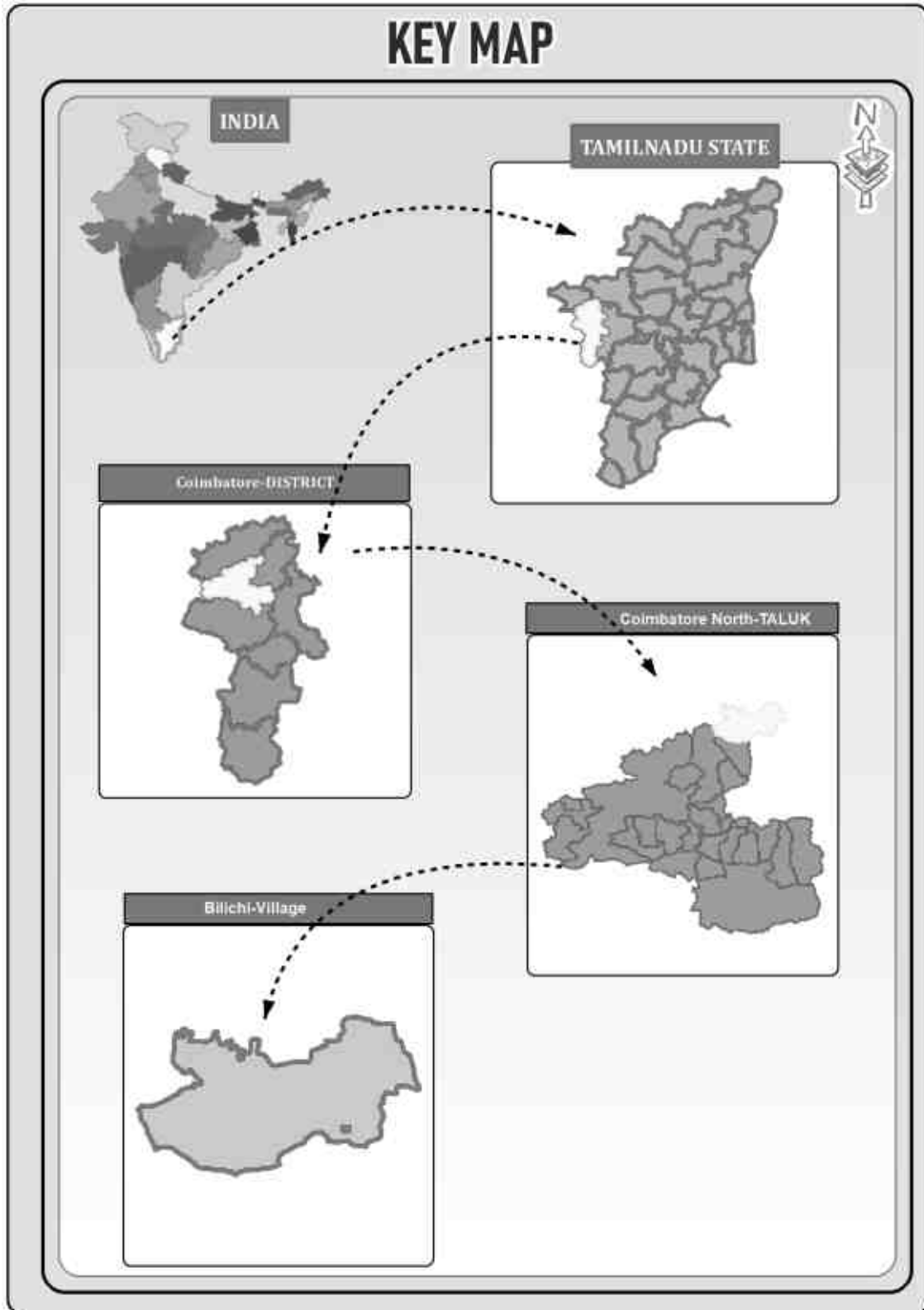
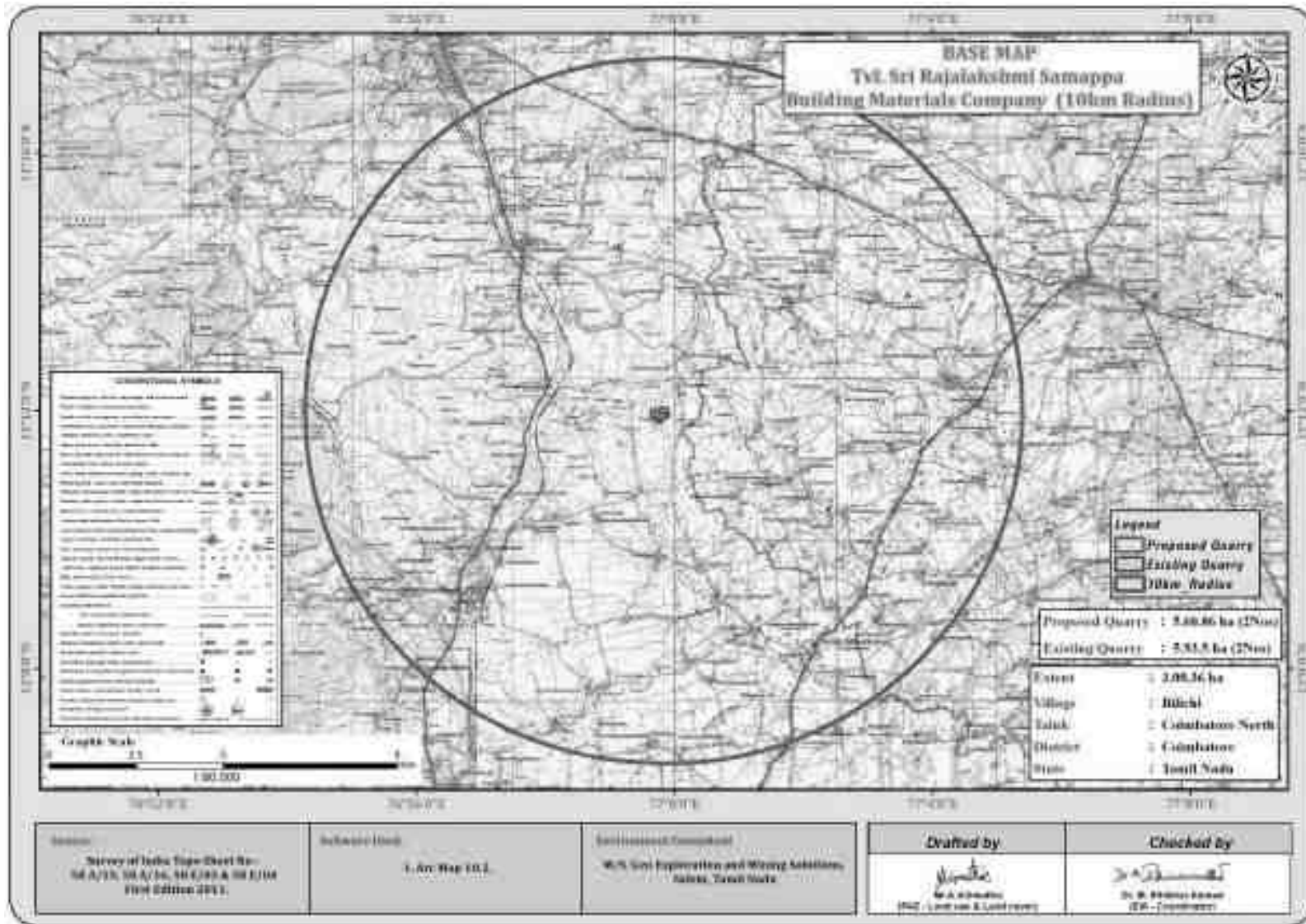


FIGURE 1.2: TOPOSHEET SHOWING LOCATION OF THE PROJECT SITE AROUND 10 KM RADIUS



1.4 Environmental Clearance

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

1. Screening
2. Scoping
3. Public consultation &
4. Appraisal

SCREENING

- The proponent applied for Rough Stone and Gravel Quarry Lease Dated: 30.03.2022.
- Precise Area Communication was issued by the Assistant Director, Department of Geology and Mining, Coimbatore District vide Rc.No. 312/Mines/2022, Dated: 03.04.2023
- The mining plan was approved by the Assistant Director, Department of Geology and Mining, Coimbatore District vide Rc.No. 312/Mines/2022, Dated: 17.04.2023.
- Proponent applied for ToR for Environmental Clearance vide online Proposal No. SIA/TN/MIN/433574/2023, Dated: 16.06.2023.

SCOPING

- The proposal was placed in 394th SEAC meeting held on 21/07/2023 and the committee recommended for issue of ToR.
- The proposal was considered in 644th SEIAA meeting held on 07.08.2023 and issued ToR vide Lr No. SEIAA-TN/F.No.10130/SEAC/ToR-1516/2023 Dated: 07.08.2023.

PUBLIC CONSULTATION –

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district is submitted along with this Draft EIA/ EMP Report and the outcome of public hearing proceedings will be detailed in the Final EIA/EMP Report.

APPRAISAL –

Appraisal is the detailed scrutiny by the State Expert Appraisal Committee (SEAC) of the application and other documents like the final EIA & EMP Report, outcome of the Public Consultations including Public Hearing Proceedings, submitted by the proponent to the regulatory authority concerned for grant of environmental clearance. 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
 - Lr No. SEIAA-TN/F.No.10130/SEAC/ToR-1516/2023 Dated: 07.08.2023.
 - Approved Mining Plan.

1.5 TERMS OF REFERENCE (ToR)

ToR issued vide –

- ToR Letter No. SEIAA- TN/F.No. 10130/SEAC/ToR-1516/2023 Dated: 07.08.2023. Area detailed in Page No. I – XLIX.

1.6 POST ENVIRONMENT CLEARANCE MONITORING

The proposed 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 Quarry 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 Winterseason (Dec 2022 to Feb 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	PM10, PM 2.5, SO ₂ , NO ₂	Continuous 24-hourly samples twice a week for three months at 8 locations (1 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 – 4 ground water and 2 surface water samples; once during study period.
4	Ecology	Existing terrestrial and aquatic flora and fauna within 10 km radius circle.	Limited primary survey and secondary data was collected from the Forest department.
5	Noise levels	Noise levels in dB(A)	8 locations – data monitored once for 24 hours during EIA study
6	Soil Characteristics	Physical and Chemical Parameters	Once at 6 locations during study period
7	Land use	Existing land use for different categories	Based on Survey of India topographical sheet and satellite imagery and primary survey.
8	Socio-Economic Aspects	Socio-economic and demographic characteristics, worker characteristics	Based on primary survey and secondary sources data like census of India 2011.
9	Hydrology	Drainage pattern of the area, nature of streams, aquifer characteristics,	Based on data collected from secondary sources as well as hydro-geology study

		recharge and discharge areas	report prepared.
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires and explosions and release of toxic substances	Based on the findings of Risk analysis done for the risk associated with mining.

Source: Field Monitoring Data

The data has been collected as per the requirement of the ToR issued by SEIAA – TN.

1.8.1 Regulatory Compliance & Applicable Laws/Regulations

- 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.10130/SEAC/ToR-1516/2023 Dated: 07.08.2023.

CHAPTER – 2: PROJECT DESCRIPTION

2.0 GENERAL

The Proposed Rough Stone Quarry requires Environmental Clearance. Two proposed and Two existing quarry forming a cluster; calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is **10.23.36 ha.**

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

2.1 DESCRIPTION OF THE PROJECT

The proposed project is site specific and there is no additional area required for this project. There is no effluent generation/discharge from the proposed Quarry.

Method is mining is common for all the proposed Quarry in the cluster. 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 falls in Bilichi Village, Coimbatore North Taluk and Coimbatore District.
- M/s. Sri Rajalakshmi Samappa Building Material Company Rough Stone and Gravel Quarry is located about 4 km Eastern side of Bilichi Village.
- The Bilichi Village is located about 20 km Northern side of Coimbatore North Taluk.
- The area is marked in the Survey of India, Toposheet No. 58-A/16. The area lies between the Latitudes of 11°11'57.48"N to 11°12'02.32"N and Longitudes of 76°59'46.14"E to 76°59'53.66"E.

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	NH – 181 – Coimbatore – Mettupalayam – 3.0km – W SH – 168 – Karamadai – Kariampalayam – 4.0km – N
Nearest Village	Onnipalayam – 1.0km – NE
Nearest Town	Periyayakkanpalayam – 7.0km – SW
Nearest Railway	Karamadai Railway Station – 6.0km – NW
Nearest Airport	Coimbatore Airport – 20km – S
Seaport	Kochi - 160km – Southwest

Source: Prefeasibility Report and Approved Mining Plan.

TABLE 2.2: BOUNDARY CO-ORDINATES OF PROPOSED PROJECT

Boundary Pillar No.	Latitude	Longitude
1	11° 11' 57.48"N	76° 59' 53.66"E
2	11° 11' 58.00"N	76° 59' 46.25"E
3	11° 12' 01.95"N	76° 59' 46.14"E
4	11° 12' 02.32"N	76° 59' 53.56"E

Source: Approved Mining Plans

FIGURE 2.1: TOPOGRAPHICAL VIEW OF THE PROJECT SITES

FIGURE 2.2: GOOGLE IMAGE ROUGH STONE AND GRAVEL QUARRY PROJECT AREAS



FIGURE 2.3: QUARRY LEASE PLAN / SURFACE PLAN

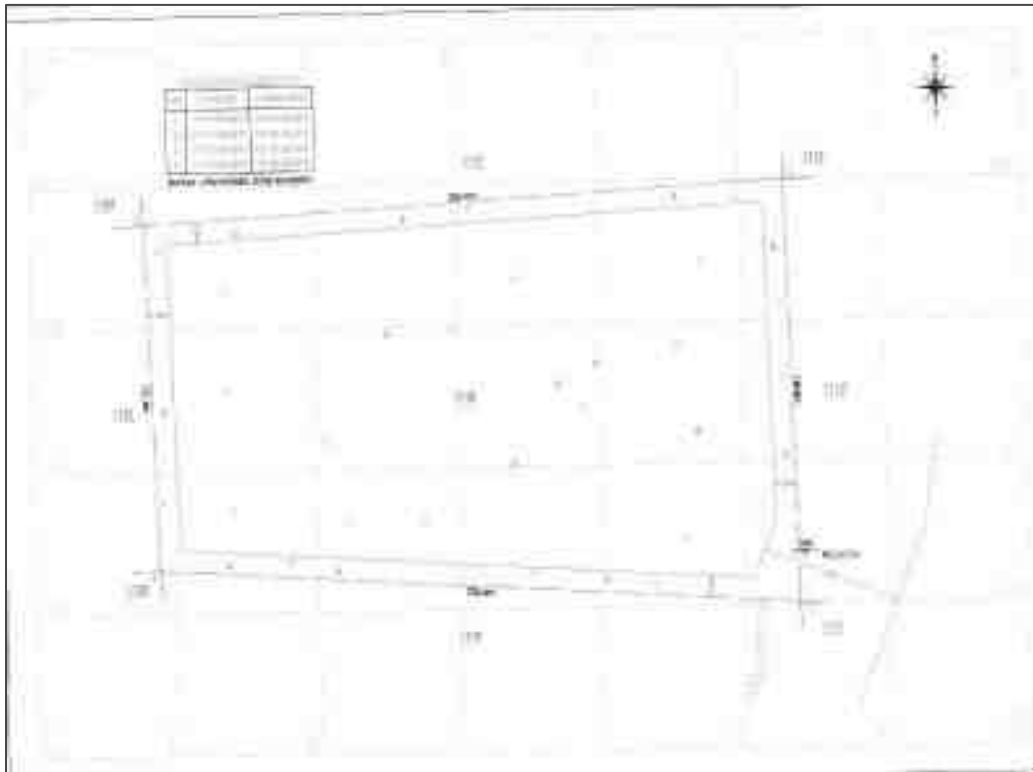


FIGURE 2.4: SATELLITE IMAGERY OF CLUSTER QUARRY

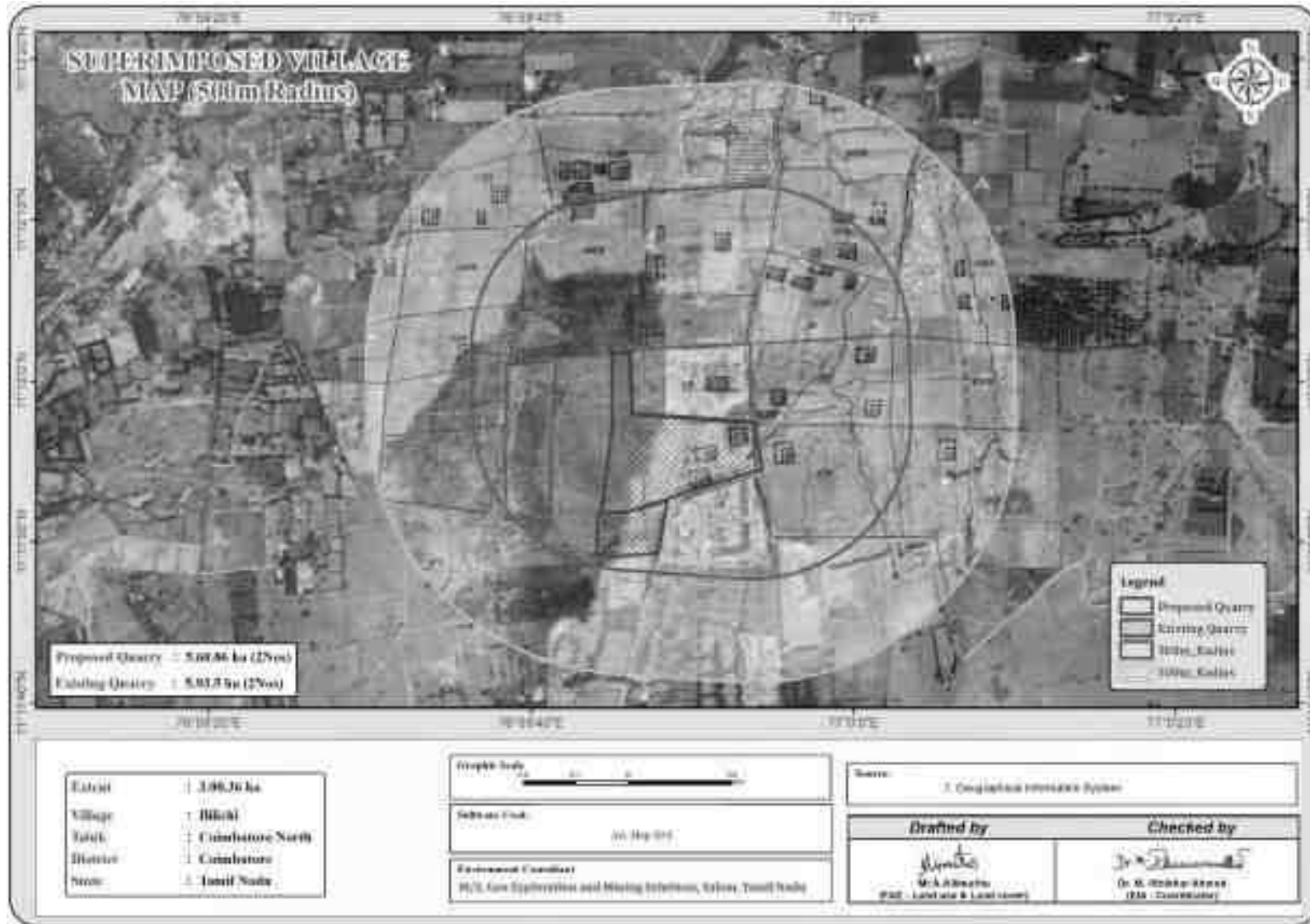


FIGURE 2.5: DIGITIZED MAP OF THE STUDY AREA (10 KM RADIUS FROM PROJECT SITE)

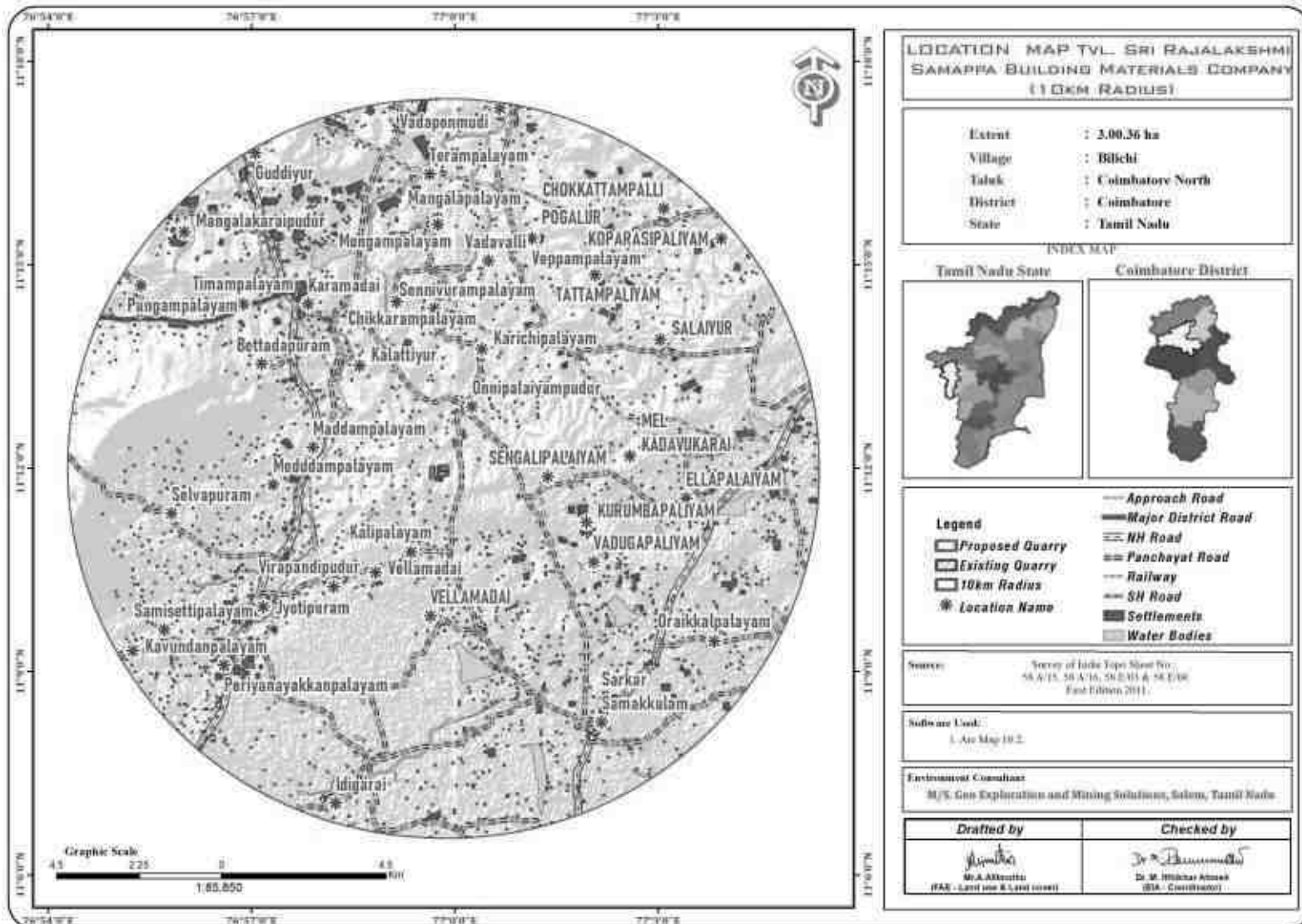


FIGURE 2.6: DIGITIZED MAP OF THE STUDY AREA (5 KM RADIUS FROM PROJECT SITE)

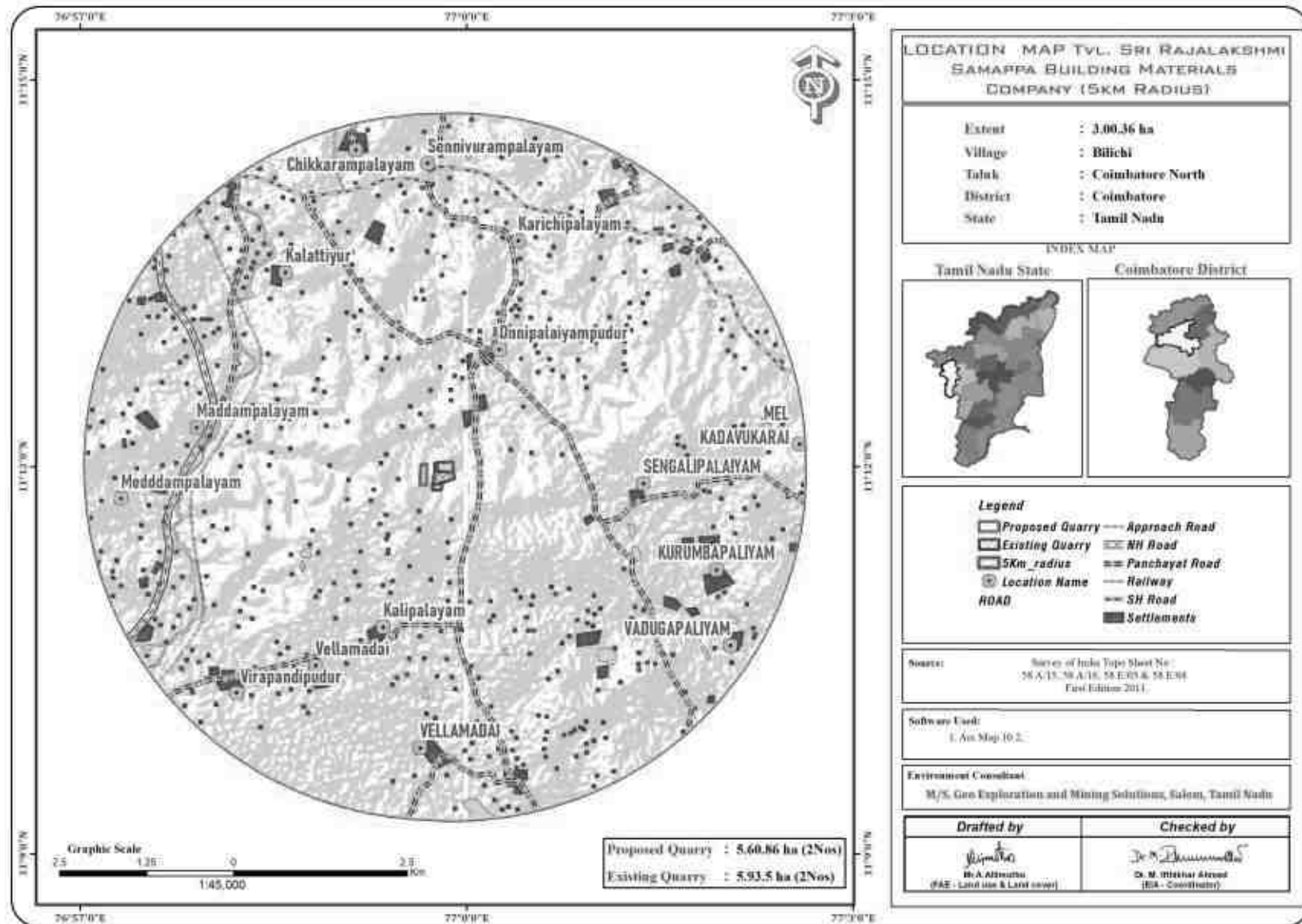
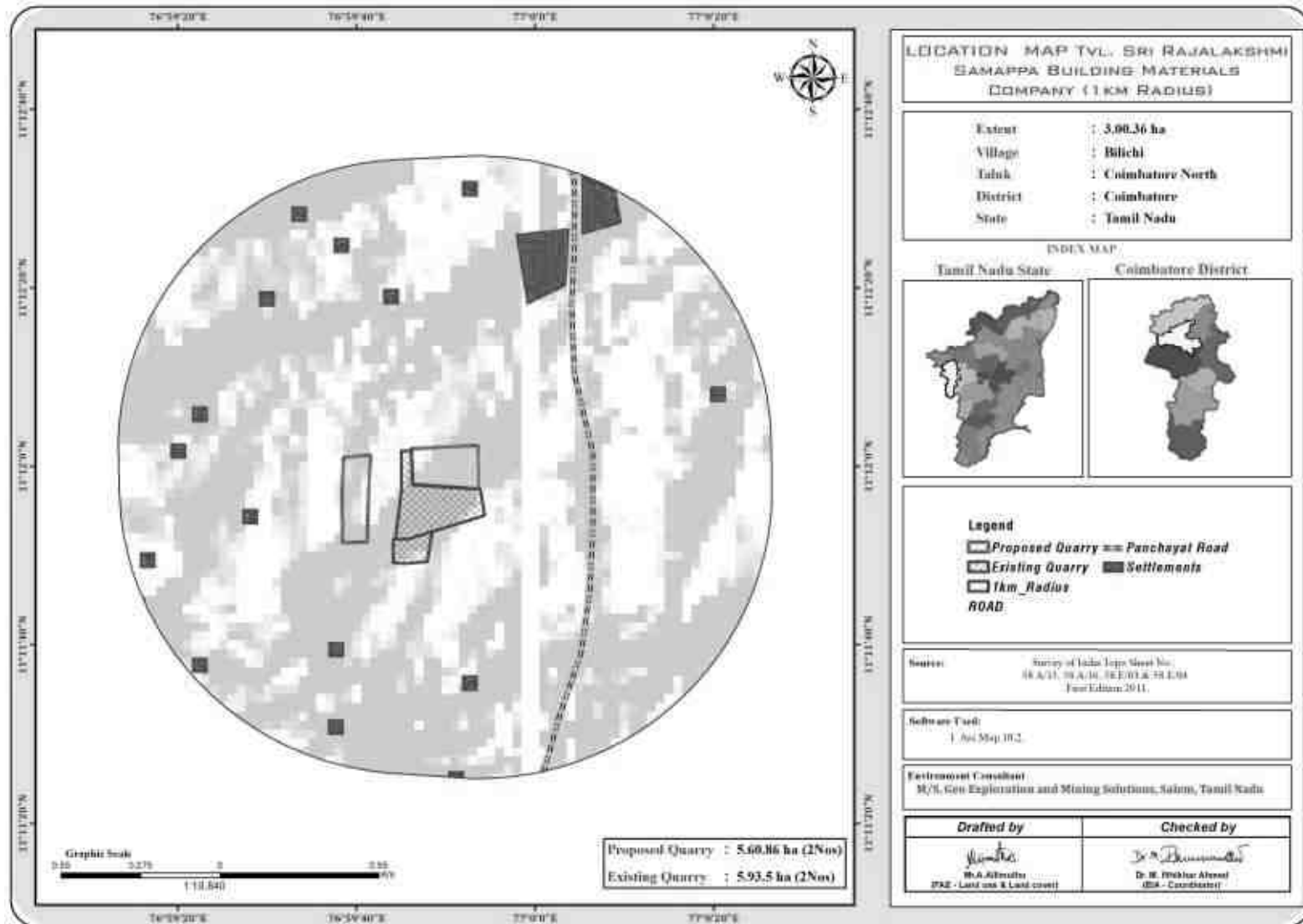


FIGURE 2.7: DIGITIZED MAP OF THE STUDY AREA (1 KM RADIUS FROM PROJECT SITE)



2.2.1 Project Area

- (i) The project under cluster are site specific, there is No beneficiation or processing proposed inside the project area.
- (ii) There is no forest land involved in the proposed project area and is devoid of major vegetation and trees.

TABLE 2.3 – LAND USE PATTERN

Description	Present area in (ha)	Area required during the first five years of plan period (ha)	Area at the end of lease period (ha)
Quarrying Pit	Nil	2.50.0	2.50.0
Infrastructure	Nil	0.01.0	0.01.0
Roads	Nil	0.02.0	0.02.0
Green Belt	Nil	0.17.0	0.31.0
Unutilized Area	3.00.36	0.30.36	0.16.36
Grand Total	3.00.36	3.00.36	3.00.36

Source: Approved Mining Plan

2.2.2 Size or Magnitude of Operation

TABLE 2.4: OPERATIONAL DETAILS FOR PROPOSED PROJECT

PARTICULARS	DETAILS		
	Rough Stone (10 Year Plan period)	Gravel (2 Year Plan period)	Weathered Rock (5 Year Plan period)
Geological Resources in m ³	13,50,720	60,032	90,048
Mineable Reserves in m ³	4,86,300	48,672	67,266
10 Yearwise Production in m ³	4,71,800	40,936	67,266
Mining Plan Period	10 Years	2 Years	5 Years
Number of Working Days	300 Days		
Production per day in m ³	158	68	45
No of Lorry loads (12m ³ per load)	13	6	4
Total Depth of Mining as per ToR	45m (3m Weathered Rock +2m Gravel + 40m Rough Stone)		

Source: Approved mining plan

2.3 Geology

2.3.1 Regional Geology

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite body N40°E to S40°W with dipping SE60°.

Stratigraphy of the area –

↑	AGE	FORMATION
	Recent	- Quaternary weathered formation (Gravel)
	-----Unconformity-----	
	Archaean	- Charnockite

Peninsular Gneiss complex 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 Sulur, Madukkarai and Pollachi taluks.

The fissile homblende gneisses (Peninsular gneiss – younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsite – kyanite quartzites, ferruginous quartzite (Satya Mangalam 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 Punjapuliampatti 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. The project areas is plain terrain, the project areas is covered with gravel formation of 2m & 3m weathered rock thickness; Massive Charnockite formation is found after 2 m gravel & 3m weathered rock formation which is clearly inferred from the nearby existing quarry pit.

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

The Cretaceous formation is represented by Arenaceous Lime stone, Calcareous sand - stone and marl. The Tertiary formation is argillaceous comprising of Silty clay stones, argillaceous Lime stone. The Quaternary deposits represented by the river deposits of Ponnaiyar and Varahanadhi spread over as patches in Tiruppur District. The alluvium consists of unconsolidated sands, gravelly sands, clays and clayey sands. The thickness of the sands ranges between 15 and 25 m in the alluvial formation which also form potential aquifers. In some areas, sand stone of tertiary formation are the potential groundwater reservoirs.

Aquifer Systems:

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

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

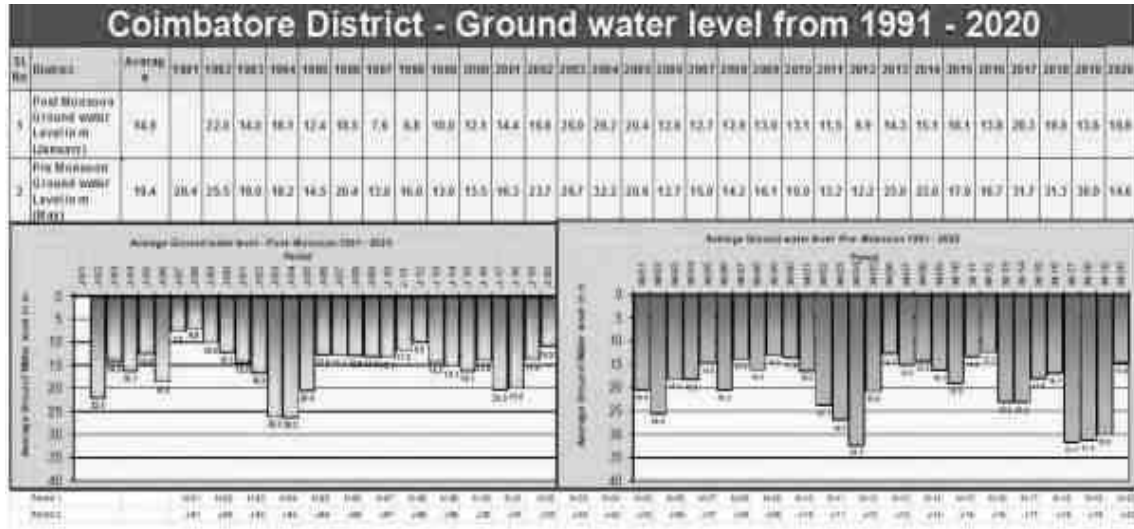
The thickness of aquifer in this district is highly erratic and varies between 15 m to 40 m below ground level. The inter granular Porosity is essentially dependent on the intensity and degree of weathering and fracture development in the bed rock. As discussed earlier deep weathering has developed in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

TABLE 2.5: RANGE OF AQUIFER PARAMETERS

Parameters	Range
Well yield in LPM	50-300 lpm
Transmissivity (T) m ² /day	1.49-164.18 m ² /day
Permeability (K) m/day	0.25-26.75 m/day

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

FIGURE 2.8: GROUND WATER LEVEL VARIATIONS OF COIMBATORE DISTRICT



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

TABLE 2.10: GROUND WATER LEVEL VARIATIONS OF COIMBATORE DISTRICT

Jan 2017	May 2017	Jan 2018	May 2018	Jan 2019	May 2019	Jan 2020	May 2020	Jan 2021	May 2021	5 Years Pre-Monsoon Average	5Years Post Monsoon Average
20.4	29.6	19.8	22.3	13.7	17.6	10.9	14.6	9.3	13.0	16.5	12.6

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

FIGURE 2.9: REGIONAL GEOLOGY MAP

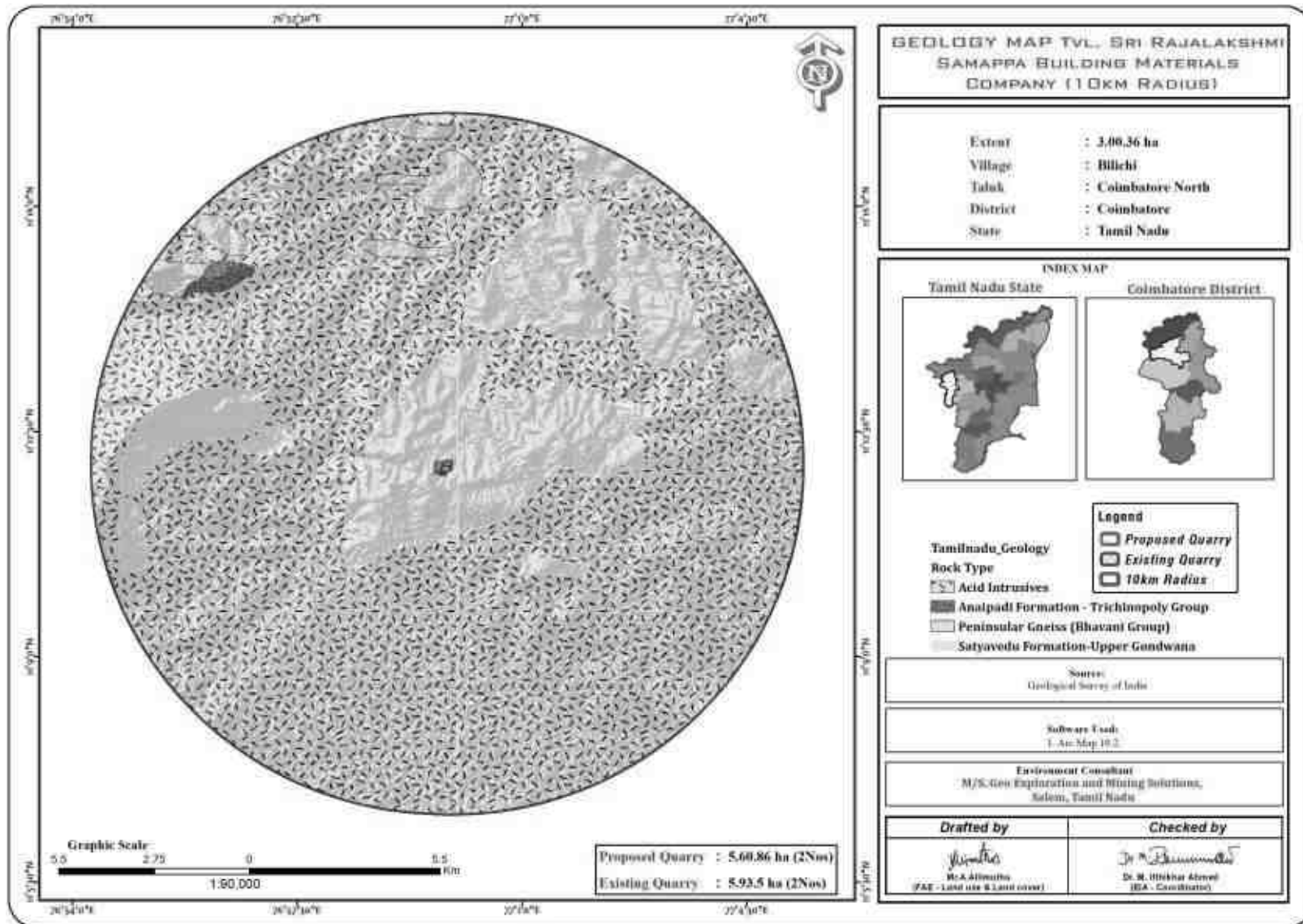


FIGURE 2.10: GEOMORPHOLOGY MAP

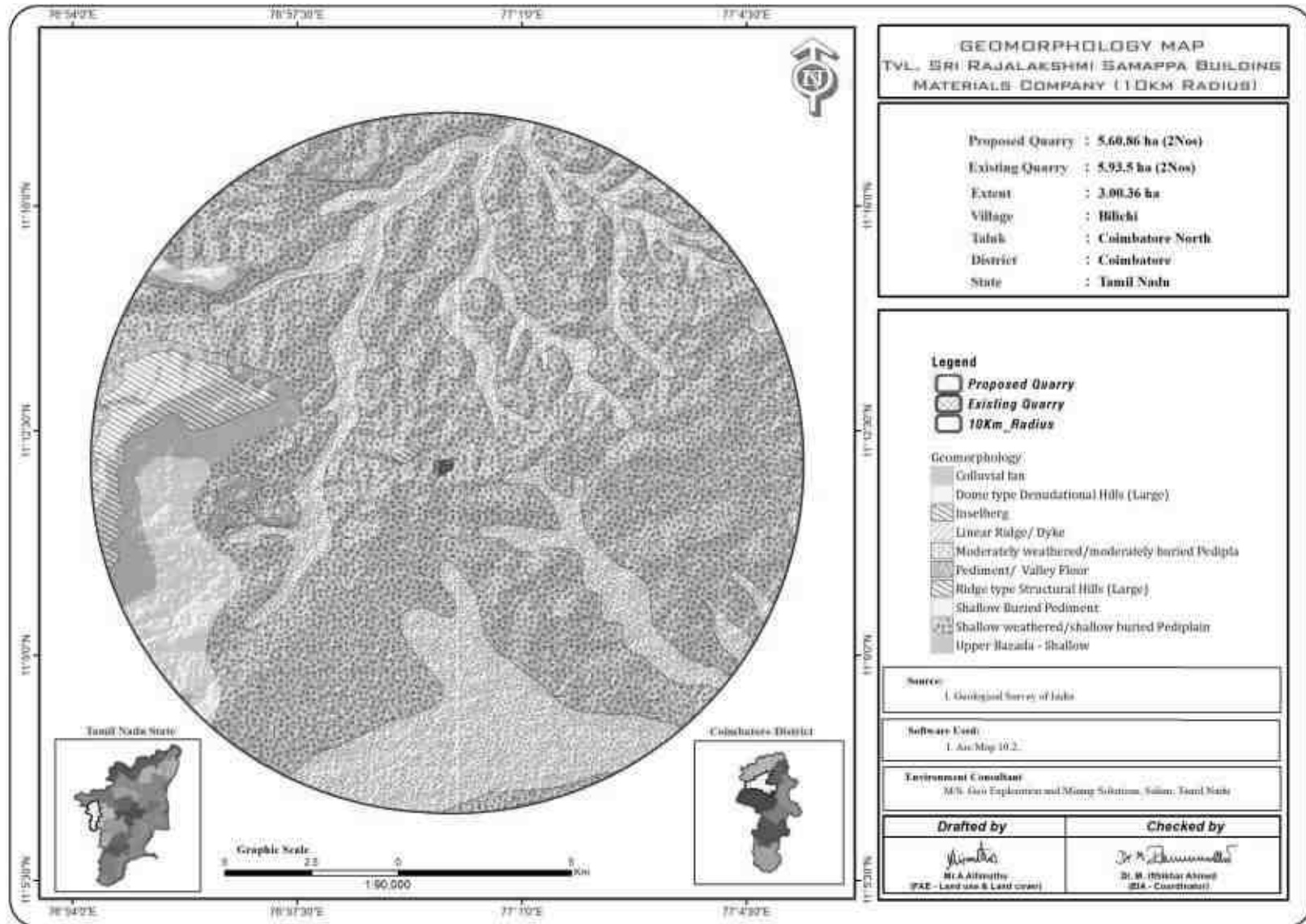
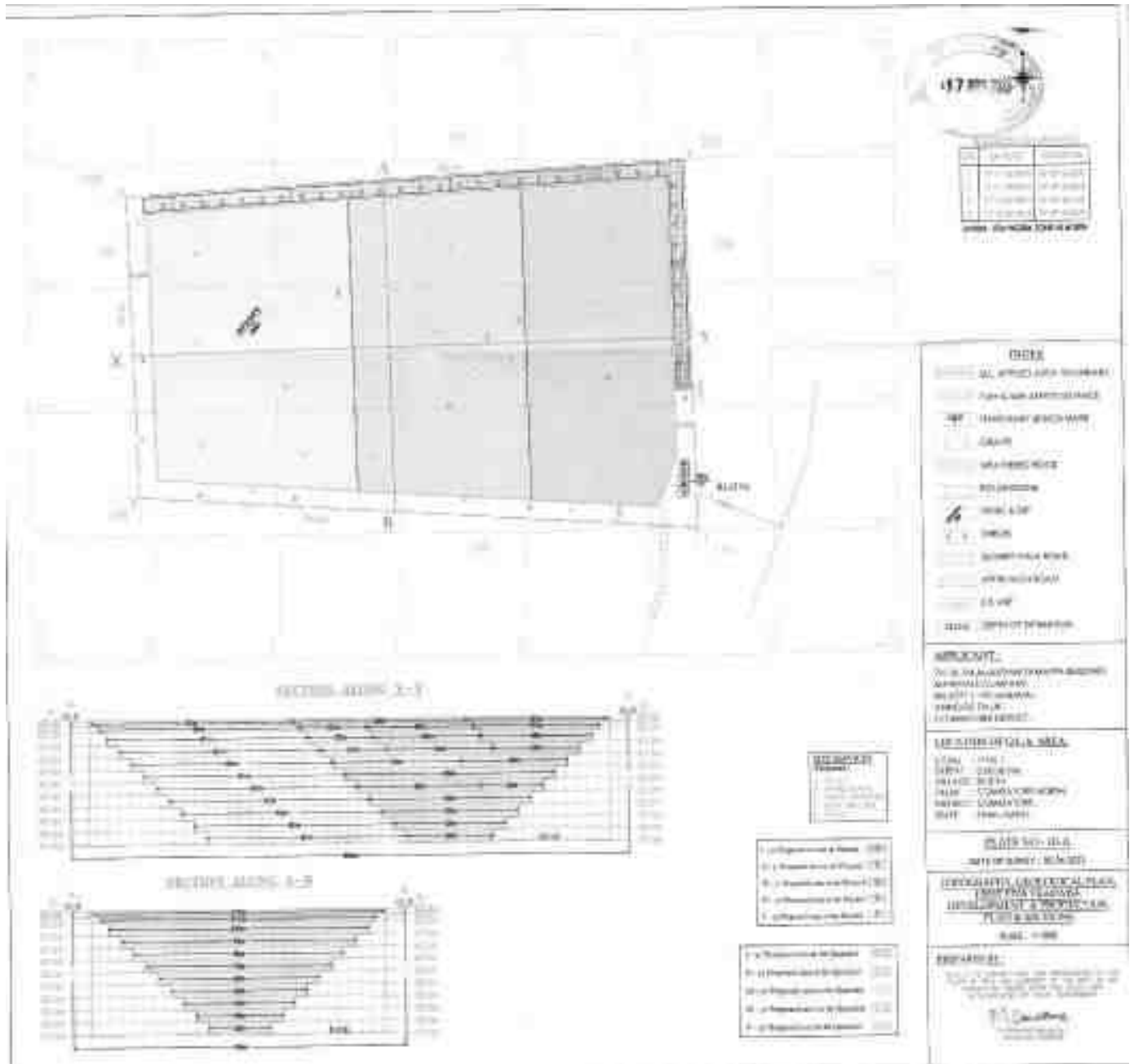
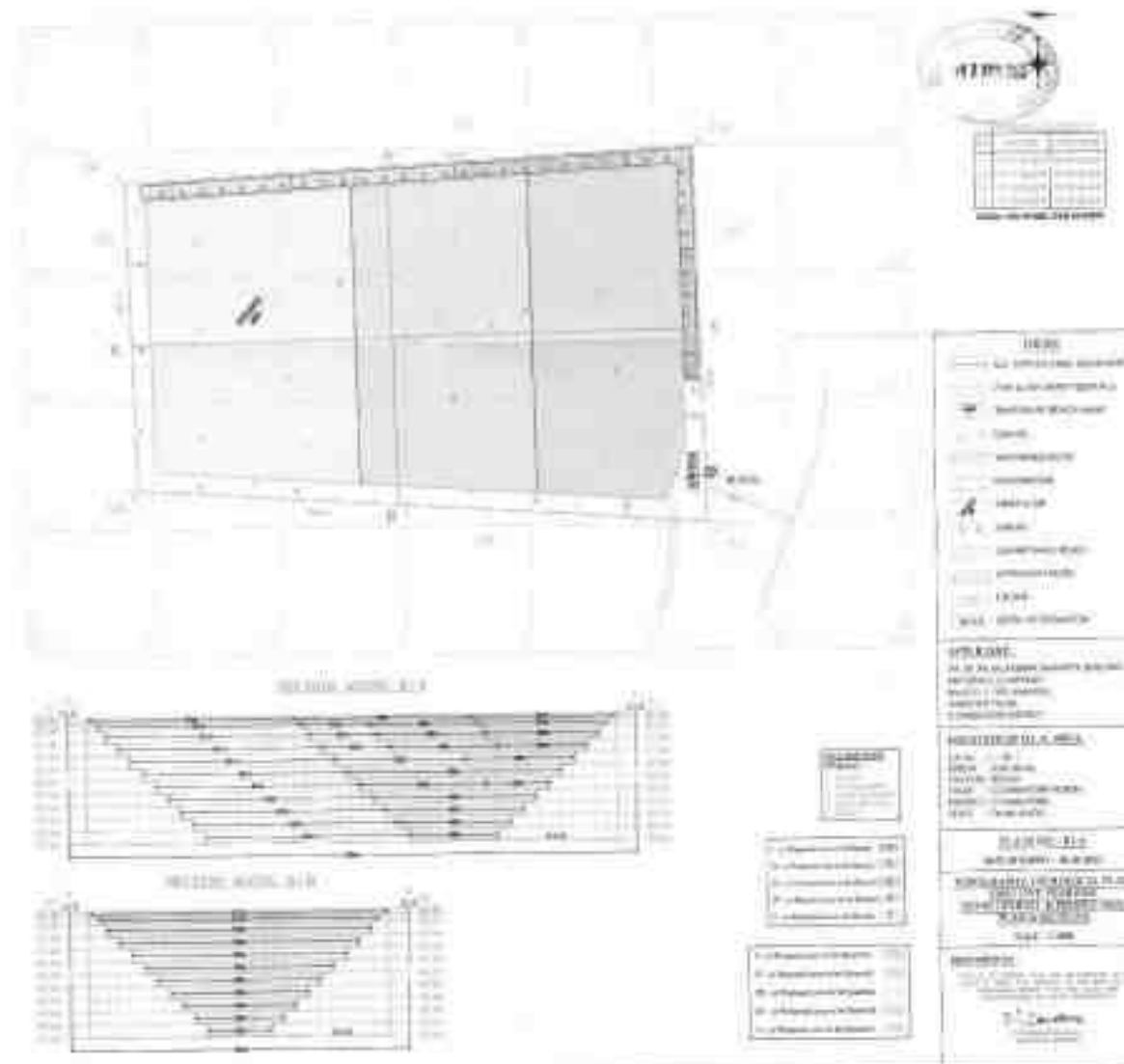


FIGURE 2.11: TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT PRODUCTION PLAN AND SECTION FIRST FIVE YEARS



**FIGURE 2.11A: TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT
PRODUCTION PLAN AND SECTION SECOND FIVE YEARS**



2.4 Resources and Reserves of the Cluster Quarry

The available mineable reserves are calculated after leaving necessary safety distances, reduced depth considering bench width.

TABLE 2.6: YEARWISE PRODUCTION FROM THE PROPOSAL FOR FIRST FIVE YEARS

YEARWISE Reserves	Rough Stone in m ³	Weathered Rock m ³	Gravel m ³
I	40,250	16,983	13,338
II	43,000	14,319	16,380
III	49,100	8,991	18,954
IV	58,275		
V	54,375		

TABLE 2.6 A: YEARWISE PRODUCTION FROM THE PROPOSAL FOR SECOND FIVE YEARS

YEARWISE Reserves	Rough Stone in m³	Weathered Rock m³	Gravel m³
I	41,000	13,653	
II	40,000	13,320	
III	52,875		
IV	50,900		
V	52,150		

Source: Approved Mining Plan

Disposal of Waste

In the entire cluster Quarry no waste is anticipated, quarried out materials (Rough stone and Gravel) will be utilized (100%).

2.5 Method of Mining

The method of mining is common for the proposed project. 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 top layer of overburden (Gravel) will be excavate directly by Hydraulic Excavators and loaded into tippers directly and sold to needy customers. 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

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

Spacing – 1.2m, Burden –1.0, Depth of hole - 1.5m

2.5.2 Blasting

Blasting will be done as per details below: -

- Controlled blasting parameter: -

Spacing – 1.2m

Burden – 1.0 m

Depth of hole – 1.5 m

Charge per hole – 0.5Kg

Powder factor – 10 tonnes/kg

Dia of hole – 32 mm

Details of blasting design and parameters are discussed in approved mining plan.

No of Holes to be drilled per day: -

Volume of Rough Stone will be excavated from one Kg of explosive

Total Volume from one proposed quarry

$$\begin{aligned}
 &= 6 \text{ Tonnes} \\
 &= 4, 71,800 \text{ m}^3 \\
 &= 4, 71,800 /10 \\
 &= 47,180/300 \\
 &= 158* 2.6 \\
 &= 409 \text{ Tonnes per day} \\
 &= 409 /6 \\
 &= 68 \text{ Holes per day (for 1 Quarry)}
 \end{aligned}$$

Therefore, Number of Holes per day

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

2.5.3 Extent of Mechanization

TABLE 2.8 PROPOSED MACHINERY DEPLOYMENT

PROPOSAL – P1				
S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	6	1.2m to 2.0m	Compressed air
2	Compressor	2	400psi	Diesel Drive
3	Excavator with Bucket / Rock Breaker	2	300 HP	Diesel Drive
4	Trucks	4	20 Tonnes	Diesel Drive

Source: Approved Mining Plan of the project.

2.6 General Features

2.6.1 Existing Infrastructures

Infrastructures like Mine office, Temporary Rest shelters for workers, Latrine and Urinal Facilities are available in the Existing Quarry and the same infrastructure as per the Mine Rule will be arranged after the grant of quarry lease in the proposed Quarry.

2.6.1 Drainage Pattern

The general drainage pattern of the area is dendritic. There are no streams, canals or water bodies crossing within the project area, hence there is no requirement of stream or canals diversion in the near future.

2.6.2 Traffic Density

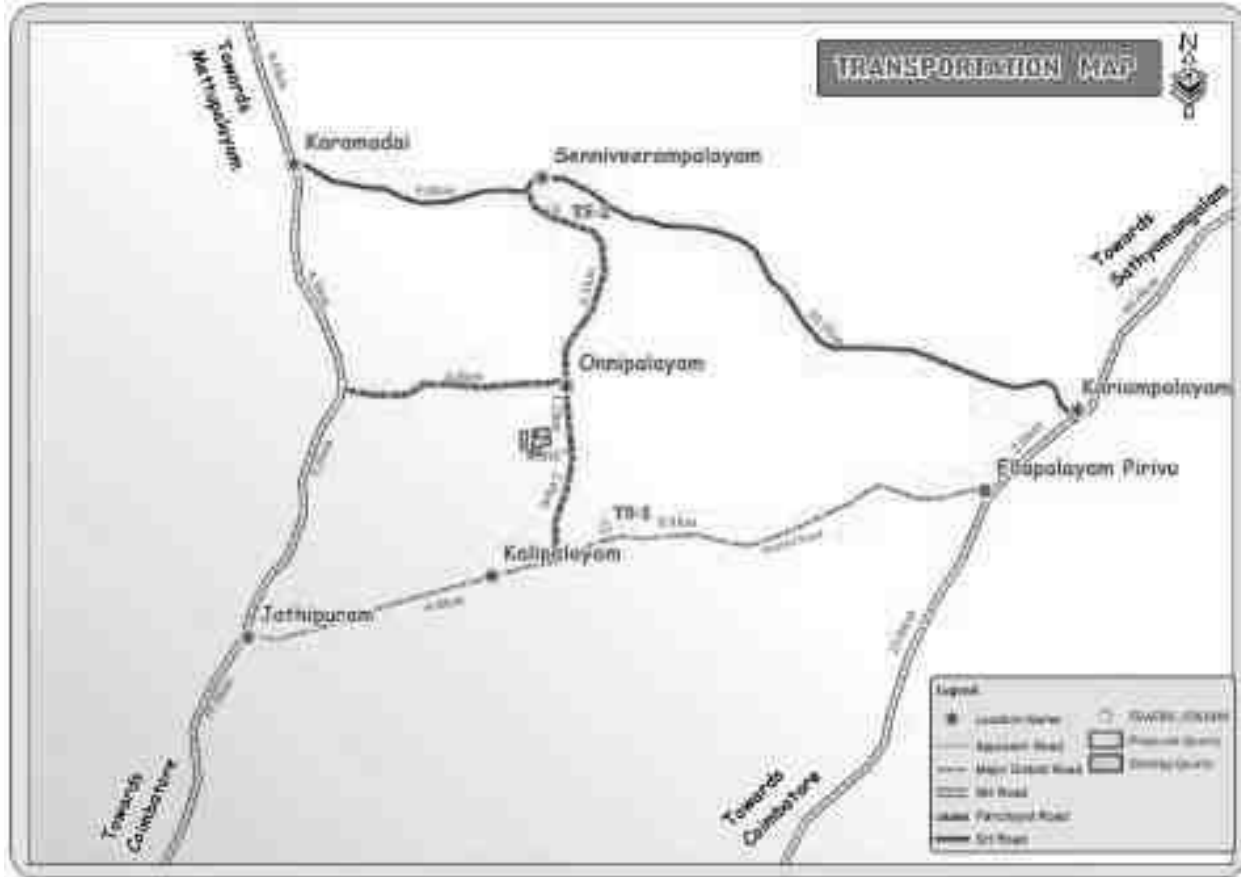
Traffic density measurements were performed as per IRC 1960 Guidelines at three locations based on the transportation route. The monitoring was carried out on 26-12-2022. Traffic density measurement were made continuously for 24 hours by visual observation and counting of vehicles under three categories, 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 2.9 – TRAFFIC SURVEY LOCATION'S

Station code	Station location	Distance and Direction	Type of Road
TS1	Jothipuram-Ellapalayam(Major District Road)	2 km- E	Major District Road
TS2	Senniveerampalayam-kalipalayam(Panchayat Road)	3.8Km-NE	Panchayat road

Source: On-site monitoring by GEMS FAE & TM.

FIGURE 2.12: TRAFFIC SURVEY LOCATIONS & TRANSPORTATION ROUTE MAP



(Source: Survey of India Toposheet)

TABLE 2.10 – EXISTING TRAFFIC VOLUME

Station code	HMV (Hourly Average)		LMV hourly average		2/3 Hourly average		Total PCU per hour
	No	PCU	No	PCU	No	PCU	
TS1	90	270	40	120	50	25	415
TS2	45	135	25	75	30	15	225

Source: On-site monitoring by GEMS FAE & TM

- PCU conversion factor for HMV (Trucks and Bus) = 3, LMV (Car, Jeep and Auto) = 1 and 0.5 for Motor Vehicles (2/3 Wheelers)

TABLE 2.11 – ANTICIPATED TRAFFIC DUE TO THIS PROPOSED PROJECT

Transportation of Rough stone per day		
Capacity of trucks	Cumulative Trips	Volume in PCU
10/20 tonnes	13per day	39

Source: Anticipated based on Approved Mining Plan Production

TABLE 2.12 – SUMMARY OF TRAFFIC VOLUME

Route	Existing traffic value in PCU	Incremental traffic from the quarry in PCU	Total traffic volume	Hourly Capacity in PCU as per IRC guidelines
Major District Road	415	39	454	500
Panchayat road	225	39	264	1200

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

Rough stone from the project site mainly will be supplied to the needy crushers located within the radius of 2 km from the project site.

- No villages in the proposed mineral transportation route
- Mineral loaded Vehicles will not allow during school hours (Morning 8AM to 10AM & Evening 4.30PM to 5.30PM)

As per the IRC 1960 this existing 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 transportation.

2.6.3 Mineral Beneficiation and Processing

There is no mineral beneficiation processing or ore beneficiation in this project within the lease area.

2.6.4 Existing Infrastructure

The project area is new and Existing Quarry for the existing Quarry infrastructures are already available within the project area. The infrastructural facilities to be made after the start of the quarrying operations will be prepared outside limit as per the rules and safe distance to be adopted.

2.6.2 Drainage Pattern

The drainage pattern of the area is dendritic – sub dendritic.

2.7 Project Requirement

2.7.1 Water Source & Requirement

Detail of Total water requirements in KLD as given below:

TABLE 2.13 – WATER REQUIREMENT FOR THE INDIVIDUAL PROJECT

*Purpose	Quantity	Source
Dust Suppression	0.6 KLD	Rainwater accumulated in Mine Pit/ Water Tanker
Green Belt development	0.5 KLD	Rainwater accumulated in Mine Pit/ Water Tanker
Domestic purpose	0.4 KLD	Water Tankers
Total	1.5 KLD	

Source: Prefeasibility Report

For the water conservation point of view about 50% water will be required for the suspension of the dust, Water shall be obtained from accumulated rainwater/seepage water in quarry pits. Packaged Drinking Water is available from the nearby approved water vendors.

2.7.2 Power and Other Infrastructure Requirement

The project's does not require power supply for the quarry operation. 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. For the quarrying operation like compressor for drilling Diesel will be utilized.

The temporary infrastructures such as Mine Office, First Aid Room, Rest Shelter etc., will be constructed within the project area before commencing the quarry operation. 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.

2.7.3 Fuel Requirement

Weathered Rock:

Per hour Excavator will consume = 10 liters / hour

Per hour Excavator will excavate = 60m³of Weathered Rock

Weathered Rock quantity = 40,293/60 = 672hours

Diesel consume = 672hours x 10 liters

Total diesel consumption = 6,720Liters of HSD will be utilized for Weathered Rock

Gravel:

Per hour Excavator will consume = 10 liters / hour

Per hour Excavator will excavate = 60m³ of Gravel

Gravel quantity = 48,672/60 = 811hours

Diesel consume = 811hours x 10 liters

Total diesel consumption = 8,110Liters of HSD will be utilized for Gravel

Rough stone:

Per hour Excavator will consume = 16 liters / hour

Per hour Excavator will excavate = 20m³ of Rough stone

Rough stone quantity = 2,45,000/20 = 12,250hours

Diesel consume = 12,250hours x 16 liters

Total diesel consumption = **1,96,000**Liters of HSD will be utilized for Rough stone

Total diesel consumption = **2,10,830 Liters** of HSD will be utilized for first five years

2.7.4 Employment Requirement:

The skilled, competent qualified statutory persons will be engaged for quarrying operation, preference will be given to the local community.

TABLE 2.14: EMPLOYMENT POTENTIAL FOR PROPOSED QUARRY

PROPOSAL	
Mines Manager/Mines Foreman	1
Mate/Blaster	1
Jack hammer operator	12
Excavator Operator & Drivers	2
Tipper Drivers	4
Watchman/Security	2
Labour Helper	3
Co-Operator and Cleaner	6
Total	31

A total of 31 people will get employment due to these proposal Quarry.

2.7.5 Project Cost

TABLE 2.15 – PROJECT COST OF PROPOSED PROJECT

Project Cost	Rs.1,06,27,000/-
--------------	------------------

Source: Approved Mining Plan &Pfeasibility Report of the project

2.8 *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 2.16 – EXPECTED TIME SCHEDULE FOR THE PROPOSED QUARRY

S. No	Particulars lease execution	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

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

CHAPTER – 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 & February 2023 with CPCB guidelines. Environmental data has been collected with reference to cluster Quarry 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 Quarry 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. Dec 2022 – Feb 2023.

Study Methodology

Baseline data's was generated for various environmental parameters including Land, Soil, Water (surface and groundwater), Air, Noise, Ecology & Biodiversity and Socio-economic status to determine the quality of the prevailing environmental settings. An MoEF accredited Laboratory was used for generating the baseline data.

1. The project area (Core zone) was surveyed in detail with the help of Total Station survey instrument and the boundary pillars were picked up with the help of handheld 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).
2. Soil samples were collected and analysed for relevant physico-chemical characteristics, exchangeable cations, nutrients & micro nutrients etc., in order to assess the impact of mining activities and proposed greenbelt development
3. Ground water samples were collected during the study period from the open wells and bore wells, while surface water was collected from river and lake 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 quarry.
4. A meteorological station was setup in pachapalayam village. Wind speed, Wind direction, Dry and wet bulb temperature, Relative humidity, Rainfall with cloud cover and general weather conditions were recorded throughout the study period.

5. 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
6. 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
7. Baseline Ecology and Biodiversity studies were carried out to assess the ecology of the study area to study the existing flora and fauna pattern of the area
8. 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 – ENVIRONMENTAL MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING

ATTRIBUTE	PARAMETERS	FREQUENCY OF MONITORING	NO. OF LOCATIONS	PROTOCOL
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data's from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
Soil	Physio - Chemical Characteristics	Once during the study period	6 (1 core & 5 buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
Water quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (2 surface water & 4 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Automatic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
Ambient Air Quality	PM ₁₀ PM _{2.5} SO ₂ , NO _x CO Fugitive Dust	24 hourly twice a week (Dec 2022 – Feb 2023)	8 (1 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	8 (1 core & 7 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrate & Transect Study & Secondary Data
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 EHS 360 Labs Private Limited in association with GEMS

* All monitoring and testing are 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

To study the land use pattern of the core as well as a buffer zone, land use/land cover details have been identified/ maps have been prepared in accordance with the **Standard ToR point no. 4 & 10 Stating:**

Point No. 4 All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/ 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).

Point No. 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.

Current vintage data of Indian Remote Sensing Satellite Resourcesat1 LIII (False Color Composite) has been used for Land Use / Land Cover study. Satellite image has been procured from National Remote Sensing Centre, Hyderabad.

3.1.2 OBJECTIVE

The objectives of the LULC study are as follow:

- ☞ To develop the Land use & Land cover map using land coordinates of the quarry area (Core Zone) and 10 km radius from the quarry site (Buffer area).
- ☞ To Identify and mark the important Land use and Land cover features using the primary and secondary data collected.
- ☞ To evaluate the impacts on existing land use/cover features of the buffer area by the Proposed Project activities.
- ☞ To identify the mitigative measures for the sustainable use of land and to protect the buffer zone from the adverse impacts.

Technical specification of Satellite imagery Data Used:

Current vintage data of Indian Remote Sensing Satellite RESOURCESAT1 (LISS-III) digital FCC (False Color Composite) has been used for preparation of Land use/ Land cover thematic map of study area. Satellite image has been procured from National Remote Sensing Centre, Hyderabad. Survey of India Toposheet as a reference map on 1:50,000 scale has been used for preparation of base layer data like road, rail network; village for geo-referencing of satellite image.

- ☞ Satellite Image - Resourcesat1-LISSIII, 23.5m Resolution
- ☞ Satellite Data Source - NRSC, Hyderabad
- ☞ Satellite Vintage - 14st July 2020, Swath 141km wide.
- ☞ SOI Toposheet No - 58 -A/16
- ☞ Software Used - ArcGIS 10.8

The satellite image (FCC color 3,2,1) of the buffer zone is given in 3.1

The spatial resolution and the spectral bands in which the sensor collects the remotely sensed data are two important parameters for any land use survey. Resourcesat1-LISSIII, 23m Resolution of 23.5m and a 141 km wide swath of the earth in 23.5m resolution covering wide areas the data is collected in 4 visible bands namely band number and Resolution.

TABLE 3.2: Resourcesat1-LISSIII SENSOR characteristics

Band Number	Description	Wavelength	Resolution
Band 1	Green	0.52-0.59 μm	23.5 meters
Band 2	Red	0.62-0.68 μm	23.5meters
Band 3	NIR	0.77-0.86 μm	23.5meters
Band 4	SWIR	1.55-1.70 μm	70meters

Source: NRSC, Hyderabad

3.1.3 METHODOLOGY

The land use / land cover map is prepared by adopting the interpretation techniques of the Satellite image in combination with collateral data such as Survey of India topographical maps. Image classification is done by using visual interpretation techniques and digital classification using any of the image processing software. The various activities for preparation of LULC include preprocessing, rectification, image enhancements and classifying the satellite data for assessing the change in land use land cover due to proposed developmental activities.

- ☞ Preliminary/primary data collection of the study area
- ☞ Satellite data procurement from NRSC
- ☞ Secondary data collection from authorized bodies
- ☞ Survey of India Toposheet (SOI)
- ☞ Mine Layout
- ☞ Cadastral / Khasra map
- ☞ GPS Coordinates of Lease Boundary
- ☞ Processing of satellite data using ArcGIS 10.8 and preparing the Land Use & Land cover maps (e.g. Plant/Mine area, Existing Quarry, Settlements, Agriculture land, Non agriculture land, water bodies, etc.) by Digital Image Processing (DIP) technique.
- ☞ Geo-Referencing of the Survey of India Toposheet
- ☞ Geo-Referencing of satellite Imagery with the help of Geo-Referenced Toposheets
- ☞ Enhancement of the Satellite Imagery

- ☞ Base Map layer creation (Roads, Railway, Village Names, and other Secondary data, etc.)
- ☞ Data analysis and Classification using Digital interpretation techniques.
- ☞ Ground truth studies or field Verification.
- ☞ Error fixing / Reclassification
- ☞ Final Map Generation.

The land use/Land cover Map of the buffer zone is given in 3.3. Land Use Pattern of the Buffer Zone (Study area) Details of the same are given in Table - 3.3 and the map is shown in Figure - 3.3.

TABLE: 3.3 LAND USE / LAND COVER DETAILS OF STUDY AREA

S.No	CLASSIFICATION	AREA_HA	AREA_%
BUILTUP			
1	URBAN	1664.47	5.06
2	RURAL	1247.17	3.79
3	MINING	209.89	0.64
AGRICULTURAL LAND			
4	CROP LAND	10732.91	32.64
5	PLANTATION	3811.58	11.59
6	FALLOW LAND	12393.63	37.70
FOREST			
7	DECIDUOUS	968.46	2.95
BARREN/WASTE LANDS			
8	SCRUB LAND	1624.78	4.94
WETLANDS/ WATER BODIES			
9	WATER BODIES/LAKE/RIVER	225.42	0.69
TOTAL		32878.30	100.00

Source: Bhuvan, NRSC.

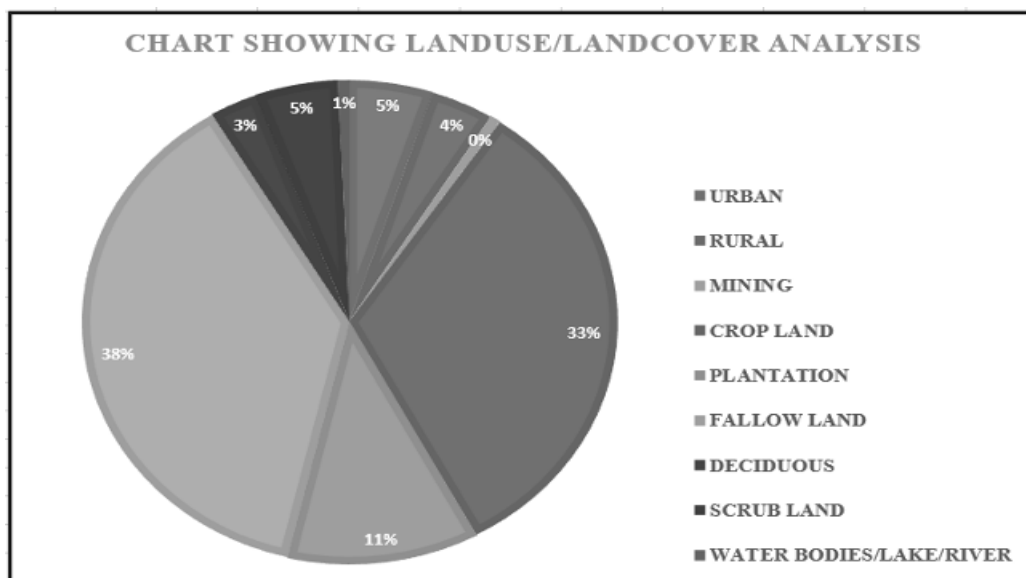


FIGURE 3.1: CHART SHOWING LANDUSE/LANDCOVER ANALYSIS USING LISS III .Data

FIGURE 3.2: MAP SHOWING FALSE COLOR COMPOSITE (3,2,1) SATELLITE IMAGERY OF THE STUDY AREA

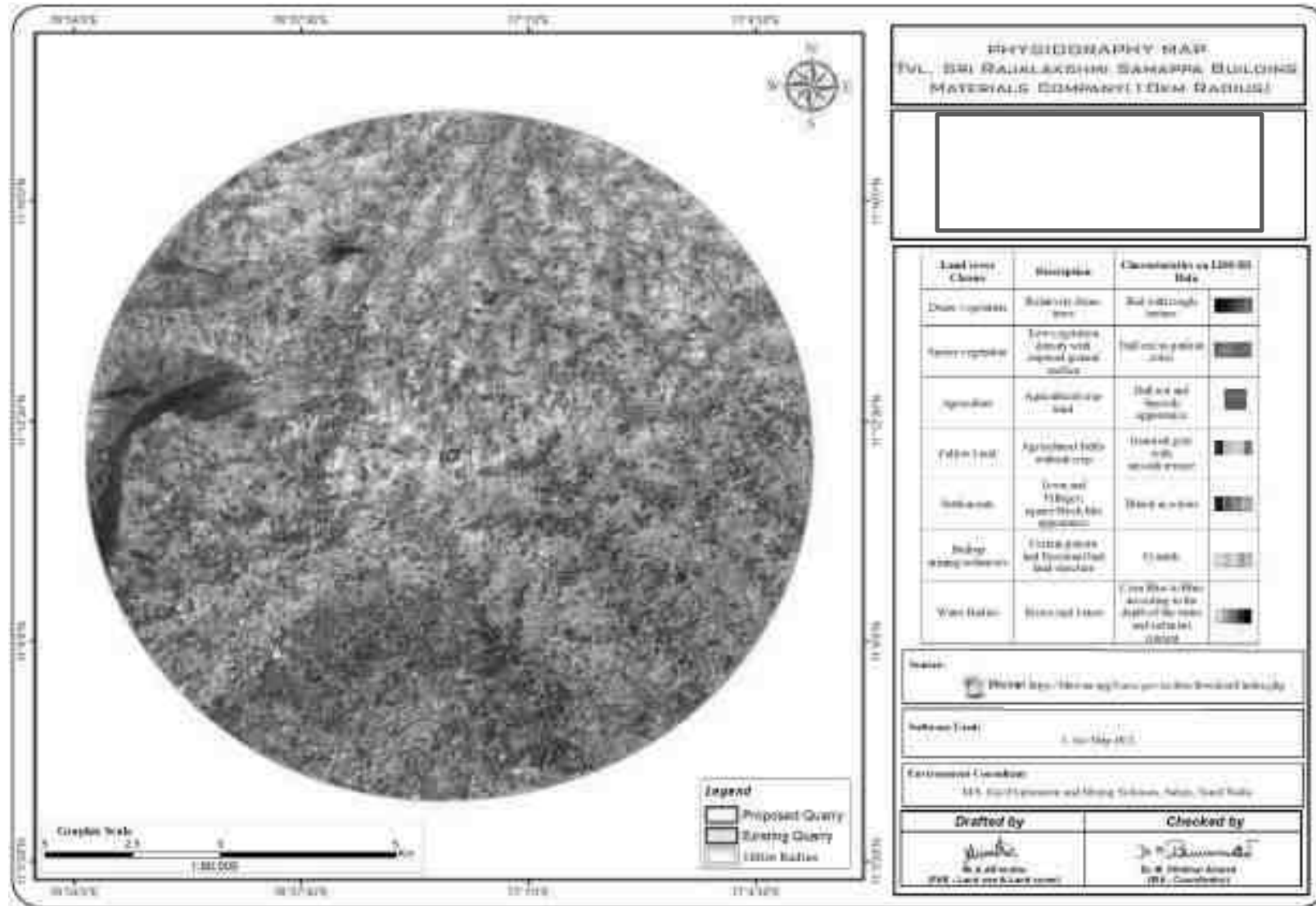
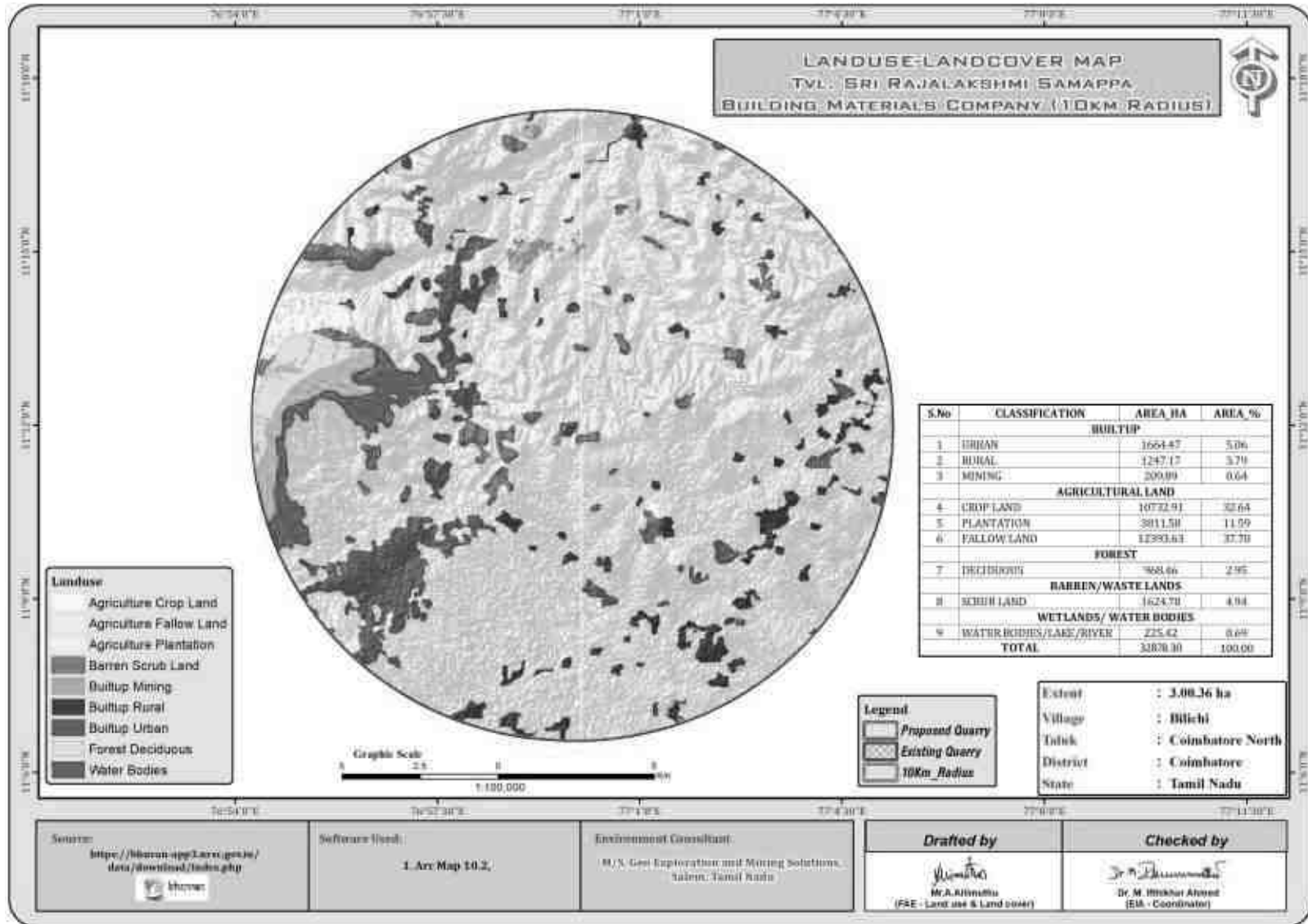


FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS



3.1.4 Interpretation

- ☞ The 10 km radius study area mainly comprises of crop land & Agriculture Plantation land accounting of 32.64% & 11.59% of the total study area. The study area also consists of fallow land of 10.11%.
- ☞ The buffer zone studied has no ecological sensitive area (National Park, Wildlife Sanctuary, Biosphere Reserve/ etc.).
- ☞ Water Bodies such as ponds/ lakes comprises of 0.69% of the total buffer area. There are some lake found in the study area like Belladhi lake (6.0km-NW), Thottipalayam lake and near Kariampalayam lake, streams (3.0km-NW) and Odai (0.84m-NE) of the total study area.
- ☞ The Scrub land accounts of 5%. As per the primary survey, it was observed the scrub land is mainly occupied by the stony waste and left-over domestic waste generated by the nearby areas.
- ☞ The Deciduous area covered is about 3% in buffer zone.
- ☞ 0.64% of the total study area is occupied by the mine industries of captive mines. The area occupied by Mainly Roughstone of the total buffer area. As also observed within the primary survey, the 10 km buffer area is also occupied by the medium scaled granite and small Brick kiln industries also located in the study area.
- ☞ 8.84% of the area is covered under the Builtup Land including rural and urban area. The nearest village within the 420m West side from the project site boundary is observed to be villages Onnipalayam, Vellamada, Kalipalayam, Bilichi, Sengalipalayam villages etc.,

3.1.5 Cropping Pattern of the Buffer Zone

Among the major crops cultivated in the district Cholan occupied the primary position, followed by banana and groundnut. Predominant Banana varieties cultivated were Grand Naine, Rasthali, Nendran, Red Banana, Karpooravalli and Ney poovan. In the case of Groundnut, TMV 7 and VRI 2 were the ruling varieties in the district. In coconut, VHC1, VHC2 and VHC3 hybrids were used widely. While VPM3, ALR 1, ALR 2 and West Coast Tall were preferably tall varieties used in coconut, COD, CYD, CGD and MYD were the dwarf varieties used particularly for tender coconut.

Coimbatore is perhaps one of the very few districts in the State which is covered with thick forest (> 20 per cent of the total districts' area). The forests here are abundant in commercially significant trees such as Teak, Sandalwood, Rosewood, Bamboo etc. The cinchona department is raising a cinchona plantation in forests of Pollachi range to jungles of shrubs in Udumalpet. Apart from this, there are one or two tea plantations and coffee plantations.

Source: TNRTP-Coimbatore DDR, 2019

3.1.6 Interpretation and Conclusion

- ☞ Bilichi village Roughstone and gravel quarry has proposed Project. It is a Patta land.
- ☞ Total project area is 32878.30 ha around 10km radius.
- ☞ As new Proposed mine is coming in the area, percentage of human settlement will be increased in surrounding of project site and Infrastructure facilities also will be developed on the basis of requirement.
- ☞ The 10 km study area mostly covers of crop land 32.64%. As per current study area is occupied by scrub land 4.9%, Fallow land is about 37% and Deciduous land 2.95% in 10 km radius from the study area land use into quarrie purpose for this proposed project.

☞ The project site falls under the Roughstone region. Therefore, the area is appropriate for developing Road development and building etc., it shows that the region has good prospects in the future. Due to proposed Roughstone in this region, economic condition of locals is expected to be improved directly & indirectly. Hence project will prove to be the best economic proposal for the coming times.

3.1.7 TOPOGRAPHY

The lease applied area exhibits flat terrain. The area has gentle sloping towards North eastern side from Coimbatore district. The altitude of the area is 400-426m AMSL. The area is covered by 2m thickness of Topsoil formation. Massive Charnockite which is clearly inferred from the proposed quarry site.

3.1.8 DIGITAL ELEVATION MODEL

Digital Elevation Model (DEM) has been prepared for the project at Bilichi Village, Coimbatore North Taluk, Coimbatore District for a 10 km radius study area.

Data Used

- ☞ DEM Data : SRTM (DEM) -1ArcSecond-90m Resolution
- ☞ Data Source : <https://urs.earthdata.nasa.gov/>
- ☞ Software Used : Arc GIS 10.8

Methodology

SRTM (DEM) data has been used for the creation of the Digital Elevation Model of the study area. IRS Satellite-derived DEM with 30m or coarser posting shall be made available as a free download. IRS Satellite-derived DEM less than 30m and more than 10m postings may be made available at par with the base price for all categories of users.

Source: <https://urs.earthdata.nasa.gov/>

1st Stage:

The first processing stage involves importing and merging the 7.5' x 7.5' tiles into continuous elevation surfaces in DEM format.

2nd Stage:

Re-sampling the data at 15 m is done and a contour interval of 10 m through the usual process of interpolation is created.

3rd Stage:

DEM data is converted in grid format through Arc GIS 10.8 to obtain elevation information of the study area. Contours are then generated at 10 m intervals through spatial analysis of Arc GIS and with SRTM DEM data.

4th Stage:

Integration of DEM with contour map showing spatial analyst is done.

The Digital Elevation Model (DEM) of the Study Area with Contour Map DEM is given in Figure - 3.3.

Slope

The slope map was derived from SRTM DEM data of the study area. The slope of the study area was classified into four classes: less than 1 Percent/degree Flat to almost flat, and no meaningful denudation process. More gentle low speed ground motion, sheet erosion and soil erosion in the 1⁰ to 6⁰ gentle low speed ground motion, sheet erosion and soil erosion more gentle the same as above but with a higher magnitude and 6⁰ to 14⁰ is slightly steep, a lot of ground movement and erosion especially landslides that are flat. 14⁰ to 25⁰ is steep intensive denudation processes and ground movements are common. above-24⁰ is very steep rock generally begin to unfold, a very intensive denudation process, have produce rework material in the western part of the area. (Fig.3.5)

Slope Class	Nature, Process and Natural Conditions
0 ⁰ -2 ⁰ (0-2%)	Flat to almost flat, no meaningful denudation process
2 ⁰ - 4 ⁰ (2-7%)	Gentle, low-speed ground motion, sheet erosion and soil erosion (sheet & rill erosion), erosion swamps.
4 ⁰ - 8 ⁰ (7-15%)	More Gentle, the same as above, but with a higher magnitude.
8 ⁰ - 16 ⁰ (15-30%)	Slightly steep, a lot of ground movement and erosion, especially landslides that are flat.
16 ⁰ - 35 ⁰ (30-70%)	Steep, intensive denudation processes and ground movements are common.
35 ⁰ - 55 ⁰ (70-140%)	Very steep, rocks generally begin to unfold, a very intensive denudational process, have begun to produce rework material.
> 55 ⁰ >140%	Very steep, exposed rocks, a very strong denudational process and prone to falling rocks, rarely grown plants (limited)

Source: Calculation of this slope using van Zuidam classification, 1985

Interpretation & Conclusion

It is very clear from the DEM that the elevation varies from 310m to 824m in the whole study area, thus having an elevation difference of 514m. The areas in the Northern, Southernwestern portion have higher elevation which is covered by plain land while the low-lying areas are generally used for agricultural purpose with builtup

land. The contour over the DEM shows that the project site is 400-420m in the elevation range of 10 m interval present on the flat land in the study area.

FIGURE 3.4: DIGITAL ELEVATION MODEL OF THE STUDY AREA WITH CONTOUR MAP

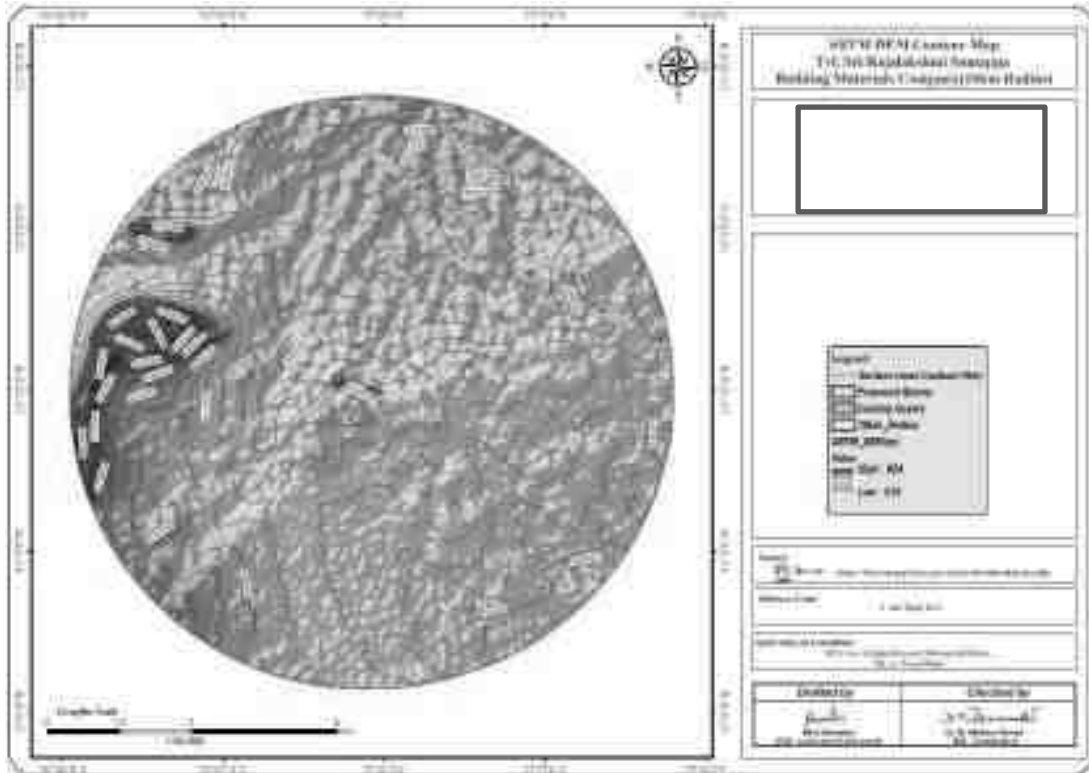
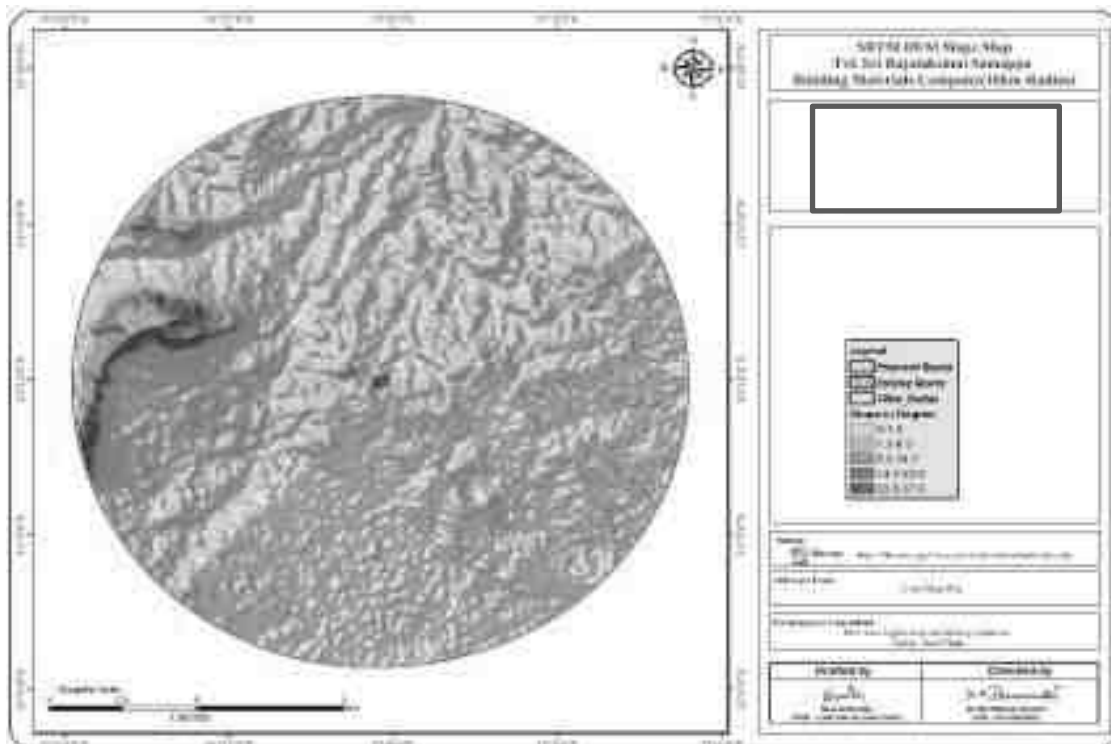


FIGURE 3.5: SLOPE MAP AROUND 10KM RADIUS



3.1.2 Topography

The project area is almost plain terrain with gentle gradient towards North side, maximum elevation of the area is 427m above Mean Sea level there are small hilly regions in and around the area.

3.1.3 Drainage Pattern of the Area

There are no developed surface drainage channels in the study area. Bhavani river, a perennial pass 6.80km-Northeast from the project site. The area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. The area is mostly dry in all seasons except rainy seasons.

The general drainage pattern of the area is of sub dendritic and dendritic pattern. No prominent water course or nallah is inferred. During rainy season the surface runoff flows in W to E direction. The drainage pattern of the study area is given in Fig. 3.5. The quarrying activity will not hinder the natural flow of rainwater.

3.1.2 Environmental Features in the Study Area

There is no Wildlife Sanctuaries, National Park and Archaeological monuments within the study 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 mine lease area i.e. 10 km radius of the mine lease area, are given in the below Table 3.3.

3.1.5 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.

TABLE 3.3 – DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE PROJECT AREA

Sl. No	Sensitive Ecological Features	Name	Arial Distance in km from Mine Lease Boundary
1	National Park / Wild life Sanctuaries	None	Nil within 10 km Radius
2	Reserve Forest	Thadagam R.F	9.15 km South 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	Defence Installation	None	Nil within 10KM Radius

Source: Survey of India Toposheet, Village Cadastral Map & Google Earth/Maps

TABLE 3.4 – WATER BODIES WITHIN THE CLUSTER FROM PROPOSED QUARRY

M/s. Sri Rajalakshmi Samappa -P1		
S.No	LABEL	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.

TABLE 3.5 – SOIL SAMPLING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	S-1	Core Zone	Project Area	11°11'56.23"N 76°59'38.82"E
2	S-2	Onnipalayam	1.2km NE	11°12'27.11"N 77° 0'4.12"E
3	S-3	Kallipalayam	2.0km South	11°10'44.98"N 76°59'26.61"E
4	S-4	Periya Puthur	4.8km NE	11°13'36.12"N 77° 1'40.93"E
5	S-5	Mathampalayam	4.2km SW	11°11'54.23"N 76°57'19.16"E
6	S-6	Sengalipalayam	3km East	11°11'45.52"N 77° 1'22.71"E

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

The objective of the soil sampling is -

1. To determine the baseline soil characteristics of the study area;
2. To determine the impact of proposed activity on soil characteristics and;

To determine the impact on soil more importantly agriculture production point of view.

Methodology –

For studying soil quality, sampling locations were selected to assess the existing soil conditions in and around the proposed quarry site representing various land use conditions. The samples were collected by auger boring into the soil up to 90-cm depth. Six (6) locations were selected for soil sampling on the basis of soil types, vegetative cover, industrial & residential activities including infrastructure facilities, which would accord an overall idea of the soil characteristics. The samples were analysed for physical and chemical characteristics. The sealed 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 3.5.

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 classification of soil and physico-chemical characteristics of the soils are presented below in Table 3.6 & Test Results in Table 3.7.

FIGURE 3.3: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS

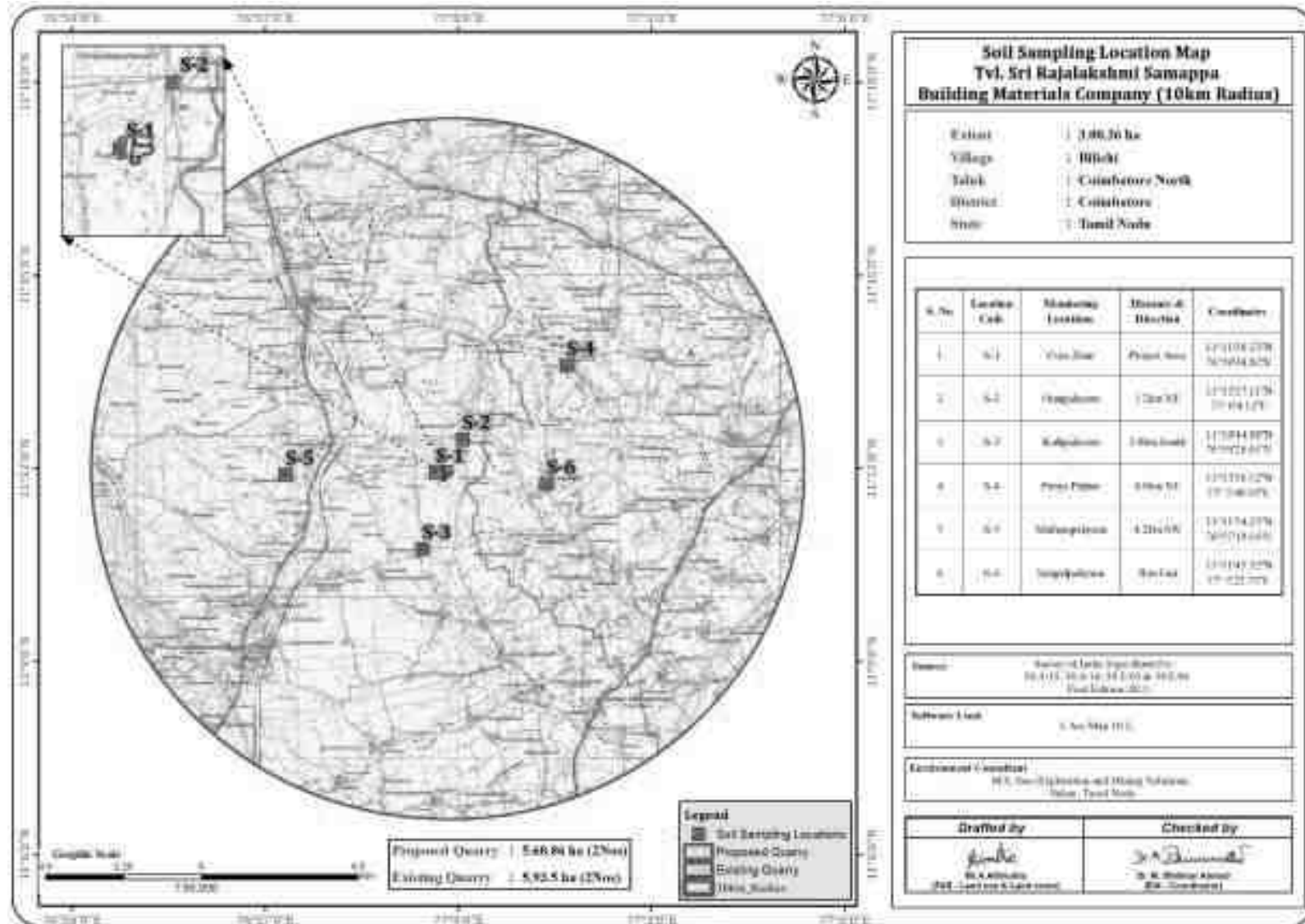


FIGURE 3.4: SOIL MAP

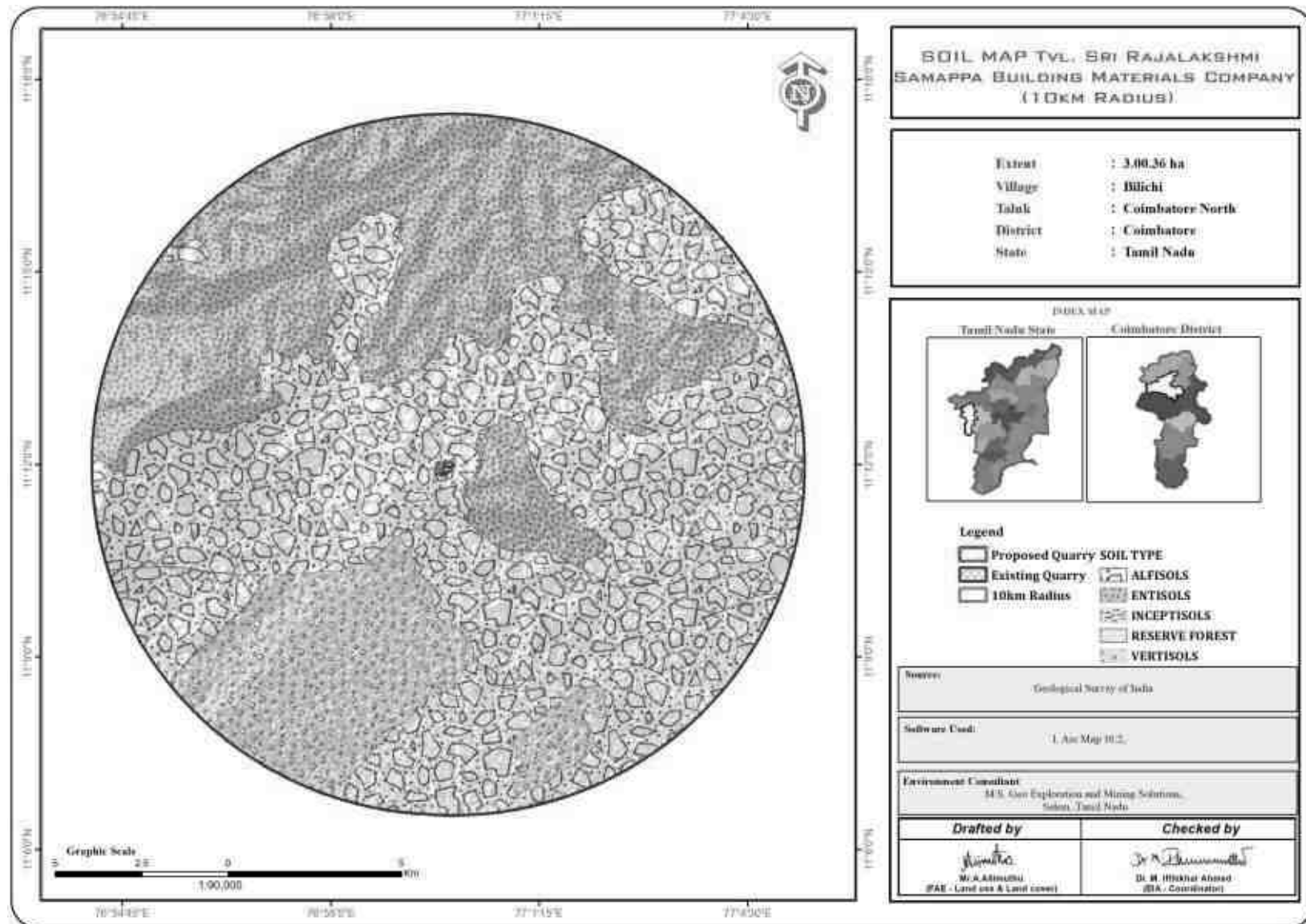


TABLE 3.7 – SOIL QUALITY MONITORING DATA

S.No	Test Parameters	Protocols	S1-Core Zone	S2- Onnipalayam	S3- Kallipalayam	S4- Periya Puthur	S5- Mathampalayam	S6- Sengalipalayam
1	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.04	8.10	8.75	8.60	7.55	7.55
2	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	410 µmhos/cm	523 µmhos/cm	520 µmhos/cm	409 µmhos/cm	480 µmhos/cm	485 µmhos/cm
3	Water Holding Capacity	By Gravimetric Method	47.6 %	48.7 %	47.9 %	47.2. %	46.9 %	48.4 %
4	Bulk Density	By Cylindrical Method	1.2 g/cm ³	1.25 g/cm ³	1.21 g/cm ³	1.1 g/cm ³	0.95 g/cm ³	0.94 g/cm ³
5	Porosity	By Gravimetric Method	42.8 %	42.5 %	46.1 %	45.3 %	42.4 %	43.1 %
6	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	125.5 mg/kg	158 mg/kg	91.8 mg/kg	200 mg/kg	120 mg/kg	138 mg/kg
7	Magnesium as Mg		67.8 mg/kg	88.4 mg/kg	82 mg/kg	69.1 mg/kg	77 mg/kg	88 mg/kg
8	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	110 mg/kg	120 mg/kg	130 mg/kg	86.5 mg/kg	96.7 mg/kg	100 mg/kg
9	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.011 %	0.0011 %	0.009 %	0.005 %	0.0031 %	0.0011 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	2.1 mg/kg	1.3 mg/kg	1.10 mg/kg	1.6 mg/kg	2.55 mg/kg	3.7 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	300 mg/kg	270 mg/kg	355 mg/kg	410 mg/kg	308 mg/kg	390 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.93 %	0.90 %	2.03 %	1.93 %	1.76 %	1.93 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.12 %	0.52 %	1.18 %	1.12 %	1.02 %	1.12 %
14	Texture :							
	Clay	Gravimetric Method	35.5 %	35.5 %	37.2 %	37.9 %	34.4 %	34.8 %
	Sand		31.9 %	36.9 %	35.9 %	35.5 %	37.5 %	37.9 %
	Silt		32.6 %	27.6 %	26.9 %	26.6 %	28.1 %	27.3 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	25 mg/kg	30.8 mg/kg	25 mg/kg	26.7 mg/kg	23.5 mg/kg	23.8 mg/kg
16	Zinc as Zn		1.62 mg/kg	2.6 mg/kg	1.3 mg/kg	1.3 mg/kg	1.01 mg/kg	1.10 mg/kg
17	Boron as B		3.3 mg/kg	1.9 mg/kg	2.5 mg/kg	1.5 mg/kg	1.3 mg/kg	1.06 mg/kg
18	Potassium as K		32 mg/kg	40.1 mg/kg	34.5 mg/kg	47.3 mg/kg	30.8 mg/kg	25.1 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
22	Lead as Pb		0.81 mg/kg	0.59 mg/kg	0.7 mg/kg	0.71 mg/kg	0.6 mg/kg	0.77 mg/kg
23	Iron as Fe		2.35 mg/kg	1.22 mg/kg	1.10 mg/kg	2.38 mg/kg	2.22 mg/kg	2.01 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	44.5 meq/100g of soil	38.8 meq/100g of soil	37.1 meq/100g of soil	36.2 meq/100g of soil	33.3 meq/100g of soil	39.08 meq/100g of soil

Source: Sampling Results by EHS360 Labs Private Limited

- This proposed mining activity is for rough stone and Gravel Quarry by opencast mechanized mining method involving occasional drilling & blasting activities on the weathered formation and removal of topsoil and preserving in safety barrier of the lease area to facilitate greenbelt development and winning of rough stone by eco-friendly wire-saw cutting method.
- Dust generation due to this quarrying activity becomes air borne and gets carried away to surrounding areas which may retard the photosynthesis activities of plants and heavy metals naturally occur in soil, but additional pollution come from anthropogenic activities such as agriculture, urbanisation, industrialisation, and mining.
- The proposed rough stone project is a Charnockite formation which does not source to heavy metal contamination.
- This proposed mining is a small-scale activity and in order to mitigate the impact of mining around the proposed mine lease area on Soil Health and Biodiversity its proposed by ways of daily three times water sprinkling by own water tanker and water sprinkling arrangements and greenbelt development all along the mine lease boundary.
- Therefore, the implementation of proposed mitigation measures for winning of mineral may not have much of impact on the surrounding Soil Health and Biodiversity.

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 Soil and Bulk Density of Soils in the study area varied between 0.94– 1.25 g/cc. The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e. ranging from 46.9- 48.7% and 42.4 – 46.1%

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline in nature with pH range 7.55 to 8.75
- The available Nitrogen content range between 270 to 410 kg/ha
- The available Phosphorus content range between 1.10 to 3.7 kg/ha
- The available Potassium range between 25.1 to 47.3 mg/kg

Whereas, the micronutrient as zinc (Zn), iron (Fe) and copper (Cu) were found in the range of 1.01 to 2.6 mg/kg; 1.10 to 2.38 mg/kg and ND

Wilting co efficient in significant level would mean that the soil would support the vegetation. The soil properties in the buffer zone reveal that the soil can sustain vegetation. If amended suitability the core area can also withstand plantation.

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 lies at 13.0 Km North west from the project cluster. The buffer area is studded with few tanks that serve as the source for agriculture and also their surplus feeds adjoining tanks. The rainfall over the area is moderate, the rainwater storage in open wells, trenches is in practice over the area and the stored water acts as source of freshwater for couple of months after rainy season.

3.2.2 Ground Water Resources:

The terrain is underlain by hard rock formations, Fissured and fractured crystalline rocks constitute the important aquifer systems in the Coimbatore region. Ground water occurs under phreatic to semi-confined conditions in these formations and is being developed by means of dug wells and filter points. Proterozoic formation is the basement rocks which consist of quartzite, crystalline limestone, calc-granulite, hornblende – biotite gneiss,

charnockite or pyroxene granulite, granite and pegmatite. Weathered, a fissured crack, shear zones and joints in the basement rock act as a good groundwater potential zone in the study area.

The study area falls in the Sulur block which is categorized as over-exploited zone as per G.O (MS) No 113 dated 09.06.2016.

3.2.3 Methodology

Reconnaissance survey was undertaken to collect the sampling and locations were finalized based on;

1. Drainage pattern;
2. Location of residential areas representing different activities/likely impact areas; and
3. Likely areas, which can represent baseline conditions

Two (2) surface water and Four (4) ground water samples were collected in the study area and physico-chemical, heavy metals and bacteriological parameters were analysed. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012 and 'Standard methods for the Examination of Water and Waste water' 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	Location code	Monitoring Locations	Distance & Direction from the cluster	Coordinates
1	SW-1	Belladhi Lake	6.3km NW	11°15'10.79"N 76°58'29.47"E
2	SW-2	Agrahasamakulam Lake	5.8km South	11° 8'50.78"N 77° 0'8.45"E
3	WW-1	Near Project Area	210m NE	11°12'5.81"N 76°59'46.70"E
4	WW-2	Muthalipalayam	6.2km SE	11°10'22.64"N 77° 2'45.33"E
5	BW-1	Near Project Area	450m West	11°12'1.23"N 76°59'24.03"E
6	BW-2	Periya Puthur	4.8km NE	11°13'38.36"N 77° 1'45.47"E

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

Note: SW- Surface water, WW – Well Water, BW – Bore well

FIGURE 3.5: SITE PHOTOGRAPHS OF WATER SAMPLING LOCATIONS



TABLE 3.9 – SURFACE WATER ANALYSIS RESULTS

S.NO	Parameter	UNIT	SW1 Belladhi Lake	SW1 Agrahasamakulam Lake
1	Color	Hazen	10 Hazen	5 Hazen
2	Odour	-	Agreeable	Agreeable
3	pH@ 25°C	-	7.10	7.29
4	Electrical Conductivity @ 25°C	µs/cm	1202 µmhos/cm	933 µmhos/cm
5	Turbidity	NTU	4.5 NTU	2.9 NTU
6	Total Dissolved Solids	mg/l	710 mg/l	550 mg/l
7	Total Hardness as CaCO ₃	mg/l	197.76 mg/l	152.17 mg/l
8	Calcium as Ca	mg/l	35.1 mg/l	27.7 mg/l
9	Magnesium as Mg	mg/l	26.8 mg/l	20.2 mg/l
10	Total Alkalinity as CaCO ₃	mg/l	257.1 mg/l	184 mg/l
11	Chloride as Cl ⁻	mg/l	200 mg/l	140 mg/l
12	Sulphate as SO ₄ ⁻	mg/l	71.7 mg/l	65.6 mg/l
13	Iron as Fe	mg/l	0.14 mg/l	0.22 mg/l
14	Free Residual Chlorine	mg/l	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
15	Fluoride as F	mg/l	0.25 mg/l	0.19 mg/l
16	Nitrates as NO ₃	mg/l	8.8 mg/l	7.7 mg/l
17	Copper as Cu	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	mg/l	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	mg/l	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	mg/l	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)
21	Selenium as Se	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
23	Lead as Pb	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	mg/l	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
25	Total Chromium	mg/l	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)
26	Boron as B	mg/l	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	mg/l	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)
28	Phenolic Compunds as	mg/l	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents as	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
30	Cynaide as CN	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
31	Biological Oxygen	mg/l	6.8 mg/l	5.1 mg/l
32	Chemical Oxygen	mg/l	40 mg/l	28 mg/l
33	Dissolved Oxygen	mg/l	5.5 mg/l	5.5 mg/l
34	Total Coliform	Per 100ml	850 MPN/100ml	800 MPN/100ml
35	E-Coli	Per 100ml	140 MPN/100ml	90 MPN/100ml
36	Barium as Ba	mg/l	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)
37	Ammonia-n (as Total	mg/l	2.2 mg/l	2.6 mg/l
38	Sulphide as H ₂ S	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
39	Molybdenum as Mo	mg/l	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
40	Total Arsenic as As	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
41	Total Suspended Solids	mg/l	20.2 mg/l	17.3 mg/l

TABLE 3.10 – GROUND WATER ANALYSIS RESULTS

S.NO	Parameter	Unit	WW1 Near Project Area	WW2 Muthalpalayam	BW1 Near Project Area	BW2 Periya Puthur
1	Color	Hazen	5	5	5	5
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
3	pH@ 25°C	-	7.10	7.73	8.03	7.99
4	Electrical Conductivity	µs/cm	746 µmhos/cm	934 µmhos/cm	785 µmhos/cm	813 µmhos/cm
5	Turbidity	NTU	1.5 NTU	2.2 NTU	1.1 NTU	1.5 NTU
6	Total Dissolved Solids	mg/l	440 mg/l	550 mg/l	463 mg/l	480 mg/l
7	Total Hardness as CaCO ₃	mg/l	136.18 mg/l	203.05 mg/l	156.82 mg/l	168.18 mg/l
8	Calcium as Ca	mg/l	24.1 mg/l	35.9 mg/l	26.6 mg/l	30 mg/l
9	Magnesium as Mg	mg/l	18.5 mg/l	27.6 mg/l	22 mg/l	22.7 mg/l
10	Total Alkalinity	mg/l	124 mg/l	165 mg/l	138 mg/l	140 mg/l
11	Chloride as Cl ⁻	mg/l	97.5 mg/l	130 mg/l	114 mg/l	112 mg/l
12	Sulphate as SO ₄ ⁻	mg/l	57.2 mg/l	75 mg/l	65.4 mg/l	55 mg/l
13	Iron as Fe	mg/l	0.29 mg/l	0.23 mg/l	0.22 mg/l	0.22 mg/l
14	Free Residual Chlorine	mg/l	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
15	Fluoride as F	mg/l	0.21 mg/l	0.21 mg/l	0.15 mg/l	0.19 mg/l
16	Nitrates as NO ₃	mg/l	8.1 mg/l	5.8 mg/l	3.2 mg/l	4.9 mg/l
17	Copper as Cu	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	mg/l	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	mg/l	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	mg/l	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)
21	Selenium as Se	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
23	Lead as Pb	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	mg/l	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
25	Total Chromium	mg/l	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)
26	Boron as B	mg/l	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	mg/l	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)
28	Phenolic Compunds	mg/l	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
30	Cynaide as CN	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
31	Total Coliform	Per 100ml	190 MPN/100ml	140 MPN/100ml	90 MPN/100ml	220 MPN/100ml
32	E-Coli	Per 100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml
33	Barium as Ba	mg/l	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)
34	Ammonia (as Total	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
35	Sulphide as H ₂ S	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
36	Molybdenum as Mo	mg/l	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
37	Total Arsenic as	mg/l	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
38	Total Suspended Solids	mg/l	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)

* 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.

3.2.4 Interpretation & Conclusion

Surface Water

The pH of surface 7.10-7.29 while turbidity found within the standards. Total Dissolved Solids 550-710 mg/l and Chloride 140-200 mg/l. Nitrates 7.7-8.8 mg/l, while sulphates 65.6-71.7 mg/l.

Ground Water

The pH of the water samples collected ranged from 7.10 to 8.03 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 440 – 550 mg/l in all samples. The Total hardness varied between 136.18 – 203.05 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

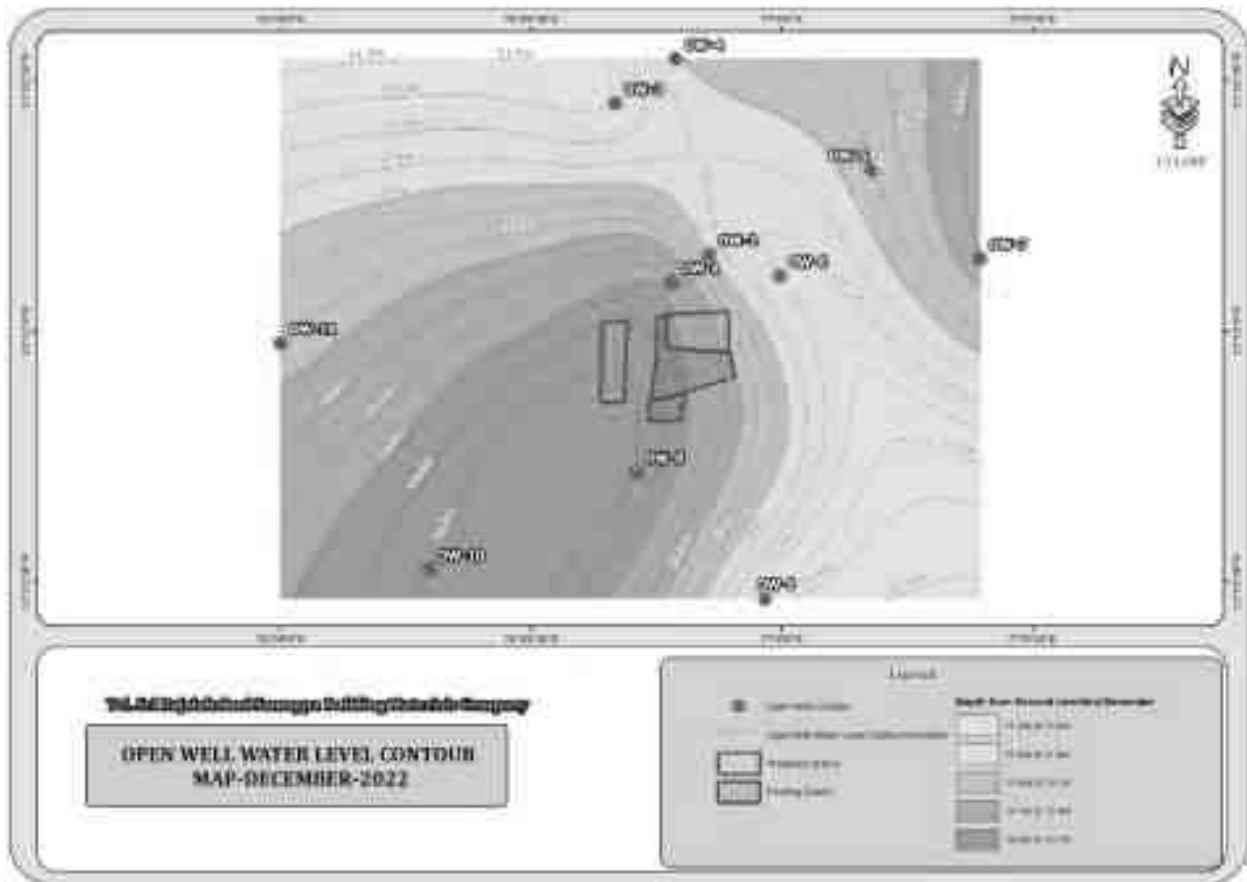
The district is underlain by hard rock formation Fissured and Fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-80 Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 65 –60 m. The Maximum depth of the quarrying operation in this proposal is 45m 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 this upcoming project.

During the rainy season there is a possibility of collection of seepage water from the subsurface levels this is due to the high intensity of fracture and weathered portion upto a depth of 10m thus the collected seepage water will be 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 be as a temporary reservoir in that area.

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

S.No	Name	LATITUDE	LONGITUDE	Dec-22	Jan-23	Feb-23
1	OW1	11° 14' 47.18"N	76° 59' 10.14"E	7.2	9.2	11.2
2	OW2	11° 14' 38.26"N	76° 59' 20.99"E	7.3	9.3	11.3
3	OW3	11° 14' 40.53"N	76° 59' 46.02"E	7.6	9.6	11.6
4	OW4	11° 14' 50.23"N	76° 59' 36.33"E	8.8	10.8	12.8
5	OW5	11° 15' 16.79"N	76° 59' 30.78"E	9	11	13
6	OW6	11° 15' 12.07"N	76° 59' 45.71"E	8.4	10.4	12.4
7	OW7	11° 15' 22.86"N	76° 59' 08.97"E	7.9	9.9	11.9
8	OW8	11° 15' 44.75"N	76° 59' 09.68"E	8.4	10.4	12.4
9	OW9	11° 15' 41.58"N	76° 58' 47.27"E	8.2	10.2	12.2
10	OW10	11° 15' 16.48"N	77° 00' 16.93"E	8.8	10.8	12.8
11	OW11	11° 15' 27.36"N	76° 58' 33.27"E	8.6	10.6	12.6
12	OW12	11° 15' 00.71"N	76° 58' 27.81"E	8.2	10.2	12.2
13	OW13	11° 14' 34.87"N	76° 58' 18.34"E	8.7	10.7	12.7

FIGURE 3.6: CONTOUR MAP OF OPEN WELL WATER LEVEL



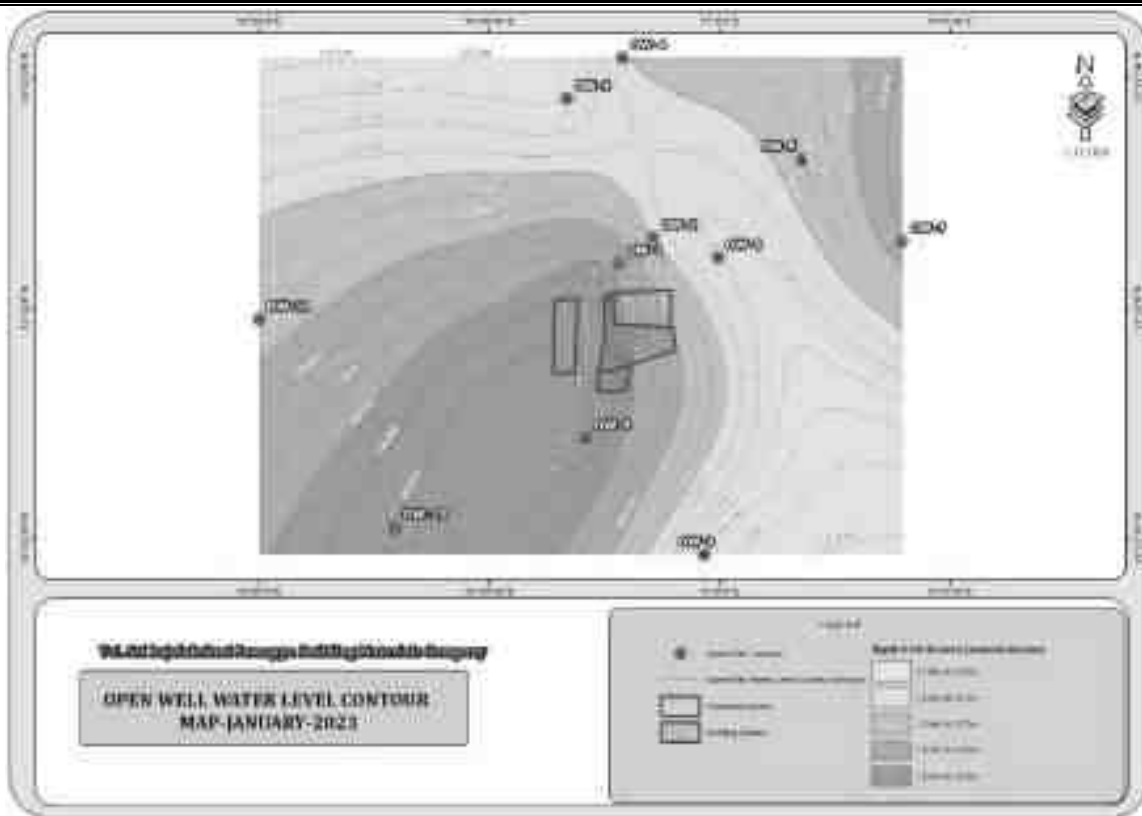
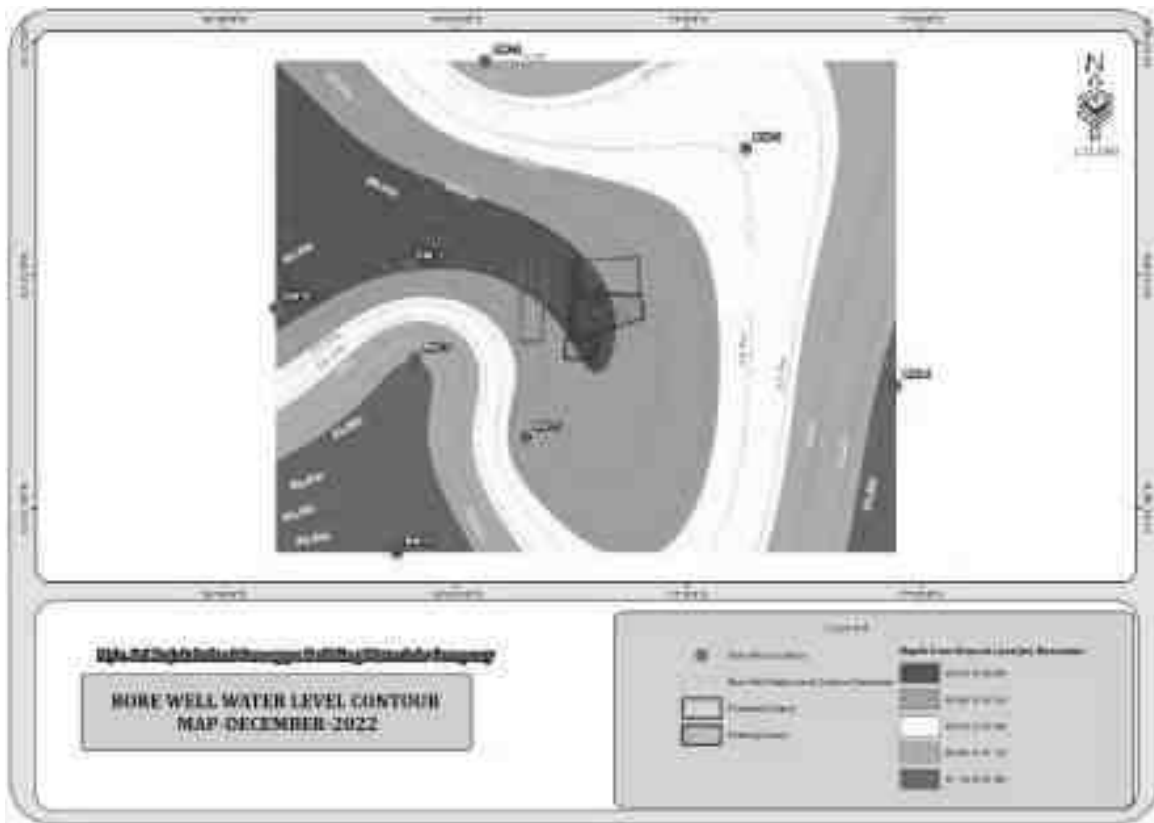


TABLE 3.12: POST-MONSOON WATER LEVEL OF BOREWELLS 1 KM RADIUS

S.No	Name	LATITUDE	LONGITUDE	Dec-22	Jan-23	Feb-23
1	BW1	11° 14' 47.84"N	76° 59' 48.18"E	58	60	62
2	BW2	11° 15' 11.15"N	76° 59' 37.63"E	60	62	64
3	BW3	11° 14' 29.87"N	76° 59' 11.37"E	65	67	69
4	BW4	11° 15' 30.22"N	76° 59' 40.93"E	60	62	64
5	BW5	11° 14' 23.52"N	76° 58' 37.51"E	61	63	65
6	BW6	11° 14' 59.97"N	76° 59' 58.85"E	59	61	63
7	BW7	11° 14' 50.09"N	76° 58' 24.64"E	62	64	66
8	BW8	11° 15' 26.07"N	76° 58' 35.89"E	65	67	69
9	BW9	11° 15' 12.64"N	77° 00' 25.64"E	65	67	69
10	BW10	11° 15' 45.79"N	76° 58' 54.88"E	64	66	68
11	BW11	11° 15' 34.56"N	77° 00' 09.11"E	60	62	64

FIGURE 3.7: CONTOUR MAP OF BORE WELL WATER LEVEL



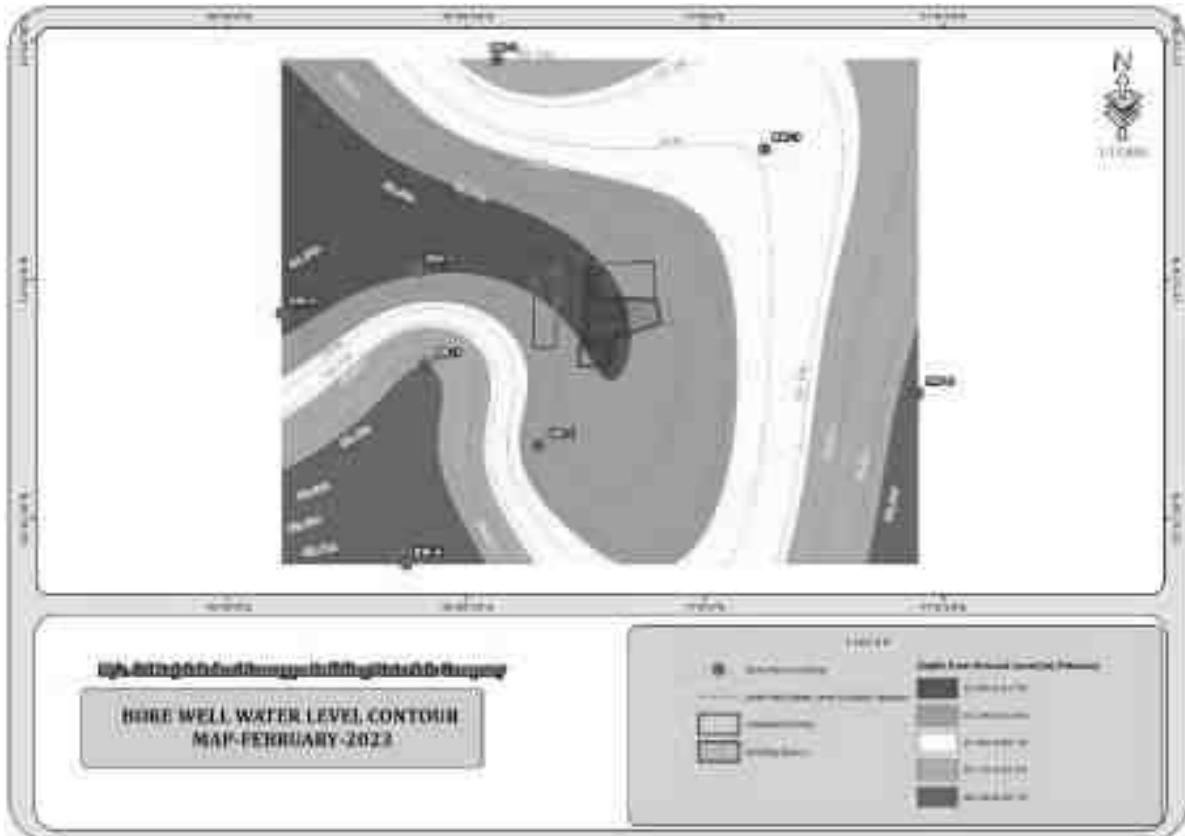
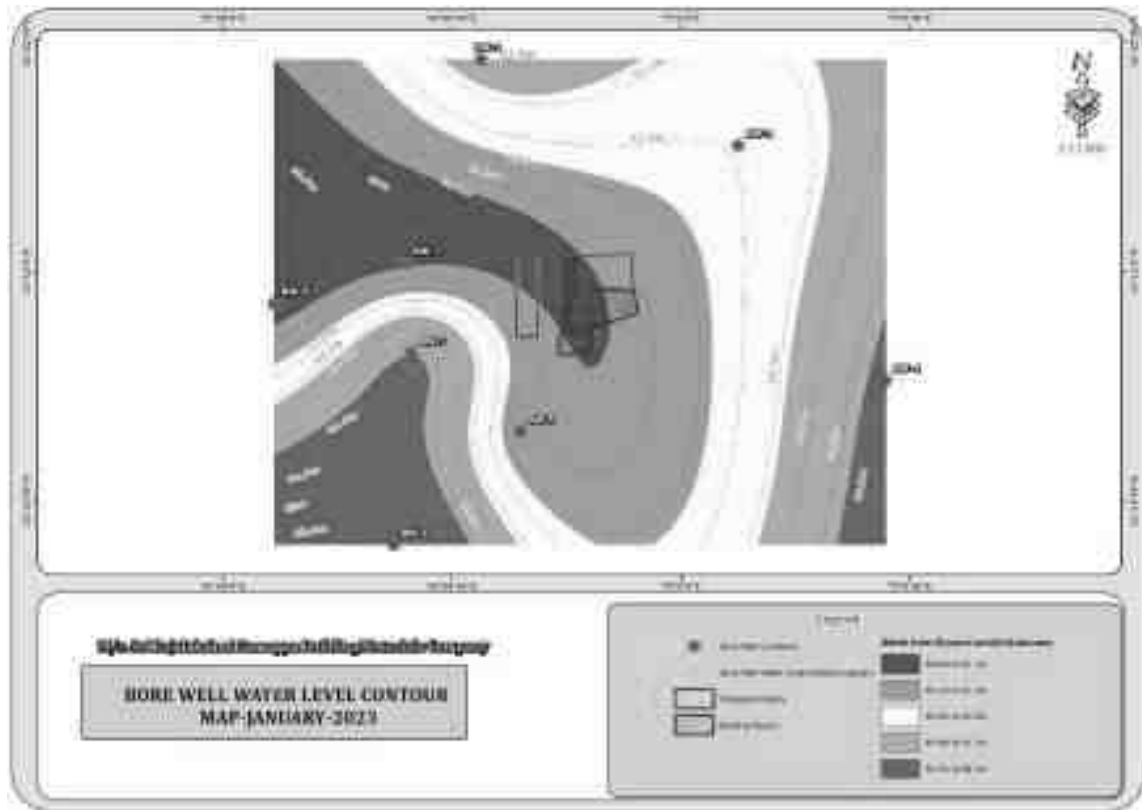


FIGURE 3.8: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE

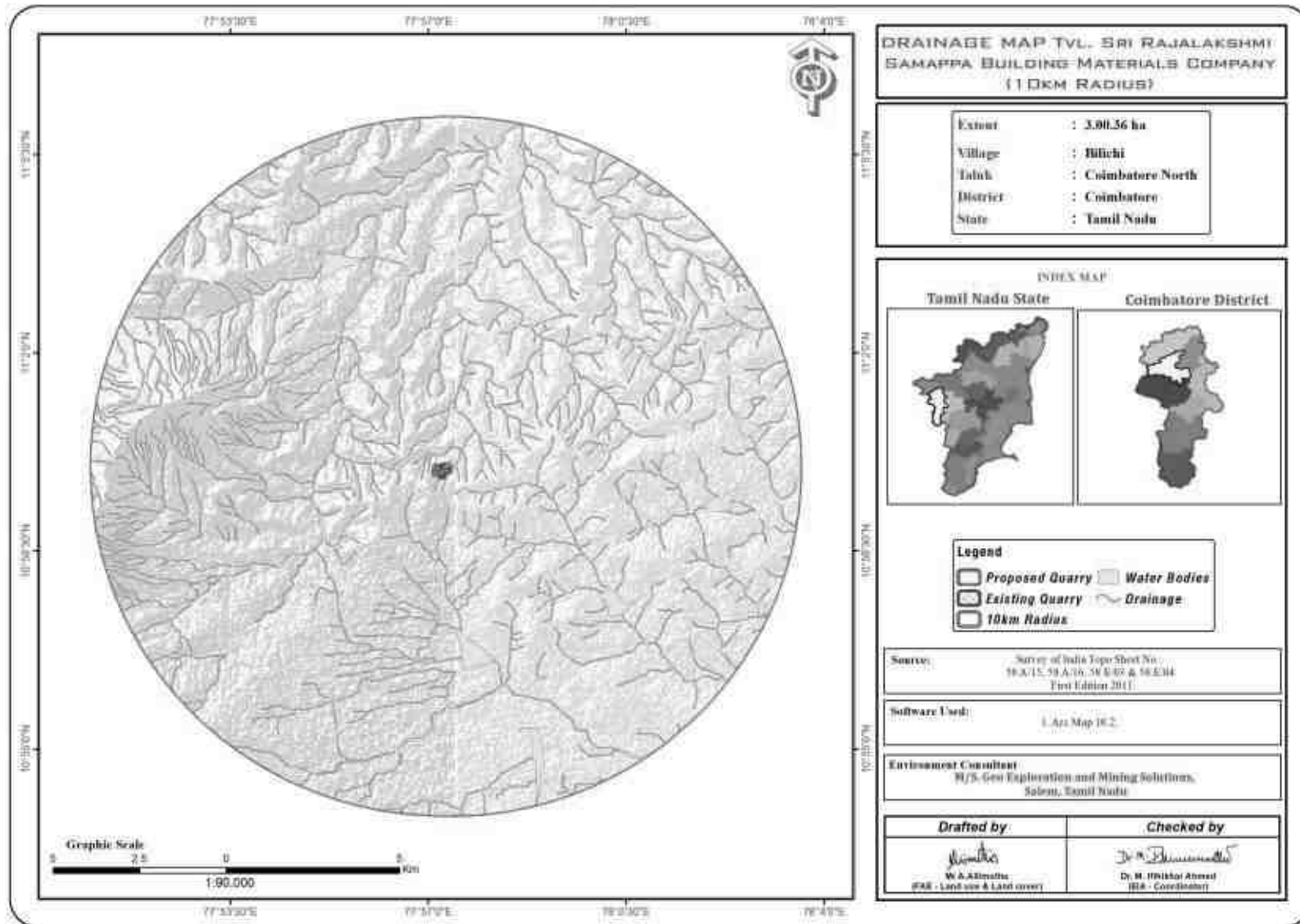
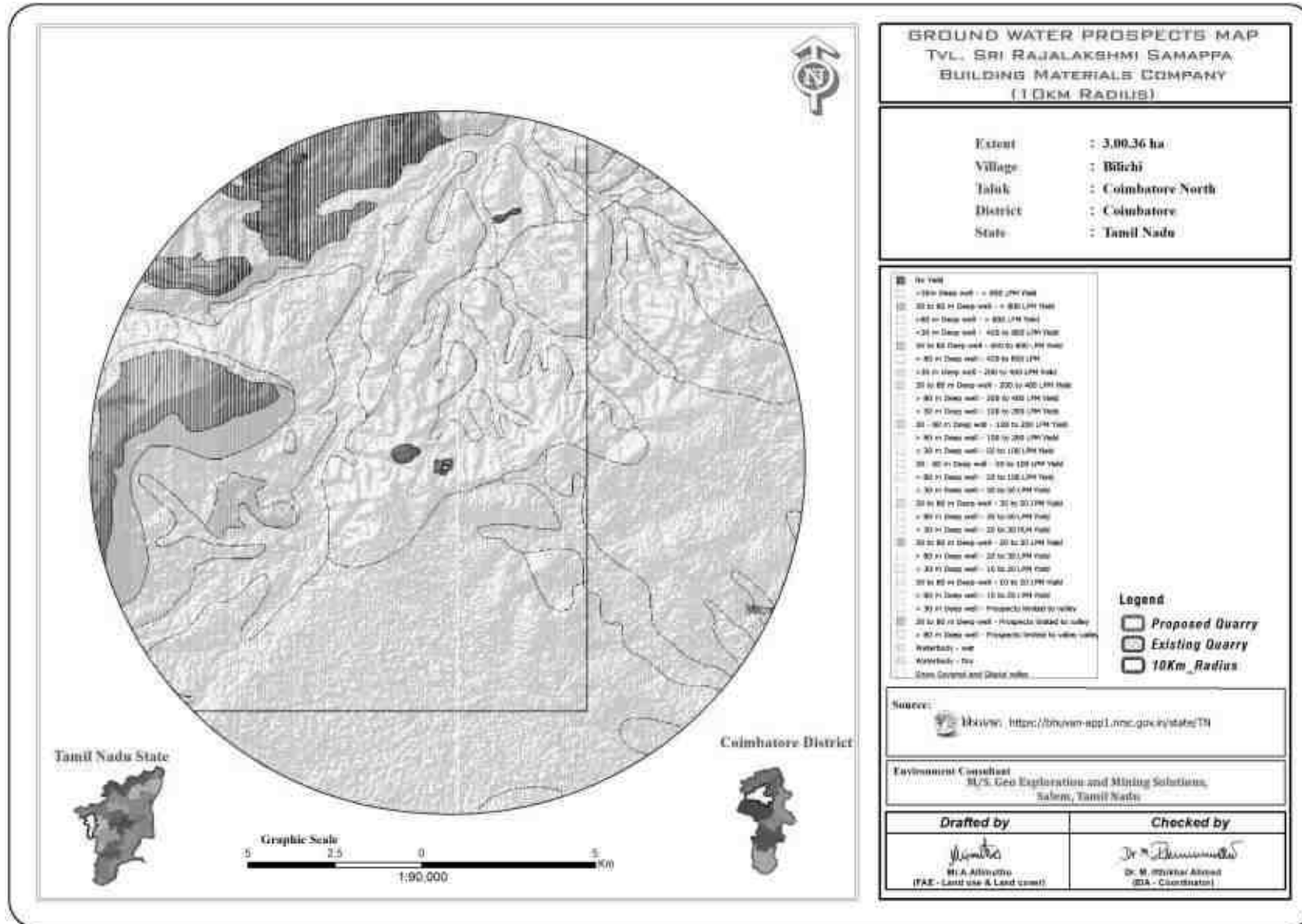


FIGURE 3.9: GROUND WATER LEVEL MAP



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

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

ΔV = potential difference between receiving electrodes

G = Geometric Factor.

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

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

ρ_r = Resistivity of Rocks

ρ_w = Resistivity of water in pores of rock

F = Formation Factor

\emptyset = Fractional pore volume

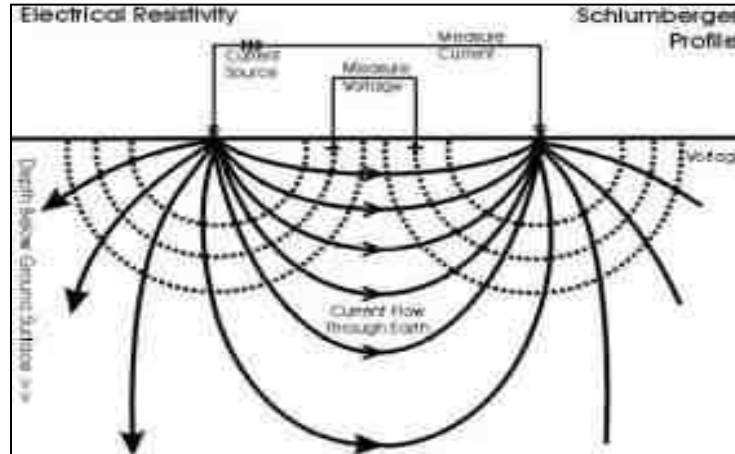
A = Constants with values ranging from 0.5 to 2.5

3.2.5.2 Survey Layout

The 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 ration can be enhanced by \sqrt{N} where N is the number of stacked readings. This SSR meter in which running averages of measurements [1, (1+2)/2, (1+2+3)/3 ... (1+2...+16/16)] up to the chosen stacks are displayed and the final average is stored automatically, in memory utilizing the principles of stacking to achieve the benefit of high signals to noise ratio. Based on these above significations the signal stacking resistivity meter was used for (VES) Vertical Electric Resistivity Sounding.

RESISTIVITY SURVEY PROFILE



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

3.2.5.3 Data Presentation

It was inferred that the low resistance encountered at the depth between 65-60m. The maximum depth proposed in this cluster Quarry 45 m 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 and Conclusion

The geophysical data's 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.

Based on the Geophysical interpretation water table fracture zone is expected above 60m bgl, Water level in the open well is ranges from 10.4m to 12.5m bgl it is only collected from the seepage water in shallow depth open wells are selected on the basis of suitable lineament and hydro fractures environment in shallow depth. Water level in the bore well is ranges from 65.8 to 68m bgl which will clearly evidence that the potential aquifer in the area is above 65m bgl. The depth of the mining operation in the cluster is maximum 45m bgl **hence this mining operation will not intersect the Ground water table**. Seepage water will be collected in the mine pit will be utilized for greenbelt development and dust suppression.

3.3 Air Environment

The ambient air quality with respect to the study area of 10 km radius including the cluster Quarry forms the baseline information. The prime objective of baseline air quality monitoring is to assess existing air quality of the area. This will also be useful in assessing the conformity to standards of the ambient air quality during the operations

The existing ambient air quality of the area is important for evaluating the impact of mining activities on the ambient air quality. These will also be useful for assessing the conformity to standards of the ambient air quality during the operation of Existing and proposed Quarry within the radius of 500m.

The sources of air pollution in the region are mostly due to vehicular traffic, dust arising from unpaved village road and domestic & agricultural activities. This section describes the identification of sampling locations, methodology adopted during the monitoring period and sampling frequency.

The baseline status of the ambient air quality has been assessed through scientifically designed ambient air quality network. The design of monitoring network in the air quality surveillance program has been based on the following considerations:

- Meteorological conditions.
- Topography of the study area.
- Likely impact area.

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. The station was installed at a height of 4 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 –

- Coimbatore's climate is classified as tropical. The summers here have a good deal of rainfall, while the winters have very little.
- The Köppen-Geiger climate classification is Aw. The average annual temperature in Coimbatore is 25.4 °C | 77.8 °F. The annual rainfall is 952 mm | 37.5 inch.
- This region, situated near the equator line, is characterized by difficult-to-define summer seasons. The best time to visit is March, April, May.
- Precipitation is the lowest in January, with an average of 13 mm | 0.5 inch. Most of the precipitation here falls in October, averaging 181 mm | 7.1 inch.
- At an average temperature of 28.9 °C | 84.1 °F, April is the hottest month of the year. December is the coldest month, with temperatures averaging 23.2 °C | 73.7 °F.

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

Rainfall –

The average annual rainfall and the 5 years rainfall is as follows:

TABLE 3.13 – RAINFALL DATA

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
873.4	1302	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	23.11	22.92	24.51
		Min	20.68	18.76	22.04
		Avg	21.89	20.84	23.27
2	Relative Humidity (%)	Avg	83.59	78.06	61.16
3	Wind Speed (m/s)	Max	4.38	3.47	3.7
		Min	1.46	2.11	1.66
		Avg	2.92	2.79	2.68
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ENE,NE	ENE,E	ENE,E

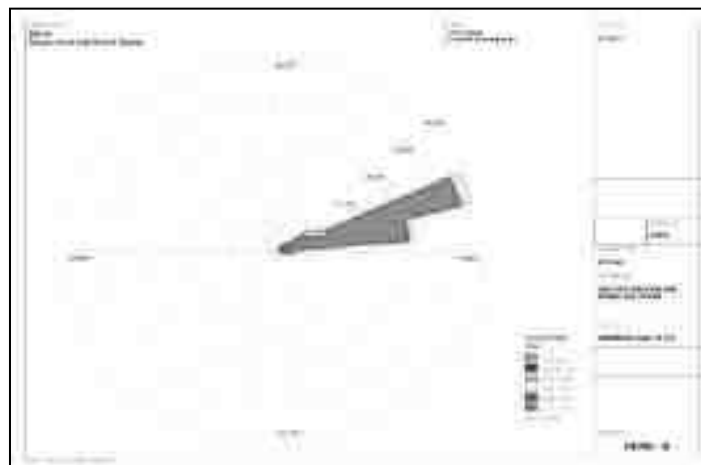
Source: On-site monitoring/sampling by EHS360 Labs Private Limited in association with GEMS

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. 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 Bilichi 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.

Windrose diagram of the study site is depicted in Figure. 3.8. Predominant downwind direction of the area during study season is North East to South West.

FIGURE 3.10: WINDROSE DIAGRAM

Environmental

In the abstract of collected data wind rose were drawn on presented in figure No.3.15 during the monitoring period in the study area

1. Predominant winds were from NE
2. Wind velocity readings were recorded between 0.50 to 5.70 km / hour
3. Calm conditions prevail of about 0.00% of the monitoring period
4. Temperature readings ranging from 18.76⁰ to 24.51⁰C
5. Relative humidity ranging from 61 to 83 %
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 AIR QUALITY ANALYSIS

Parameter	Method	Instrument
PM _{2.5}	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM ₁₀	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO ₂	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NO _x	IS-5182 Part II (Jacob & Hochheiser modified method)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology followed by 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	20.0
			80.0	80.0
2	Nitrogen Dioxide ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0	30.0
			80.0	80.0
3	Particulate matter (size less than 10 μm) PM ₁₀ ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	60.0	60.0
			100.0	100.0
4	Particulate matter (size less than 2.5 μm) PM _{2.5} ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0	40.0
			60.0	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 Dec 2022 to Feb 2023. The baseline data of ambient air has been generated for PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂) & Nitrogen Dioxide (NO₂).

3.3.5 Ambient Air Quality Monitoring Stations

Eight (8) monitoring stations were set up in the study area as depicted in Figure 3.6.1 for assessment of the existing ambient air quality. Details of the sampling locations are as per given below.

TABLE 3.17 – AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ-1	Core Zone	Project Area	11°12'0.51"N 76°59'39.01"E
2	AAQ-2	Onnipalayam	1.2km NE	11°12'26.87"N 77° 0'7.67"E
3	AAQ-3	Kallipalayam	2.0km South	11°10'44.19"N 76°59'22.55"E
4	AAQ-4	Muthalipalayam	6km SE	11°10'19.43"N 77° 2'38.39"E
5	AAQ-5	Bettadapuram	4.8km NW	11°13'26.14"N 76°57'26.99"E
6	AAQ-6	Periya Puthur	4.8km NE	11°13'38.24"N 77° 1'43.30"E
7	AAQ-7	Mathampalayam	4.2km SW	11°11'53.08"N 76°57'22.51"E
8	AAQ-8	Sengalipalayam	3km East	11°11'46.02"N 77° 1'18.17"E

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

FIGURE 3.11: SITE PHOTOGRAPHS OF AMBIENT AIR MONITORING

Source: Monitoring photographs from the FAE and Team Members

FIGURE 3.12 AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

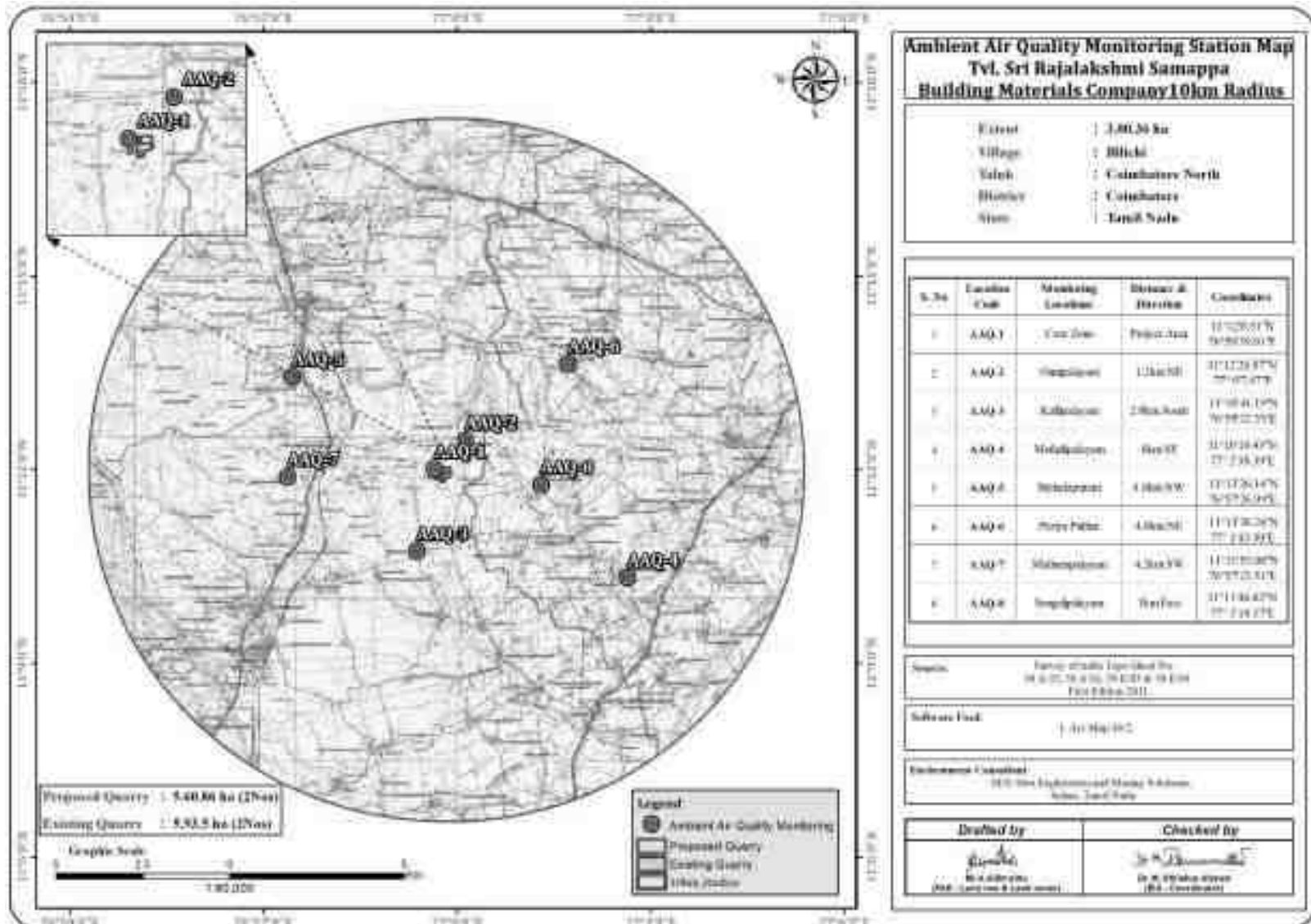


TABLE 3.18 – AAQ1- CORE ZONE

Period: Dec – Feb-2023

Location: AAQ1- Core Zone

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)
01.12.2022	7:00-7:00	67.5	22.3	45.5	6.5	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.12.2022	7:15-7:15	65.3	22.1	44.2	6.1	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.12.2022	7:00-7:00	68.3	23.6	45.3	6.0	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.12.2022	7:15-7:15	67.2	24.1	46.1	6.5	23.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.12.2022	7:00-7:00	65.3	23.4	47.2	5.2	24.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.12.2022	7:15-7:15	68.3	24.1	45.2	5.2	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.12.2022	7:00-7:00	64.2	22.0	44.0	5.2	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.12.2022	7:15-7:15	68.0	24.1	43.2	5.0	25.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.12.2022	7:00-7:00	66.8	21.0	44.1	6.8	25.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.12.2022	7:15-7:15	65.2	22.1	45.0	6.5	22.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.01.2023	7:00-7:00	64.1	22.3	44.3	8.8	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.01.2023	7:15-7:15	66.3	24.2	45.8	7.0	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.01.2023	7:00-7:00	68.2	23.1	46.2	6.2	24.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.01.2023	7:15-7:15	65.1	25.3	47.0	8.2	24.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.01.2023	7:00-7:00	66.3	23.1	46.2	6.3	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.01.2023	7:15-7:15	68.4	26.1	47.3	7.2	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.01.2023	7:00-7:00	65.2	22.2	45.1	8.3	24.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.01.2023	7:15-7:15	66.0	22.3	44.3	6.6	25.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.02.2023	7:00-7:00	66.4	21.1	45.3	7.3	25.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.02.2023	7:15-7:15	65.8	22.3	44.6	8.5	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.02.2023	7:00-7:00	64.7	22.4	45.8	8.3	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.02.2023	7:15-7:15	68.3	23.5	45.3	6.3	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.02.2023	7:00-7:00	69.4	22.1	43.2	7.0	24.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.02.2023	7:15-7:15	66.3	22.3	42.0	7.2	24.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.02.2023	7:00-7:00	67.2	22.4	44.6	6.4	24.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.02.2023	7:15-7:15	65.1	22.1	45.2	6.3	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.19 – AAQ2 - ONNIPALAYAM

Period: Dec – Feb-2023

Location: AAQ2- Onnipalayam

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)
01.12.2022	7:00-7:00	60.3	25.2	47.5	6.5	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.12.2022	7:15-7:15	62.5	24.4	46.3	6.2	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.12.2022	7:00-7:00	63.5	25.8	45.3	7.8	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.12.2022	7:15-7:15	64.2	26.0	48.2	6.5	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.12.2022	7:00-7:00	65.2	25.3	49.0	7.5	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.12.2022	7:15-7:15	63.0	26.2	45.2	6.8	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.12.2022	7:00-7:00	62.5	23.2	46.3	6.4	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.12.2022	7:15-7:15	61.5	24.3	47.1	6.1	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.12.2022	7:00-7:00	62.5	24.6	48.2	6.5	22.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.12.2022	7:15-7:15	63.4	25.3	49.3	7.3	21.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.01.2023	7:00-7:00	61.0	26.1	45.2	6.0	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.01.2023	7:15-7:15	62.2	27.0	45.1	7.5	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.01.2023	7:00-7:00	64.3	24.3	44.5	6.8	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.01.2023	7:15-7:15	65.2	25.0	45.6	6.2	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.01.2023	7:00-7:00	64.8	26.1	46.0	7.3	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.01.2023	7:15-7:15	63.2	27.3	47.3	6.4	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.01.2023	7:00-7:00	62.5	25.3	49.2	6.6	22.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.01.2023	7:15-7:15	63.0	26.5	48.3	7.2	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.02.2023	7:00-7:00	64.5	27.0	48.0	6.8	22.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.02.2023	7:15-7:15	62.3	25.3	47.2	7.5	23.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.02.2023	7:00-7:00	63.4	26.4	46.2	6.2	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.02.2023	7:15-7:15	62.2	27.1	45.0	7.3	22.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.02.2023	7:00-7:00	63.3	25.6	46.3	6.4	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.02.2023	7:15-7:15	63.5	26.1	47.2	7.3	22.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.02.2023	7:00-7:00	64.2	27.3	48.4	7.5	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.02.2023	7:15-7:15	63.2	26.6	49.0	6.8	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.20 – AAQ3 – KALLIPALAYAM

Period: Dec – Feb-2023

AAQ3- Kallipalayam

Sampling Time: 24-hourly

Monitoring		SPM (24 hrs.)	Particulates, µg/m ³		Gaseous Pollutants, µg/m ³					Other Pollutants (Particulate Phase) , µg/m ³				
Date	Period, hrs.		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*			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	7:00-7:00	63.5	23.5	44.2	6.2	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	7:15-7:15	65.5	23.8	46.1	5.5	19.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	7:00-7:00	64.2	24.2	45.2	6.3	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	7:15-7:15	61.3	23.0	43.1	7.0	20.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	7:00-7:00	62.5	25.4	47.2	5.8	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	7:15-7:15	64.3	23.8	48.0	6.2	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	7:00-7:00	62.0	24.2	46.2	7.2	19.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	7:15-7:15	63.4	25.6	45.3	6.3	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	7:00-7:00	62.0	23.1	43.1	5.5	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	7:15-7:15	61.0	25.4	44.5	6.2	19.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	7:00-7:00	62.3	23.2	46.3	7.2	20.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	7:15-7:15	64.1	25.2	47.1	6.0	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	7:00-7:00	63.5	24.6	48.3	5.8	20.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	7:15-7:15	61.2	23.4	44.5	5.3	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	7:00-7:00	63.5	25.5	45.1	6.4	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	7:15-7:15	62.5	23.6	46.3	6.8	20.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	7:00-7:00	61.4	24.1	44.0	7.0	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	7:15-7:15	62.5	25.3	46.2	7.8	19.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	7:00-7:00	63.5	24.1	45.3	6.3	20.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	7:15-7:15	64.2	25.3	44.3	5.2	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	7:00-7:00	62.3	23.2	48.0	6.3	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	7:15-7:15	63.5	24.1	46.2	7.4	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	7:00-7:00	64.1	25.3	47.2	6.8	19.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	7:15-7:15	62.3	22.3	45.3	8.2	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.02.2023	7:00-7:00	64.5	24.1	44.1	7.9	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.02.2023	7:15-7:15	63.2	25.6	45.3	8.0	21.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.21– AAQ4 – MUTHALIPALAYAM

Period: Dec – Feb-2023

Location: AAQ4 - *Muthalipalayam*

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	7:00-7:00	65.5	22.3	43.2	5.5	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	7:15-7:15	66.3	23.6	42.2	6.0	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	7:00-7:00	67.2	26.3	43.0	5.2	20.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	7:15-7:15	64.3	27.1	44.5	6.3	20.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	7:00-7:00	66.3	22.5	45.5	5.2	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	7:15-7:15	65.3	23.0	46.2	6.4	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	7:00-7:00	66.4	24.5	44.2	5.8	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	7:15-7:15	65.0	25.6	42.5	6.0	22.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	7:00-7:00	64.3	24.3	43.6	5.2	22.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	7:15-7:15	65.2	25.0	45.1	6.3	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	7:00-7:00	65.0	22.3	46.2	5.1	22.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	7:15-7:15	64.8	23.5	43.6	6.4	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	7:00-7:00	66.2	24.3	44.2	6.0	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	7:15-7:15	67.3	26.5	45.1	5.8	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	7:00-7:00	66.3	27.1	46.3	6.4	22.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	7:15-7:15	67.1	25.2	44.2	6.3	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	7:00-7:00	67.8	26.3	46.3	6.2	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	7:15-7:15	65.3	27.4	45.1	6.4	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	7:00-7:00	66.4	26.3	44.2	6.1	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	7:15-7:15	67.3	24.1	42.3	5.2	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	7:00-7:00	64.2	22.3	43.1	5.3	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	7:15-7:15	63.5	25.8	44.5	6.4	25.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	7:00-7:00	66.4	26.5	45.6	5.8	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	7:15-7:15	67.3	25.0	46.3	6.2	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.02.2023	7:00-7:00	66.3	24.6	42.3	6.4	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.02.2023	7:15-7:15	65.2	23.1	44.5	5.5	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.22 – AAQ5 – BETTADAPURAM (BUFFER ZONE)

Period: Dec – Feb-2023

AAQ5- Bettadapuram

Sampling Time: 24-hourly

Monitoring		SPM (24 hrs.)	Particulates, µg/m ³		Gaseous Pollutants, µg/m ³					Other Pollutants (Particulate Phase) , µg/m ³				
Date	Period, hrs.		PM2.5 60(24 hrs.)	PM10 100 (24 hrs.)	SO ₂ 80 (24 hrs.)	NO ₂ 80 (24 hrs.)	NH ₃ 400 (24 hrs.)	O ₃ (8-hly Avg.) 100 (8 hrs.)	CO (8-hly Avg.) 2.0 (8hrs.)	Pb, µg/m ³ 1.0 (24 hrs.)	As, ng/m ³ 6.0 (annual)	Ni, ng/m ³ 20 (annual)	C ₆ H ₆ , ng/m ³ 5.0 (annual)	BaP, ng/m ³ 1.0 (annual)
05.12.2022	7:00-7:00	63.5	24.3	45.5	7.2	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	7:15-7:15	66.2	23.1	46.3	6.0	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	7:00-7:00	65.2	22.1	44.2	7.8	21.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	7:15-7:15	64.2	21.0	42.3	6.2	19.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	7:00-7:00	63.1	23.1	46.3	7.2	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	7:15-7:15	62.1	22.5	44.5	6.0	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	7:00-7:00	64.5	24.6	43.2	7.1	20.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	7:15-7:15	63.0	25.0	46.5	7.5	18.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	7:00-7:00	62.1	21.2	47.1	8.2	19.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	7:15-7:15	63.1	22.5	45.3	6.2	20.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	7:00-7:00	64.5	23.5	46.2	7.3	18.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	7:15-7:15	65.3	24.3	43.2	8.1	19.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	7:00-7:00	66.2	25.2	44.6	6.3	20.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	7:15-7:15	62.0	22.3	45.3	8.1	19.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	7:00-7:00	63.4	23.5	46.3	7.5	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	7:15-7:15	65.3	24.1	47.2	8.3	18.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	7:00-7:00	64.2	25.5	43.5	7.1	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	7:15-7:15	62.3	24.6	44.5	7.3	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	7:00-7:00	66.0	23.1	46.3	7.2	18.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	7:15-7:15	62.3	22.5	47.2	6.3	19.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	7:00-7:00	64.1	23.5	44.3	6.2	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	7:15-7:15	64.0	24.2	45.2	8.1	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	7:00-7:00	63.8	25.3	43.1	6.3	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	7:15-7:15	62.2	24.2	44.6	7.4	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.02.2023	7:00-7:00	64.1	23.6	45.8	8.0	22.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.02.2023	7:15-7:15	64.0	22.1	46.1	7.5	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.23 – AAQ6 - PERIYA PUTHUR (BUFFER ZONE)

Period: Dec – Feb-2023

Location: AAQ6 – Periya Puthur

Sampling Time: 24-hourly

Monitoring		SPM (24 hrs.)	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.		PM2.5 60(24 hrs.)	PM10 100 (24 hrs.)	SO ₂ 80 (24 hrs.)	NO ₂ 80 (24 hrs.)	NH ₃ 400 (24 hrs.)	O ₃ (8-hly Avg.) 100 (8 hrs.)	CO (8-hly Avg.) 2.0 (8hrs.)	Pb, $\mu\text{g}/\text{m}^3$ 1.0 (24 hrs.)	As, ng/m^3 6.0 (annual)	Ni, ng/m^3 20 (annual)	C ₆ H ₆ , ng/m^3 5.0 (annual)	BaP, ng/m^3 1.0 (annual)
05.12.2022	7:00-7:00	62.5	22.5	44.0	6.2	18.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	7:15-7:15	61.3	23.2	45.2	7.2	19.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	7:00-7:00	60.2	24.3	46.3	6.8	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	7:15-7:15	63.5	21.0	44.2	7.0	17.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	7:00-7:00	63.0	22.1	43.2	7.4	19.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	7:15-7:15	62.1	25.0	43.0	6.3	17.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	7:00-7:00	64.5	26.1	45.2	7.2	18.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	7:15-7:15	65.0	22.3	45.0	6.8	20.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	7:00-7:00	62.3	26.1	45.2	6.9	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	7:15-7:15	64.1	23.2	46.2	7.4	17.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	7:00-7:00	65.3	25.1	44.2	7.3	18.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	7:15-7:15	60.4	22.8	45.2	6.2	18.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	7:00-7:00	62.3	23.1	46.3	6.3	21.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	7:15-7:15	63.1	22.0	45.0	7.1	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	7:00-7:00	64.1	23.6	46.1	7.5	17.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	7:15-7:15	65.3	22.1	44.2	6.8	18.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	7:00-7:00	63.5	23.4	46.5	7.3	17.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	7:15-7:15	62.1	22.6	44.0	6.9	22.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	7:00-7:00	64.3	26.1	45.0	7.2	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	7:15-7:15	65.2	23.4	46.3	7.0	17.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	7:00-7:00	62.3	26.0	44.1	6.8	18.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	7:15-7:15	64.0	23.5	44.5	6.5	19.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	7:00-7:00	65.1	22.4	43.8	7.4	20.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	7:15-7:15	64.0	22.1	44.2	7.3	18.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.02.2023	7:00-7:00	62.3	22.3	44.6	6.4	19.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.02.2023	7:15-7:15	62.4	24.1	45.3	6.6	20.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.24 – AAQ7 - MATHAMPALAYAM VILLAGE (BUFFER ZONE)

Period: Dec – Feb-2023

Location: AAQ7– Mathampalayam Sampling Time: 24-hourly

Monitoring		SPM (24 hrs.)	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.		PM2.5 60(24 hrs.)	PM10 100 (24 hrs.)	SO ₂ 80 (24 hrs.)	NO ₂ 80 (24 hrs.)	NH ₃ 400 (24 hrs.)	O ₃ (8-hly Avg.) 100 (8 hrs.)	CO (8-hly Avg.) 2.0 (8hrs.)	Pb, $\mu\text{g}/\text{m}^3$ 1.0 (24 hrs.)	As, ng/m^3 6.0 (annual)	Ni, ng/m^3 20 (annual)	C ₆ H ₆ , ng/m^3 5.0 (annual)	BaP, ng/m^3 1.0 (annual)
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	7:00-7:00	64.5	22.0	44.1	6.2	16.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	7:15-7:15	63.2	22.3	43.5	6.0	17.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	7:00-7:00	62.0	21.5	42.1	7.1	18.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	7:15-7:15	64.3	23.2	45.3	7.2	19.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	7:00-7:00	66.5	24.1	46.1	6.8	20.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	7:15-7:15	67.2	22.3	47.2	7.1	22.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	7:00-7:00	66.3	24.1	43.1	6.2	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	7:15-7:15	62.1	25.3	44.6	7.4	18.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	7:00-7:00	63.4	24.6	45.2	6.3	17.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	7:15-7:15	65.2	26.5	46.3	7.3	16.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	7:00-7:00	67.3	23.0	47.0	6.4	20.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	7:15-7:15	64.0	22.4	44.5	6.5	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	7:00-7:00	66.2	23.4	45.3	7.1	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	7:15-7:15	65.0	22.1	43.5	7.6	19.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	7:00-7:00	66.4	23.0	43.0	6.4	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	7:15-7:15	64.0	22.1	44.2	7.3	22.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	7:00-7:00	63.8	20.5	45.3	6.0	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	7:15-7:15	63.5	23.5	46.5	7.4	22.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	7:00-7:00	62.0	22.4	47.2	7.2	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	7:15-7:15	66.0	23.2	45.0	6.5	20.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	7:00-7:00	67.1	23.6	46.3	7.0	21.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	7:15-7:15	63.1	24.1	47.2	7.3	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	7:00-7:00	62.5	22.3	45.2	7.4	18.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	7:15-7:15	63.5	25.1	44.2	6.2	22.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.02.2023	7:00-7:00	64.2	26.3	46.3	7.8	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.02.2023	7:15-7:15	66.4	22.0	47.1	6.6	22.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.25 – AAQ8 - SENGALIPALAYAM VILLAGE (BUFFER ZONE)

Period: Dec – Feb-2023

Location: AAQ98– Sengalipalayam

Sampling Time: 24-hourly

Monitoring		SPM (24 hrs.)	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.		PM2.5 60(24 hrs.)	PM10 100 (24 hrs.)	SO ₂ 80 (24 hrs.)	NO ₂ 80 (24 hrs.)	NH ₃ 400 (24 hrs.)	O ₃ (8-hly Avg.) 100 (8 hrs.)	CO (8-hly Avg.) 2.0 (8hrs.)	Pb, $\mu\text{g}/\text{m}^3$ 1.0 (24 hrs.)	As, ng/m^3 6.0 (annual)	Ni, ng/m^3 20 (annual)	C ₆ H ₆ , ng/m^3 5.0 (annual)	BaP, ng/m^3 1.0 (annual)
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	7:00-7:00	65.5	22.3	44.3	5.2	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.12.2022	7:15-7:15	64.2	21.5	42.1	5.5	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.12.2022	7:00-7:00	67.2	22.6	43.5	5.3	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.12.2022	7:15-7:15	66.3	25.1	45.1	5.0	22.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.12.2022	7:00-7:00	67.2	26.3	46.1	6.2	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.12.2022	7:15-7:15	68.1	27.4	47.2	6.5	24.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.12.2022	7:00-7:00	66.0	28.0	44.0	6.1	23.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.12.2022	7:15-7:15	65.3	24.1	45.3	6.4	22.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.01.2023	7:00-7:00	64.1	25.3	46.3	6.3	21.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.01.2023	7:15-7:15	68.3	26.5	47.0	6.6	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.01.2023	7:00-7:00	65.2	27.4	44.1	7.2	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.01.2023	7:15-7:15	64.3	26.0	46.3	6.8	24.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.01.2023	7:00-7:00	64.0	28.3	47.2	7.0	22.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.01.2023	7:15-7:15	65.5	24.2	45.2	6.9	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.01.2023	7:00-7:00	66.4	26.3	46.3	6.5	22.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.01.2023	7:15-7:15	67.2	28.1	43.0	6.2	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.01.2023	7:00-7:00	68.2	27.1	42.1	6.3	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.01.2023	7:15-7:15	67.0	22.3	44.3	6.6	21.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
06.02.2023	7:00-7:00	66.1	24.1	45.1	6.4	22.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.02.2023	7:15-7:15	65.4	23.1	46.2	6.3	23.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
13.02.2023	7:00-7:00	64.3	22.2	47.2	6.8	24.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.02.2023	7:15-7:15	63.3	22.4	43.1	7.0	23.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
20.02.2023	7:00-7:00	65.0	22.1	44.2	6.4	24.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.02.2023	7:15-7:15	66.2	25.3	45.2	6.3	23.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
27.02.2023	7:00-7:00	67.2	22.0	44.0	7.5	23.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.02.2023	7:15-7:15	68.2	23.1	46.3	7.3	22.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.28 – ABSTRACT OF AMBIENT AIR QUALITY DATA

1	Parameter	PM2.5	PM10	SO ₂	NO ₂
2	No. of Observations	260	260	260	260
3	10 th Percentile Value	22.1	43.2	5.8	18.5
4	20 th Percentile Value	22.3	44.1	6.2	19.6
5	30 th Percentile Value	23.1	44.3	6.3	20.5
6	40 th Percentile Value	23.5	45.0	6.4	21.3
7	50 th Percentile Value	24.1	45.2	6.6	21.6
8	60 th Percentile Value	24.3	45.5	6.9	22.3
9	70 th Percentile Value	25.2	46.2	7.2	22.6
10	80 th Percentile Value	25.8	46.3	7.3	23.4
11	90 th Percentile Value	26.5	47.2	7.6	24.1
12	95 th Percentile Value	27.1	48.2	8.1	24.5
13	98 th Percentile Value	28.0	49.0	8.3	25.3
14	Arithmetic Mean	24.7	45.8	7.0	22.1
15	Geometric Mean	24.7	45.8	6.9	22.1
16	Standard Deviation	2.0	1.8	0.8	2.1
17	Minimum	22.1	43.2	5.8	18.5
18	Maximum	28.0	49.0	8.3	25.3
19	NAAQ Norms*	100.0	100.0	80.0	80.0
	% Values exceeding Norms*	0.0	0.0	0.0	0.0

Legend: PM_{2.5}-Particulate Matter size less than 2.5 µm; PM₁₀-Respirable Particulate Matter size less than 10 µm; SO₂-Sulphur dioxide; NO₂-Nitrogen Dioxide; CO-Carbon monoxide; O₃-Ozone; NH₃-Ammonia; Pb-Particulate Lead; As-Particulate Arsenic; Ni-Particulate Nickel; C₆H₆-Benzene & BaP- Benzo (a) pyrene in particulate phase levels were monitored below their respective detectable limits.

* 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 3.29 – SUMMARY OF AMBIENT AIR QUALITY DATA (AAQ1-AAQ8)

PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	22.9	25.7	24.3	24.8	23.5	23.5	23.3	24.7
Minimum	21.0	23.2	22.3	22.3	21.0	21.0	20.5	21.5
Maximum	26.1	27.3	25.6	27.4	25.5	26.1	26.5	28.3
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0

PM10	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	45.1	47.0	45.6	44.4	45.2	44.9	45.2	45.0
Minimum	42.0	44.5	43.1	42.2	42.3	43.0	42.1	42.1
Maximum	47.3	49.3	48.3	46.3	47.2	46.5	47.2	47.2
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SO₂	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	6.7	6.8	6.8	5.9	7.2	6.9	6.9	6.4
Minimum	5.0	6.0	5.2	5.1	6.0	6.2	6.0	5.0
Maximum	8.8	7.8	8.2	6.4	8.3	7.5	7.8	24.5
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

NO₂	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	24.0	22.5	20.6	22.4	20.6	19.3	20.6	22.8
Minimum	21.3	21.0	20.5	20.0	18.3	17.0	16.3	20.5
Maximum	25.6	23.8	21.6	25.6	24.3	22.8	23.6	24.5
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

FIGURE 3.13-A : SUMMARY OF AMBIENT AIR QUALITY DATA (AAQ1-AAQ8)

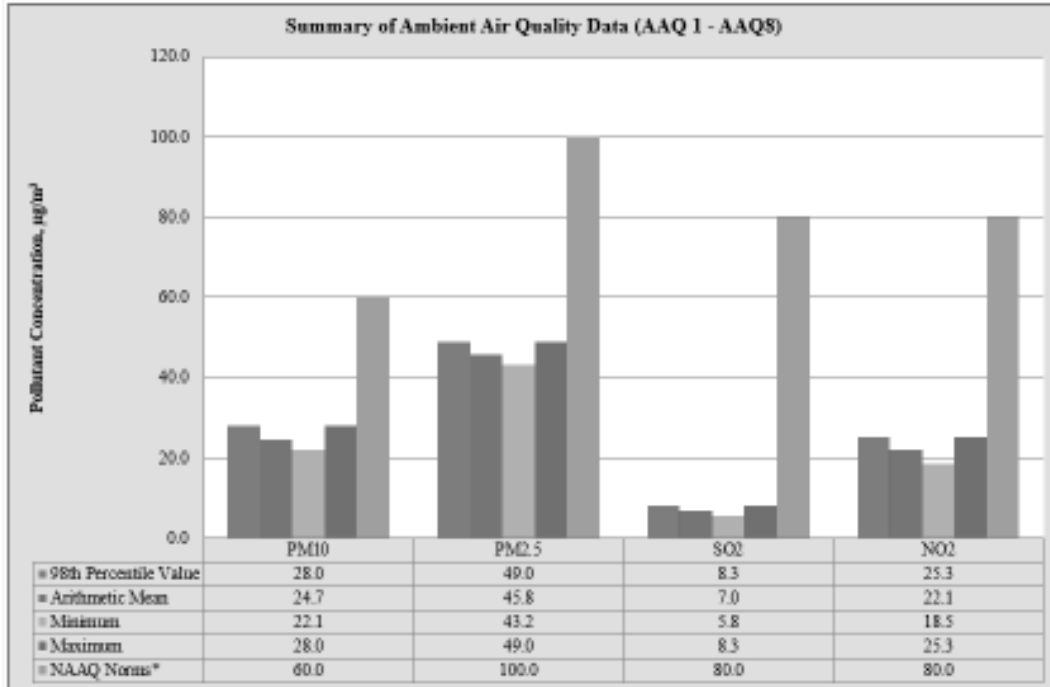


FIGURE 3.13 B: BAR DIAGRAM OF PARTICULATE MATTER (PM₁₀)

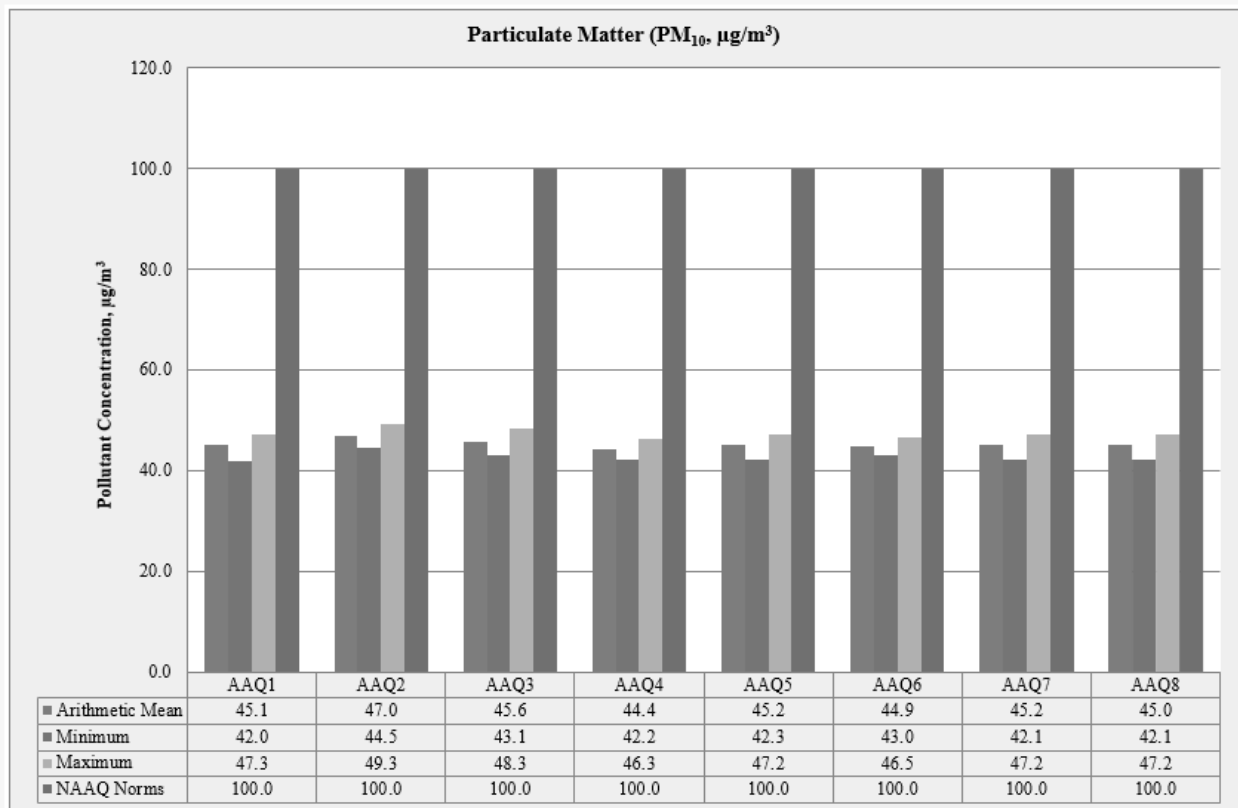


FIGURE 3.13 C : BAR DIAGRAM OF PARTICULATE MATTER (PM_{2.5})

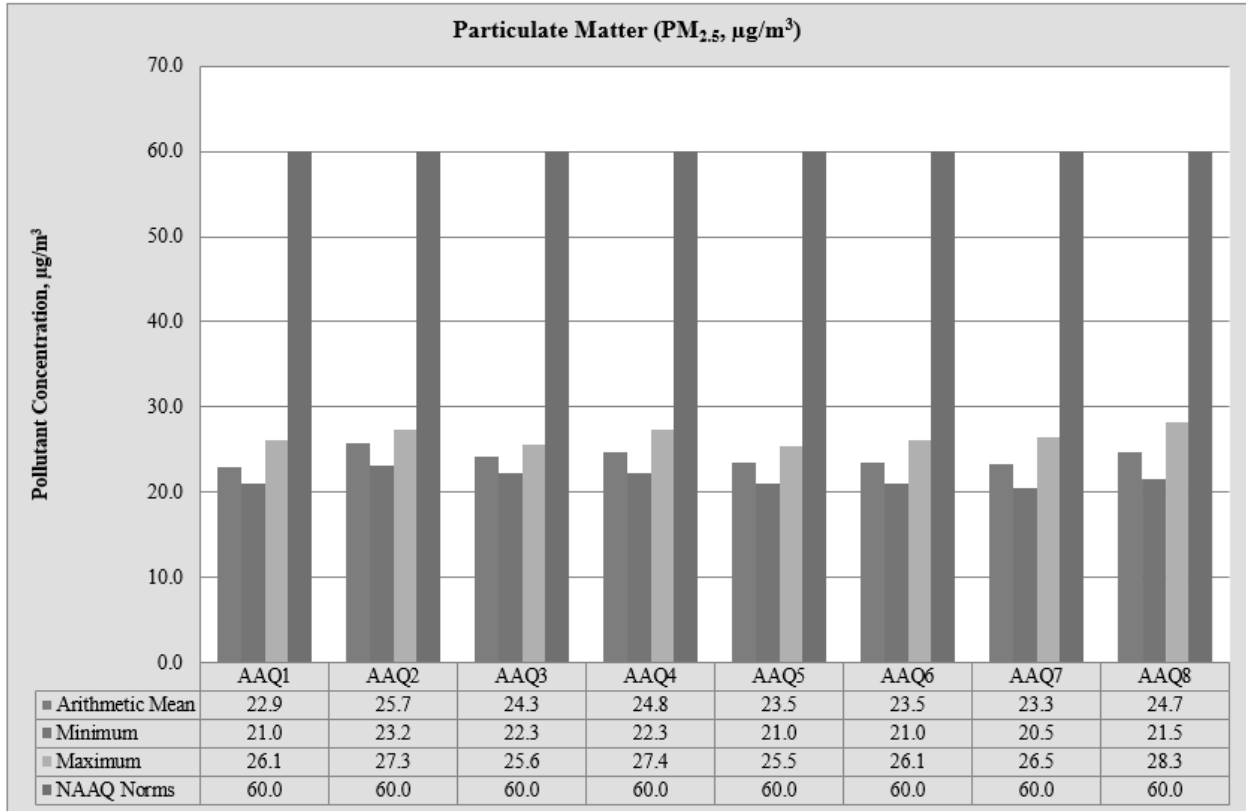


FIGURE 3.14: BAR DIAGRAM OF PARTICULATE MATTER (SO₂)

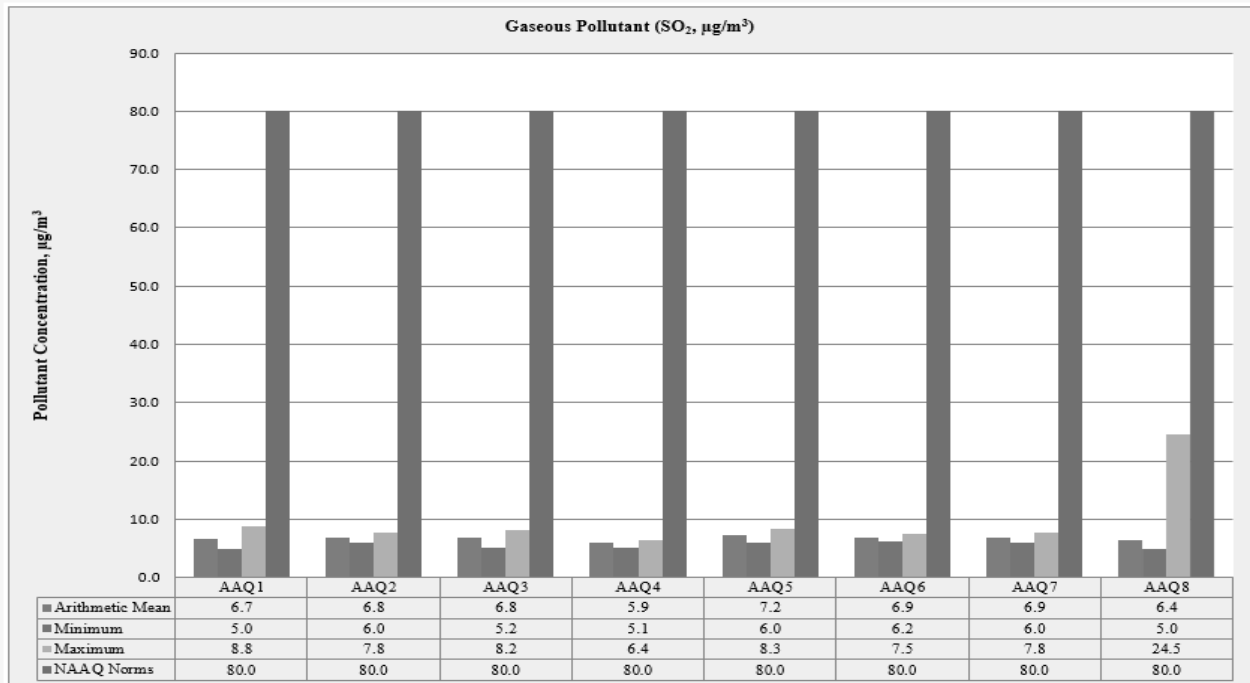
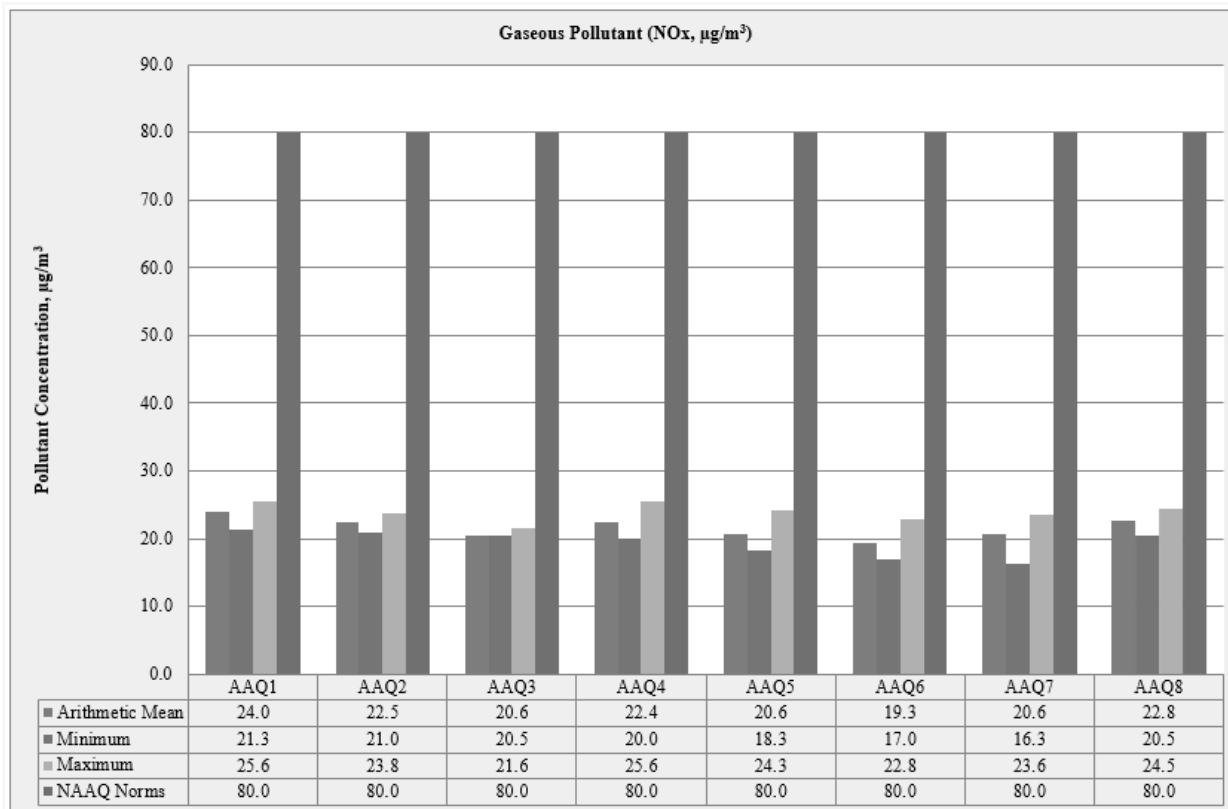


FIGURE 3.14A: BAR DIAGRAM OF PARTICULATE MATTER (NO₂)

3.3.6 Interpretations & Conclusion

As per monitoring data, PM₁₀ ranges from 42.0 µg/m³ to 49.3 µg/m³, PM_{2.5} data ranges from 20.5 µg/m³ to 28.3 µg/m³, SO₂ ranges from 5.0 µg/m³ to 8.8 µg/m³ and NO₂ data ranges from 16.3 µg/m³ to 25.6 µg/m³. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

The minimum & maximum concentrations of PM₁₀ were found to be 42.0 µg/m³ in Core zone & 44.5 µg/m³ in Onnipalayam area respectively. The minimum & maximum concentrations of PM_{2.5} were found to be 20.5 µg/m³ in Mathampalayam village & 23.2 µg/m³ in Onnipalayam area respectively. The maximum concentration in the Onnipalayam village 44.5 µg/m³ is due to the cluster of Quarry situated within 500m radius.

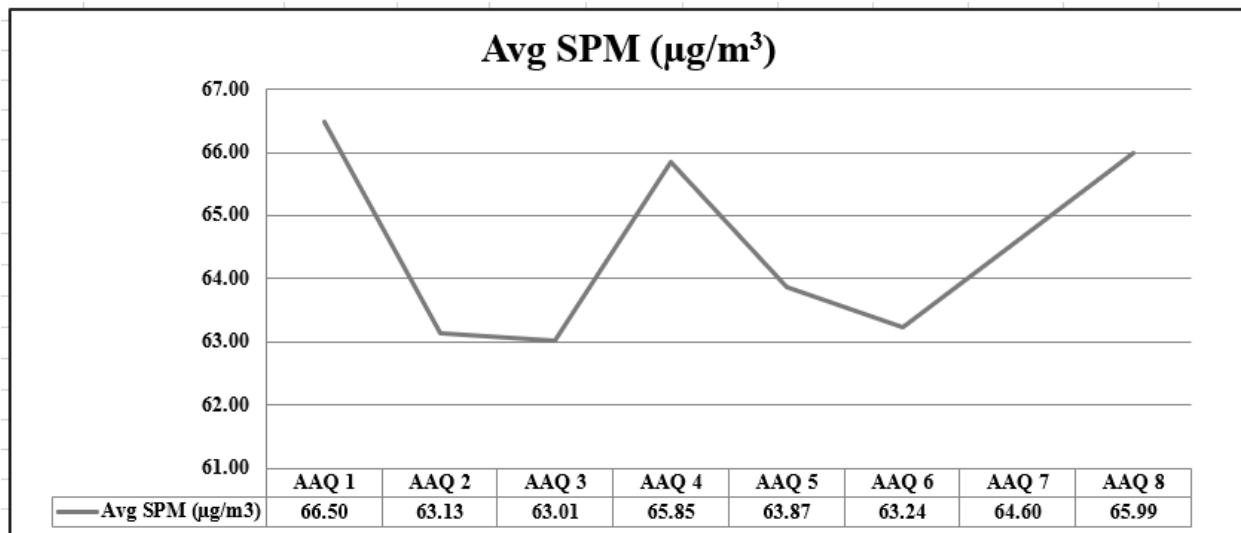
3.3.7 FUGITIVE DUST EMISSION –

Fugitive dust was recorded at 8 AAQ monitoring stations for 30 days average during the study period.

TABLE 3.29– AVERAGE FUGITIVE DUST SAMPLE VALUES IN µg/m³

AAQ Locations	Avg SPM (µg/m ³)
AAQ 1	66.50
AAQ 2	63.13
AAQ 3	63.01
AAQ 4	65.85
AAQ 5	63.87
AAQ 6	63.24
AAQ 7	64.60
AAQ 8	65.99

Source: Onsite monitoring/ sampling by EHS360 Labs Private Limited

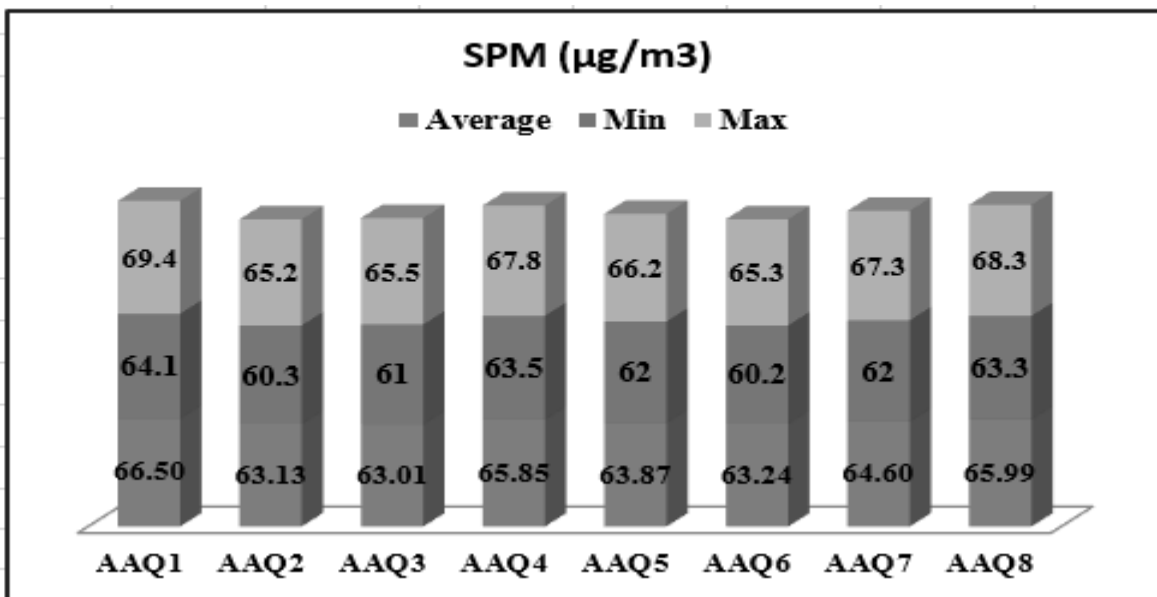


Source: Line Diagram of Table 3.29

TABLE 3.30– FUGITIVE DUST SAMPLE VALUES IN µg/m³ –

SPM (µg/m ³)	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Average	66.50	63.13	63.01	65.85	63.87	63.24	64.60	65.99
Min	64.1	60.3	61	63.5	62	60.2	62	63.3
Max	69.4	65.2	65.5	67.8	66.2	65.3	67.3	68.3

Source: Calculations from Lab Analysis Reports



Source: Bar Diagram of table 3.30

3.4 Noise Environment

The vehicular movement on road and mining activities is the major sources of noise in study area, the environmental assessment of noise from the mining activity and vehicular traffic can be undertaken by taking into consideration various factors like potential damage to hearing, physiological responses, and annoyance and general community responses.

The main objective of noise monitoring in the study area is to establish the baseline noise level and assess the impact of the total noise expected to be generated during the project operations around the project site.

3.4.1 Identification of Sampling Locations

In order to assess the ambient noise levels within the study area, noise monitoring was carried out at eight (8) locations. The noise level 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	N-1	Core Zone	Project Area	11°11'54.54"N 76°59'40.76"E
2	N-2	Onnipalayam	1.2km NE	11°12'27.14"N 77° 0'7.93"E
3	N-3	Kallipalayam	2.0km South	11°10'43.86"N 76°59'24.02"E
4	N-4	Muthalipalayam	6km SE	11°10'20.38"N 77° 2'38.46"E
5	N-5	Bettadapuram	4.8km NW	11°13'26.18"N 76°57'26.45"E
6	N-6	Periya Puthur	4.8km NE	11°13'37.40"N 77° 1'42.33"E
7	N-7	Mathampalayam	4.2km SW	11°11'53.10"N 76°57'21.12"E
8	N-8	Sengalipalayam	3km East	11°11'46.34"N 77° 1'18.16"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.

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

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

T = Time interval of observation

3.4.3 Analysis of Ambient Noise Level in the Study Area

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 – NOISE MONITORING RESULTS IN CORE AND BUFFER ZONE

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Core Zone	43.8	36.0	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Onnipalayam	42.9	35.3	
3	Kallipalayam	40.0	35.0	
4	Muthalipalayam	39.3	35.1	
5	Bettadapuram	37.7	36.0	Residential Day Time- 55 dB (A) Night Time- 45 dB (A)
6	Periya Puthur	39.1	37.4	
7	Mathampalayam	37.3	35.3	
8	Sengalipalayam	36.8	34.4	

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

FIGURE 3.15: SITE PHOTOGRAPHS OF AMBIENT NOISE LEVEL MONITORING



FIGURE 3.16: NOISE MONITORING STATIONS AROUND 10 KM RADIUS

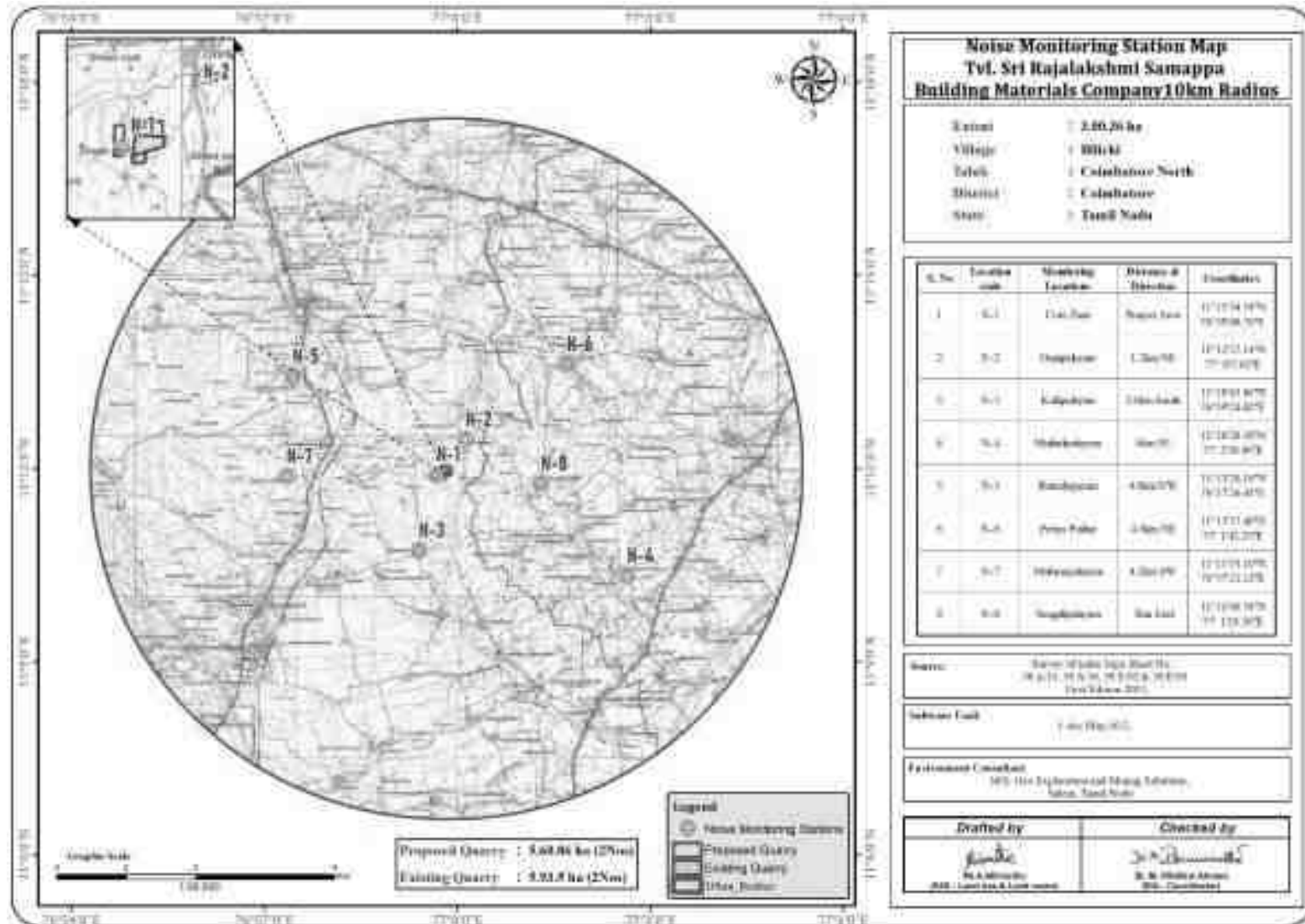
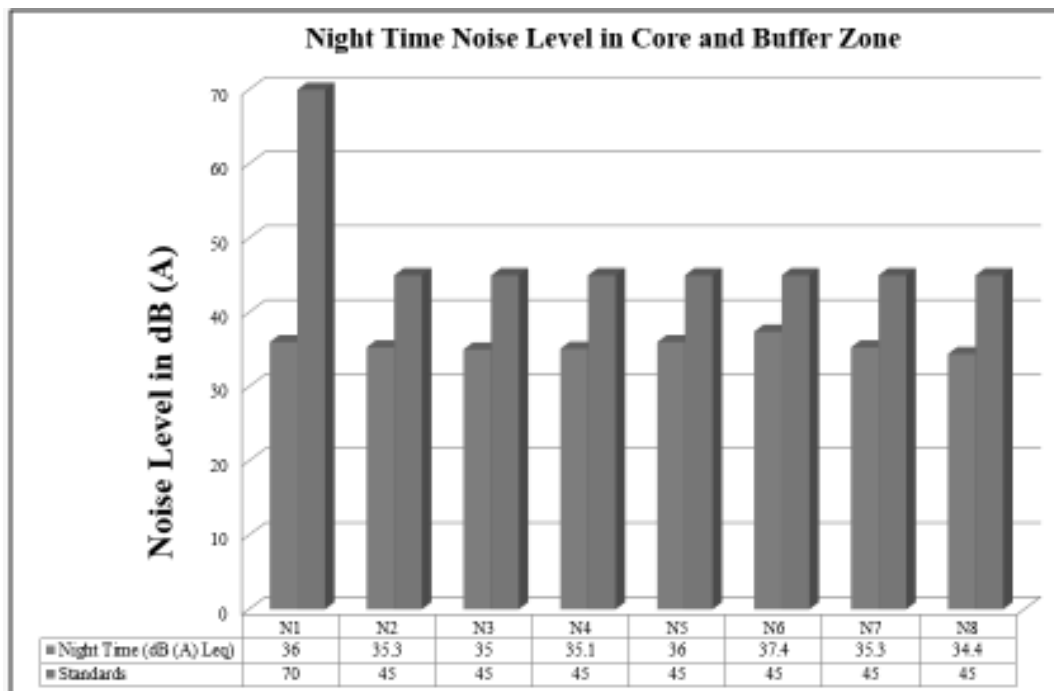
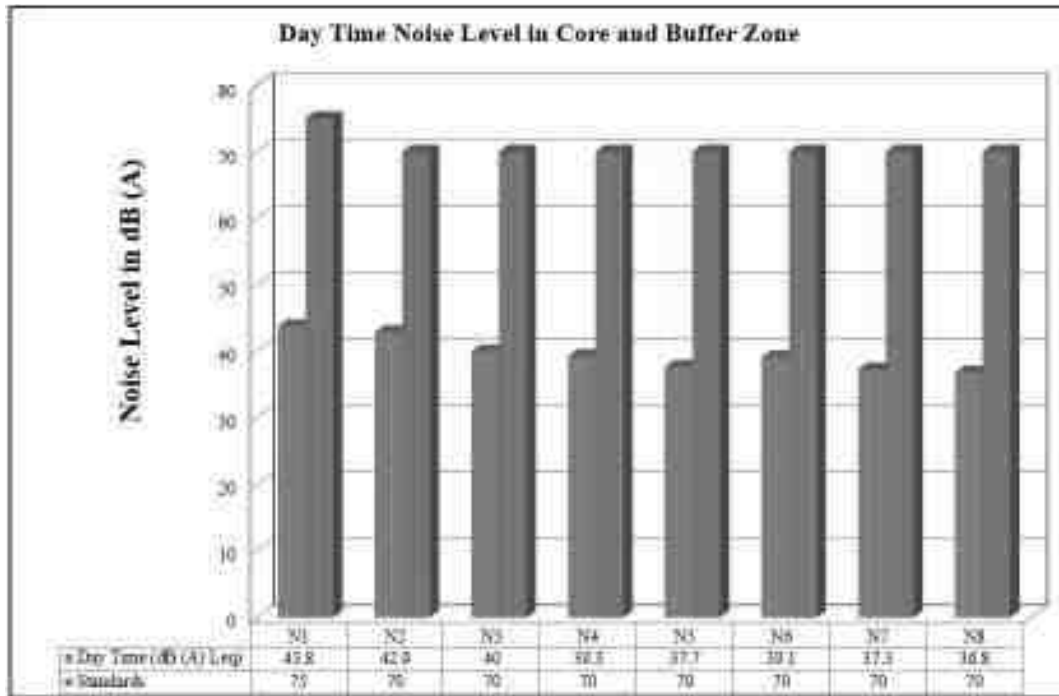


FIGURE 3.17: DAY & NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE



3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 8 (eight) locations around the project area considering cluster Quarry. Noise levels recorded in core zone during day time were from 43.8 dB (A) Leq and during night time were from 36.0 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 36.8– 40 dB (A) Leq and during night time were from 34.4 – 37.4 dB (A) Leq.

The values of noise observed in some of the areas are primarily owing to quarrying activities due to cluster of Quarry within 500m radius, movement of vehicles and other anthropogenic activities. Noise monitoring results reveal that the maximum & minimum noise levels at day time were recorded in the range of 48.2 dB(A) in core zone and 31.2 dB(A) in Bettadapuram village and 41.2 dB(A) in Periya Puthur village & 30.2 dB(A) in Sengalipalayam village respectively in night time. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5 Ecological Environment

There is no Reserved Forest land, National Parks, Eco sensitive areas, Wild life sanctuaries within the radius of 10km. An ecological survey of the study area was conducted particularly with reference to the listing of species and assessment of the existing baseline ecological (terrestrial) condition in the study area.

3.5.1 Methodology Adopted & Objective

To achieve the above objective, a detailed study of the area was undertaken in 10 km radius area with the proposed quarry area. The different methods adopted were as follows:

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

Methodology of Sampling

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

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

Plot method is used in the floral documentation in the core and buffer zone. For trees (10x10-m), shrubs (5x5-m) and herbs (1x1-m) plots were taken. Birds and butterflies were mainly focused during faunal assessment, transect method was employed for birds and butterflies. Transect is a path along which one counts and records the occurrence of an individual for study. A straight-line walk covering desired distance, within a time span of one hour to 30 minutes was carried out in the proposed region. Bird species were recorded during the hours of peak activity. 0700 to 1100 Hrs and 1430 to 1730 Hrs (Bibby et al. 2000).

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

3.5.2. Sampling

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

3.5.3. Sampling Size

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

3.5.4. Timing of Study

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

3.5.6. Observations from Sampling

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

3.5.7. Equipment/ References

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

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

3.5.8 Part I Field Sampling Techniques

3.5.9. Transect walk – Birds

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

3.5.10. Modified Pollard Walk – for Butterflies

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

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

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

3.5.12 Observational methods- Mammals

For the purpose of recording mammals, we used two different observational techniques: (1) direct observations, and (2) recording of occurrences like holes, markings, scats, hairs, and spines (Menon 2003). For

identification confirmations, photographs with a scale reference were used, and locations were recorded using a portable GPS device. Indigenous knowledge particularly that of the locals, was occasionally employed to compile a preliminary list of species and/or aid in the recognition of indicators.

3.5.13. Multiple Stage Quadrat – Vegetation

A variety of habitat or vegetation structure variables were measured using the Multiple Stage Quadrat sampling protocol (Sykes and Horrill 1977). All of those areas were sampled, and the major corners were temporarily delineated with colored ribbons. Each site was identified in the field using a compass and clinometer, and the plot's latitude, longitude, and elevation were recorded using a handheld Global Positioning System (Garmin 12XL).

3.5.14 Flora

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

TABLE 3.33 A – FLORA

SI.No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Velvet mesquite	Mullu Maram	<i>Prosopis juliflora</i>	Fabaceae
2.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	Fabaceae
3.	Neem or Indian lilac	Vembu maram	<i>Azadirachta indica</i>	Meliaceae
4.	River tamarind	Soundal maram	<i>Leucaena leucocephala</i>	Fabaceae
5.	Millettia Pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae
6.	Malayan Cherry	Ten Pazham	<i>Muntingia calabura</i>	Muntingiaceae
Shrubs				
1.	West Indian Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
2.	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae
3.	Devil's trumpet	Umathai	<i>Datura metel</i>	Solanaceae
4.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
Herbs				
1.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
2.	Bright eyes	Nithiyakalliyani	<i>Catharanthus roseus</i>	Apocynaceae
3.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
4.	Devil's thorn	Nerunji	<i>Tribulus terrestris</i>	Zygophyllales
5.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae
6.	Malabar catmint	Pie Viratti	<i>Anisomeles malabarica</i>	Lamiaceae
7.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
8.	Indian nettle	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae
Climber				
1.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
Grasses				
2.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
3.	Great brome	Thodappam	<i>Bromus diandrus</i>	Poaceae

FIGURE 3.18: FIELD IMAGERY OF FLORA STUDY



a. *Tridax procumbens*



b. *Anisomeles malabarica*



c. *Catharanthus roseus*



d. *Muntingia calabura*



e. *Lantana camara*



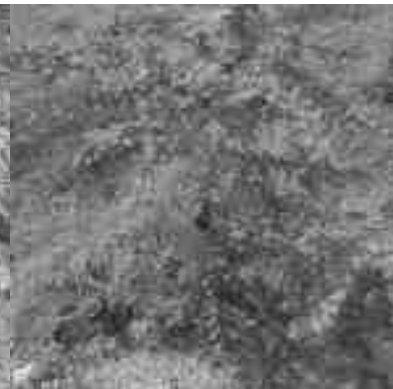
f. *Calotropis gigantea*



g. *Azadirachta indica*



h. *Datura metel*



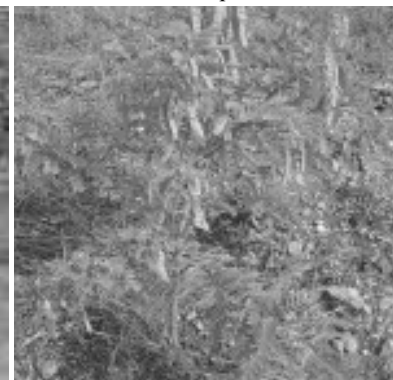
i. *Vachellia leucophloea*



j. *Cynodon dactylon*



k. *Pongamia pinnata*



l. *Leucaena leucocephala*

Table No: 3.33B Flora in Buffer Zone

Sl.No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Velvet mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
2.	Neem or Indian lilac	Vembu	<i>Azadirachta indica</i>	Meliaceae
3.	Mango	Manga	<i>Mangifera indica</i>	Anacardiaceae
4.	Wild Tamarind	Savundal	<i>Leucaena latisiliqua</i>	Mimosaceae
5.	Coconut	Thennai maram	<i>Cocos nucifera</i>	Arecaceae
6.	Madras thorn	Kudukapuli	<i>Pithecellobium dulce</i>	Fabaceae
7.	River tamarind	Soundal maram	<i>Leucaena leucocephala</i>	Fabaceae
8.	Indian siris	Eayal vaagai	<i>Albizia lebbek</i>	Mimosaceae
9.	Monkey pod tree	Thungumoonchi	<i>Samanea saman</i>	Fabaceae
10.	Portia tree	Poovarasam	<i>Thespesia Populnea</i>	Malvaceae
11.	Jack fruit	Bala maram	<i>Artocarpus integrifolia</i>	Moraceae
12.	Tree of heaven	Perumaram	<i>Ailanthus excelsa</i>	Simaroubaceae
13.	Velvet mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
14.	Yellow Flame	Vagai	<i>Peltophorum pterocarpum</i>	Caesalpiniaceae
15.	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	Rutaceae
16.	Jamun Fruit Plant	Naval maram	<i>Syzygium cumini</i>	Myrtaceae
17.	Gum arabic tree	Karuvelam	<i>Vachellia nilotica</i>	Fabaceae
18.	Yellow oleander	Ponarali	<i>Cascabela thevetia</i>	Apocynaceae
19.	Rain Tree	Mazhiamaram	<i>Samanea saman</i>	Mimosaceae
20.	Chinese chaste tree	Nochi	<i>Vitex negundo</i>	Verbenaceae
21.	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	Arecaceae
22.	Curry tree Plant	Karuveppilai	<i>Murraya koenigii</i>	Rutaceae
23.	Teak	Thekku	<i>Tectona grandis</i>	Verbenaceae
24.	Indian mulberry	Nuna maram	<i>Morinda tinctoria</i>	Rubiaceae
25.	Drumstick tree	Murunga maram	<i>Moringa oleifera</i>	Moringaceae
26.	Guava	Koyya	<i>Psidium guajava</i>	Myrtaceae
27.	Indian-almond	Inguti	<i>Terminalia catappa</i>	Combretaceae
28.	Eucalyptus	Thailam maram	<i>Eucalyptus tereticornis</i>	Myrtaceae
29.	Pongamia pinnata	Pongam	<i>Millettia pinnata</i>	Fabaceae
30.	Horsetail She-oak	Savukku maram	<i>Casuarina equisetifolia</i>	Casuarinaceae
31.	Henna	Marudaani	<i>Lawsonia inermis</i>	Lythraceae
32.	Indian gooseberry	Nelli	<i>Phyllanthus emblica</i>	Phyllanthaceae
33.	Peepal	Asoka maram	<i>Ficus religiosa</i>	legume
34.	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	Legumes
35.	Malayan Cherry	Ten Pazham	<i>Muntingia calabura</i>	Muntingiaceae
36.	Jujube Trees	Elantha Pazham	<i>Ziziphus Mauritiana</i>	Rhamnaceae
37.	Papaya	Pappali maram	<i>Carica papaya L</i>	Caricaceae
38.	Java olive tree	Kutiraippitukku	<i>Sterculia foetida</i>	Malvaceae
39.	Banana tree	Vazhaimaram	<i>Musa acuminata</i>	Musaceae
40.	Amati	Agathi keerai	<i>Sesbania grandiflora</i>	Fabaceae
41.	Custard apple	Seethapazham	<i>Annona reticulata</i>	Annonaceae
42.	Manilkara zapota	Sapota	<i>Manilkara zapota</i>	Sapotaceae
43.	Indian-almond	Badam	<i>Terminalia catappa</i>	Combretaceae
44.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	Moraceae
45.	Jack fruit	Palamaram	<i>Artocarpus heterophyllus</i>	Moraceae
Shrubs				
1.	Giant reed	Mudaampul	<i>Arundo donax</i>	Poaceae
2.	Devil's trumpet	Umathai	<i>Datura metel</i>	Solanaceae
3.	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae
4.	Water-hyacinth	Agayathamara	<i>Eichhornia crassipes</i>	Pontederiaceae
5.	Kangkong	Sarkaraivalli	<i>Ipomea aquatica</i>	Convolvulaceae

6.	Castor bean	Amanakku	<i>Ricinus communis</i>	Euphorbiaceae
7.	Green amaranth	Kuppaikerai	<i>Amaranthus vividis</i>	Amaranthaceae
8.	Jungle geranium	Idly Poo	<i>Ixora coccinea</i>	Rubiaceae
9.	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae
10.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
11.	Rough cocklebur	Marlumuttu	<i>Xanthium indicum</i>	Asteraceae
12.	Mexican prickly poppy	Bramathndu	<i>Argemone mexicana</i>	Papaveraceae
13.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae
14.	Malabar catmint	Pei veratti	<i>Anisomeles malabarica</i>	Lamiaceae
15.	Dwarf Heliotrope	Theelkoduku	<i>Heliotropium supinum</i>	Boraginaceae
16.	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae
17.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae
18.	Night shade plan	Sundaika	<i>Solanum torvum</i>	Solanaceae
19.	Rosary pea	Kundumani	<i>Abrus precatorius</i>	Fabaceae
20.	Indian Oleander	Arali	<i>Nerium indicum</i>	Apocynaceae
21.	West Indian Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
22.	Rough cocklebur	Marlumutt	<i>Xanthium indicum</i>	Asteraceae
Herbs				
1.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
2.	Sessile Joyweed	Ponnankanni	<i>Alternanthera sessilis</i>	Amaranthaceae
3.	Billygoat weed	Pumpillu	<i>Ageratum conyzoides</i>	Asteraceae
4.	Aloe barbadensis	Katrashai	<i>Aloe vera</i>	Asphodelaceae
5.	Madagascar Periwinkle	Nithyakalyani	<i>Catharanthus roseus</i>	Apocynaceae
6.	Indian Mercury	Kuppamani	<i>Acalypha indica</i>	Euphorbiaceae
7.	Indian nettle	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae
8.	Chloris barbata	Kodai pul	<i>Chloris barbata</i>	Poaceae
9.	Bui	Ciru-pulai	<i>Aervalanata</i>	Amaranthaceae
10.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae
11.	Datura metel	Oomathai	<i>Datura metel</i>	Solanaceae
12.	Yellow elder	Manjarali	<i>Tecoma stans</i>	Apocynaceae
13.	Cleome viscosa	Nai kadugu	<i>Celome viscosa</i>	Capparidaceae
14.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
15.	Fish poison	Kollukaivelai	<i>Tephrosia purpureae</i>	Papilionaceae
16.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae
17.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
18.	Peanut	Kadalai	<i>Arachis hypogaea</i>	Fabaceae
19.	Red Hogweed	Mukurattai	<i>Boerhavia diffusa</i>	Nyctaginaceae
20.	Tridax daisy	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
21.	Gale of the wind	Keelaneeli	<i>Phyllanthus niruri</i>	Phyllanthaceae
22.	Eggplant	kathirikai	<i>Solanum melongena</i>	Solanaceae
23.	European black nightshade	Manathakkali	<i>Solanumnigrum</i>	Solanaceae
Climber/ Creeper				
1.	Ivy gourd	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae
2.	Cucumis maderaspatanus	Musumusukkai	<i>Mukia maderaspatana</i>	Cucurbitaceae
3.	Butterfly pea	Sangu poo	<i>Clitoria ternatea</i>	Fabaceae
4.	Wild water lemon	Siruponaikaali	<i>Passiflora foetida</i>	Passifloraceae
5.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
6.	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	Cucurbitaceae
7.	Rosary Pea	Gundumani	<i>Abrus precatorius</i>	Fabaceae
8.	Pointed gourd	Kovakkai	<i>Trichosanthes dioica</i>	Cucurbitaceae
9.	Wild bitter	Pavarkai	<i>Momordica charantia</i>	Cucurbitaceae
Grass				
1.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
2.	Windmill grass	Chevvarakupul	<i>Chloris barbata</i>	Amaranthaceae
3.	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae

4.	Great brome	Thodappam	<i>Bromus diandrus</i>	Poaceae
Cactus				
1.	Prickly pear	Nagathali	<i>Opuntia dillenii</i>	Cactaceae
2.	Triangular spruce	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae

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

3.5.15 Flora Composition in the Buffer Zone

Similar habitats may be found in the buffer area as well, although there is a wider variety of plants there than in the core zone area. The buffer zone study area contains a total of 105 species that have been recorded from the buffer zone. The floral (105) varieties among them Trees 45, herbs 22, shrubs 13, Climbers 9, Grasses 4, and Cactus 2 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Poaceae, Euphorbiaceae is the main dominating species in the study area mentioned in Table No.3.2. There are no impacts due to this mining activity. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. Apart from the proposed project area, there is agricultural land. Horticulture and agricultural land are untouched. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. A list of floral species has been prepared based on primary survey (site observations) and discussion with local people. The total number of different plant life forms under trees, shrubs, herbs, and climbers is shown in Table 3.3 and their % distribution is shown in Figure 3.19

Table 3.33C: Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	45
2	Shrubs	22
3	Herbs	23
4	Climber	9
6	Grass	4
7	Cactus	2
Total No. of Species		105

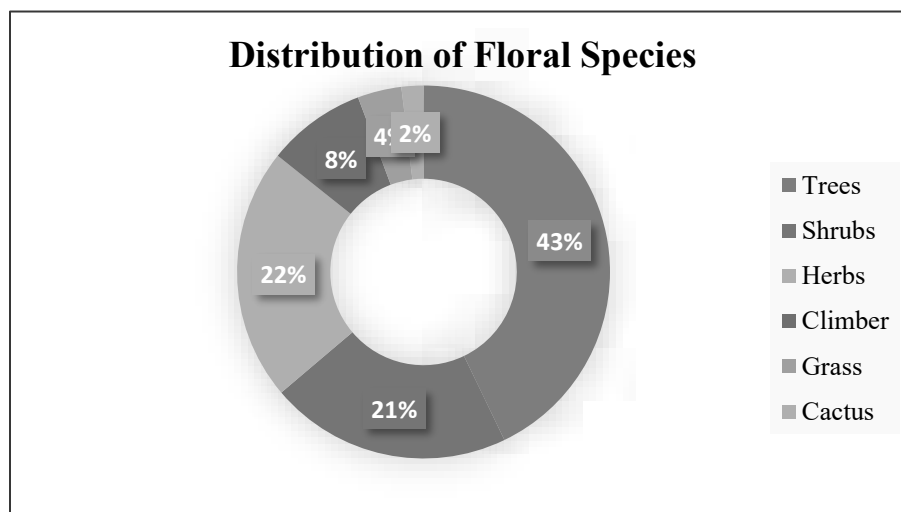


Fig No. 3.19 Graph showing % distribution of floral life forms



a. *Ziziphus Mauritiana*



b. *Azadirachta indica*



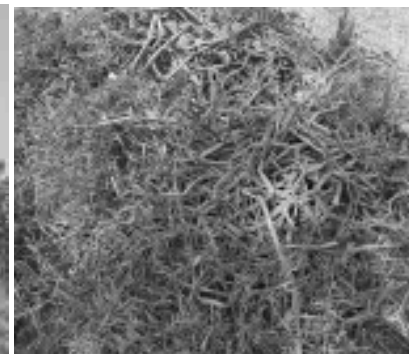
c. *Morinda tinctoria*



d. *Ricinus communis*



e. *Tectona grandis*



f. *Cissus quadrangularis*



g. *Eucalyptus tereticornis*



h. *Euphorbia antiquorum*



i. *Parthenium hysterophorus*



J. *Cocos nucifera*



k. *Thespesia Populnea*



l. *Prosopis juliflora*



Fig No: 3.19 Flora species observation in the Buffer zone area

3.5.16 The vegetation in the RF / PF areas, ecologically sensitive areas

There are neither reserved (RF) nor protected (PF) forests either in the mine lease area or in the buffer zone. Thus, no forest land is involved in any manner. Hence, no certificate from the Forest department is required. There are no protected or ecologically sensitive areas such as National parks or Important Bird Areas (IBAs), or Wetlands or migratory routes of fauna or water bodies or human settlements within the proposed mine lease area. There are no Biosphere reserves or wildlife sanctuaries or National parks or Important Bird Areas (IBAs), or migratory routes of fauna. Thus, the area under study (Mine lease area and the 10 Km buffer zone) is not ecologically sensitive. It is away from the proposed project site.

Thus, no forest land is involved in any manner. Hence, no certificate from the Forest department is required. There are no impacts due to this mining activity. There are neither forests nor forest dwellers nor forest-

dependent communities in the mine lease area. There shall be no forest-impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project.

3.5.17 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 the core area.

3.5.18 Fauna Composition in the Core Zone

Core Zone: During the study, it was found that the faunal diversity in the core site was limited to Butterflies, insects, and some species of mammals & reptiles among them numbers Insects 5, Reptiles 3, Mammals 3, and Avian 6. The core site has avifauna species like crow, Black drongo, Koel, etc. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and nine species are under schedule IV according to the Indian Wildlife Act 1972. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

TABLE 3.33 D – FAUNA

SI. No	Common Name	Scientific Name	Schedule list WLPC 1972
Insects			
1.	Tawny coster	<i>Danaus chrysippus</i>	Schedule IV
2.	Striped tiger	<i>Danaus plexippus</i>	Schedule IV
3.	House fly	<i>Musca domestica</i>	-
4.	Dragonfly	<i>Agriansp</i>	-
5.	Common Tiger	<i>Danaus genutia</i>	NL
Reptiles			
1.	Oriental garden lizard	<i>Calotes versicolor</i>	NL
2.	Indian forest skink	<i>Sphenomorphus indicus</i>	NL
3.	House lizards	<i>Hemidactylus flaviviridis</i>	Schedule IV
Mammals			
1.	Indian Field Mouse	<i>Mus booduga</i>	Schedule IV
2.	Asian Small Mongoose	<i>Herpestes javanicus</i>	Schedule (Part II)
3.	Squirrel	<i>Funambulus palmarum</i>	Schedule IV
Aves			
1.	Rose-ringed parkeet	<i>Psittacula krameri</i>	Schedule IV
2.	Common myna	<i>Acridotheres tristis</i>	NL
3.	Asian koel	<i>Eudynamysscolopacea</i>	Schedule IV
4.	Koel	<i>Eudynamys</i>	Schedule IV
5.	Black drongo	<i>Dicrurus macrocercus</i>	Schedule IV
6.	House crow	<i>Corvussplendens</i>	NL

*NL- Not listed, LC- Least Concern

(Sources: Species observation in the field study)

3.5.19 Findings/Results

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

Records of threatened species in the area

No threatened species were observed

Endangered Species as per Wildlife (Protection) Act

No Endangered fauna was recorded in the project area.

Endemic Species of the Project areas

No endemic species were observed in the project area.

Migratory species of the Project areas

No migratory fauna observed in project area.

Migratory corridors and Flight paths

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

Breeding and spawning grounds

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

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

There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar sites, Tiger/Elephant Reserves/(existing as well as proposed) within 10 km of the mine lease area. There are no protected forests within the project area. Hence submission of clearance from the National Board of Wildlife does not arise.

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

3.5.20 Conclusion

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

3.6 Socio Economic Environment

The major developmental activities in mining /Industrial sector are required for economic development as well as creation of employment opportunities (direct and indirect) and to meet the basic/modern needs of the society, which ultimately results in overall improvement of the quality of life through upliftment of social, economic, health, education and nutritional status in the project region, state as well as the country. In this manner all developmental projects have direct as well as indirect relationships with socioeconomic aspects, which also include public acceptability for new developmental projects. Thus, the study of socioeconomic component incorporating various facets related to prevailing social and cultural conditions and economic status of the Roughstone and Gravel quarry project region is an important part of EIA study. The study of these parameters helps in identification, prediction and evaluation of the likely impacts on the socio economics and parameters of human interest due to the project.

3.6.1 Objectives of the Study

The objectives of the socio-economic impact assessment are as follows:

- a) To study the socio-economic status of the people living in the study area of the project.
- b) To identify the basic needs of the nearby villages within the study area.
- c) To assess the impact on socio-economic environment due to the project.
- d) To provide the employment and improved living standards.
- f) To assess the impact on socio-economic environment due to Roughstone and Gravel quarry project region.
- g) To analysis of impact of socio economic and Environmental Infrastructure facilities and road accessibility.

3.6.2 Scope of Work

- To study the Socio-economic Environment of area from the secondary sources
- Data Collection and Analysis
- Identification of impacts due to the mining projects
- Mitigation Measures

3.6.3 Methodology

The methodology adopted for the socio-economic impact assessment is as follows:

- a) The details of the activities and population structure have been obtained from Census 2001 and 2011 and analyzed.
- b) Based on the above data, impacts due to plant operation on the community have been assessed and recommendations for further improvement have been made.

3.6.4 Sources of Information and Data Base

To achieve the above objectives, the information has been collected from both primary and secondary sources. Both primary data and secondary data have been analyzed by means of suitable statistical techniques for the purpose of verifying the above selected hypotheses concerned with the surrounding area.

3.6.5 Primary Survey

The primary data collection includes the collection of data through a structured interview schedule by direct observation method. The questionnaire survey includes both open and closed methods. The sample size is limited respondents, who were selected on the basis of simple random sampling from Bilichi Village, Coimbatore North Taluk, Coimbatore District, Tamil Nadu State, in the field survey has been divided into three major segments namely Primary Zone (0 - 3 km), Secondary Zone (3 - 7 km) and tertiary Zone (7 - 10 km).

The questionnaires were designed to suit the subjects considering their rural background enabling to furnish correct information and data as far as possible. Data were collected at village level and household level by questionnaires and focused group discussions.

The study area for the field survey has been divided into three major segments namely Primary Zone (0 - 3 km), Secondary Zone (3 - 7 km) and Outer Zone (7 - 10 km).

3.6.6 Collection of Data from Secondary Sources

Data from secondary sources were collected on following aspects:

- Demographic profile of the area
- Economic profile of the area

Table 3.34 Type of Information and Sources

Information	Source
Demography	District Census Handbook, Govt. of India
Economic profile of the area	Census of India, Tamil Nadu State

b) Data Presentation and Analysis

The data collected were presented in a suitable, concise form i.e., tabular or diagrammatic or graphic form for further analysis. These tabulated data were interpreted and analyzed with the help of various qualitative techniques and ideographic approaches.

3.7 Background Information of the Area

Tamil Nadu is the 11th largest states in India in terms of area. The state is the seventh most populous state in the country and its main language Tamil has origins that date back to 500 BC. Chennai is the capital of Tamil Nadu and lies on the eastern coast line of India. Tamil Nadu is famous for its wonderful temples and monuments that have been built 1000s of years ago and has places that have been marked as heritage sites by the United Nations. In a 180 degree paradigm shift, this state with a rich historical importance is also one of the fastest developing centre for technology and trade.

The State can be divided broadly into two natural divisions (a) the Coastal plains of South India and (b) the hilly western area. Parallel to the coast and gradually rising from it is the broad strip of plain country. It can further be subdivided into coromandal plains comprising the districts of Kancheepuram, Coimbatore, Cuddalore and Vellore. The alluvial plains of the Cauvery Delta extending over Thanjavur and part of Tiruchirapally districts and dry southern plains in Madurai, Dindigul, Ramanathapuram, Sivaganga, Virudhnagar, Tirunelveli and Tuticorin districts. It extends a little beyond Western Ghats in Kanyakumari District. The Cauvery Delta presents some extremely distinctive physical and human features, its power being a main factor in the remarkable growth, the towns of Tamilnadu have witnessed.

3.8 Geography of the Area

Tamil Nadu is one of the 28 states of India, located in the southernmost part of the country. It extends from 8°4'N to 13°35'N latitudes and from 76°18'E to 80°20'E longitudes. Its extremities are

- in eastern - Point Calimere
- in western - hills of Anaimalai
- in northern - Pulicat lake
- in southern - Cape Comorin

It covers an area of 1,30,058 sq.km and 11th largest state in India. It covers 4% of the area of our country. Tamil Nadu is bounded by the Bay of Bengal in the east, Kerala in the west, Andhra Pradesh in the north, Tamil Nadu in the northwest and Indian Ocean in the south. Gulf of Mannar and Palk Strait separate Tamil Nadu from the Island of Sri Lanka, which lies to the southeast of India.

Already we have learnt that the state of Tamil Nadu had only 13 districts at the time of its formation. After that, the state was reorganised several times for the administrative convenience. At present there are 37 districts in Tamil Nadu, including the newly created districts such as Kallakurichi, Tenkasi, Chengalpet, Ranipet and Tirupathur.

3.9 Population Growth Rate

In 1991, there were only 21 districts in the State of Tamil Nadu. In 2001, eight new districts were created by reorganising the territorial jurisdiction. The nine districts are – Coimbatore, Namakkal, Coimbatore, Perambalur, Viluppuram, Thiruvarur, Nagapattinam, and Theni. The population and its growth trend are important economic factors in a developing economy.

Year	Tamil Nadu	India
1941	11.91	14.22
1951	14.66	13.31
1961	11.85	21.51
1971	22.30	24.80
1981	17.50	24.66
1991	15.39	23.86

2001	11.19	21.34
2011	15.61	5.96
2021	5.96	1.0

3.10 Coimbatore District

Coimbatore is the third largest city of the state, one of the most industrialized cities in Tamil Nadu, known as the textile capital of South India or the Manchester of the South India, 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. When Kongunadu fell to the British along with the rest of the state, its name was changed to Coimbatore and it is by this name that it is known today, in local Tamil language it is also called as Kovai.

Coimbatore serves as an entry and exit point to neighboring Kerala State and the very popular hill station of Udthagamandalam (Ooty) is 70 kms from Coimbatore. It is the disembarking point for those who want to take the Mountain train that runs from Mettupalayam just 35 kms away from Coimbatore, regular bus services also available daily from Coimbatore to Ooty and other districts, towns and major cities.

Coimbatore lies at 11°1'6"N 76°58'21"E in south India at 427 metres above sea level on the banks of the Noyyal River, in northwestern Tamil Nadu.

3.11 Study Area

Detailed socio-economic survey was conducted in the study area (Core and buffer zone) within 10 km radius of the area at Bilichi Village, Coimbatore North Taluk, Coimbatore District, Tamil Nadu State. In order to determine the impact of the proposed project on nature and inhabitant. To get an overview of the villagers and their perspectives about this proposed activity, different demographic parameters and social aspects such population density, sex ratio, literacy rate, worker ratio etc. has been identified, analyzed, studied together. These impacts may be beneficial or disadvantageous. If disadvantageous anticipated suggestions measures are advocated in order to have collective development.

3.12 Demographic pattern of 10km study area characteristics a comparative analysis

Table 3.35 Shows the socio-economic profile of the study area as compared to district, state and national level socio-economic profile

Particular	India	Tamil Nadu	Coimbatore District	Study Area (10km Radius)
Area (in sq. km.)	3,287,263	130058	7649	319
Population Density/ sq. Km.	368	554	452	249
No. of Households	249454252	13357027	958035	22699
Population	1210569573	72147030	3458045	79324
Male	623121843	36137975	1729297	39687
Female	587447730	36009055	1728748	39637
Scheduled Tribes	104281034	794697	28342	3726
Scheduled Castes	201378086	14438445	535911	17578

Particular	India	Tamil Nadu	Coimbatore District	Study Area (10km Radius)
Literacy Rate	72.99%	80%	76.22%	72%
Sex Ratio (Females per 1000 Males)	943	996	1000	999

Source: Census of India, 2011

Table no 3.12.1 show demographic pattern of India, Tamil Nadu, Coimbatore District & Study area (10km Radius). In India had total area of 3.2 sqkm, State of Tamil Nadu area was 130058 sqkm, District of Coimbatore area was 642 sqkm and study area is about 319 sqkm. Population density is total population per sqkm. So, India population density was 368 sqkm, state of Tamil Nadu density was 554 sqkm, District had density about 452 sqkm and study area density is about 249 sqkm. As per Census 2011, about 5.96percent of population in the state lives in areas. Coimbatore had comparing state wise 4.79 percent of population lives in the district. In study area has 2.29 % around 10km radius. State, District and study area. In Tamil Nadu state SC categories people had about 19 %, district of Coimbatore about 15.49 % it has increasing to Study area about 22% increasing in the total population Similarly ST population is about 1.10%, 0.82% and 4.7% of the total population in the study area. State level Literacy rate is 80%, district level is 76% but study area has decreased about 72%. There is literacy rate is study area decrease comparing district level decrease in the study area. Sex ratio female per thousand males about state level is 996, District level is 1000 and study area is 999.

The study area has population density 249 persons per sq.km of total population about 79324 as per census 2011. There were about 50.03 percent male and 49.97% female population. Study area has literate rate is about 72%. District had about 76% of literate rate as per census 2011.

3.13 Population Projection of the Study Area

A population projection is an estimation of the number of people expected to be alive at a future date that is made based on assumptions of population structure, fertility, mortality and migration. It is an essential to assess the need for new jobs, schools, doctors and nurses, planning urban housing, foods, clothing and requirements of energy and resources. It is also needed for policy discourse i.e., helps to the policy-makers to understand the existing problems and finally supports to develop the suitable solutions.

Table 3.36 Total Population of Study Area

Sl No.	Population in 2001	Population in 2011
1	75028	79324

Source: <https://censusindia.gov.in/census.website/>

Table 3.37 Population Projection of Study Area

S. No	Year	Projected Population (Approximately)
1.	2021	83620
2.	2031	87916
3.	2041	92212
4.	2051	96508

Source: Calculated by SPSS v23, 2022.

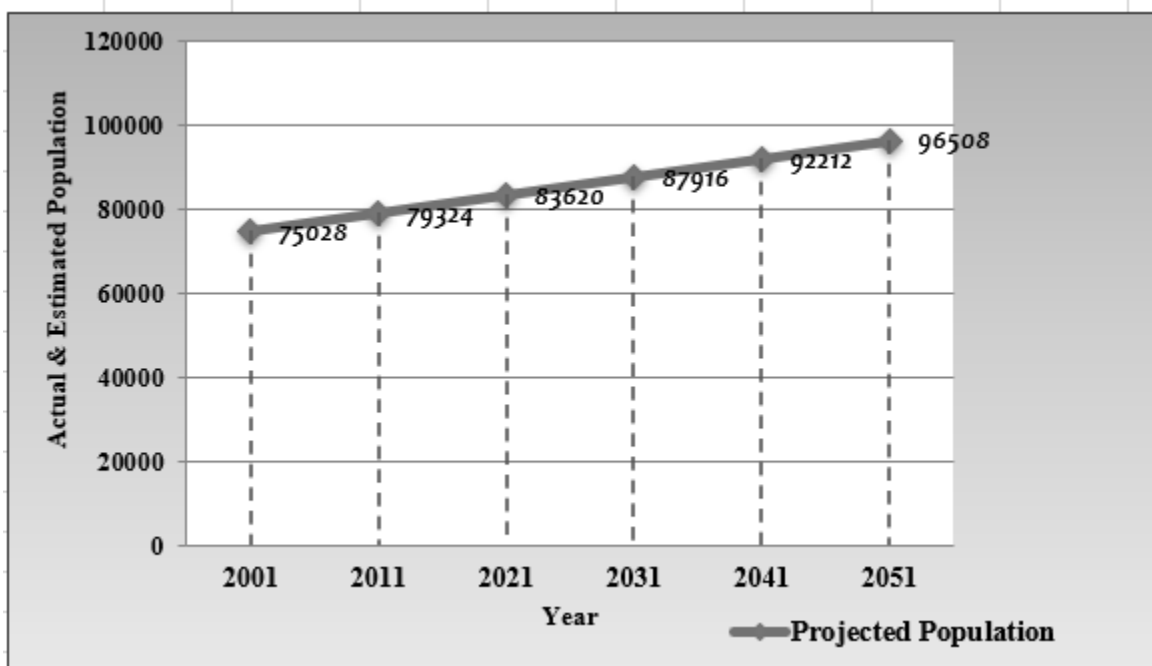


Fig 3.20 Graph Showing Population Projection

Following formula has been used for the projection of population.

$$Y=a+bt$$

Where: Y= Dependent variable (Population)

a=Intercept

b=Slope

t=Interdependent variables (Time)

Above formula is applied to project population for the years (2021, 2031,2041,2051). Due to avoid the errors in manual calculation the statistical software SPSS (demo version 23) is used to calculate the intercept and the slope.

Due to the shortage of data on population the results show same value of growth for the years (2021,2031,2041,2051). If the researcher gets enough the data on population for earlier years the data projection will be accurate.

- Ref: Indian Economic survey, the SLR (Simple Linear Regression) techniques are used by statistical department, Government of India to project population.
- Source: <https://www.ibm.com/in-en/analytics/spss-statistics-software>

3.14 Population Growth of the Study Area

Table 3.38 Population Growth rate in Study area

Year	Actual Population	Growth Rate %
2001	75028	
2011	79324	10.57
2021	83620	10.54
2031	87916	10.51
2041	92212	10.49
2051	96508	10.47

Source: Compiled by Author-2023

Above table no 3.14.1 is showing the growth rate of population since 2001, as per census in 2001 the population of study area was 75028 and 2011 it was 79324 if the population growth rate is 10.57%, it will approximately 83620 in year 2021 and 96508 in the year of 2051. It has approximately population growth rate decline will be 10.47%.

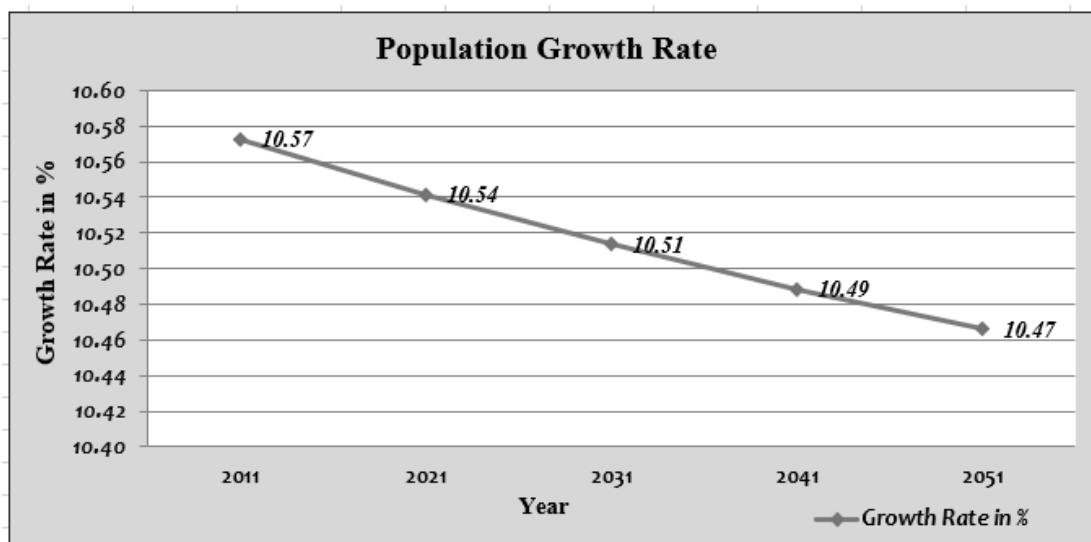


Fig.3.21 Graph Showing Population Growth Rate

Planning Analysis:

Calculating Growth Rates

The percent change from one period to another is calculated from the formula:

Where:

$$PR = \frac{(V_{Present} - V_{Past})}{V_{Past}} \times 100$$

PR=Percent Rate

$V_{Present}$ =Present or Future Value

V_{Past} = Past or Present Value

The *annual* percentage growth rate is simply the percent growth divided by N, the number of years.

Source: <https://pages.uoregon.edu/rgp/PPPM613/class8a.htm>

3.15 Population Distribution and Composition of Study Area

The population as per 2011 Census records is 79324 (for 10 km radius buffer zone). Total no. of household is 5854, 6946 and 9899 respectively, in primary, secondary and tertiary zone. Sex ratio is 999, 1005 and 994 (females per 1000 males) observed in primary, secondary and tertiary zone respectively. SC population distribution is 3226, 4256 and 10099 respectively in primary, secondary and tertiary zone. ST population distribution is 9, 2830 and 887 respectively in primary, secondary and tertiary. Average household size is 3. Zone wise Demographic profile of study area is given in the table 3.15.1 below:

Source: <https://censusindia.gov.in/census.website/data/census-tables>

Table 3.39 Zone wise Demographic Profile of Study Area

Zone	No. of Villages	Total Household	Total Population	Male Population	%	Female Population	%
Primary Zone (0 - 3 Km)	3	5854	20107	10060	50.03	10047	49.97
Secondary Zone (3 - 7 Km)	4	6946	24413	12177	49.88	12236	50.12
Tertiary Zone (7 - 10 km)	7	9899	34804	17450	50.14	17354	49.86
Study Area (0-10 km)	14	22699	79324	39687	50.03	39637	49.97

Source: Census of India, 2011

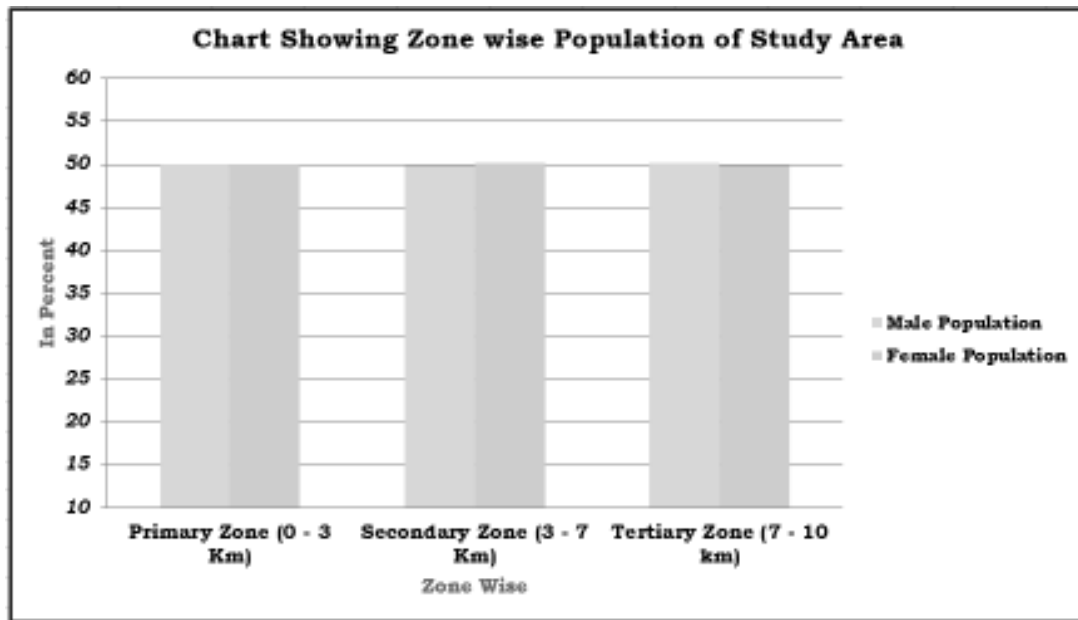


Figure 3.22 Population of study area

- ✓ Above table identifies the presence of villages and their subsequent population divided under three zones from plant boundary (i.e., Primary, secondary and tertiary zone)
- ✓ Primary zone has 3 villages where as much as 5854 households with 20107 population are located. Mostly lying on Built-up land for their livelihood and substance.
- ✓ Secondary and tertiary zone both comprise of 4 and 7 villages having a total population of 24413 and 34804 respectively.

Table 3.40 Village wise Demographic Profile of the Study Area (Core and Buffer Zone)

0-3km																														
Sno	Name	No.of Households	Total population	Total Male	Total Female	Sex Ratio	Population below 6	Male below 6	Female below 6	Child Sex Ratio	SC population	SC Male	SC Female	ST population	ST Male	ST Female	Literate population	Male Literate	Female Literate	Total Lite.rate (%)	Male Lite rate (%)	Female Lite.rate (%)	Total workers	Total Workers Rate (%)	Main workers	Main Workers Rate (%)	Marginal workers	Marginal Workers Rate (%)	Nonworkers	Non Workers Rate (%)
1	Bilichi	3076	10412	5188	5224	1007	902	476	426	895	1983	980	1003	5	3	2	7231	3884	3347	76.04	82.43	69.76	5390	51.77	4717	45.30	673	6.46	5022	48.23
2	Vellamadai	1975	6874	3458	3416	988	571	280	291	1039	808	420	388	4	3	1	4003	2263	1740	63.51	71.21	55.68	3964	57.67	3085	44.88	879	12.79	2910	42.33
3	Kallipalayam	803	2821	1414	1407	995	248	138	110	797	435	225	210	0	0	0	1902	1039	863	73.92	81.43	66.54	1328	47.08	940	33.32	388	13.75	1493	52.92
Total		5854	20107	10060	10047	999	1473	756	717	948	2791	1400	1391	9	6	3	11234	6147	5087	60.29	66.07	54.52	10682	53.13	8742	43.48	1940	9.65	9425	46.87
3-7km																														
Sno	Name	No.of Households	Total population	Total Male	Total Female	Sex Ratio	Population below 6	Male below 6	Female below 6	Child Sex Ratio	SC population	SC Male	SC Female	ST population	ST Male	ST Female	Literate population	Male Literate	Female Literate	Total Lite.rate (%)	Male Lite rate (%)	Female Lite.rate (%)	Total workers	Total Workers Rate (%)	Main workers	Main Workers Rate (%)	Marginal workers	Marginal Workers Rate (%)	Nonworkers	Non Workers Rate (%)
1	Vadavalli	1105	3859	1902	1957	1029	285	131	154	1176	938	451	487	0	0	0	2496	1359	1137	69.84	76.74	63.06	2519	65.28	2420	62.71	99	2.57	1340	34.72
2	Kuppepalayam	779	2784	1424	1360	955	243	123	120	976	543	282	261	1	1	0	1642	936	706	64.62	71.94	56.94	1476	53.02	1423	51.11	53	1.90	1308	46.98
3	Veerapandi	2105	7528	3792	3736	985	616	301	315	1047	727	354	373	2820	1417	1403	4788	2694	2094	69.27	77.17	61.21	4271	56.73	3724	49.47	547	7.27	3257	43.27
4	Chikkampalayam	2957	10242	5059	5183	1025	874	436	438	1005	2045	1033	1012	9	3	6	7383	3929	3454	78.81	84.99	72.79	4694	45.83	4269	41.68	425	4.15	5548	54.17
Total		6946	24413	12177	12236	1005	2018	991	1027	1036	4253	2120	2133	2830	1421	1409	16309	8918	7391	72.82	79.72	65.94	12960	53.09	11836	48.48	1124	4.60	11453	46.91
7-10km																														
Sno	Name	No.of Households	Total population	Total Male	Total Female	Sex Ratio	Population below 6	Male below 6	Female below 6	Child Sex Ratio	SC population	SC Male	SC Female	ST population	ST Male	ST Female	Literate population	Male Literate	Female Literate	Total Lite.rate (%)	Male Lite rate (%)	Female Lite.rate (%)	Total workers	Total Workers Rate (%)	Main workers	Main Workers Rate (%)	Marginal workers	Marginal Workers Rate (%)	Nonworkers	Non Workers Rate (%)
1	Pogalur	1321	4671	2332	2339	1003	373	197	176	893	1236	616	620	0	0	0	2874	1599	1275	66.87	74.89	58.95	2524	54.04	2315	49.56	209	4.47	2147	45.96
2	Pillaiappalayam	893	3233	1617	1616	999	313	158	155	981	1505	750	755	0	0	0	1883	1046	837	64.49	71.69	57.29	1718	53.14	1707	52.80	11	0.34	1515	46.86
3	Kariampalayam	1232	4498	2264	2234	987	443	223	220	987	1141	567	574	0	0	0	2839	1595	1244	70.01	78.15	61.77	2263	50.31	1939	43.11	324	7.20	2235	49.69
4	Agrahasamakulam	1219	4144	2071	2073	1001	405	212	193	910	1461	741	720	0	0	0	2431	1353	1078	65.02	72.78	57.34	2302	55.55	1781	42.98	521	12.57	1842	44.45
5	Naickenpalayam	1710	5914	2964	2950	995	447	225	222	987	1528	780	748	883	454	429	3940	2181	1759	72.07	79.63	64.48	3257	55.07	2833	47.90	424	7.17	2657	44.93
6	Keeranatham	1369	4707	2339	2368	1012	420	210	210	1000	1124	564	560	0	0	0	3183	1757	1426	74.25	82.53	66.08	2260	48.01	1968	41.81	292	6.20	2447	51.99
7	Belladhi	2155	7637	3863	3774	977	669	319	350	1097	2104	1037	1067	4	1	3	5293	2987	2306	75.96	84.28	67.35	3526	46.17	3331	43.62	195	2.55	4111	53.83
Total		9899	34804	17450	17354	994	3070	1544	1526	988	10099	5055	5044	887	455	432	22443	12518	9925	70.72	78.70	62.71	17850	51.29	15874	45.61	1976	5.68	16954	48.71
Grand total		22699	79324	39687	39637	999	6561	3291	3270	994	17143	8575	8568	3726	1882	1844	49986	27583	22403	68.70	75.79	61.60	41492	52.31	36452	45.95	5040	6.35	37832	47.69

Source: Village Wise Demographic Profile of the Study Area, *Census of India, 2011*

3.16 Gender and Sex Ratio

Sex ratio is used to describe the number of females per 1000 of males. Sex ratio is a valuable source for finding the population of women in India and what is the ratio of women to that of men in India. In the Population Census of 2011, it was revealed that the population ratio in India 2011 is 940 females per 1000 of males. The study area has 999 females per 1000 males. Gender and sex ratio determine the Human Development Index (HDI) of an area thereby understanding the status of women in that region. Following table entails information about sex ratio of 14 villages lying in study area (buffer zone) as primary, secondary and tertiary zone.

Table 3.41 Sex ratio of the study area

S. No.	Buffer Zone	Sex Ratio of Study area Female/ 1000 Male
1	Primary Zone (0-3 km)	999
2	Secondary zone (3-7 km)	1005
3	Tertiary Zone (7-10 km)	994

Source: Census of India, 2011

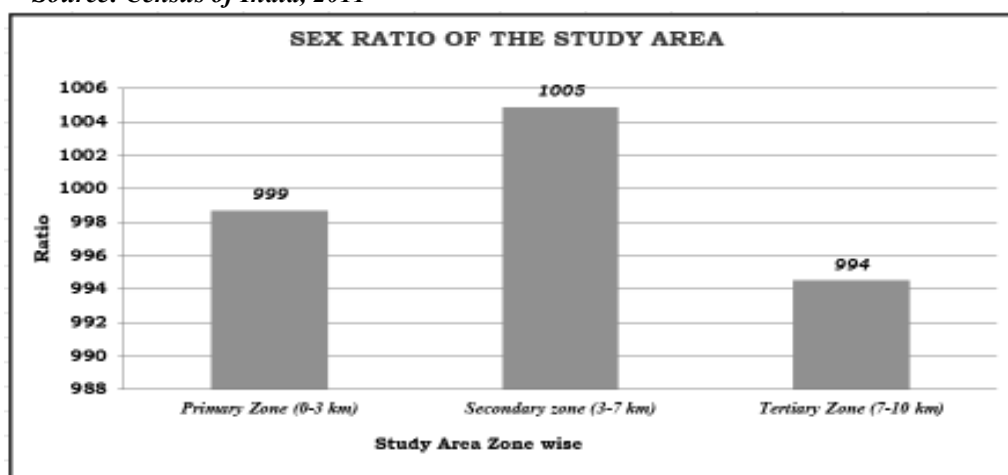


Figure 3.23 Sex Ratio within 10 Km study area

3.16.1 Child Sex Ratio

The Child Sex Ratio is defined as the number of females per 1000 males in the age group 0–6 years. In the census 2001 the child sex ratio of India was 927 which declined to 919 in the census 2011. As per the census 2011, Tamil Nadu has the highest child sex ratio among the Indian states i.e., 952 while Coimbatore has the child sex ratio i.e. 956 per thousand males.

Table 3.42 Child Sex ratio of the study area

S. No.	Buffer Zone	Child Sex Ratio of Study area Female/ 1000 Male
1	Primary Zone (0-3 km)	925
2	Secondary zone (3-7 km)	1036
3	Tertiary Zone (7-10 km)	988

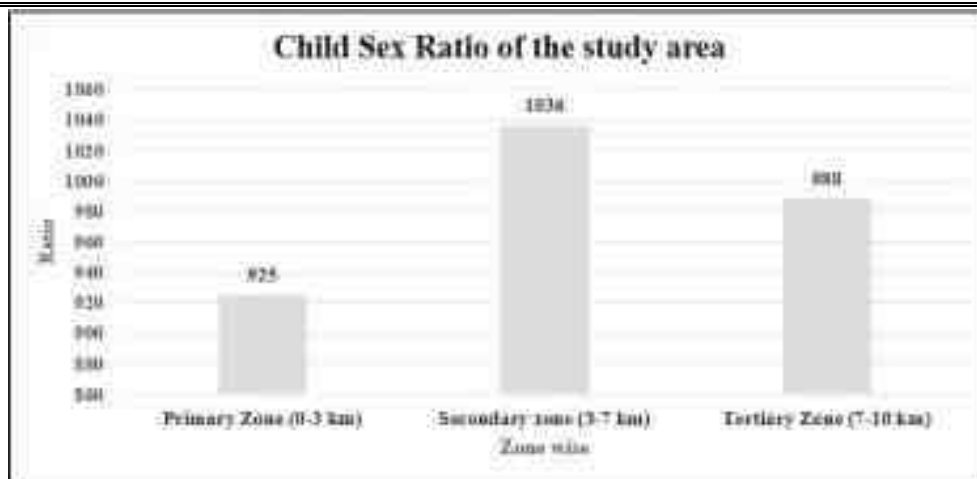


Figure 3.24 Child Sex Ratio within 10 Km study area

3.17 Literacy Rate in Study Area

Literacy Rate is the percentage of people in a country with the ability to read and write. The analysis of the literacy levels is done in the study area. The 10 km radius of study area demonstrates a literacy rate of 72% as per census data 2011. The male literacy rate in the study area indicates 79% whereas the female literacy rate, which is an important indicator for social change, is observed to be 64% as per the census data 2011. This needs to focus on the region and enhance further development focusing on education. (Table no 3.17.1).

Table 3.43 Literacy Rate of the Study Area

Zone	No. of Villages	Male Literacy Population	Male literacy Rate	Female Literacy Population	Female literacy Rate	Total Literacy	Total Literacy Rate
Primary Zone (0 - 3 Km)	3	7186	78.40	5950	64.53	13136	71.45
Secondary Zone (3 - 7 Km)	4	8918	79.72	7391	65.94	16309	72.82
Tertiary Zone (7 - 10 Km)	7	12518	78.70	9925	62.71	22443	70.72
Study Area (0-10km)	14	28622	78.94	23266	64.17	51888	71.55

Source: Census of India, 2011

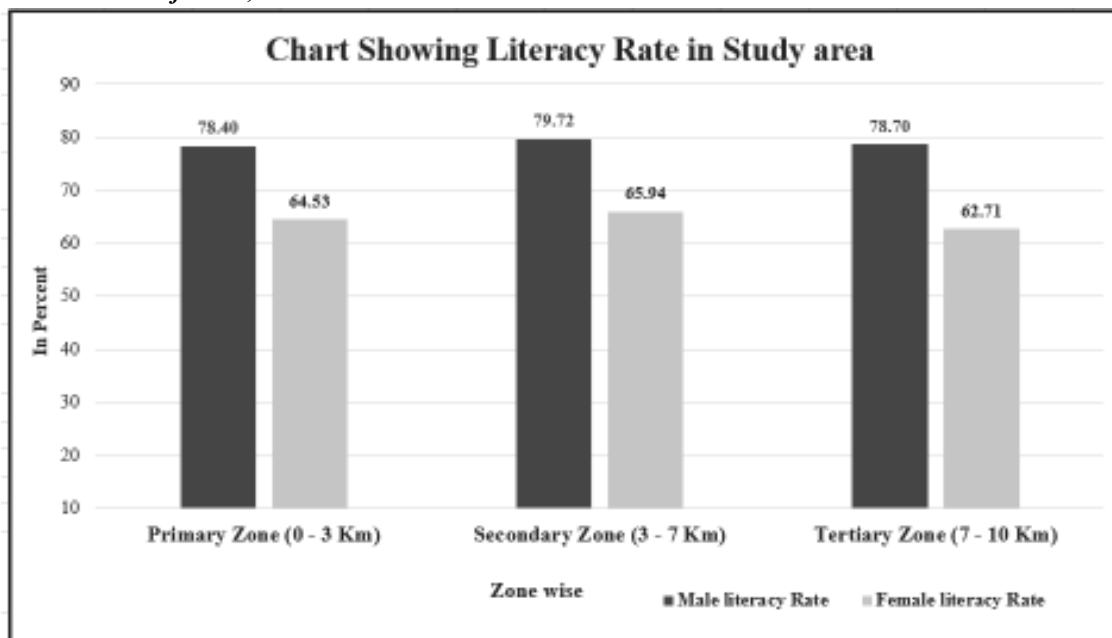


Figure 3.25 Gender wise Literacy Rate in the study area

3.18 Family Size

Size of family also describes about family functioning, resource consumption, total income generated and their expenditure pattern. Census 2011 data suggests that most of these households have a family size of up to 3 members, knowing the size of family also give fair understanding of relating how much resource consumption is being incurred, and annual income being generated and spent.

3.19 Vulnerable Group

While developing an action plan, it is very important to identify the population who fall under the marginalized and vulnerable groups and special attention has to be given towards these groups while making action plans. Special provisions should be made for them. In the observed villages schedule caste (SC) population is 22% and Schedule Tribe population 4.7%, Other Population is 73% in total study area.

Table 3.44 vulnerable groups of the study area

Zone	No. of Villages	Vulnerable Groups					
		SC Population	%	ST Population	%	Other Population	%
Primary Zone (0 - 3 Km)	3	3226	16.04	9	0.04	16872	83.91
Secondary Zone (3 - 7 Km)	4	4253	17.42	2830	11.59	17330	70.99
Tertiary Zone (7 - 10 Km)	7	10099	29.02	887	2.55	23818	68.43
Total area (10km)	14	17578	22.16	3726	4.70	58020	73.14

Source: Census of India, 2011

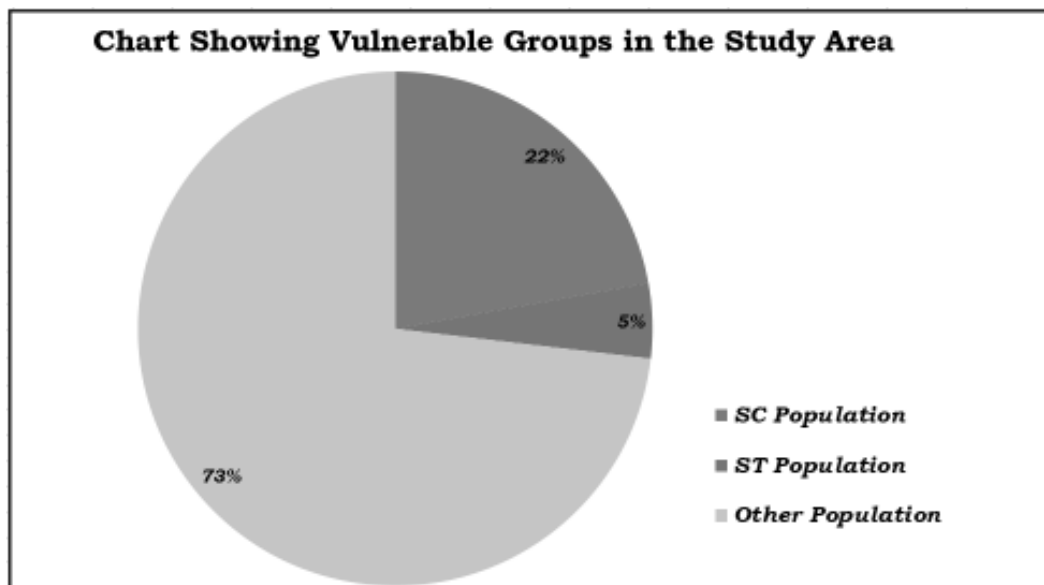


Figure 3.26 vulnerable groups

3.20 Economic Activities

The economy of an area is defined by the occupational pattern and income level of the people in the area. The occupational structure of residents in the study area is studied with reference to work category. The population is divided occupation wise into three categories, viz., Total workers, Main workers and non-workers. The main workers

include cultivators, agricultural laborers, those engaged in household industry and other services. The non-workers include those engaged in unpaid household duties like, students, retired persons, dependents, beggars, vagrants etc. besides Institutional intimates or all other non-workers who do not fall under the above categories.

Table 3.45 shows the work force of the study area

Zone	No. of Villages	Total Workers	%	Main Workers	%	Marginal Workers	%	Non-Workers	%
Primary Zone (0 - 3 Km)	3	10682	53.13	8742	43.48	1940	9.65	9425	46.87
Secondary Zone (3 - 7 Km)	4	12960	53.09	11836	48.48	1124	4.60	11453	46.91
Tertiary Zone (7 - 10 Km)	7	17850	51.29	15874	45.61	1976	5.68	16954	48.71
Study Area (10 Km)	14	41492	52.31	36452	45.95	5040	6.35	37832	47.69

Source: Census of India, 2011

The above table shows that out of the total working population, the percentage of main workers is 45.95 % while 6.35% are marginal workers. Number of working populations is 52.31% and non-working population is 47.69% in the study area. As per the data obtained from the survey (as mentioned previously in occupational structure) most of these people are employed for major period of the year. Also, to mention the natural environment also restricts the people in finding stable business is performed for only certain months. Thus, proposed project will act as possible exposure for them to get enroll and earn sustain livelihood.



Figure 3.27 Working population in the study area

3.21 Infrastructure Base

A better network of physical infrastructure facilities (built up and roads, irrigation, power and social infrastructure support, viz. health and Education, water and sanitation are essential for the development of the rural economy.

A review of infrastructural facilities available in the area has been done based on the information from baseline survey & census data of the study area. Infrastructural facilities available in the area are described in the subsequent sections.

- Administrative offices are located in Tamil Nadu, Coimbatore district (23km-SW) from site which by local transport.
- Belladhi Lake North Western side, lake Western side (3km-) from mine lease boundary.
- Availability of Government high school Onnipalayam Village (NE-2.0km), TSA Government higher secondary school, Kattampatty (SE-6km), Government High School, Kannarpalayam Village (NW-5.0km), Government higher secondary school, Periyaputhur (NE-5km), Government high school,

Kemanaickenpalayam Village (NE 8 km), Veerapandi, Muthamil Nagar, Naickenpalayam Village found in Government higher secondary school, Coimbatore North and Coimbatore Taluk many Engineering college and Training institute found in study area.

- Health facilities covered in the Core zone area Bilichi SHC (4 km-W), Buffer zone area like Government Hospital Veerapandi village, Government PHC, Chikkampalayam Village , Government general Hospital, Masagoundernchettipalayam, GPHC, Sarkar samakulam, Government Hospital, Periyanaickenpalayam Village, Government Hospital, Ganesapuram Village, etc.

Table 3.46 Educational Facilities in the Surveyed Area

Sno	Village Name	Govt Primary School (Numbers)	Private Primary School (Numbers)	Govt Middle School (Numbers)	Private Middle School (Numbers)	Govt Secondary School (Numbers)	Private Secondary School (Numbers)	Govt Senior Secondary School (Numbers)	Govt Arts and Science Degree College (Numbers)
1	Bilichi	2	0	1	0	0	0	0	0
2	Vellamadai	2	0	0	0	0	0	0	0
3	Kallipalayam	4	0	1	0	0	0	0	0
	Total	8	0	2	0	0	0	0	0
1	Vadavalli	4	1	1	1	1	1	1	0
2	Kuppepalayam	3	0	1	1	0	0	0	0
3	Veerapandi	2	0	1	0	0	0	0	0
4	Chikkarampalayam	5	0	2	0	1	0	0	0
	Total	14	1	5	2	2	1	1	0
1	Pogalur	7	0	0	0	0	0	0	0
2	Pillaiappampalayam	4	0	0	0	0	0	0	0
3	Kariampalayam	3	0	0	0	0	0	0	0
4	Agrahasamakulam	7	1	2	1	1	1	0	0
5	Naickenpalayam	2	0	1	0	1	0	1	0
6	Keeranatham	2	0	0	0	0	0	0	0
7	Belladhi	2	0	1	0	0	0	0	0
	Total	27	1	4	1	2	1	1	0
	Grant total	49	2	11	3	4	2	2	0

Source: DCHB Census 2011, Tamil Nadu.

Table 3.47 Health/ Medical Facilities in the Surveyed Area

Sno	Village Name	Community Health Centre (Numbers)	Primary Health Centre (Numbers)	Primary Health Sub Centre (Numbers)	Maternity And Child Welfare Centre (Numbers)	Hospital Allopathic (Numbers)	Dispensary (Numbers)	Veterinary Hospital (Numbers)	Family Welfare Centre (Numbers)	Non Government Medical facilities Medicine Shop (Numbers)
1	Bilichi	0	1	1	0	0	0	0	0	0
2	Vellamadai	0	0	1	0	0	0	0	0	0
3	Kallipalayam	0	0	0	0	0	0	1	0	0
	Total	0	1	2	0	0	0	1	0	0
1	Vadavalli	0	0	2	0	0	0	0	0	1
2	Kuppepalayam	0	1	1	0	0	0	0	0	0
3	Veerapandi	0	1	1	0	0	0	0	0	0
4	Chikkarampalayam	0	0	1	0	0	0	0	0	0
	Total	0	2	5	0	0	0	0	0	1
1	Pogalur	0	1	1	0	0	0	0	0	1
2	Pillaiappampalayam	0	1	2	0	0	0	0	0	0
3	Kariampalayam	0	0	0	0	0	0	0	0	0
4	Agrahasamakulam	0	0	1	0	0	0	1	0	1
5	Naickenpalayam	0	0	0	0	0	0	1	0	0
6	Keeranatham	0	0	0	0	0	0	0	0	0
7	Belladhi	0	1	1	0	0	0	0	0	0
	Total	0	3	5	0	0	0	2	0	2
	Grant total	0	6	12	0	0	0	3	0	3

Source: DCHB Census 2011, Tamil Nadu.

Table 3.48 Water & Drainage Facilities in the Surveyed Area

Sno	Village Name	TWTS	TWUS	Covered well	Uncovered Well	Handpump	Tubewell/Borehole	Spring	R/C	T/P/L	Closed Drainage system	Open Drainage system	No Drainage system
1	Bilichi	1	1	2	1	2	1	2	2	2	1	1	1
2	Vellamadai	1	1	2	1	1	2	1	2	2	1	1	1
3	Kallipalayam	1	1	1	1	2	1	2	2	2	1	1	1
	Total	3	3	1	3	1	2	1	0	0	3	3	3
1	Vadavalli	1	1	2	1	1	1	2	2	2	1	1	1
2	Kuppepalayam	1	1	1	1	1	1	2	2	2	1	2	1
3	Veerapandi	1	1	2	1	2	1	2	2	2	1	1	1
4	Chikkarampalayam	1	1	1	1	2	1	1	1	2	1	1	1
	Total	4	4	7	4	7	4	3	4	1	4	8	4
1	Pogalur	1	1	1	1	1	1	2	2	2	1	1	1
2	Pillaiappampalayam	1	1	1	1	2	1	2	2	2	1	1	1
3	Kariampalayam	1	1	2	1	1	1	2	2	2	1	1	1
4	Agrahasamakulam	1	1	1	1	1	1	2	1	2	1	1	1
5	Naickenpalayam	1	1	1	1	1	1	2	2	2	1	1	1
6	Keeranatham	1	1	1	1	1	1	2	2	2	1	1	1
7	Belladhi	1	1	1	1	1	2	1	2	2	1	1	1
	Total	7	7	8	7	6	8	1	1	2	7	7	7
	Grant total	14	14	16	14	14	14	5	5	3	14	18	14

Source: DCHB Census 2011, Tamil Nadu.

3.49 Transport and Other Infrastructure Facilities in the Surveyed Area

Sno	Village Name	Post Office (Status A(1)/NA(2))	Sub Post Office (Status A(1)/NA(2))	Post And Telegraph Office (Status A(1)/NA(2))	Telephone (landlines) (Status A(1)/NA(2))	Public Call Office /Mobile (PCO) (Status A(1)/NA(2))	Mobile Phone Coverage (Status A(1)/NA(2))	Private Courier Facility (Status A(1)/NA(2))	Public Bus Service (Status A(1)/NA(2))	Private Bus Service (Status A(1)/NA(2))	Railway Station (Status A(1)/NA(2))	Auto/Modified Autos (Status A(1)/NA(2))	Taxi (Status A(1)/NA(2))	Vans (Status A(1)/NA(2))	Tractors (Status A(1)/NA(2))	Cycle-pulled Rickshaws (manual driven) (Status A(1)/NA(2))	Cycle-pulled Rickshaws (machine driven) (Status A(1)/NA(2))	Carts Driven by Animals (Status A(1)/NA(2))	National Highway (Status A(1)/NA(2))	State Highway (Status A(1)/NA(2))	Major District Road (Status A(1)/NA(2))	Other District Road (Status A(1)/NA(2))	Black Topped (pucca) Road (Status A(1)/NA(2))	Gravel (kuchha) Roads (Status A(1)/NA(2))	Water Bounded Macadam (Status A(1)/NA(2))	All Weather Road (Status A(1)/NA(2))	Foothpath (Status A(1)/NA(2))	
0-3km																												
1	Bilichi	2	1	2	1	1	1	2	2	1	2	2	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1
2	Vellamadai	2	2	2	1	1	1	1	1	1	2	2	1	1	2	2	2	2	2	1	1	2	1	1	1	1	1	1
3	Kallipalayam	1	2	1	1	1	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1
0-3km																												
1	Vadavalli	2	1	2	1	1	1	2	1	1	2	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1
2	Kuppepalayam	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1
3	Veerapandi	2	2	2	1	1	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1
4	Chikkarampalayam	2	1	2	1	1	1	2	1	1	2	2	2	2	2	2	2	2	2	2	1	2	1	1	1	1	1	1
7-10km																												
1	Pogalur	2	1	2	1	1	1	2	1	1	2	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1
2	Pillaiappampalayam	2	1	2	1	1	1	2	1	1	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
3	Kariampalayam	2	2	2	1	2	1	2	1	1	2	2	2	2	2	2	2	2	1	2	2	1	1	1	1	1	1	1
4	Agraharasamakulam	2	1	2	1	1	1	2	1	1	2	2	2	2	2	2	2	2	1	1	1	2	1	1	1	1	1	1
5	Naickenpalayam	2	1	2	2	2	1	2	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1
6	Keeranatham	2	1	2	2	2	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1
7	Belladhi	2	1	2	1	1	1	2	1	1	2	2	1	1	2	2	2	2	2	1	1	2	1	1	1	1	1	1

Source: DCHB Census 2011, Tamil Nadu.

3.22. Other Issues in the Study Area

1. Deforestation of Land (Cutting Trees or Plant etc.)
2. Agriculture Land decreases.
3. Lack of awareness among vulnerable groups for their welfare.
4. Medical/Clinic facilities and PHC need for the Core area.
5. Environmental clean with solid wastage pin each village.
6. Functioning of Hospital facilities with Sub Health care centers.
7. Need proper drainage system with public toilet men and women separately.

3.23 Interpretation

Based on the data, following inferences could be drawn:

- Total literacy rate in the study area is 72%.
- The study area had average educational facilities. The overall status depicts that the education is limited to primary and middle level.
- The schedule tribe community forms 4.7% and Scheduled Caste forms 22.16% of the total population of study area.
- The Other Population forms 73% of the total population of study area.
- The study area is well connected by District/Village Road.
- The study area not well health facilities of primary level.
- Considering the above facts, the proposed project will boost the socio-economic development activities in the area and hence will leave positive impact.
- The study area has mobile connectivity.

3.24 Recommendation and Suggestions

The village development plans are made in consultation with the community through Gram Sabha; these appear to address the needs of the community. However, it may be noted that at the implementation stage these plans often are fraught with problem of inadequate funds, lack of proper planning, corruption, vested interests and political agendas. Hence while ascertaining the scope for convergence with the government activities, care must be taken to ascertain realistic possibilities for implementation.

- **Women empowerment**– Home based income generation activities, vocational training programs and common education centre for increasing the literacy rate.
- **Education** – Free uniform, construction of common rooms and library, computer education and physical education, additional schools for girls, furniture and equipment in schools, up-gradation of existing school infrastructure.
- **Agriculture/livestock** – Infrastructure such as agricultural practices, electricity connections, assistance with buying improved tools and equipment, capacity building, supply and/or knowledge of better variety of seeds, pasture land development and trainings on animal husbandry & facility of veterinary doctor.
- **Health** – Improvements in sanitary conditions of villages, assistance with construction of latrines, improvement in drainage system, health camps and awareness campaigns for diseases like Covid-19, malaria, typhoid, tuberculosis, yellow fever and pneumonia. Repairing of PHCs and Anganwadi centers.
- **People with disability** – Establishment of center for special education, sensitization of the community towards disabled and awareness on Government schemes.
- 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.
- **Connectivity** –Transport connectivity to easiness accessibility to the region.

3.25 Conclusion

To evaluate the impacts of proposed quarry project on the surrounding area, it is vital to assess the baseline status of the environmental quality in the locality of the site. Hence it can be concluded that the present environment status of the study area will not be affected by the project as **M/s. Sri Rajalakshmi Samappa Building Material Company** will adopt adequate control measures to protect the surrounding environment and will contribute in development of the study areas.

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.

CHAPTER – 4: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 General

The environmental impact can be categorized as either primary or secondary, primary impacts which are attributed directly by the project; secondary impacts are those which are indirectly induced. The open cast mining operations involve development of benches, Approach Road, Haul Road, Excavation and handling of material. If adequate control measures are not taken to prevent/mitigate the adverse environmental impacts/lead to damage of the eco-system.

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 for sustainable resource extraction. Based on the baseline environmental status at the existing mine site, the environmental factors that are likely to be affected (Impacts) are identified, quantified and assessed. The various anticipated impacts will be on

- Land environment
- Water Environment
- Air Environment
- Noise Environment
- Socio economic environment
- Solid waste
- Soil environment

In general, the main findings regarding the potential impacts of climate change are Land Use Type, Energy Use, Water use & Dust emission and Biodiversity & rehabilitation.

Whereas, this mining activity is restricted to a small scale mining and the proposal falls in “B1” Category, the surrounding environment is already subjected to mining activities and based on the past weather data its inferred that there is no much of change in the climate data of the region and the district profile has no records or past history of climate change leading to Droughts and floods.

- The mine pit shall act as a rain water harvesting structure and formation of garland drains along the mine lease boundary to divert the surface runoff and collecting the runoff water for greenbelt development and dust suppression activities shall prove beneficial.
- The greenbelt development plan, all along the mine lease boundary, along with the budget allocation for the proposed mitigation measures shall prove beneficial to surrounding environment.
- Therefore, the implementation of proposed mitigation measures for winning of mineral may not have much of impact on the surrounding Climate Change

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
- Impact due to heritage site, Archaeological sites

4.1.2.1 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
- There are no Archaeological sites, heritage site in the vicinity of the project area, the topography will be changed due to excavation of rough stone and Gravel.

4.1.3 Soil Environment

4.1.4 Impact on Soil Environment

The top layer of the project site in the form of Gravel formation, the Gravel will be directly loaded into tippers for the filling and levelling of low-lying areas. There is no disposal of Gravel. The excavated rough stone will be directly loaded into dumpers to the needy customers.

There will be no disposal of waste water from the quarry operation, No discharge of toxic effluent from the proposed project. The dust emission at working face and haul roads will be controlled by water sprinkling and plantation.

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 Mitigation Measures

- 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 are no wastages anticipated in this rough stone and gravel quarrying operation. The entire quarried out materials will be utilized (100%). The overburden in the form of gravel formation the gravel will be also sold to needy customers for the filling and levelling of low-lying areas.

4.2 Water Environment

4.2.1 Anticipated Impact on Surface and ground water

The impact due to quarrying on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process. The quarrying activity will not intersect ground water table as the maximum depth of the quarry is 45m and water table is found at 65m in summer season and 60m in rainy season.

The quarrying operation will be carried out well above the water table. There is no intersection of surface water bodies (Streams, Canal, Odai etc.,) in the project area. During rainy season rain water will be collected in the quarry pit and later used for greenbelt development and for the water sprinkling in the haul roads. There is no proposal for discharging of quarry pit water outside the project area.

TABLE 4.1: WATER REQUIREMENTS

<i>Purpose</i>	<i>Quantity calculation</i>	<i>Source</i>
Domestic & Drinking purpose	0.4KLD	From Existing, bore wells and drinking water will be sourced from Approved Water vendors.
Dust Suppression	0.6KLD	From Existing bore wells from nearby area/ Rain water harvesting pits
Green Belt	0.5KLD	From Existing bore wells from nearby area / Rain water harvesting pits
Total	1.5 KLD	

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

Source: Approved Mining Plan Pre-Feasibility Report

Total water requirement in the proposed project is about 1.5 KLD, the water for dust suppression and greenbelt development will be sourced from the mine pit water collected during rainy seasons, the water for domestic purpose and drinking will be sourced from the approved water vendors.

4.2.2 Common Mitigation measures:

- Garland drains, settling tank will be constructed along the 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.

Possibilities of water contamination and impact on an aquatic ecosystem health

- Anticipated impact from this proposed mining activity is surface runoff from cleared surfaces, or discharges from the quarry pit or floor, is likely to have elevated levels of sediment (both suspended and dissolved). The quality of the water discharged from the site can have impacts on downstream ecological communities and water users.
- Therefore, Run-off diversion is proposed – 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 with only clear water after the garland drains are enrooted through settlement traps.
- And, the depth of the mining is maximum 37m bgl and the ground water level in the surrounding areas is about 64-59 m bgl and there are no possibilities of encountering any ground water aquifers system and hence no ground water table intersection is anticipated.
- After the completion of quarry operation, the quarried out open pit mine may utilized for pici-culture or temporary reservoir pit for use of water for domestic purpose during dry seasons.
- Therefore, it's inferred that the implementation of proposed mitigation measures for winning of mineral may not have much of impact on the possibilities of water contamination and impact on an aquatic ecosystem health.

4.3 Air Environment

The air borne particulate matter is the main air pollutant in this opencast mining. The mining operation will be carried out by jackhammer drilling (35mm dia) and Hydraulic Excavators will be utilized for excavation of Rough Stone waste.

4.3.1. Anticipated

Impact

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

4.3.1.1. Modelling of Incremental Concentration from 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 Quarry. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software.

4.3.1.2 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 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 4-2.

TABLE 4.2: ESTIMATED EMISSION RATE FOR PROPOSED PROJECT

EMISSION ESTIMATION FOR QUARRY "P1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	g/s	0.088087960	g/s
	Blasting	g/s	0.001282913	g/s
	Mineral Loading	g/s	0.043279349	g/s
	Haul Road	g/s/m	0.002494219	g/s/m
	Overall Mine	g/s	0.061784713	g/s
Estimated Emission Rate for SO ₂	SO ₂	g/s	0.000828878	g/s
Estimated Emission Rate for NO _x	Nox	g/s	0.000054649	g/s

4.3.2 Frame work of Computation & Model details

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

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.

Air Pollution Dispersion Modelling.

Baseline Air Quality –

Baseline air quality has been measured at 1 locations in the cluster and 7 locations within the buffer zone of the study area. The 24 - hourly average samples of particulate matters (PM₁₀ and PM_{2.5}), SO₂ and NO_x were

measured following the National Ambient Air Quality Standards (NAAQS), 2009. Monitoring data of 8 sampling stations are given below –

Meteorological Data –

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 and monitored continually for study period without break. The station was installed at a height of 4 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. A weather data was collected from IMD, Coimbatore agro for the month of Dec 2022 – Feb 2023 to correlate with site data and found not much of change in the parameters.

FIGURE 4.1: AERMOD TERRAIN MAP

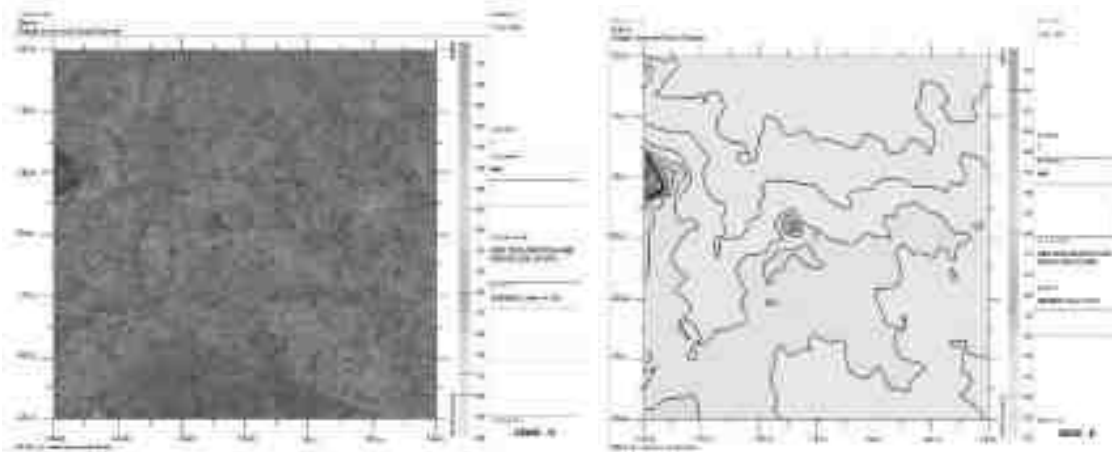


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀

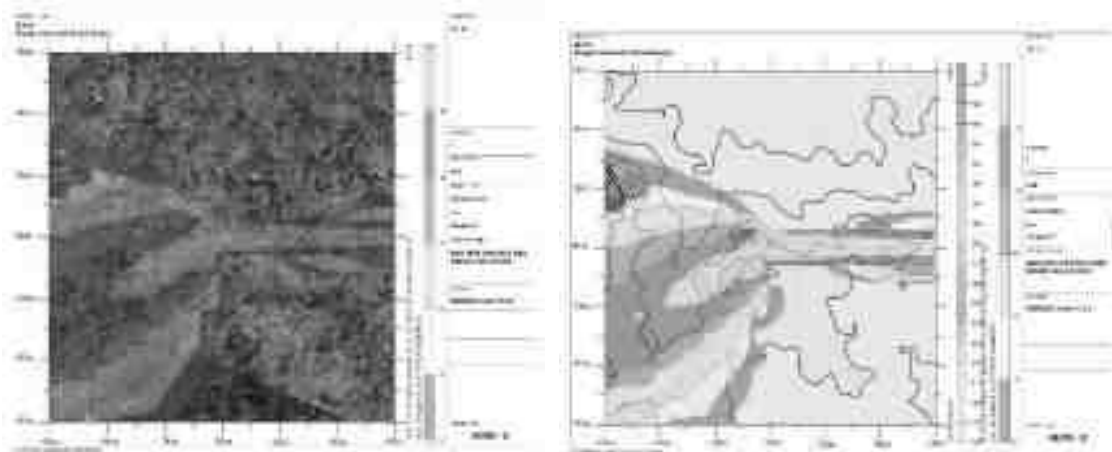


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF SO₂

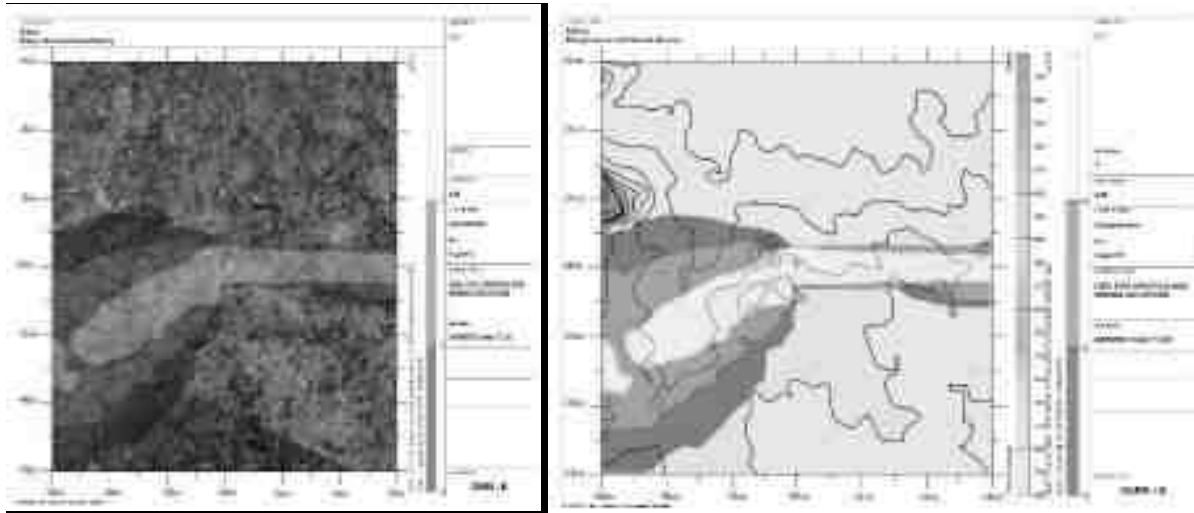


FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NO_x

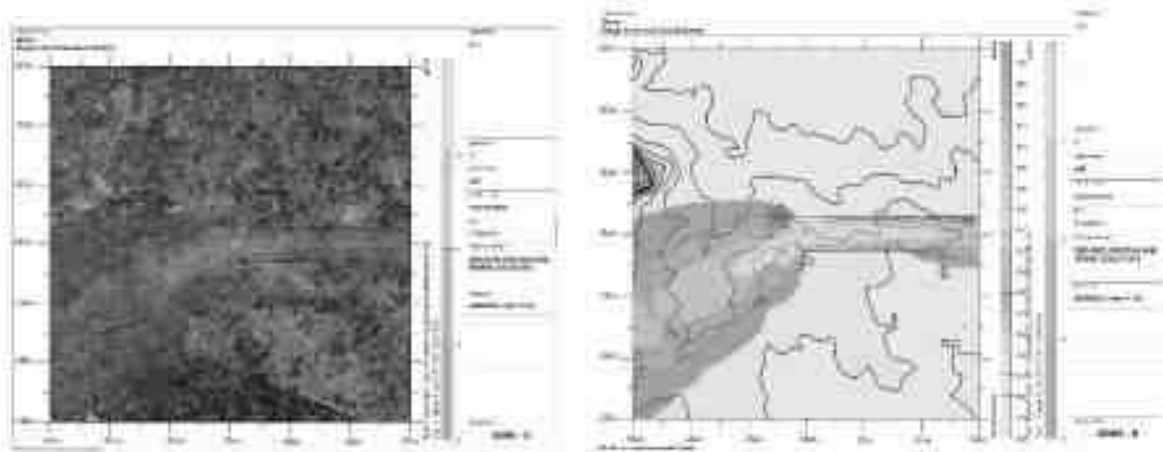
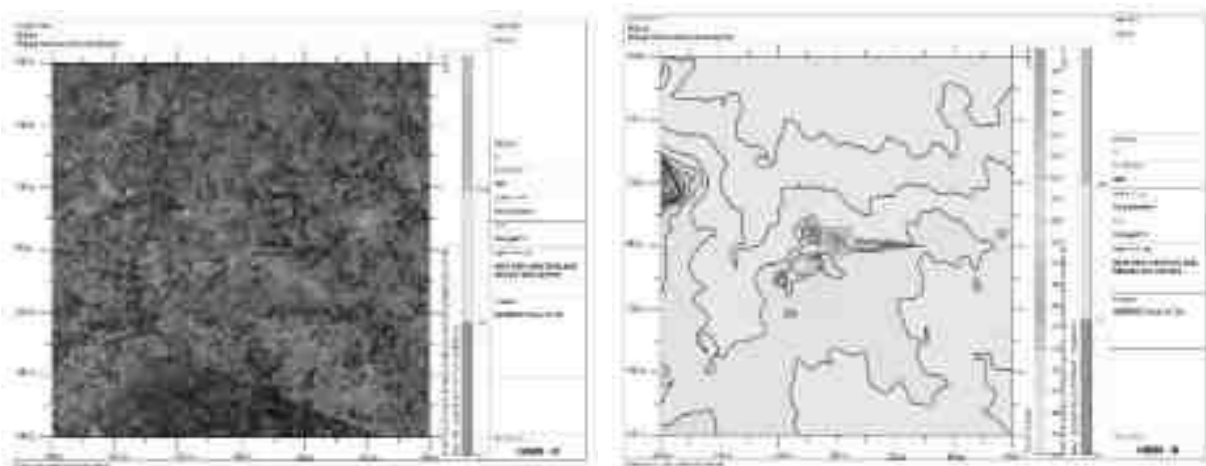


FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST



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 4.3: 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) (5+6)
AAQ1	11°12'0.51"N 76°59'39.01"E	-26	130	45.1	16.80	61.9
AAQ2	11°12'26.87"N 77° 0'7.67"E	-1138	1123	47.0	5.67	52.67
AAQ3	11°10'44.19"N 76°59'22.55"E	-529	-2227	45.6	7.00	52.6
AAQ4	11°10'19.43"N 77° 2'38.39"E	5450	-2999	44.4	0	44.4
AAQ5	11°13'26.14"N 76°57'26.99"E	-4054	2779	45.2	1.12	46.32
AAQ6	11°13'38.24"N 77° 1'43.30"E	-2565	-2204	44.9	14.25	59.15
AAQ7	11°11'53.08"N 76°57'22.51"E	-4192	-104	45.2	11.00	56.2
AAQ8	11°11'46.02"N 77° 1'18.17"E	2999	-318	45.0	16.00	61

TABLE 4.4: 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) (5+6)
AAQ1	11°12'0.51"N 76°59'39.01"E	-26	130	22.9	8.72	31.62
AAQ2	11°12'26.87"N 77° 0'7.67"E	-1138	1123	25.7	2.50	28.2
AAQ3	11°10'44.19"N 76°59'22.55"E	-529	-2227	24.3	3.33	27.63
AAQ4	11°10'19.43"N 77° 2'38.39"E	5450	-2999	24.8	0	24.8
AAQ5	11°13'26.14"N 76°57'26.99"E	-4054	2779	23.5	1.60	25.1
AAQ6	11°13'38.24"N 77° 1'43.30"E	-2565	-2204	23.5	7.10	30.6
AAQ7	11°11'53.08"N 76°57'22.51"E	-4192	-104	23.3	5.45	28.75
AAQ8	11°11'46.02"N 77° 1'18.17"E	2999	-318	24.7	8.16	32.86

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO ₂ (µg/m ³)	Incremental value of SO ₂ due to mining (µg/m ³)	Total SO ₂ (µg/m ³) (5+6)
AAQ1	11°12'0.51"N 76°59'39.01"E	-26	130	6.7	4.40	11.1
AAQ2	11°12'26.87"N 77° 0'7.67"E	-1138	1123	6.8	0.68	7.48
AAQ3	11°10'44.19"N 76°59'22.55"E	-529	-2227	6.8	1.25	8.05
AAQ4	11°10'19.43"N 77° 2'38.39"E	5450	-2999	5.9	0	5.9
AAQ5	11°13'26.14"N 76°57'26.99"E	-4054	2779	7.2	0	7.2
AAQ6	11°13'38.24"N 77° 1'43.30"E	-2565	-2204	6.9	3.69	10.59
AAQ7	11°11'53.08"N 76°57'22.51"E	-4192	-104	6.9	2.36	9.26
AAQ8	11°11'46.02"N 77° 1'18.17"E	2999	-318	6.4	4.00	10.4

TABLE 4.6: INCREMENTAL & RESULTANT GLC OF NO_x

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline NO _x (µg/m ³)	Incremental value of NO _x due to mining (µg/m ³)	Total NO _x (µg/m ³) (5+6)
AAQ1	11°12'0.51"N 76°59'39.01"E	-26	130	24.0	11.66	35.66
AAQ2	11°12'26.87"N 77° 0'7.67"E	-1138	1123	22.5	0	22.5
AAQ3	11°10'44.19"N 76°59'22.55"E	-529	-2227	20.6	0	20.6
AAQ4	11°10'19.43"N 77° 2'38.39"E	5450	-2999	22.4	0	22.4
AAQ5	11°13'26.14"N 76°57'26.99"E	-4054	2779	20.6	0	20.6
AAQ6	11°13'38.24"N 77° 1'43.30"E	-2565	-2204	19.3	6.59	25.89
AAQ7	11°11'53.08"N 76°57'22.51"E	-4192	-104	20.6	2.15	22.75
AAQ8	11°11'46.02"N 77° 1'18.17"E	2999	-318	22.8	9.90	45.6

TABLE 4.7: INCREMENTAL & RESULTANT GLC OF FUGITIVE DUST

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Fugitive ($\mu\text{g}/\text{m}^3$)	Incremental value of Fugitive due to mining ($\mu\text{g}/\text{m}^3$)	Total Fugitive ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	11°12'0.51"N 76°59'39.01"E	-26	130	66.5	102	168.5
AAQ2	11°12'26.87"N 77° 0'7.67"E	-1138	1123	63.13	0	63.13
AAQ3	11°10'44.19"N 76°59'22.55"E	-529	-2227	63.01	0	63.01
AAQ4	11°10'19.43"N 77° 2'38.39"E	5450	-2999	65.85	0	65.85
AAQ5	11°13'26.14"N 76°57'26.99"E	-4054	2779	63.87	0	63.87
AAQ6	11°13'38.24"N 77° 1'43.30"E	-2565	-2204	63.24	0	63.24
AAQ7	11°11'53.08"N 76°57'22.51"E	-4192	-104	64.6	0	64.6
AAQ8	11°11'46.02"N 77° 1'18.17"E	2999	-318	65.99	0	65.99

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 $\mu\text{g}/\text{m}^3$ for PM_{10} , SO_2 & NO_x respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

4.3.4. Common Mitigation

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

Climatic Changes:

- In general, the main findings regarding the potential impacts of climate change are Land Use Type, Energy Use, Water use & Dust emission and Biodiversity & rehabilitation.
- Whereas, this proposed mining activity is restricted to a small scale mining the proposals falls in a cluster situation where the surrounding environment is already subjected to mining activities and based on the past weather data its inferred that there is no much of change in the climate data of the region and the district profile has no records or past history of climate change leading to Droughts and floods.
- The project area's proposed with land use type of patta land for mining with 5 m height bench with 5 m width bench and Pollution Under Control Certified Machineries is proposed for wining of mineral by opencast mechanized mining method and water consumption are proposed with water tankers from nearby areas and the mine pit itself shall act as a rain water harvesting structure and formation of garland drains along the mine lease boundary to divert the surface runoff and collecting the runoff water for greenbelt development and dust suppression activities shall prove beneficial.
- The greenbelt development plan, all along the mine lease boundary @ 1800 Nos of trees, along with the budget allocation for the proposed mitigation measures shall prove beneficial to surrounding environment.
- Therefore, the implementation of proposed mitigation measures for winning of mineral may not have much of impact on the surrounding Climate Change leading Droughts and Floods etc.,

4.4 Noise Environment (Impact & Mitigation Measures)

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.

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

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.

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

4.4.1 Anticipated Impact

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

- Source data
- Receptor data
- Attenuation factor

Source data has been computed taking into account of all the machinery and activities used in the mining process. Same has been listed in Table 4-8.

TABLE 4.8: 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 4.9: PREDICTED NOISE INCREMENTAL VALUES

Location ID	N1	N2	N3	N4	N5	N6	N7	N8
Maximum Monitored Value (Day) dB(A)	43.8	42.9	40	39.3	37.7	39.1	37.3	36.8
Incremental Value dB(A)	60.1	38.5	34.1	24.5	26.5	26.5	27.6	30.60
Total Predicted Noise level dB(A)	60.2	44.2	41.0	39.4	38.0	39.3	37.7	37.70
NAAQ Standards	Industrial Residential		Day Time- 75 dB (A) Day Time- 55 dB (A)		Night Time- 70 dB (A) Night Time- 45 dB (A)			

4.4.2 Mitigation Measures

The following noise mitigation measures are proposed for control of Noise.

- Time intervals for each quarry during blasting.
- Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
- Limiting time exposure of workers to excessive noise.
- Proper and regular maintenance of vehicles, machinery and other equipment's.
- The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipment's.
- Speed of trucks entering or leaving the quarry will be limited to moderate speed to prevent undue noise from empty vehicles.
- Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes (occasionally).
- Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment.
- Provision of Quiet areas, where employees can get relief from workplace noise.
- The development of green belts around the periphery of the quarry site to attenuate noise.
- 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 project area is located 310km NW. The ground vibrations due to the blasting in proposed mine 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

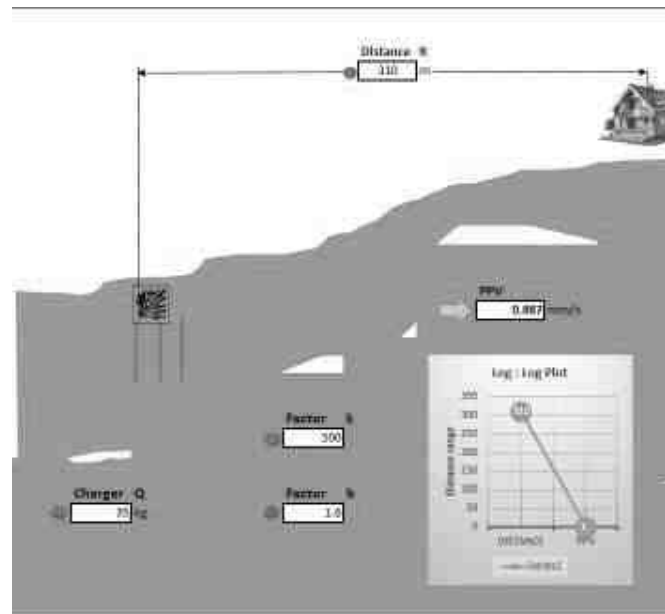
Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

TABLE 4.10: PREDICTED PPV VALUES DUE TO BLASTING

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	35	310	0.887



From the above graph, the Maximum charge per blast of 35Kg 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. It is proposed to carry out blasting not exceeding 2kg of Explosives per one blasting round. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.4.3.1 Mitigation Measures for Proposed Project

- The blasting operations in the cluster Quarry 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 Hz.
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices

4.5 Ecology and Biodiversity

Mining activities generally result in deforestation, land degradation, and water, air, and noise pollution which directly or indirectly affect the faunal and floral status of the mine area. However, the occurrence and magnitude of these impacts are entirely dependent upon the project location, mode of operation, and technology involved. Existing roads will be used; new roads will not be constructed to reduce the impact on flora. Wildlife is not commonly found in the lease area and its immediate environments because of the lack of vegetal cover and surface water.

4.5.1. Anticipated Impact on Flora

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

4.5.1.1. Mitigation Measures

The project site should have land to develop a greenbelt in and around the limits of the mine, along roads, and another vacant area. The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. Although the project will not lead to any tree cutting, it is proposed to improve the greenery of the locality through plantation services. To avoid dust emissions, the mined materials will be covered with tarpaulin during transportation.

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

Table No 4.11 List of plant species proposed for Greenbelt development

S. No	Scientific name	Tamil Name
1	<i>Aegle marmelos</i>	Vilva Maram
2	<i>Albizia lebbeck</i>	Vaagai maram
3	<i>Cassia fistula</i>	Konrai tree
4	<i>Lannea coromandelica</i>	Othiyam
5	<i>Limonia acidissima</i>	Vila maram
6	<i>Syzygium cumini</i>	Naval maram
7	<i>Toona ciliata</i>	Santhana Vembu
8	<i>Ficus hispida</i>	Aththi maram
9	<i>Borassus flabellifer</i>	Panai-maram
Species suitable for abatement of noise and dust pollution		
1	<i>Azadirachta indica</i>	Vembhu maram
2	<i>Ficus religiosa</i>	Arasan maram
3	<i>Ficus hispida</i>	Aththi maram
4	<i>Bombax ceiba</i>	Mul Elavu
5	<i>Syzygium cumini</i>	Naval maram
6	<i>Tamarindus indica</i>	Puliyamaram
7	<i>Mangifera indica</i>	Manga maram
8	<i>Harwickia binata</i>	Anjan maram

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

4.5.2. Anticipated Impact on Fauna

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

- Green belt development will be carried out which will help in minimizing adverse impact on the flora found in the area.

4.5.2.1. Mitigation Measures

- A suitable plan for the conservation of Schedule-I Species have been prepared and the necessary fund for implementation for the same will be made.
- All the preventive measures will be taken for the growth & development of fauna.
- Creating and developing awareness for nature and wildlife in the adjoining villages.
- The workers shall be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 pm.
- Topsoil has a large number of seeds of native plant species in the mining area.
- Checks and controls the movement of vehicles in and out of the mine.
- Undertaking mitigative measures for a conducive environment for the flora and fauna in consultation with Forest Department.
- A dust suppression system will be installed within the mine and periphery of the mine.

TABLE 4.12: GREENBELT DEVELOPMENT PLAN

PROPOSAL FOR P1 – M/s. Sri Rajalakshmi Samappa				
Year	No. of trees proposed to be planted	Survial %	Area to be planted	Name of the species
I	It is proposed to plant 1800 Nos of trees in the 1 st year	80 %	7.5m Safety barrier, Panchayat Road and nearby village roads	Neem, Pongamia, Pinnata, Ashoka etc.,

TABLE 4.13: BUDGET FOR GREEBELT DEVELOPMENT PLAN

ACTIVITY	YEAR				RATE	COST (Rs.)
	I					
Plantation under safety zone	Nos.	900			@100 Rs	90,000/-
	Cost	90,000				
Plantation in the approach road and nearby village roads	Nos.	900			Per sapling	90,000/-
	Cost	90,000				
Wire Fencing (In Mtrs) 680Mtrs	2,04,000	-	-	-	@300 Rs Per Meter	2,04,000/-
Garland drain (In Mtrs) 560 Mtrs	1,66,000	-	-	-	@300 Rs Per Meter	1,66,000/-
TOTAL						5,50,000/-

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. Impact on Aquatic Biodiversity

Mining activities will not disturb the aquatic ecology as there is no effluent discharge proposed from the Rough Stone and Gravel quarry. There is no natural perennial surface water body within the mine lease area, like wetlands, rivers streams, lakes, and farmer sites. Belladhi Lake is located about 6.5km on the northwest side. There is no impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. Aquatic biodiversity is observed in the study area.

4.5.4. Impacts on Bird Fauna:

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

4.5.5. Impacts on wildlife

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

4.5.6. Impact Assessment on Biological Environment

This chapter highlights the various impacts on ecology and biodiversity due to mining activity. The major adverse impacts due to pre-mining and mining phases are loss of habitat, biodiversity, rare flora and fauna, fisheries and other aquatic life, migration of wildlife, and overall disruption of the ecology of the area. During the post-mining phase after land restoration, ecology may effectively improve. A detail of impact and assessments was mentioned in

Details of anticipated issues for the next operation period were summarized with possible impacts and mitigation measures to meet the problem (Table No.4.14.).

Table No: 4.14. Anticipated impact of Ecology and Biodiversity in Bilichi Village, Rough stone and Gravel quarry

S. No	Aspect Description	Likely Impacts on Ecology and Biodiversity (EB)	Impact Consequence Probability Description Justification	Significance	Mitigation Measures
Pre-mining phase					
1	Uprooting of vegetation of lease area	Site specific loss of common floral diversity (Direct impact)	The site possesses Common floral (not tree) species. Clearance of these species will not result in loss of flora.	Less severe	No immediate action is required. However, a Greenbelt /plantation will be

		Site specific loss of associated faunal diversity (Partial impact)	The site supports only common species, which use a wide variety of habitats of the buffer zone reserve forest area. So, there is no threat of Faunal diversity		developed on the project site and on the periphery of the project boundary, which will improve the floral and faunal diversity of the project area.
		Loss of Habitat (Direct impact)	Site does not for unique / critical habitat structure for unique flora or fauna.		
Mining phase					
2	Excavation of mineral using machine and labours, transportation Activities will Generate noise.	Site-specific disturbance to normal faunal movements at the site due to noise. (Partial impact)	Site does not form unique / critical habitat structure for unique flora or fauna.	Less severe	-Mining activity should not be operated after 5PM. -Excavation of dump and transportation work should stop before 7PM.
3	Vehicular movement for transportation of materials will result in the generation of dust (Particulate matter) due to haul roads and emission of Sulphur Dioxide, Nitrogen Dioxide, Carbon monoxide, 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 is far from the core area.	Less severe	All vehicles will be certified for appropriate Emission levels. More plantations have been suggested Upgrade the vehicles with alternative fuels such biodiesel, methanol, and biofuel around the mining area.

Table No. 4.15. Overall Ecological impact assessments of Bilichi Village, Rough Stone and Gravel quarry, Coimbatore District, Tamil Nadu.

S.No	Attributes	Assessment
1	Impact of mining activity on agricultural land nearby the proposed project site.	Agricultural land is located away from the proposed project site. There are no impacts on the agricultural land & Horticulture. Kindly refer to the conclusion.
	Activities of the project affect the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in the mining lease site. The fauna sighted mostly migrated from the buffer area.
2	Located near an area populated by rare or endangered species	No Endangered, Critically Endangered, or vulnerable species were sighted in the core mining lease area.

3	Proximity to national park/wildlife sanctuary/reserve forest /mangroves/coastline/estuary/sea	There is no National Park/ Wildlife Sanctuary/ Reserve Forest/ Mangroves and Eco-Sensitive zone/ Critically polluted area/ HACA/CRZ located within 10 km radius of the area.
4	The proposed project restricts access to waterholes for wildlife	'No '
5	Proposed mining project impact surface water quality that also provides water to wildlife	'No 'scheduled or threatened wildlife animals are sighted regularly core in the core area.
6	Proposed mining project increase siltation that would affect nearby biodiversity areas.	Surface runoff management such as drains is constructed properly so there will be no siltation effect in the nearby mining area.
7	Risk of fall/slip or cause death to wild animals due to project activities.	'No'
8	The project release effluents into a water body that also supplies water to a wildlife.	No water body near to core zone so the chances of water becoming polluted is low.
9	Mining projects affect the forest-based livelihood/ any specific forest product on which local livelihood depended.	'No'
10	The project likely to affect migration routes.	'No 'migration route was observed during the monitoring period.
11	The project is likely to affect the flora of an area, which have medicinal value	'No'
12	Forestland is to be diverted, has carbon high sequestration.	'No 'There was no forest land diverted.
13	The project is likely to affect wetlands, Fish breeding grounds, and marine ecology.	'No'. Wetland was not present in the near core Mining lease area. No breeding and nesting ground is present in the core mining area.

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

4.6 Socio Economic

4.6.1 Construction Phase

Anticipated Impacts:

- ♣ No. of people will get employment during the construction stage resulting in the ancillary development and growth. Nearby Local people will be given preference for employment on the basis of their skill and experience.
- ♣ Further due to proposed project, influx of working community will also generate an indirect employment through development of nearby market/ shops, trade centers, activities, transportation etc.
- ♣ Population influx during the construction phase can introduce various water and vector borne diseases which can lead to various unhygienic health problems in the area by disturbing the existing sanitation infrastructure.

- ♣ Rapid diverse population influx at the project site can create unusual behavioural activity such as worker-community conflicts, increase violence such as theft/stabbing, and increased consumption of drugs/alcohol within the area.
- ♣ Impacts on the health of nearby villagers can be envisaged due to the transportation activities leading to short term exposure of fugitive dust, resulting in various acute diseases such as increased eye irritation, nausea, headache etc.

Mitigation measures:

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

4.6.2 Operation Phase:

Anticipated Impacts:

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

Mitigation Measures:

- ♣ In order to mitigate the long-term health impacts, efficient Air Pollution Control Equipment (APCE) like Bag House / Bag Filter / ESP will be installed at all major stacks to keep the emissions within the permissible limits. To reduce the gaseous emission, Pyro-process itself acts as a long SO₂ scrubber and De - NO_x system will be installed for fuel burning along with calciner for low NO_x formation. To reduce fugitive emission from vehicles and machineries will be regularly monitored and maintained.
- ♣ For emergency, proposed to develop an occupational health center for its employees and nearby villagers.

4.6.3 Impact Evaluation:

Table 4.6.1 Impact Evaluation Impact evaluation is given in table below.

Impact Evaluation Element	Impact on socio economics due to the applied for rough stone and Gravel quarry over an extent of 3.00.36 ha of Patta lands in S.F.Nos. 1118/1, Bilichi Village, Coimbatore North Taluk, Coimbatore District,
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	Tamil Nadu State.			
Potential Effect/ Concern	Proposed project will provide direct & indirect employment opportunities to the local residents, which will help to increase their earning and better living standard as well as further up-liftment of socio-economic status of the area.			
Characteristics of Impacts				
Nature	Positive		Negative	Neutral
	✓			
Type	Direct	Indirect	Cumulative	
			✓	
Extent	Project area	Local	Zonal	Regional
	✓			
Duration	Short time		Long term	
			✓	
Intensity	Low		Medium	High
			✓	
Frequency	Remote (R)	Occasional (O)	Periodic (P)	Continuous (C)
			✓	
Significance of Impact				
Significance	Insignificant	Minor	Moderate	Major
			✓	

4.6.4 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.
- No villages in the proposed mineral transportation route.
- Mineral loaded Vehicles will not allow during school hours (Morning 8 AM to 10 AM & Evening 4.30PM to 5.30PM).

4.7 Occupational Health and Safety

Occupational health and safety hazards occur during the operational phase of mining and primarily include the following:

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

4.7.1 Respiratory Hazards

Long-term exposure to silica dust may cause silicosis the following measures are proposed:

- Cabins of excavators and tippers will be enclosed with AC and sound proof
- Use of personal dust masks will be made compulsory

4.7.2 Noise

Workers are likely to get exposed to excessive noise levels during mining activities. The following measures are proposed for implementation

- No employee will be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection
- The use of hearing protection will be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110 dB(A)
- Ear muffs provided will be capable of reducing sound levels at the ear to at least 85 dB(A)
- Periodic medical hearing checks will be performed on workers exposed to high noise levels.

4.7.3 Physical Hazards

The following measures are proposed for control of physical hazards

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

4.7.4 Occupational Health Survey

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

- General physical tests
- Audiometric tests
- Full chest, X-ray, Lung function tests, Spirometric tests
- Periodic medical examination – yearly
- Lung function test – yearly, those who are exposed to dust
- Eye test

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

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

4.8 Mine Waste Management

No waste is anticipated from any of the proposed quarry.

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 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 mining plan. The mine closure is a part of approved mine plan and activities of closure shall be carried out as per the process described in mine closure plan.

CHAPTER – 5: ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 Introduction:

Consideration of alternatives to a project proposal is a requirement of EIA process. This quarry is site specific. The site has been selected based on geological investigation and exploration and from the Existing quarry pits around the project site. Drilling, Blasting, Excavation, Loading & Transportation will be carried out in this quarrying operation.

- This area denotes the indicative of flow pattern of the rock mass in N40⁰E to S40⁰W with dipping SE60⁰.
- Transportation facility for materials & manpower.
- Overall impact on environment and mitigation feasibility.
- Socio – economic background.

Enough infrastructure exists and lesser resources are required to be deployed. Since, any major construction for infrastructure is not required and hence does not affect the environment considerably.

5.1 Factors Behind the Selection of Project Site

Rough Stone and Gravel Quarry Projects at Bilichi Villages is a site specific. The proposed mining lease area has following advantages: -

- The mineral deposit occurs in a non-forest area.
- There is no habitation within the project area; hence no R & R issues exist.
- There is no river, stream, nallah and water bodies within the project areas.
- Availability of skilled, semi-skilled and unskilled workers in this region.
- All the basic amenities such as medical, fire-fighting, 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 – III, there is no major history of landslides, earthquake, subsidence etc., recorded in the past history

5.2 Analysis of Alternative Site

The mineral deposits are site specific in nature; hence, question of seeking alternate site does not arise for this project.

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 and Gravel in the area. The quarry areas fall in the clusters has following advantages –

- As the mineral deposition is homogeneous and batholith formation, therefore opencast method of working out deposit is preferred over underground method
 - The material will be loaded after sprinkling with water with the help of excavators into dumpers / trippers and transported to the needy customers.
 - Blasting and availability of drills along with controlled blasting technology gives desired fragmentation so that the mineral is handled safely and used without secondary blasting.
- Semi skilled labours fit for quarrying operations are easily available around the nearby villages.

5.4 Analysis of Alternative Technology

Open cast mechanized method has been selected for this project. This technology is having least gestation period, economically viable, safest and less labour intensive. The method has inbuilt flexibility for increasing or decreasing the production as per market condition.

CHAPTER – 6: ENVIRONMENTAL MONITORING PROGRAMME

6.0 General

Environmental Monitoring will be taken up for various environmental components as per conditions stipulated in Environmental Clearance Letter issued by MoEF & Consent to Operate issued by the State Pollution Control Board. Monitoring reports will be submitted to regulator as per statutory requirements. The entire monitoring work will be carried out by MoEF & CC / NABL recognized laboratories.

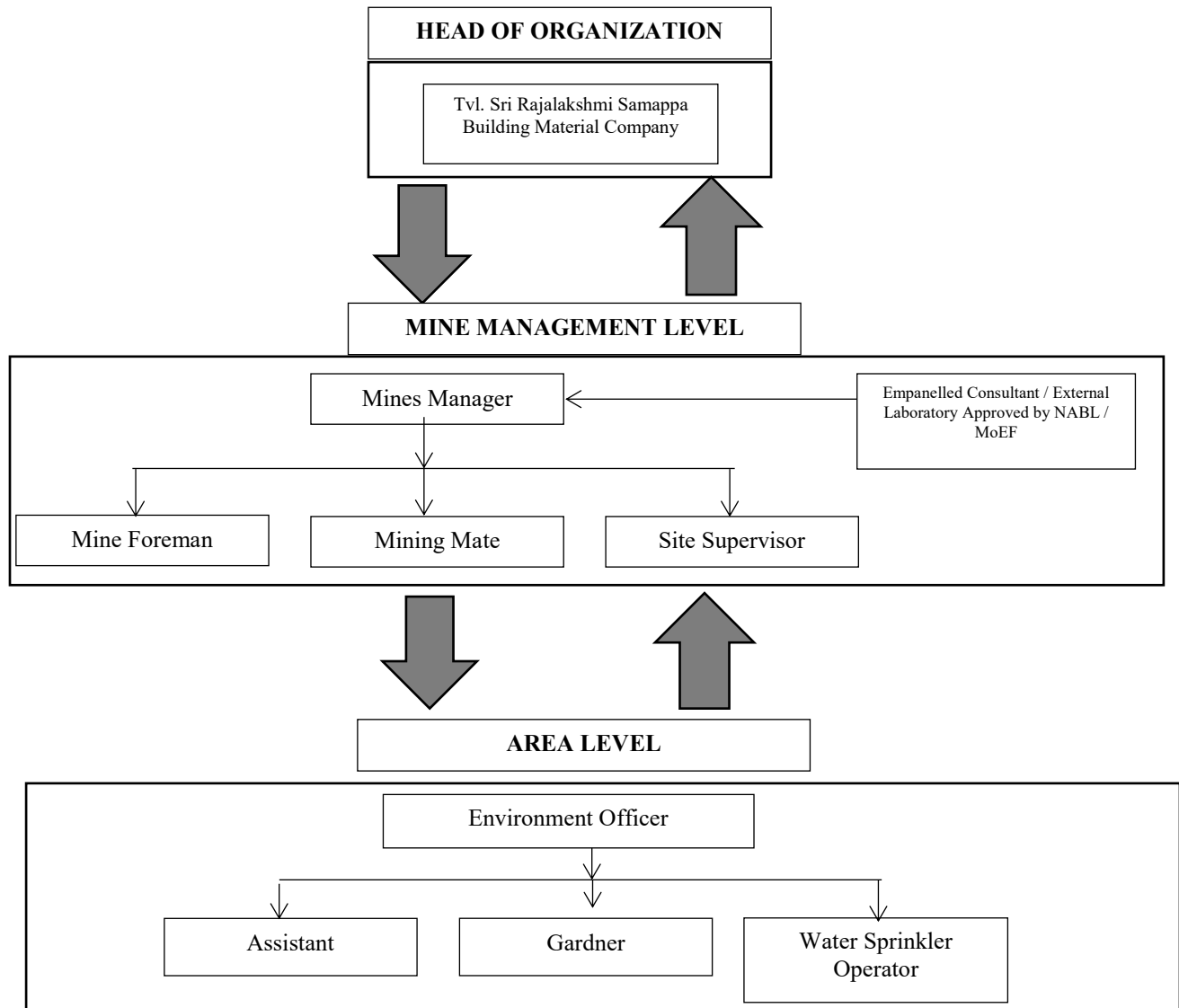
The monitoring and evaluation of environmental parameters indicates potential changes occurring in the environment, which paves way for implementation of rectifying measures wherever required to maintain the status of the natural environment. Evaluation is also a very effective tool to judge the effectiveness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

6.1 Methodology of Monitoring Mechanism

Implementation of EMP and periodic monitoring will be carried out by the proponents and respective quarry owners in the cluster Quarry. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to proposed project; Mine Management Level environmental protection measures like dust suppression, treatment and recycling of waste water, control of noise due to blasting and Ground vibration, maintenance of machinery and vehicles, housekeeping in the mine premises, plantation, implementation of other hand, implementation of area level protection measures like plantation and green Environmental Management Plan and environmental clearance conditions will be monitored by the proponent. On the belt development, environmental quality monitoring etc.,

An environment monitoring cell (EMC) will be constituted at the quarry consisting of following members to monitor the implementation of EMP and other environmental protection measures.

FIGURE 6.1 ENVIRONMENTAL MONITORING CELL



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. 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 monthly, half-yearly and yearly. The half-yearly reports will be 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).

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

Sl No.	Recommendations	Time Period	Schedule
1	Land Environment Control Measures	Before commissioning of the project	Immediately after the commencement of the project
2	Soil Quality Control Measures	Before commissioning of the project	Immediately after the commencement of the project
3	Water Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
4	Air Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
5	Noise Pollution Control Measures	Before commissioning of the project and along with mining operation	Immediately and as project progress
6	Ecological Environment	Phase wise implementation every year along with mine operations	Immediately and as project progress

6.3 Monitoring Schedule and Frequency

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

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

The details of monitoring are detailed in Table 6.2

TABLE 6.2: PROPOSED MONITORING SCHEDULE POST EC

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, PM _{2.5} , PM ₁₀ , SO ₂ and NO _x .
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	-	During blasting Operation	Peak Particle Velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	-	Once in six months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

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

6.4 Environmental Policy of the Proponent

The project proponents in the proposed Quarry are committed to ensure that:

- Protect the environment by control and prevention of pollution and promote green environment.
- To operate the quarry with an objective of no injuries and accidents at the work place and provide a safe work place for our employees, contractors and others who perform their duties.
- Adequate health care will be taken to all the employees and create process to reduce the adverse effect of the operations on Health of the employees.
- Provide safety appliance and continuous training in safety to employees to ensure safe production and achieve the target of zero accidents.
- Develop safe working methods and practices, remove unsafe work conditions and consider all the aspects at the early stages of process development to provide safe working atmosphere.
- Communicate Safety, Health and Environmental Policy to all employees for better understanding and practice.

6.5 Budgetary Provision for Environmental Monitoring Programme

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 total cost for Environmental Monitoring Programme for one proposed quarry for the mining plan period is Rs 3,80,000/-.

TABLE 6.3 ENVIRONMENT MONITORING BUDGET

Parameter	Sl.Nos	Capital Cost	Recurring Cost
Air Quality, Meteorology, Water Quality Hydrology, Soil Quality, Noise Quality Vibration Study, Greenbelt	P1	Rs.3,80,000/-	Rs.76,000/-
TOTAL		Rs. 3,80,000/-	Rs.76,000/-

Source: Approved Mining Plans

6.6 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 proponent with Environmental Monitoring cell and necessary corrective measures will be carried out. 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
- SEIAA, Chennai, Tamil Nadu

Besides the Mines Manager/Agent will submit the periodical reports to –

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

CHAPTER – 7: ADDITIONAL STUDIES

7.0 General

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

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

7.1. Public Consultation:

Application to The Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site or in its close proximity in the district is submitted along with this Draft EIA / EMP Report and the outcome of public hearing proceedings will be detailed in the Final EIA/EMP Report.

7.2 Risk Assessment

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

The cluster 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. 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 mining & allied activities with detailed analysis of causes and control measures for the mine is given in below Table 7.1.

TABLE 7.1 RISK ASSESSMENT & CONTROL MEASURES

S. No	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries	Improper handling and unsafe working practice	<ul style="list-style-type: none"> ▪ All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations; ▪ 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

			<p>and regularly updating the mine plans;</p> <ul style="list-style-type: none"> ▪ Cleaning of mine faces 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& Blasting	<p>Due to improper and unsafe practices</p> <p>Due to high pressure of compressed air, hoses may burst</p> <p>Drill Rod may break</p>	<ul style="list-style-type: none"> ▪ Safe operating procedure established for drilling (SOP) will be strictly followed. ▪ Only trained operators will be deployed. ▪ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places, ▪ Drilling shall not be carried on simultaneously on the benches at places directly one above the other. ▪ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. ▪ All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition. ▪ Operator shall regularly use all the personal protective equipment.
3	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>	<ul style="list-style-type: none"> ▪ The maximum charge per delay and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blast can be conducted safely. ▪ SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation ▪ Shots are fired during daytime only. ▪ All holes charged on any one day shall be fired on the same day. ▪ The danger zone is and will be distinctly demarcated (by means of red flags)
4	Transportation	<p>Potential hazards and unsafe workings contributing to accident and injuries</p> <p>Overloading of material</p>	<ul style="list-style-type: none"> ▪ 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

		While reversal & overtaking of vehicle Operator of truck leaving his cabin when it is loaded.	good condition. <ul style="list-style-type: none"> ▪ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. ▪ Concave mirrors should be kept at all corners ▪ All vehicles should be fitted with reverse horn with one spotter at every tipping point ▪ Loading according to the vehicle capacity ▪ Periodical maintenance of vehicles as per operator manual
5	Natural calamities	Unexpected happenings	<ul style="list-style-type: none"> ▪ Escape Routes will be provided to prevent inundation of storm water ▪ Fire Extinguishers & Sand Buckets
6	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	<ul style="list-style-type: none"> ▪ Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

7.3 Disaster Management Plan

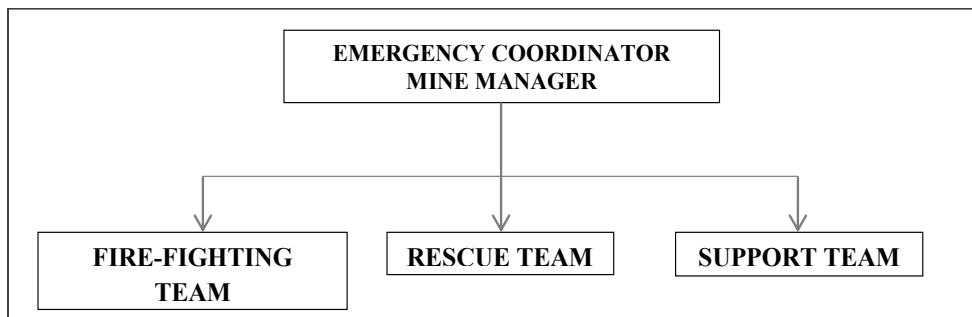
Natural disasters like Earthquake, Land slides has not been recorded in the past history as the terrain is categorized under seismic zone III. The area is far away from the sea hence the disaster due to heavy floods and tsunamis are not anticipated. The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

The objective of the Disaster Management Plan is to make use of the combined resources of the mine and the outside services to achieve the following:

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

In case a disaster takes place, despite preventive actions, disaster management will have to be done in line with the descriptions below. There is an organization proposed for dealing with the emergency situations and the coordination among key personnel and their team has been shown in Fig 7.1.

FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT



The emergency organization shall be headed by emergency coordinator who will be qualified competent mine manager. There would be three teams for taking care of emergency situations – Fire-Fighting Team, Rescue Team and Support Team. The proposed composition of the teams is given in Table 7.2.

TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION

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

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

Roles and responsibilities of emergency team –

(a) Emergency coordinator (EC)

The emergency coordinator shall assume absolute control of site

(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 is proposed at strategic locations within the quarry.

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
- Fire fighting and first-aid provisions in the mines office complex and mining area will be 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 the quarry in phase manner
- Cleaning of mine faces will be carried out regularly
- Provision of high-capacity standby pumps with generator sets with enough quantity of diesel for emergency pumping especially during monsoon.

- A blasting SIREN will be used at the time of blasting for audio signal.
- Checking of blasting area for any un-blasted hole or material.
- Warning notice boards indicating the time of blasting and NOT TO TRESPASS will be displayed at prominent places

7.4 CUMULATIVE IMPACT STUDY

Totally 4 Quarry within the cluster, there are 2 Nos of Proposed quarry, 2 existing Quarry falls in the cluster. The list of Quarry is as below –

TABLE 7.3: LIST OF QUARRY IN THE CLUSTER

PROPOSED QUARRIES				
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	Status
P1	M/s. Sri Rajalakshmi Samappa Building Materials Company, No. 677/1A, Vellamadai, Coimbatore District - 641 110.	1118/1, Bilichi Village, Coimbatore North Taluk	3.00.36	Letter No. SEIAA-TN/F.No.10130/SEAC/ToR-1516/2023 Dated: 07.08.2023
P2	Tvl. Sri Rajalakshmi Samappa Building Materials Company, No. 677/1A, Vellamadai, Coimbatore District - 641 110.	1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk	2.60.5	Public Hearing completed on 01.08.2023
TOTAL			5.60.86	
EXISTING QUARRIES				
CODE	Name of the Proponent and Address	S.F. Nos & Village	Extent in Ha	Lease Period
E-1	Thiru.S.Palanisamy	1119, 1120,1121 & Bilichi	4.62.50	10.11.2020 to 09.11.2025
E-2	N.S.Selvaraj	676/1D & Vellamadai	1.31.0	15.11.2006 to 14.11.2026
TOTAL			5.93.50	
TOTAL CLUSTER EXTENT			10.23.36	

Note:-

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

Name of the Quarry	M/s. Sri Rajalakshmi Samappa Building Material Company Rough Stone & Gravel Quarry		
Toposheet No	58-A/16		
Latitude between	11°11'57.48"N to 11°12'01.32"N		
Longitude between	76°59'46.14"E to 76°59'53.66"E		
Highest Elevation	427m AMSL		
Proposed Depth of Mining as per Tor	45m (3m Weathered Rock +2m Gravel + 40m Rough Stone)		
Geological Resources	Rough Stone in m ³	Gravel m ³	Weathered Rock m ³
	13,50,720	60,032	90,048
Mineable Reserves	Rough Stone in m ³	Gravel m ³	Weathered Rock m ³

	4,86,300	48,672	67,266
Yearwise production for first five years	Rough Stone in m ³	Gravel m ³	Weathered Rock m ³
	2,45,000	48,672	40,293
Yearwise production for Second five years	Rough Stone in m ³	Gravel m ³	Weathered Rock m ³
	2,26,800	-	26,973
Ultimate Pit Dimension	210m (L) x 119m (W) x 50m (D) Bgl		
Water Level in the surrounds area	65 - 60m bgl		
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting		
Topography	The lease applied area is plain terrain. The area has gentle sloping towards Northern side and altitude of the area is 427m (max) above from Mean Sea level. The area is covered by 2m thickness of Gravel and 3m of weathered rock and followed by Massive Charnockite which is clearly inferred from the nearby existing quarry pits. The Water level in the surrounding area is 65m in summer and at 60m in rainy seasons below general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 1213mm.		
Machinery proposed	Jack Hammer	6 Nos	
	Compressor	2 Nos	
	Excavator with bucket and rock breaker	2 Nos	
	Tipper	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	31 Nos		
Project Cost	Rs.1,06,27,000/-		
CER Cost	Rs 5,00,000/-		
Nearby Water Bodies	Water bodies	Distance & Direction	
	Odai	250m West	
	Odai	660m West	
	Belladhi Lake	750mNW	
	Tank	1km NE	
	Odai	1.6km SE	
	Bhavani River	6.8km NE	
Greenbelt Development Plan	Proposed to plant 1800 trees in the 7.5m Safety Zone, Village road and panchayat roads.		

Proposed Water Requirement	1.5 KLD
Nearest Habitation	310m NW

TABLE 7.4: SALIENT FEATURES OF THE PROPOSAL PROJECT –P2

Name of the Quarry	Tvl. Sri Rajalakshmi Samappa Rough Stone & Gravel Quarry	
Toposheet No	58-A/16	
Latitude between	11°11'51.42"N to 11°12'01.24"N	
Longitude between	76°59'38.35"E to 76°59'41.55"E	
Highest Elevation	426m AMSL	
Proposed Depth of Mining	37m (2m Gravel + 35m Rough Stone)	
Geological Resources	Rough Stone in m ³	Gravel m ³
	9,15,950	51,136
Mineable Reserves	Rough Stone in m ³	Gravel m ³
	3,22,380	40,936
Ultimate Pit Dimension	280m (L) x 83m (W) x 37m (2m Gravel + 35m Rough Stone) Bgl	
Existing Pit Dimension (Maximum)	192m (L) x 80m (W) x 1m (D) (Volume 15,360 m ³)	
Existing Gravel Dump Dimension (Maximum)	64 m (L) x 40m (W) x 6 m (H) (Volume 15,360 m ³)	
Water Level in the surrounds area	64 - 59m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Topography	The lease applied area is flat terrain. The area has gentle sloping towards Northern side and altitude of the area is 426m (max) above from Mean Sea level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the outcrop. The Water level in the surrounding area is 64m in summer and at 59m in rainy seasons below general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 689mm.	
Machinery proposed	Jack Hammer	6Nos
	Compressor	2 No
	Excavator with bucket and rock breaker	2 No
	Tipper	4 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	29Nos	

Project Cost	Rs.82,98,000/-	
EMP Cost	Rs. 3,80,000/-	
CER Cost	Rs 5,00,000/-	
Nearby Water Bodies	Water bodies	Distance & Direction
	Odai	780m NE
	Stream	2.7km NW
	Agrahara Samakulam Lake	4.5km SE
	Tank Near Kariampalayam	8.8km NE
Greenbelt Development Plan	Proposed to plant 1560 trees in the 7.5m Safety Zone, Village road and panchayat roads.	
Proposed Water Requirement	3.0 KLD	
Nearest Habitation	420m- West	
SALIENT FEATURES OF PROPOSAL “E1”		
Name of the Mine	P.Siddharthamouli, Rough stone and Gravel quarry	
Land Type	It is a Patta lands	
S.F. No.	1119, 1120/4B & 1121/4B	
Extent	4.62.50 Ha	
Previous quarry details	It is a Patta land, Jointly Registered the S.F.Nos.1120/4B & 1121/4B Name of Applicant (Thiru.P.Siddharthamouli) & Srikanth vide Patta Nos.3134 & 3133 another one S.F.No.1119 is Jointly registered Name of Chandira and Jayalakshmi vide Patta No.3289. The applicant has been consent from Joint Pattadhars. (Refer the Patta copy as Annexure No.IV & Consent Document as Annexure No.VII).	
Existing pit dimension	251m (L) X 154m (W) X 22m (D) Bgl	
Proposed depth of mining	22m bgl	
Geological Reserves	Rough Stone	Gravel
	6,42,164 m ³	92244 m ³
Mineable Reserves	Rough Stone	Gravel
	3,65,156 m ³	70,592 m ³
Proposed production for this five-year mining plan period	Rough Stone	Gravel
	2,82,076 m ³	70,592 m ³
Mining Plan Period / Lease Period	5 years	
Ultimate Pit Dimension	77m (L) X 125m (W) X 47m (D)	
Toposheet No	58-A/16	
Latitude	11°11'51.83"N to 11°12'01.78"N	
Longitude	76°59'44.32"E to 76°59'54.24"E	
Water Level	55 to 50m BGL	
Proposed Water Requirement	5.0 KLD	
Machinery	Jack Hammer	8
	Compressor	2
	Hydraulic Excavator	2
	Tippers	3
Blasting	Usage of Slurry Explosive with MSD detonators	

Manpower Deployment	30 Nos	
Total Project Cost	Project Cost	Rs. 1,06,61,063/-
	EMP Cost	Rs.3,80,000/-
	Total	Rs.1,10,41,063
CER cost	Rs. 5,00,000	
Nearby Water Bodies	Odai - E River -3km -NW Gowsika River- 6.5km SE	

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

Impact on Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.5 & 7.6.

TABLE 7.5 CUMULATIVE PRODUCTION LOAD OF ROUGH STONE IN CLUSTER

Proposed Quarry Project				
Quarry	Production for Ten/five-year plan period considering safety parameters	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day @ 12m ³ per load
P1	4,71,800	47,180	158	13 Trips /Day
P2	3,22,380	64,476	215	18 Trips /Day
List of Existing Quarry				
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 @ 12m ³ per load
E-1	2,82,076	56,415	188	16 Trips /Day
G.Total	10,76,256	1,38,071	561	47 Trips/ Day

TABLE 7.6: CUMULATIVE PRODUCTION OF GRAVEL IN CLUSTER

Proposed Quarry Project				
Quarry	Production for three-year plan period considering safety parameters	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day @ 12m ³ per load
P1	48,672	16,224	54	5 trips per day /
P2	40,936	13,645	45	4 trips per day /
List of Existing Quarry				
Quarry	Production for three-year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day @ 12m ³ per load
E-1	70,592	23,531	79	7 Trips /Day
G.Total	1,60,200	53,400	178	16 Trips/ Day

TABLE 7.6A: CUMULATIVE PRODUCTION OF WEATHERED ROCK IN CLUSTER

Proposed Quarry Project				
Quarry	Production for five-year plan period considering safety parameters	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day @ 12m ³ per load

P1	67,266	13,453	45	4 trips per day /
Total	67,266	13,453	45	4 trips per day /

Based on the above production quantities the emissions due to various activities in all the 1 proposal quarry includes various activities like ground preparation, excavation, handling and transport of mineral. 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 7.7.

TABLE 7.7: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM₁₀ in µg/m³	
Location	AAQ1 – CORE
Background (average)	45.1
Anticipated Incremental due to the proposals	16.80
Resultant	61.9
NAAQ Norms	100 µg/m ³
PM_{2.5} in µg/m³	
Background (average)	22.9
Highest Incremental	8.72
Resultant	31.62
NAAQ Norms	80 µg/m ³
SO₂ in µg/m³	
Location	AAQ1 – CORE
Background (average)	6.7
Anticipated Incremental due to the proposals	4.40
Resultant	11.1
NAAQ Norms	80 µg/m ³
NO_x in µg/m³	
Location	AAQ1 – CORE
Background (average)	24.0
Anticipated Incremental due to the proposals	11.66
Resultant	35.66
NAAQ Norms	80 µg/m ³

Noise Environment –

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. Cumulative Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities. Predictions have been carried out to compute the noise level at various distances around the different Quarry 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 7.8: 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)
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Habitation Near North from the cluster 310m	43.4	48.7	49.6	55
Habitation Near North from the cluster 420m	42.9	47.6	48.9	
Habitation Near East from the cluster 295 m	39.3	50.6	50.9	

Source: Lab Monitoring Data

The incremental noise level is found within the range of 48.7 – 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 near habitations are within permissible limits of Residential Area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.).

Ground Vibrations

Ground vibrations due to mining activities in the all the 4 Mines within cluster are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc., However, the major source of ground vibration from all the 4 mines is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease areas. 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 Cluster is tabulated in Table 7.9

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 7.9: GROUND VIBRATIONS AT MINES

PROPOSAL QUARRY			
Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	35	31	0.887
P2	93	420	1.193
EXISTING QUARRY			
Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
E1	81	295	1.880

Source: PPV Calculation

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 mines shall provide employment and revenue will be created to government

TABLE 7.10: SOCIO ECONOMIC BENEFITS FROM CLUSTER MINES

PROPOSAL QUARRY			
Code	Employment	Project Cost	CER
P1	31	Rs.1,06,27,000 /-	Rs 5,00,000/-
P2	29	Rs.82,98,000/-	Rs 5,00,000/-
EXISTING QUARRY			
Code	Employment	Project Cost	CER
E1	30	Rs. 1,10,41,063/-	Rs 5,00,000/-
Total	30	Rs. 1,10,41,063/-	Rs 5,00,000/-
Grand Total	90	Rs. 2,99,66,063/-	Rs. 15,00,000/-

A total of 60 people will get employment due to this cluster, in this already 30 people employed in the existing Quarry. For the Existing Quarry Corporate Environment Responsibility (CER) allocated as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III, Dated: 01.05.2018.

For the proposed projects it is recommended to spent Rs 5,00,000/- towards CER Activities in the nearby Government School for Renovation or reconstruction of Existing Toilet, Providing Note books to the school library and Plantation in the school ground any other recommendations by the School Head masters.

- In this cluster from the 1 Proposal, it is proposed to spent Rs 5,00,000/- for CER activities

Considering 500 Nos of trees per hectare it is proposed to plant about 1800nos. of saplings in the proposed project for the Mining plan period in safety barrier, Un utilized area and village roads with survival rate 80% (Anticipated). 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 7.11: GREENBELT DEVELOPMENT BENEFITS FROM PROPOSAL MINE

Proposed project				
CODE	No of Trees proposed to be planted	Survival %	Area to be covered	Name of the Species
P1	1800	80	7.5m Safety barrier, Panchayat road and Village roads	Neem, Pongamia, Pinnata, ashoka etc.,
P2	1560	80	7.5m Safety barrier, Panchayat road and Village roads	Neem, Pongamia, Pinnata, ashoka etc.,

It is anticipated that there shall growth of native species of Neem, Pongamia, Pinnata, Causarina, etc., in the Proposal at a rate due to these proposals 1800Trees Planted over a period of 10 Years with Survival Rate of 80%. Besides every individual lease holder will plant Saplings in the School ground as part of CER activities.

7.5 PLASTIC WASTE MANAGEMENT PLAN

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

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 7.12: 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

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.

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 37 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 37 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.

Sediment's 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.

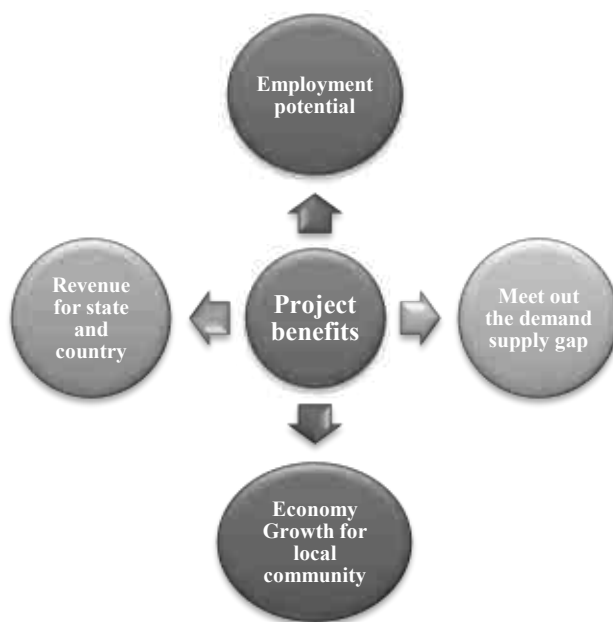
CHAPTER – 8: PROJECT BENEFITS

8.1 General

The Proposed Project for Quarrying Rough Stone and Gravel at Bilichi Village aims to produce 4,71,800 m³ Rough Stone over a period of 10 Years , 67,266 m³ of Weathered Rocks over a period of 5 years & 48,672 m³ of Gravel over a period of 3 Years.

This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits

- Increase in Employment Potential
- Improvement in Socio-Economic Welfare
- Improvement in Physical Infrastructure
- Improvement in Social infrastructure



8.1 Employment Potential

This proposed project falls in the cluster will provide employment opportunities to about 31 persons directly. 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.

8.1 Socio-Economic Welfare Measures Proposed

The impact of mining activity in the area will be more positive than negative 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.

8.1 Improvement in Physical Infrastructure

The proposed project site is located in Bilichi village, Coimbatore North taluk, 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 the cluster quarry projects.

- 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.

8.1 Improvement in Social Infrastructure

The quarry project in the region will have positive impact on the social economic condition of the area by way of providing employment to the local peoples; thereby increasing the per capita income, housing, education, medical and transportation facilities, economic status, health and agriculture.

- Social welfare program like medical camps, educational facilities to the poverty level students, providing water supply from the Quarry during drought seasons will be taken from the project proponent's
- Supplementing Govt. efforts in health monitoring camps, social welfare and various Awareness programs among the rural population.

8.1 Other Tangible Benefits

The proposed quarry project 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 quarry site 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

CORPORATE ENVIRONMENT RESPONSIBILITY

For the existing Quarry Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III, Dated: 01.05.2018.

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

For the proposed projects it is recommended to spend Rs 5, 00,000/- towards CER Activities in the nearby Government School for Renovation or reconstruction of Existing Toilet, Providing Note books to the school library and Plantation in the school ground any other recommendations by the School Head masters.

TABLE 8.1 CER – ACTION PLAN

Code	CER
P1	Rs 5,00,000/-
Total	Rs 5,00,000/-

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

CHAPTER – 9: ENVIRONMENTAL COST BENEFIT ANALYSIS

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

CHAPTER - 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 **M/s. Sri Rajalakshmi Samappa Building Material Company** will –

- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities
- 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 a program to train employees in general environmental issues and individual workplace environmental responsibilities.
- 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 –

Land degradation is one of the major adverse impacts of opencast mining in the form of excavated voids and contamination of soil affects the viability of the soil resource.

Soil contamination then has a number of flow-on effects like, Inhabitation of plant growth, and death of existing plants in contaminated areas and contamination of soil also has potential to impact on a surface water quality and groundwater resources.

TABLE 10.1: PROPOSED CONTROLS FOR LAND ENVIRONMENT

CONTROL	RESPONSIBILITY
Designing vehicle wash-down system so that all washed water is captured and passed through grease and oil separators.	Mines Manager
Re fueling will be carried out in a safe location, away from vehicle movement pathways	Mine Foreman & Mining Mate
Greenbelt development and its maintenance	Environment Officer
Garland drains with catch pits to be provided all around the project area to prevent run off affecting the surrounding lands.	Environment Officer
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
Thick plantation using native flora species will be carried out on the top benches.	Mines Manager
There will be formation of a small surface water body in the mined out area, which can be used for watering the greenbelt at the conceptual stages.	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.3 Soil Management

Top Soil Management –

- There is no top soil within the project area thin layer of soil will be utilized for Greenbelt purpose.

Overburden / Waste and Side Burden Management –

- 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.

TABLE 10.2: PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Garland drains are to be paved around the quarry pit area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface water 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	Environment Officer
keeping records of mitigation of erosion events, to improve on management techniques	Environment Officer
A monitoring map with information including their GPS coordinates, erosion type, intensity, and the extent of the affected area, as well as existing control measures and assessment of their performance	Environment Officer

Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Environment Officer
Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager

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 45m BGL, the water table in the area is 65m – 60m 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 existing and proposed mining activities would result in the increase of particulate matter concentrations due to fugitive dust. Water sprinkling twice per day 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.

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.

Therefore, the proposal for 1800 Nos. of trees to be planted.

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 Management

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and other allied 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 and 50m safety barrier) 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 in-built 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 shall be carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or	Mines Manager

altering the hole inclination	
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.7 *Ground Vibration and Fly Rock Control*

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 1800 nos. of saplings is proposed to be planted for the Mining plan period in safety barrier and nearby village roads 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 FOR 10 YEAR PLAN PERIOD

PROPOSAL FOR P1 – M/s. Sri Rajalakshmi Samappa				
Year	No. of trees proposed to be planted	Survial %	Area to be planted	Name of the species
1	It is proposed to plant 1800 Nos of trees in the 1 st year	80 %	7.5m Safety barrier, Panchayat road and nearby village roads	Neem, Pongamia, Pinnata, ashoka 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.	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 Quarry are fugitive dust and noise. Safety of employees during quarrying operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

10.9.1 Medical Surveillance and Examinations –

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

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

- General Physical Examination and Blood Pressure
- X-ray Chest and ECG
- Sputum test
- 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 – P1

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	30036	30036
	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 -6 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	60072
	Installing wheel wash system near gate of quarry	Installation + Maintenance +	50000	20000

		Supervision		
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	1226680
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	30036	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	600720	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 1800 Trees - (900 Inside Lease Area & 900 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)	180000	27000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	270000	27000
	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	82500	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	2783620	0

		implemented in the Project Site		
Implementation of EC, Mining Plan & DGMS Condition	Scientific Study Report	Study report of Hydrogeological, Slope Stability and Vibration	300000	0
	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) - 31 Employees	124000	31000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	31000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	6007.2
	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	150180	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			3314972	2436795.2

Year Wise Break Up	
1st Year	₹ 57,51,767
2nd Year	₹ 25,58,635
3rd Year	₹ 26,86,567
4th Year	₹ 28,20,895
5th Year	₹ 29,61,940
6th Year	₹ 47,67,523
7th Year	₹ 33,48,413
8th Year	₹ 35,15,834
9th Year	₹ 36,91,625
10th Year	₹ 39,58,707
Total	₹ 361 lakhs

In order to implement the environmental protection measures, an amount of Rs.33.14 lakhs as capital cost and recurring cost as Rs. 24.36 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.

CHAPTER – 11: SUMMARY AND CONCLUSIONS

M/s. Sri Rajalakshmi Samappa Building Material Company Rough Stone & Gravel Quarry (Cluster Extent – 10.23.36 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.

A detailed Draft EIA /EMP Report is prepared for public and other stakeholders’ suggestions and the Final EIA /EMP Report will be prepared based on the outcome of Public Consultation and the outcome will be incorporated in the EMP Report.

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 Quarry 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 Dec 2022 to Feb 2023 (Baseline Data Used is as per MoEF & CC Office Memorandum No. J-11013/41/2006-IA-II (I) (Part) Dated 29th August 2017 & MoEF & CC Office Memorandum F.No.IA3-22/10/2022-IA.III [E 177258] Dated: 08.06.2022) 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 Draft EIA report has predicted that the project will comply with all environment standards and legislation after commencement of the project and operational stage mitigation measures are implemented.

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

Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 31 people directly in the one proposed project people.

As discussed, it is safe to say that the one proposed quarry in cluster is 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 M/s. Sri Rajalakshmi Samappa Building Material Company Rough Stone & Gravel Quarry (Extent – 3.00.36 ha).

CHAPTER 12.0: DISCLOSURE OF CONSULTANTS

The Project Proponent –

M/s. Sri Rajalakshmi Samappa Building Material Company Rough Stone & Gravel Quarry (3.00.36 ha) 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.

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

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

Declaration by experts contributing to the EIA/EMP for Rough Stone & Gravel Cluster Quarry over an Extent of 10.23.36 ha in Bilichi Village of Coimbatore North 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:


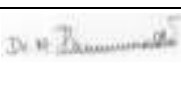

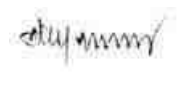

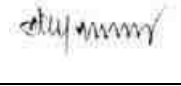






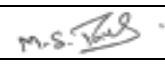





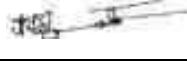

Period of Involvement: **December 2022 to till date**

Associated Team Member with EIA Coordinator:

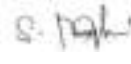



1. **Mr. Viswanathan**
2. **Mr. Santhoshkumar**
3. **Mr. S. Ilavarasan**

FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

Sl. No.	Functional Area	Involvement	Name of the Expert/s	Signature
1	AP	<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

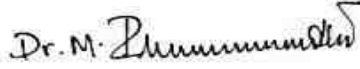
Sl.No.	Name	Functional Area	Involvement	Signature
1	Mr. S. Nagamani	AP; GEO; AQ	<ul style="list-style-type: none"> Site Visit with FAE Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures Provide inputs on Geological Aspects Analyse & provide inputs and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

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

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, Dr. M. Ifthikhar Ahmed, Managing Partner, Geo Exploration and Mining Solutions, hereby, confirm that the above-mentioned Functional Area Experts and Team Members prepared the EIA/EMP for Rough Stone & Gravel Quarry over an Extent of 10.23.36 ha in Bilichi Village of Coimbatore North 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: 20.2.2023

Validity:

August 06, 2025

ANNEXURE

Tvl. SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY ROUGH STONE & GRAVEL QUARRY

Bilichi Village, Coimbatore North Taluk, Coimbatore District

EXTENT =3.00.36 ha

ToR obtained

Letter No. SEIAA- TN/F.No.10130/SEAC/ToR-1516/2023 Dated:
07.08.2023

Project Proponent

**Tvl. Sri Rajalakshmi Samappa
Building Materials Company,
No. 677/1A,
Vellamadai,Annoor Taluk,
Coimbatore District - 641 110.**

LIST OF ANNEXURES

Annexure No	DESCRIPTION	PAGE NO
P1 Tvl. Sri Rajalakshmi Samappa Building Materials Company,	COPY OF TERMS OF REFERENCE	1A - 23A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	24A - 25A
	COPY OF MINING PLAN APPROVED LETTER	26A - 27A
	COPY OF APPROVED MINING PLAN WITH PLATES	28A - 107A
	COPY OF ADDITIONAL DOCUUMENT	108A - 140A
P2 Tvl. Sri Rajalakshmi Samappa Building Materials Company	COPY OF MINING PLAN APPROVED LETTER	141A – 142A
E1 - Thiru.S.Palanisamy	COPY OF ENVIRONMENTAL CLEARANCE	143A – 159A
	COPY OF BASE LINE MONITORING DATA	160A - 203A
	COPY OF NABET CERTIFICATE	204A



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.10130/SEAC/ToR-1516/2023 Dated:07.08.2023.

To

M/s. Sri Rajalakshmi Samappa Building Materials Company
No: 677/1A, Vellamadai,
Annoor Taluk,
Coimbatore District- 641110

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with public Hearing (ToR) for the Proposed Rough stone & Gravel Quarry over an extent of 3.00.36 Ha at SF.No. 1118/1 of Bilichi Village, Coimbatore North Taluk, Coimbatore District, Tamil Nadu by M/s. Sri Rajalakshmi Samappa Building Materials Company - 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/433574/2023, dated:16.06.2023.
 2. Your application submitted for Terms of Reference dated:19.06.2023.
 4. Minutes of the 394th SEAC meeting held on 21.07.2023.
 5. Minutes of the 644th SEIAA meeting held on 07.08.2023.

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

The proponent, M/s. Sri Rajalakshmi Samappa Building Materials Company has submitted application for Terms of Reference (ToR) in Form-I, Pre- Feasibility report for Proposed Rough stone & Gravel Quarry over an extent of 3.00.36 Ha at SF.No. 1118/1 of Bilichi Village, Coimbatore North Taluk, Coimbatore District, Tamil Nadu.


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Discussion by SEAC and the Remarks:-

Proposed Rough stone & Gravel Quarry over an extent of 3.00.36 Ha at SF.No. 1118/1 of Bilichi Village, Coimbatore North Taluk, Coimbatore District, Tamil Nadu by M/s. Sri Rajalakshmi Samappa Building Materials Company - For Terms of Reference.

(SIA/TN/MIN/433574/2023, Dt. 16.06.2023)

The proposal was placed in the 394th SEAC Meeting held on 21.07.2023. The details of the project furnished by the proponent are given on the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, M/s. Sri Rajalakshmi Samappa Building Materials Company has applied for Terms of Reference for the Proposed Rough stone & Gravel Quarry over an extent of 3.00.36Ha at SF.No. 1118/1 of Bilichi Village, Coimbatore North Taluk, Coimbatore District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) " Mining of mineral of the Schedule to the EIA Notification, 2006.
3. As per the mining plan the lease period is for 10 years. The mining plan is for the period of ten years & the production should not exceed 4,86,300m³ of rough stone, 67,266m³ of Weathered rock & 48,672m³ of Gravel with an ultimate depth of mining is 50m BGL. The annual peak production is 58,750m³ of rough stone, 16,983m³ of Weathered rock & 18,954m³ of Gravel.

Based on the presentation made by the proponent, **SEAC decided to recommend for grant of Terms of Reference (TOR) with Public Hearing**, subject to the following TORs, in addition to 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 furnish ownership details of all survey numbers in EIA report.
2. The PP shall submit the 'Action Plan' on the issues raised during the Public Hearing with budgetary provisions for the same.
3. The PP shall submit the controlled blasting measures for reducing the impacts due to the blasting operation in the proposed quarries within 1 km of the proposed quarry.
4. The PP shall submit a 'Conceptual Mining Plan' indicating the accessible ramp from the surface to the pit bottom keeping the benches intact for the dimension as stipulated in the Approved Mining Plan.
5. The PP shall submit the nature of buildings/structures, occupants and their profession, etc


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2A

located within 500 m radius of the proposed quarry.

Annexure I

1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:
 - (i) Original pit dimension
 - (ii) Quantity achieved Vs EC Approved Quantity
 - (iii) Balance Quantity as per Mineable Reserve calculated.
 - (iv) Mined out Depth as on date Vs EC Permitted depth
 - (v) Details of illegal/illicit mining
 - (vi) Violation in the quarry during the past working.
 - (vii) Quantity of material mined out outside the mine lease area
 - (viii) Condition of Safety zone/benches
 - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
3. The 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 shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches

to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.

8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
9. 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.
10. 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.
11. 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.
12. 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,
13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
14. Quantity of minerals mined out.
 - Highest production achieved in any one year.
 - Detail of approved depth of mining.
 - Actual depth of the mining achieved earlier.
 - Name of the person already mined in that leases area.
 - If EC and CTO already obtained, the copy of the same shall be submitted.


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- Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
15. 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).
 16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
 17. 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.
 18. 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.
 19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
 20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
 21. 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.
 22. 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 &


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- health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
 24. 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.
 25. 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.
 26. 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.
 27. 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.
 28. Impact on local transport infrastructure due to the Project should be indicated.
 29. 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.
 30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
 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


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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.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
 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 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.


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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.
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.

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	மஞ்சளடி ஆனைக்கட்டிமரம்
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usai	உசை
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathi	ஆத்தி
7	<i>Bauhinia tomentosa</i>	Iruvathu	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமர
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>	Punnai	புன்னை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon sweetonia</i>	Purasamaram	புரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவுளி
18	<i>Crateva adansonii</i>	Mavalingum	மாவிளங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உவா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சீறு உவா
21	<i>Diospyro sebemum</i>	Karimgali	கருங்காலை
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகைமர
23	<i>Ficus amplissima</i>	Kalltchi	கல் இச்சி
24	<i>Hibiscus tiliaceus</i>	Aatrupoovarasu	ஆற்றுப்பூவரசு
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயா மரம், ஆயில்
27	<i>Lansea coromandelica</i>	Odhuan	ஒதுவம்
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	வில்லா மரம்
31	<i>Litsea glutinos</i>	Pizampattai	பிழம்பட்டை
32	<i>Madhuca longifolia</i>	Iluppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பதாலை
34	<i>Mimusops denzi</i>	Magizhamaram	மாகிழமரம்
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>	Munnai	முள்ளை
41	<i>Premna serratifolia</i>	Narumunnai	நறு முள்ளை
42	<i>Premna tomentosa</i>	Malipoovarasu	மலை பூவரசு
43	<i>Prosopis cinerea</i>	Vanni maram	வண்ணி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வேண்டாங்குடி
46	<i>Pterospermum xylocarpum</i>	Polavu	பூவடி
47	<i>Puthranjiva roxburghii</i>	Karipala	கரிபலா
48	<i>Salvadora persica</i>	Ugaa Maram	உகா மரம்
49	<i>Sapindus emarginatus</i>	Manipungan, Soapukai	மணிப்புங்கல் சோப்புக்காய்
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Strobilus asper</i>	Piray maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yetti	எட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தாள் கொட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தாண்டரி
56	<i>Terminalia arjuna</i>	Ven marudhu	வேண் மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சந்தாள் வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsuratrifoliata</i>	valsura	வால்சுரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பாலை
61	<i>Pithecolobium dulce</i>	Kodukkapuli	கொடுக்காய்ப்பழி

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 644th Authority meeting held on 07.08.2023. The authority noted that this proposal was placed for appraisal in 394th meeting of SEAC held on 21.07.2023, the committee has furnished its recommendations for granting ToR with Public hearing subject to the conditions stated therein. 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, in addition to the following conditions & normal conditions in '**Annexure B**' of this minute.

1. Considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining the depth of mining is restricted from 50m to 45m and consequently the revised quantity shall be spelt out in the 'modified Production and Development Plan' to be submitted during the EIA appraisal.

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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, odaí, vaari, canal, channel, river, lake pond, tank etc.

40. 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 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.


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A. STANDARD TERMS OF REFERENCE

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


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


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Committee of National Board of Wildlife and copy furnished.

- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 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, if any, occupational health impacts besides other impacts specific to the proposed Project.


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- 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-11013/41/2006-1A. 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:-

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.


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14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.


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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.


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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.



From

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

To

M/s.Sri Rajalakshmi Samappa
Building Materials Company,
677/1, Vellamadai,
Annur,
Coimbatore.

Rc.No.312/Mines/2022 Dated: 17.04.2023

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District – Coimbatore North Taluk – Bilichi Village – Survey No.1118/1 - over an extent of 3.00.36 hectares of patta land - Application preferred by M/s.Sri Rajalakshmi Samappa Building Materials Company 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.312/Mines/2022, Dated: 03.04.2023.
2. Tvl. Sri Blue Metals, Coimbatore letter dated: 10.04.2023.

I invite kind attention to the reference cited wherein M/s.Sri Rajalakshmi Samappa Building Materials Company has been issued precise area for the grant of Rough Stone and gravel quarry lease over an extent of 3.00.36 hectares of patta land in Survey No.1118/1 of Bilichi Village, Coimbatore North Taluk, Coimbatore District.

In the reference 2nd cited of M/s.Sri Rajalakshmi Samappa Building Materials Company 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.Palanisamy	Bilichi 1119, 1120/4B, 1121/4B	4.62.5	10.11.2020 to 09.11.2025	

2.	N.S.Selvaraj G.O.(3D) No.66 Industries (MMB-II) Dept. dated : 25/10/2006. R.C.No.25/2006/X1, Dt:15.11.2006	676/1D Veilamadai	1.31.0	15.11.2006 to 14.11.2026	Non Operati on
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ii) Expired Quarries

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

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 Rajalakshmi Samappa Building Materials Company	Bilichi 1118/1	3.00.36	Subject area Precise area communicated
2	M/s.Sri Rajalakshmi Samappa Building Materials Company	Bilichi 1120/2 & 1121/2	2.60.50	Pending with SEIAA

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
M/s.Sri Rajalakshmi Samappa
Building Materials Company,
677/1, Vellamadai,
Annur,
Coimbatore.

Rc.No.312/Mines/2022 Dated: 17.04.2023

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District – Coimbatore North Taluk – Bilichi Village - Survey No.1118/1 - over an extent of 3.00.36 hectares of patta land - Application preferred by M/s.Sri Rajalakshmi Samappa Building Materials Company 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 M/s.Sri Rajalakshmi Samappa Building Materials Company, Coimbatore.
2. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.312/Mines/2022, Dated: 03.04.2023
3. Mining Plan submitted by M/s.Sri Rajalakshmi Samappa Building Materials Company dated: 10.04.2023.

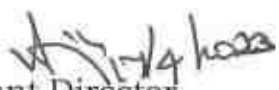
In response to the precise area communicated by the Assistant Director of Geology and Mining, Coimbatore the applicant M/s.Sri Rajalakshmi Samappa Building Materials Company has submitted three copies of mining plan vide reference 3rd cited for the grant of Rough stone and gravel quarry lease over an extent of 3.00.36 hectares of patta land in Survey No.1118/1 of Bilichi Village, Coimbatore North Taluk, Coimbatore District.

2. The mining plan submitted for the grant of Rough stone and gravel quarry lease over an extent of 3.00.36 hectares of patta land in Survey No.1118/1 of Bilichi Village, Coimbatore North, 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.312/Mines/2022, Dated: 03.04.2023 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 south 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.


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

Copy submitted to:

The Commissioner of Geology and Mining, Chennai-32.

7 APR 2023

**MINING PLAN AND PROGRESSIVE QUARRY
CLOSURE PLAN FOR BILICHI ROUGH STONE AND
GRAVEL QUARRY**

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

Patta Land / Lease period = Ten years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 3.00.36 Ha
S.F.NOS. : 1118/1
VILLAGE : BILICHI
TALUK : COIMBATORE NORTH
DISTRICT : COIMBATORE
STATE : TAMIL NADU

FOR

APPLICANT

**M/s. Sri Rajalakshmi Samappa
Building Materials Company,**

No. 677/1, Vellamadai,
Annoor Taluk,
Coimbatore District – 641 110,
Tamil Nadu State.

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



M/s. Sri Rajalakshmi Samappa Building Materials Company,
No. 677/1, Vellamadai,
Annoor Taluk,
Coimbatore District – 641 110,
Tamil Nadu State.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Bilichi Rough Stone and Gravel Quarry lease applied area over an extent of 3.00.36 Hectares of Patta land in S.F.No.1118/1 of Bilichi Village, Coimbatore North Taluk, Coimbatore District, Tamil Nadu State has been prepared by

P. Viswanathan, M.Sc.,
Qualified Person

We request to the Assistant Director, Department of Geology and Mining, Coimbatore District, Tamil Nadu State 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

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

Signature of the Applicant

For M/s. Sri Rajalakshmi Samappa Building Materials Company


S.Gnanasekaran

(Managing Partner & Authorized Person)

Place: Coimbatore

Date: 04.04.2023



M/s. Sri Rajalakshmi Samappa Building Materials Company,
No. 677/1, Vellamadai,
Annoor Taluk,
Coimbatore District – 641 110,
Tamil Nadu State.

DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Bilichi Rough Stone and Gravel Quarry lease applied area over an extent of 3.00.36 Hectares of Patta land in S.F.No.1118/1 of Bilichi Village, Coimbatore North 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 M/s. Sri Rajalakshmi Samappa Building Materials Company

S.Gnanasekaran

(Managing Partner & Authorized Person)

Place: Coimbatore

Date: 04.04.2023



CERTIFICATE

Certified that I am, **P. Viswanathan, M.Sc.**, having an office at No. 17, Advaita Ashram Road, Alagapuram, Salem – 636 004, holding a Post Graduate Degree in Geology (M.Sc. 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 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 Bilichi Rough stone and Gravel Quarry in S.F.No.1118/1 over an extent of 3.00.36.0ha of Patta land in Bilichi Village, Coimbatore North Taluk, Coimbatore District, Tamil Nadu State for **M/s. Sri Rajalakshmi Samappa Building Materials Company**, No.677/1, Vellamadai, Annoor Taluk, Coimbatore District – 641 110, 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: 06.04.2023

17 APR 2023

P. Viswanathan, M.Sc.,

No.17, Advaita Ashram Road,

Alagapuram, Salem – 636 004.

Cell: +91 94422 78601 & 94433 56539

CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure plan for Rough stone and Gravel Quarry lease applied area over an extent of 3.00.36Hectares of Patta land in S.F.No.1118/1 of Bilichi Village, Coimbatore North Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Tvl. Sri Rajalakshmi Samappa Building Materials Company,

No. 677/1A, Vellamadai,

Coimbatore District,

Tamil Nadu State – 641 110.

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 State for such permissions/ exemptions / relaxations and approvals.

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

Signature of the Qualified Person


P. Viswanathan, M.Sc.,

Place: Salem

Date: 06.04.2023

17 APR 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 or Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Bilichi Rough Stone and Gravel Quarry lease applied area over an extent of 3.00.36 Hectares of Patta land in S.F.No.1118/1 of Bilichi Village, Coimbatore North Taluk, Coimbatore District, Tamil Nadu State has been prepared for

M/s. Sri Rajalakshmi Samappa Building Materials Company,

No. 677/1, Vellamadai,e

Annoor Taluk,

Coimbatore District – 641 110,

Tamil Nadu State.

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 State for such permissions / exemptions / relaxations and approvals.

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

Signature of the Qualified Person



P. Viswanathan, M.Sc.,

Place: Salem

Date: 06.04.2023



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LIST OF PLATES



S. No.	Description	Plate No.
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17 APR 2023

**MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN
FOR BILICHI ROUGH STONE AND GRAVEL QUARRY OVER AN
EXTENT OF 3.00.36 Ha IN BILICHI VILLAGE, COIMBATORE NORTH
TALUK, COIMBATORE DISTRICT, TAMIL NADU STATE.**

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

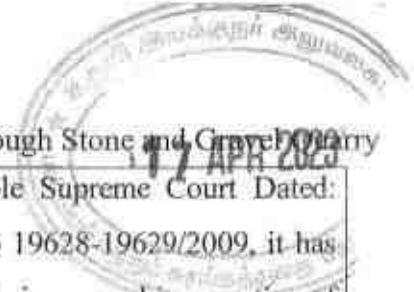
1.0 INTRODUCTION AND EXECUTIVE SUMMARY

The Mining Plan and Environmental Management plan is prepared for M/s. Sri Rajalakshmi Samappa Building Materials Company, registered office at No.677/1, Vellamada, Annoor Taluk, Coimbatore District – 641 110, Tamil Nadu State.

The applicant applied for Rough stone and Gravel quarry over an extent of 3.00.36 Hectares of Patta land in S.F.No.1118/1 of Bilichi Village, Coimbatore North Taluk, Coimbatore District, Tamil Nadu State under Rules 19 (1) and 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.312/Mines/2022, Dated: 03.04.2023** to submit an approved Mining Plan and obtain Environmental Clearance from the SEIAA, Tamil Nadu State with the conditions to provide (Please refer Annexure No. I):

1. No hindrance shall be caused to the Public and Public Property while carrying out quarrying operation.
2. Quarrying operation should be leaving a safety distance of 7.5m from the adjacent Patta lands.
3. The applicant should leaving a safety distance of 50m to the EB line passing on the Southeast side of the 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. Quarrying should not be employed Child labor.



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

In the above circumstances the applicant through his consultant is hereby preparing the Mining Plan, Environmental Management Plan and Progressive Quarry Closure Plan for approval and subsequent submission of Form-I, Form-IM and Pre-feasibility report to obtain environmental clearance from the SEIAA, Tamil Nadu State, 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 - Bilichi
- b. Panchayat Union - Periyanaickenpalayam
- c. The Geological Resources are **13,50,720m³** of Rough stone, **90,048m³** of Weathered Rock and **60,032m³** of Gravel in the entire area.
- d. The Total Mineable Reserves are **4,86,300m³** of Rough stone, **67,266 m³** Weathered Rock and **48,672m³** of Gravel formation in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are **4,86,300m³** of Rough stone (**2,49,375m³** for first five years and **2,36,925m³** for remaining five years period) for ten years, **67,266m³** of Weathered rock for five years and **48,672m³** of Gravel for three years in the entire area.
- f. Total extent of the lease applied area is about 3.00.36Ha.
- g. Topography of the area = The area is exhibiting plain terrain
- h. Proposed Depth of mining = 50m below ground level for 1st five years & ten years
- i. Lease Period = Ten years
- j. It is a fresh lease application.
- k. Method of mining / level of mechanization.
Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.

- l. Type of machineries proposed in the quarrying operation is given below
Excavators attached with rock breaker (Rental Basis).
Jack hammer, Compressor (Diesel drive) (4 Jack Hammer capacity) (Rental Basis).
- m. No trees will be uprooted due to this quarry operation.
- n. The approach road from the main road to quarry is will be constructed and maintained in a good condition for the haulage of quarry materials and machineries.
- o. There is No Export of this Rough stone and Gravel.
- p. Topo sketch covering 10km and 1km radius around the proposed area with markings of habitations, water bodies including streams, rivers, roads, major structure like bridges, wells, archaeological importance and places of worships is marked and enclosed as Plate Nos. IA & IB.
- q. The lease applied area is about 3.00.36Ha bounded by Four corners; the corners are designated as 1-4 clock-wise from the Southeastern corner and the Co – ordinates for all the corners are clearly marked in the Quarry Lease Plan and Surface Plan enclosed as Plate No. II.
- r. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are enclosed as Plate Nos. III-A, III-B & IV.
- s. General conditions will not applicable for the proposed area. The area applied for lease is 10Km away from the,
i) *Interstate Boundary,*
ii) *Protected area under wild life protection ACT, 1972,*
iii) *Critically polluted areas as identified by CPCB,*
iv) *Notified Eco sensitive areas.*
- t. There is no wastage anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- u. Around 31 employees are deploying in the quarrying operation.
- v. Total Cost of the project is about **Rs.1,16,15,000/-**.



w. Infrastructures around the quarry lease applied area:

TABLE-1

Particulars	Location	Approximate aerial distance from lease applied area.
Nearest Post Office	Bilichi	4.0km – SW
Nearest School	Bilichi	4.0km – SW
Nearest Dispensary	Karamadai	6.0km – NW
Nearest Town	Karamadai	6.0km – NW
Nearest Police Station	Karamadai	6.0km – NW
Nearest Govt. Hospital	Karamadai	6.0km – NW
Nearest D.S.P. Office	Periyanaickenpalayam	8.0km – SW
Nearest Railway Station	Karamadai	6.0km – NW
Nearest Airport	Coimbatore	21km – SW
Nearest Seaport	Kochi	162km – SW
District Head Quarters	Coimbatore	21km – SW

2.0 GENERAL INFORMATION

a) Name of the Applicant : M/s. Sri Rajalakshmi Samappa Building Materials
Company

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

Address : No. 677/1, Vellamadai,
Annoor Taluk, Coimbatore District.

Pin Code : 641 110,

Mobile No : 90959 15146 & 98422 04259

Aadhaar No : 4171 8521 8213 (Annexure No. X)

E-mail : srspc2019@gmail.com

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

The applicant is a Partnership Firm, the partnership deed executed on 22.04.2019 with four partners under the Indian Partnership Act, 1932 (Refer Annexure No. VIII). Thiru.S.Gnanasekaran is an Authorized Person for signing the documents on behalf of the firm (Refer Annexure No. IX).

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.312/Mines/2022, Dated:03.04.2023** to submit an approved mining plan and Environmental Clearance from the SEIAA, Tamil Nadu State.

c) Period of permission / lease to be granted:

Ten 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 – 636 004.

Mobile : 94422 78601 & 94433 56539

Telephone No. : 0427- 2431989

Email : infoexploration@gmail.com

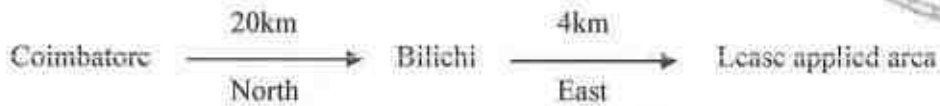
(Please Refer Annexure Nos. XI & XII).



3.0 LOCATION

a) Details of the area with location map:

The lease applied area is located about 21.0km Northeastern of Coimbatore, 6.0km Southeastern side of Karamadai and 4.0km Northeastern side of Bilichi Village.



Location Map of the Lease Applied area

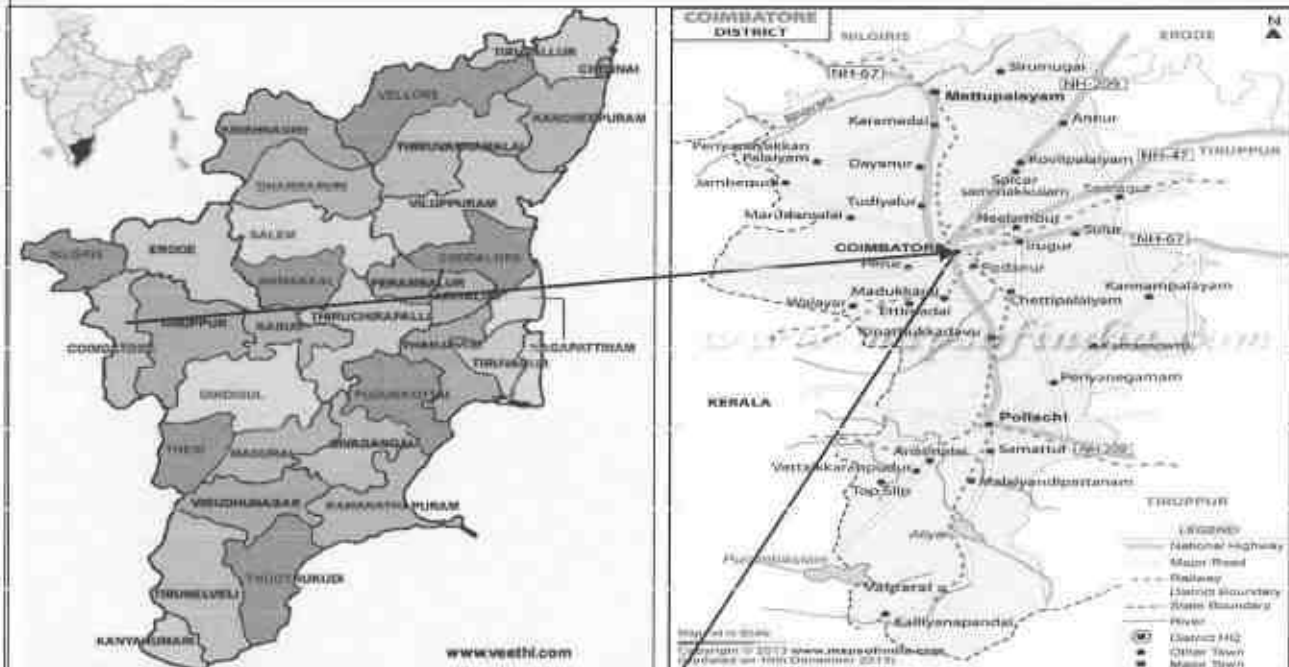


TABLE-2

District	Taluk	Village	S.F. No.	Area in Ha.	Patta No.
Coimbatore	Coimbatore North	Bilichi	1118/1	3.00.36	3333
Total Extent				3.00.36	

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

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

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

It is a Patta land. Jointly Registered in the name of **Tmt. Jayalakshmi & Tmt. Chandira** vide Patta No. 3333. The applicant has obtained consent from the Joint Pattadars. Refer Annexure Nos. IV & VII.

d) Toposheet No. with latitude and longitude:

The lease applied area falls in the Topo sheet No: **58 - A/16** Latitude between: **11°11'57.48"N to 11°12'02.32"N** and Longitude between: **76°59'46.14"E to 76°59'53.66"E** on WGS datum-1984. Please refer the Plate Nos. I to II.

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

The approach (cart track) road is situated on the Southeast side of the area which is connects to the Panchayat Road located at a distance of 390m on the Eastern side from the lease applied area.

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

The approach road from the quarry is constructed, 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 Mettupalayam to Coimbatore which is located about 3.0km on the Northwestern side of the area.

PART – A



4.0 GEOLOGY AND MINERAL RESERVES

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

The lease applied area is exhibiting plain terrain. The area has gentle sloping towards Northern side and altitude of the area is 427m above from Mean Sea Level. The area is covered by 2m thickness of Gravel and 3m Weathered Rock and followed by Massive Charnockite which is clearly inferred from the nearby existing quarry pits.

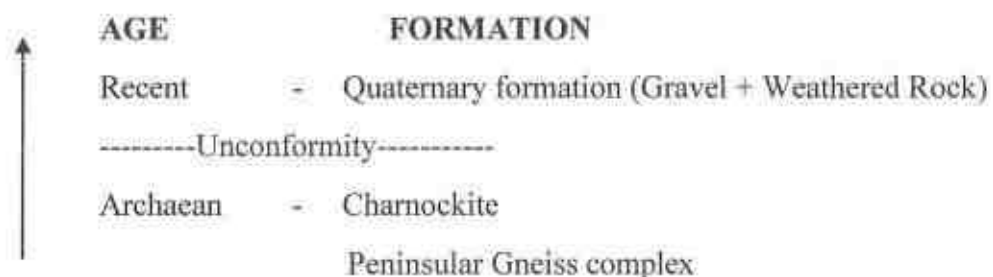
The Water level in the surrounding area is 65m in summer and at 60m in rainy seasons below general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 1213mm.

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 N40°E – S40°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 nearby existing quarry pits.

4.3 Estimation of Reserves:**a) Geological reserves with geological sections on a scale of 1:1000 / 1:2000**

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

Totally two sections have been drawn, one section is along the strike direction as (X-Y) Length wise and other one cross section is drawn perpendicular to strike as (A-B) Width wise 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 the scale of 1:1000 (please refer the Geological plan and sections Plate Nos. III-A & III-B). As the sale of Rough stone are in terms of cubic metres (Volume) only and not in terms of tonnage.

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

The Geological Resources of Rough Stone and Gravel are calculated up to a maximum depth of 50m [2m Gravel + 3m Weathered Rock + 45m Rough stone] below ground level. The total **Geological Resources are calculated by section method**. The total geological resources are given below:

TABLE-3

GEOLOGICAL RESOURCES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Geological Resources of Rough Stone in (m ³)	Weathered Rock in (m ³)	Gravel in (m ³)
XY-AB	I	224	134	2	-	-	60032
	II	224	134	3	-	90048	-
	III	224	134	5	150080	-	-
	IV	224	134	5	150080	-	-
	V	224	134	5	150080	-	-
	VI	224	134	5	150080	-	-
	VII	224	134	5	150080	-	-
	VIII	224	134	5	150080	-	-
	IX	224	134	5	150080	-	-
	X	224	134	5	150080	-	-
	XI	224	134	5	150080	-	-
Total					1350720	90048	60032

The Geological Resources of Gravel : 60,032m³

The Geological Resources of Weathered Rock : 90,048m³

The Geological Resources of Rough Stone : 13,50,720m³

Mineable Reserves:

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

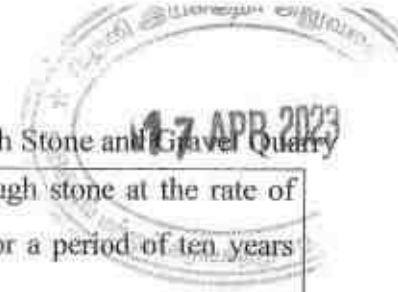
TABLE-4

MINABLE RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Mineable Reserves of Rough Stone in (m ³)	Weathered Rock in (m ³)	Gravel in (m ³)
XY-AB	I	208	117	2	-	-	48672
	II	202	111	3	-	67266	-
	III	196	105	5	102900	-	-
	IV	186	95	5	88350	-	-
	V	176	85	5	74800	-	-
	VI	166	75	5	62250	-	-
	VII	156	65	5	50700	-	-
	VIII	146	55	5	40150	-	-
	IX	136	45	5	30600	-	-
	X	126	35	5	22050	-	-
	XI	116	25	5	14500	-	-
Total					486300	67266	48672

Total Mineable Reserves of Gravel : 48,672m³

Total Mineable Reserves of Weathered Rock : 67,266m³

Total Mineable Recoverable Reserves of Rough stone @ 100% : 4,86,300m³



The mineable reserves have been computed as **4,86,300m³** of Rough stone at the rate of 100% recovery, **67,266m³** of Weathered Rock and **48,672m³** of Gravel for a period of ten years upto a depth of 50m below ground level.

5.0 MINING

5.1. Method of mining (opencast / underground):

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

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

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

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

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

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

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

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

5.3. Proposed Bench Height and Width:

The bench height is proposed 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 and Weathered rock, the Gravel and weathered rock 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 tippers to the needy customers. The Composite year wise Development and production plan and sections indicating the pit lay out and green belt development are shown in Plate Nos. III-A & III-B.

Year wise Development and Production

TABLE-5

FIRST FIVE YEARWISE RESERVES								
Years	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserves of Rough Stone in (m ³)	Weathered Rock in (m ³)	Gravel in (m ³)
I	XY-AB	I	57	117	2	-	-	13338
		II	51	111	3	-	16983	-
		III	45	105	5	23625	-	-
		IV	35	95	5	16625	-	-
		Total					40250	16983
II	XY-AB	I	70	117	2	-	-	16380
		II	43	111	3	-	14319	-
		III	43	105	5	22575	-	-
		IV	43	95	5	20425	-	-
		Total					43000	14319
III	XY-AB	I	81	117	2	-	-	18954
		II	27	111	3	-	8991	-
		III	27	105	5	14175	-	-
		IV	27	95	5	12825	-	-
		V	52	85	5	22100	-	-
		Total					49100	8991
IV	XY-AB	V	43	85	5	18275	-	-
		VI	85	75	5	31875	-	-
		VII	25	65	5	8125	-	-
		Total					58275	-
V	XY-AB	VII	50	65	5	16250	-	-
		VIII	65	55	5	17875	-	-
		IX	55	45	5	12375	-	-
		X	45	35	5	7875	-	-
		XI	35	25	5	4375	-	-
		Total					58750	-
Grand Total						249375	40293	48672

The Recoverable reserves have been computed as **2,49,375m³** of Rough stone, **40,293m³** of Weathered Rock and **48,672m³** of Gravel at 100% recovery upto depth of 50m below ground level (R.L.427.0m to R.L.377.0m) for first five years.

TABLE-5A

NEXT FIVE YEARWISE RESERVES							
Years	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserves of Rough Stone in (m ³)	Weathered Rock in (m ³)
VI		II	41	111	3	-	13653
		III	41	105	5	21525	-
		IV	41	95	5	19475	-
		Total					41000
VII		II	40	111	3	-	13320
		III	40	105	5	21000	-
		IV	40	95	5	19000	-
		Total					40000
VIII	XY-AB	V	47	85	5	19975	-
		VI	47	75	5	17625	-
		VII	47	65	5	15275	-
		Total					52875
IX		V	34	85	5	14450	-
		VI	34	75	5	12750	-
		VII	34	65	5	11050	-
		VIII	46	55	5	12650	-
		Total					50900
X		VIII	35	55	5	9625	-
		IX	81	45	5	18225	-
		X	81	35	5	14175	-
		XI	81	25	5	10125	-
		Total					52150
Grand Total						236925	26973

The Recoverable reserves have been computed as **2,36,925m³** of Rough stone at 100% recovery and **26,973m³** of Weathered Rock upto depth of 48m below ground level (R.L.425.0m to R.L.377.0m) for the remaining five years.

The Recoverable reserves have been computed as **4,86,300m³** of Rough stone at the rate of 100% recovery, **67,266m³** of Weathered Rock and **48,672m³** of Gravel for ten years the upto a depth of 50m 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 lorry load	=	6m ³ (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed in these ten years plan period	=	4,86,300m ³
Hence total Lorry loads per day	=	4,86,300m ³ /6m ³
	=	81050 Lorry loads
	=	81050/10 years
	=	8105/300 days
Rough Stone	=	27 Lorry loads per day
Total quantity to be removed in these first five years plan period	=	67,266m³
Hence total Lorry loads per day	=	67,266m³/6m³
	=	11211 Lorry loads
	=	11211/5 years
	=	2242/300 days
Weathered Rock	=	7 Lorry loads per day
Total quantity to be removed in these first three years plan period	=	48,672m³
Hence total Lorry loads per day	=	48,672m³/6m³
	=	8112 Lorry loads
	=	8112/3 years
	=	2704/300 days
Gravel	=	9 Lorry loads per day

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

5.5. Machineries to be used:

For Mining:

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

TABLE-6

I. DRILLING MACHINE:

S. No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack-Hammer	6	32	1.2m to 2.0m	Compressed air
2	Compressor	2	-	400 psi	Diesel Drive

II. EXCAVATION & LOADING EQUIPMENT:

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

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

S. No.	Type	Nos	Capacity	Motive Power
1	Tippers	4	20 tonnes	Diesel Drive

5.6. Disposal of Overburden/Waste:

The overburden in the form of Gravel, the Gravel will be directly loaded into tippers for the filling and levelling of low-lying areas. The excavated rough stone (100%) will be directly loaded into tippers to the needy customers. There is no Waste anticipated during this plan period hence, disposal of waste does not arise.

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

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

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

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

TABLE-7

First Five Years Proposed Pit Dimension	Length in m (Max)	Width in m (Max)	Depth in m (Max)
	210	119	50m below ground level
Ultimate Pit Dimension	Length in m (Max)	Width in m (Max)	Depth in m (Max)
	210	119	50m below ground level

Greenbelt has proposed on the safety zone and Panchayat roads by planting Neem, Pongamia pinnata, Casuarina, etc., trees of native species. All the base line information studies like Air quality monitoring, Noise and vibration monitoring, Water analysis studies will be carried out every year as per the MoEF&CC Norms. Please refer Plate Nos. III-A, III-B & IV.

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

There is no waste anticipated during the entire life of quarry. Hence, backfilling is not possible in this quarry. The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle (Refer Plate No. IV).

6.0 BLASTING

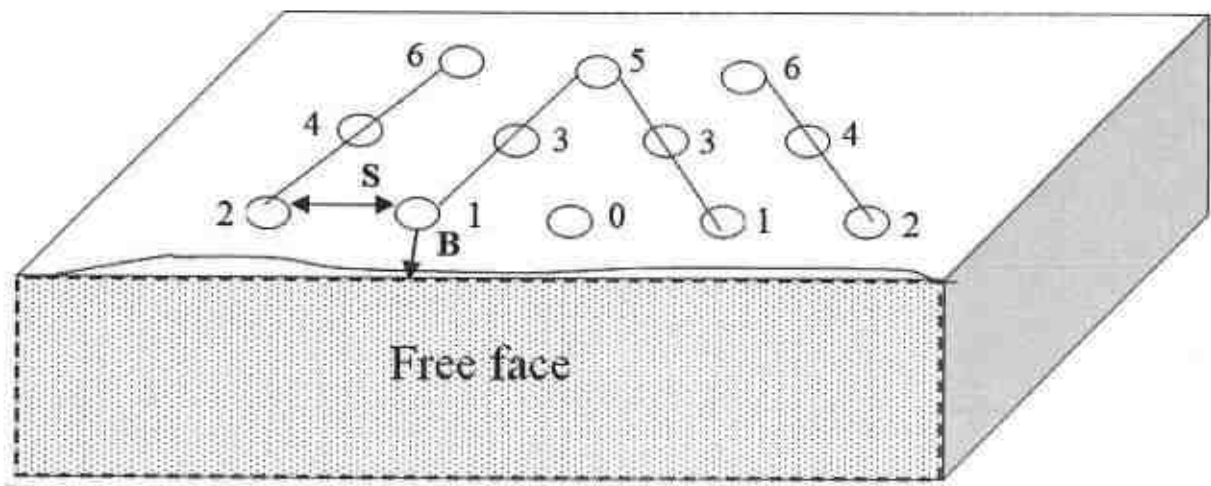
6.1 Blasting pattern:

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

Drilling and blasting parameters are as follows:

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

BLASTING PATTERN DRAWING



Staggered “V” Pattern of Blasting Design

Spacing	=	1.2m
Burden	=	1.0m
Depth of the hole	=	1.5m
No of holes proposed per day	=	140 Holes

6.2 Type of explosives to be used:

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

6.3 Measures proposed to minimize ground vibration due to blasting:

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

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

Delay detonators:

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

The major advantages of delay blasting are:

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

Blasting program for the production per day:

No of Holes	= 140 Holes
Yield	= 421 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 70 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.00 – 12.30 P.M. (whenever required)

6.4 Storage and safety measures to be taken while blasting:

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

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

The water table in the area is about 65m in summer season and 60m in Rainy season which is observed from the existing private boreholes. The lease applied area is fully covered by Massive Charnockite formation and it is revealed from the adjacent quarries. 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-8

Type	Distance & Direction	Location
Bore Well	260m Southern side	11°11'49.16"N 76°59'54.03"E

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

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

8.0 OTHER PERMANENT STRUCTURES (also shown in the map)

S. No.	Salient Features Present around site	Prescribed safety distance	If any present within Prescribed distance it's actual distance and direction from the area
8.1	Railways, Highways	50m	None of the above situated within 50m radius. Nearest National Highway – Mettupalayam to Coimbatore (NH-181) – 3km – SW Nearest State Highway – Karamadai to Kariampalayam Road (SH-168) – 4km – NE Nearest Major District – Karamadai to Tholampalayam Road (MD-605) – 7km – NW
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 applied area.
8.3	Village Road	10m	No village road is passing within 10m radius on the lease applied area.

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8.4	Habitation / Village	300m	There is no approved habitation within 300m radius from the lease applied area (Refer Plate No I-B).																	
8.5	Archaeological / historical monuments	500m	There is no Archaeological / historical monuments within 500m radius from the lease applied area.																	
8.6	Places of worships	300m	There is no place of worships within the radius of 300m from the lease applied area.																	
8.7	Housing area, EB line (HT & LT Line)	50m	EB line is passing on the Southeastern side of the lease applied area hence a safety distance of 50m has been maintained. There is no other Housing area, EB line (HT & LT Line) within the radius of 50m from the lease applied area.																	
8.8	Adjacent Patta lands / Govt. Land	7.5m/10m	<table border="1"> <thead> <tr> <th>Direction</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>East</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td rowspan="2">South</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>EB line</td> <td>50m</td> </tr> <tr> <td>West</td> <td>Patta land</td> <td>7.5m</td> </tr> </tbody> </table> <p>(Refer Plate No. II).</p>	Direction	Classification	Safety Distance	North	Patta land	7.5m	East	Patta land	7.5m	South	Patta land	7.5m	EB line	50m	West	Patta land	7.5m
Direction	Classification	Safety Distance																		
North	Patta land	7.5m																		
East	Patta land	7.5m																		
South	Patta land	7.5m																		
	EB line	50m																		
West	Patta land	7.5m																		
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.Nos.1117, 1113 & 1122</p> <p>East - S.F.No.1112</p> <p>South - S.F.Nos.1111, 1119 & 1120</p> <p>West - S.F.No.1121</p> <p>(Refer Plate No. II).</p>																	
8.10	Reserve forest	60m	There is no reserved forest / forest / social forest / wild life sanctuary etc., within radius of 60m of the lease applied area. (Refer Plate No. IA and IB).																	
8.11	Protected area / ECO sensitive area/ Wild Life Sanctuary	10km	There is no ECO sensitive Zone/ Wild Life Sanctuary/ Critically Polluted Area/ HACA/ CRZ located within 10km radius of the area. (Refer Plate No. IA).																	

9.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES

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9.1 Employment potential (skilled, semi-skilled, un skilled):

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

a. Skilled labour:

Mine Foreman	:	1
Blaster/mate	:	1
Excavator – Operator	:	2
Drivers	:	4
Jack-Hammer operator	:	12

b. Semi-skilled:

Security	:	2
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c. Unskilled:

Labour & Helper	:	3
Co-operator and Cleaner	:	6
Total	:	31

The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations. It is been ensured that the labour will not be employed less than 18 years, **No child labour** will engaged or entertained for any kind of quarrying operations. All the labours engaged for quarrying operations will be insured during the quarry lease period.

9.2 Welfare Measures:**a) Drinking Water:**

Packaged drinking water is available from the nearby water vendors in Bilichi which is located about 4.0km on the Southwestern side of the lease applied area.

b) Sanitary Facilities:

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

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c) First aid facility:

First aid kits are kept in Mines office room, in case of such eventuality is the victim will be given first aid immediately at the site by the competent and statutory foreman/permit manager/mate will be in charge of first aid and injured person will be taken to the hospital by the applicant's vehicle. Hospital is available in Karamadai located at a distance of 6.0km on the Northwestern side.

d) Labour Health:

Periodically medical check-up related to occupational health safety will be conducted to all the workers in applicant own cost.

e) Precautionary safety measures to the labourers:

- Helmets,
- Mine Goggles,
- Ear plugs,
- Ear muffs,
- Dust mask,
- Reflector Jackets,
- Safety Shoes

All personnel protective devices will be provided as per the specification approved by Director of mines safety. Periodically medical check-up will be conducted for all workers for any mine health related problems. Proper training and vocational education will be given by qualified and experienced safety officer to all the employees about the safety and systematic Rough stone quarrying operations. The drillers and workers will be sent for vocational training periodically, to carry out the quarrying operations scientifically and to safe guard the men and machinery and to create awareness about conventional opencast quarrying operations.

PART – B**10.0 ENVIRONMENT MANAGEMENT PLAN****10.1 Existing Land use pattern:**

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

LAND USE TABLE-9

Description	Present area (Ha)
Quarrying Pit	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Un-utilized Area	3.00.36
Grand Total	3.00.36






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-10

S.No.	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Cocos nucifera</i>	<i>Areaceae</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>Areaceae</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 42°C and winter encounters a minimum temperature of 20°C.

10.5 Human settlement:

There are few villages located within 5km radius of the area; the approximate distance, direction and populations are given below:

TABLE-11

S. No.	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Onnipalayam	1.0km – NE	1,200
2.	Kuppepalayam	3.0km – SE	900
3.	Bilichi	4.0km – SW	10,500

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Karamadai located at a distance of 6.0km on the Northwestern side of the area.

10.6 Plan for air, dust suppression:

The air quality will be affected by the Suspended Particulate Matter (SPM) generated by the blasting, jack hammer drilling, Loading and unloading during the Rough stone quarry operation.

The following Mitigations measures will be carried out:

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

Air quality will be monitored periodically as per Norms and Mitigate measures carried out to prevent dust and Air propagation in to air. The estimated budget for dust suppression would be around **Rs.52,000/year**.

10.7 Plan for Noise level control:

The noise level increased due to the Excavation, Drilling, Blasting and Transportation.

Engineering Noise control:

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

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

Shallow holes of 32mm diameter and maximum depth of 1.5m will be drilled and conventional low power explosives such as Slurry Explosives, ordinary safety fuse will be used for rough stone. Hence, ground vibration and noise pollution i.e., minimal and restricted within the quarry working area.

Noise level monitoring and other Mitigation measures will be carried out to reduce Noise and Vibration. The estimated budget for Noise level monitoring would be around **Rs.2,000/Year**.

10.8 Environmental impact assessment statement describing impact of mining on the next ten years:

In the mining plan proposed for a production of Rough stone does not involve deep hole drilling and blasting. Such limited mining activity is not likely to cause any impact adversely on the environment. As far as pollution of air, water and noise concerned, the environmental impact studies will be conducted as per EIA notification issued by MoEF& CC. It is B2 Category mine. The estimated budget would be around **Rs.7,60,000/-**.

10.9 Proposal for waste management:

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

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

In the mining plan only to a maximum depth of 50m below ground level has been envisaged as workable depth for safe & economic mining during entire lease applied area. 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. There is no waste hence, no proposal for backfilling. The barbed wire fencing cost would be around **Rs.2,04,000/-**.

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

The safety zone 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-12

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	40	80	340	Neem, Pongamia Pinnata, Casuarina, etc.,	32
II	40	80	340		32
III	40	80	340		32
IV	40	80	340		32
V	40	80	340		32

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
VI	30	80	280	Neem, Pongamia Pinnata, Casuarina, etc.,	24
VII	30	80	280		24
VIII	30	80	280		24
IX	30	80	280		24
X	30	80	280		24

Nearly 3,100 sq.m area is proposed to use under Greenbelt by planting 350 Numbers of trees during lease period 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.35,000/-** for the period of ten years.

The Greenbelt Development will be formed in around the quarried out top benches, approach road and nearby panchayat road. The cost would be around **Rs.50,000/-**.

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

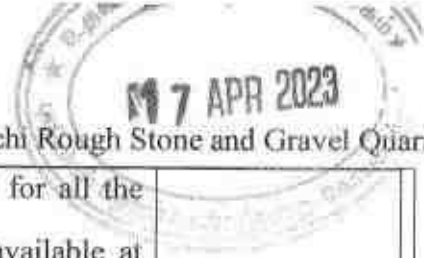
Budget Provision for the Mining Plan period:

TABLE-13

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

The EMP cost would be around **Rs. 7,60,000/-** for the period of ten years.**A. Operational Cost / Project Cost / Investment:**

i) Land cost	The Land value as per the Government Guideline land cost is about, Rs.22,24,000/ha, hence the total land cost is calculated about 3.00.36ha X Rs.22,24,000/- = Rs.66,80,006/- i.e., Rs.66,80,000/- (Source: https://tnreginet.gov.in/portal/)	Rs.66,80,000/-
ii) Machinery to be used	The following machineries are proposed to meet out the productions. Excavator attached with rock breaker, Tipper, Tractor mounted compressor with jack Hammer and loose tools (Rental Basis)	Rs.25,00,000/-
iii) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattle cost would be around	Rs.2,04,000/-
iv) Labourers shed	Labour sheds already constructed as semi-permanent structure. The cost is around	Rs.1,00,000/-
v) Sanitary facility	Adequate latrine and urinal accommodation has provided at conveniently accessible places the cost would be around	Rs.1,00,000/-
vi) Others items	First aid room & accessories	Rs.1,00,000/-



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.2,70,000/-
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	Rs.70,000/-
ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around	Rs.1,00,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	Rs.2,50,000/-
xi) Garland drain	Construction of Garland drain with check dam to prevent surface run-off rain water in to the quarry pit, the construction cost is around	Rs.1,68,000/-
xii) Greenbelt etc.	Greenbelt development and maintenance will be carried out in the boundary barriers the cost would be around	Rs.35,000/-
	Greenbelt development and maintenance will be carried out in around the quarried out top benches, approach road and nearby panchayat road	Rs.50,000/-
	Total Project Cost	Rs.1,06,27,000/-



B. EMP Cost: (Per year)	
Air Quality monitoring	Rs. 52,000/-
Water Quality Sampling	Rs. 18,000/-
Noise Monitoring	Rs. 2,000/-
Ground vibration test	Rs. 4,000/-
Total Cost	Rs. 76,000/-
Total EMP Cost for the ten years period is Rs.7,60,000/-	
Description	Amount (Rs.)
A. Operational Cost	Rs.1,06,27,000/-
B. EMP Cost	Rs.7,60,000/-
Total Project Cost (A+ B)	Rs.1,13,87,000/-
The applicant Indents to involve corporate environment responsibilities (CER) activity like Solar Lamps, Water Purifier, Medicine Storage rack, Cot & Bed and Fan facilities to the nearby Dispensary at 2.0% from the total project cost. The Cost would be around Rs.2,28,000/- .	Rs.2,28,000/-
Total Cost	Rs.1,16,15,000/-
The Total cost would be around one crore sixteen lakhs and fifteen thousand only.	

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

The Progressive Quarry Closure Plan for Bilichi Rough Stone and Gravel Quarry lease applied area over an extent of 3.00.36 Hectares of Patta land in S.F.No.1118/1 of Bilichi Village, Coimbatore North Taluk, Coimbatore District, Tamil Nadu State has been prepared for **M/s. Sri Rajalakshmi Samappa Building Materials Company**, registered office at No.677/1, Vellamadai, Annoor Taluk, Coimbatore District – 641 110, Tamil Nadu State.

11.2 Present Land use pattern:LAND USE TABLE-14

Description	Present area (Ha)
Quarrying Pit	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Unutilized Area	3.00.36
Grand Total	3.00.36

11.3 Method of Mining:

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

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

11.4 Mineral Processing Operations:

The quarried out Rough stone will be transported by the 20tons capacity Tippers to the needy crushers. Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

11.5 Reasons for closure:

As the mineral is not going to be exhausted during the proposed plan period no immediate closure is planned due to sufficient reserves are available to carry on the activities. Hence, the reason for closure will be discussed in the ensuing mining plan.

11.6 Statutory obligations:

The applicant ensures to comply all the conditions stipulated in the precise area communication letter before grant of quarry lease and during the course of quarry operations.

11.7 Progressive quarry closure plan preparation:

Name and address of the Qualified Person who prepared the progressive closure plan and name and address of the executing agency who is involved in the Preparation of progressive quarry closure plan.

Name	:	P. Viswanathan, M.Sc., Qualified Person
Address	:	No.17, Advaita Ashram Road, Alagapuram, Salem – 636 004.
Mobile	:	94422 78601 & 94433 56539
Telephone No.	:	0427- 2431989

The applicant will himself implement the closure plan; no outside agency will be involved.

11.8 Review of Implementation of Mining Plan including Progressive Closure Plan upto the Final Closure Plan:

Mining Plan and Progressive quarry closure plan are being submitted for the first time. It will be reviewed after ten years and review of implementation will be given with next review of mining plan.

11.9 Closure Plan:**(i) Mined Out Land:**

At the end of mining plan period, about 2.50.00ha of area will be mined out. Land use at various stages is given in the table below.

LAND USE TABLE-15

Description	Present area in (ha)	Area required during the first five years of plan period (ha)	Area at the end of lease period (ha)
Quarrying Pit	Nil	2.50.00	2.50.00
Infrastructure	Nil	0.01.00	0.01.00
Roads	Nil	0.02.00	0.02.00
Green Belt	Nil	0.17.00	0.31.00
Unutilized Area	3.00.36	0.30.36	0.16.36
Grand Total	3.00.36	3.00.36	3.00.36

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

(ii) Water quality management:

Following control measures will be adopted for controlling water pollution:

- Construction of Garland drain with check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- The quarried-out pit will be allowed to collect rain and seepage water which will act as a reservoir for storage. This water storage will enhance the static level and ground water recharge of nearby wells and it will be used for agriculture purpose to the nearby agriculture lands.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

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

(v) Disposal of mining machinery:

Part of the Machineries will be purchased by fresh condition also part of machineries has been utilized on rental basis. After completion of quarry operation all purchased machineries will be utilized another quarry area or sold out to the second hand. Hence, disposal or decommissioning of mining machinery does not arise.

(vi) Safety & Security:

Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0 m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the work persons.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.

- Danger signs shall be displayed near the excavations and proper signal by siren alarm will be given to the public before blasting to prevent accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

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(vii) Disaster Management and Risk Assessment:

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

- The mechanized mining activities in the area may involve any high-risk accident due to side falls/collapse, flying stones due to blasting etc.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.
- The Greenbelt Development will be formed in around the quarried out top benches, approach road and nearby panchayat 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.

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- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
 - Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
 - Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:
 - Quarry roads and approach roads,
 - Fencing on approach roads,
 - Checking and maintenance of machines and equipment,
 - Drinking water arrangements,
 - Quarry office, first aid stations etc.
 - Competent persons shall inspect the area regularly.
 - Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
 - Care and upkeep of plantation shall be carried out on regular basis.
 - Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:

The quarry lease is granted for a period of ten years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

(x) Time Scheduling for Abandonment:

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

(xi) Abandonment Cost:

As at present mining is not going to be closed so abandonment cost could not be assessed.

However, based on the progressive quarry closure activities during the plan period, cost is assessed as given below:

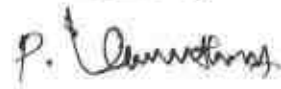
LAND USE TABLE-16

ACTIVITY		YEARS										RATE	COST (Rs/-)
		I	II	III	IV	V	VI	VII	VIII	IX	X		
Plantation under safety zone	Nos	40	40	40	40	40	30	30	30	30	30	@100 Rs Per sapling	35000
	Cost	4000	4000	4000	4000	4000	3000	3000	3000	3000	3000		
Plantation in quarried out top benches, approach road & nearby panchayat road	Nos	50	50	50	50	50	50	50	50	50	50	@300 Rs Per Meter	50000
	Cost	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000		
Barbed Wire Fencing (In Mtrs) 680 Mtrs		204000	-	-	-	-	-	-	-	-	-	@300 Rs Per Meter	204000
Garland Drain (In Mtrs) 560 Mtrs		166000	-	-	-	-	-	-	-	-	-	@300 Rs Per Meter	166000
TOTAL													457000

12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT 7 APR 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. 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: 06.04.2023

DONATE RED

SPREAD GREEN

SAVE BLUE

This Mining Plan is Approved
subject to the conditions stipulation
& indicated in the Mining Plan Approval
Letter No:
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 ref No: 33631.C/2012
Dated 19.11.2012 and subjected to further
fulfillment of the condition laid down under
Tamil Nadu Minor Mineral Concession Rules 1959

W. S. / 9/10/23
ASSISTANT DIRECTOR
DEPARTMENT OF GEOLOGY & MINING
COIMBATORE DISTRICT.



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

ந.க.எண்.312/கனியம்/2022

நாள்: 03.04.2023

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - கோயம்புத்தூர் மாவட்டம் - கோயம்புத்தூர் வடக்கு வட்டம் - பிளிச்சி கிராமம் - புல எண். 1118/1-ல் 3.00.36 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க தி/வா.ஸ்ரீ ராஜலட்சுமி சாமப்பா பில்டிங் மெட்ரீயல்ஸ் கம்பெனி என்ற நிறுவனத்திற்கு - குவாரி குத்தகை அனுமதி வழங்குவது - தொடர்பாக.

- பார்வை:**
1. தி/வா.ஸ்ரீ ராஜலட்சுமி சாமப்பா பில்டிங் மெட்ரீயல்ஸ் கம்பெனி, 677/1, வெள்ளமடை, அன்னூர் வட்டம், கோயம்புத்தூர் மாவட்டம் என்பவரது விண்ணப்பம் நாள்: 30.03.2022.
 2. இவ்வலுவலக கடிதம் இதே எண். நாள்: 31.03.2022.
 3. வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் வடக்கு அவர்களின் கடிதம் ந.க.எண்.1811/2022/அ3 நாள்: 13.02.2023.
 4. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் தணிக்கை அறிக்கை நாள்: 28.03.2023.
 5. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை கடிதம் எண். 1870/எம்.எம்-1/2020 நாள்: 12.08.2020.

பார்வை 1-ல் கோயம்புத்தூர் மாவட்டம், அன்னூர் வட்டம், 677/1, வெள்ளமடை என்ற முகவரியில் இயங்கி வரும் தி/வா.ஸ்ரீ ராஜலட்சுமி சாமப்பா பில்டிங் மெட்ரீயல்ஸ் கம்பெனி என்ற நிறுவனத்தினர் கோயம்புத்தூர் மாவட்டம், கோயம்புத்தூர் வடக்கு வட்டம், பிளிச்சி கிராமம், புல எண். 1118/1-ல் 3.00.36 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரி உரிய ஆவணங்களுடன் விண்ணப்பித்துள்ளனர்.

மேற்படி மனு தொடர்பாக, வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் வடக்கு மற்றும் கோயம்புத்தூர் புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு கோயம்புத்தூர் மாவட்டம், அன்னூர் வட்டம், 677/1, வெள்ளமடை என்ற முகவரியில் இயங்கி வரும் தி/வா.ஸ்ரீ ராஜலட்சுமி சாமப்பா பில்டிங் மெட்ரீயல்ஸ் கம்பெனி என்ற நிறுவனத்திற்கு கோயம்புத்தூர் மாவட்டம், கோயம்புத்தூர் வடக்கு வட்டம், பிளிச்சி கிராமம், புல எண். 1118/1-ல் 3.00.36 ஹெக்டேர் பரப்பளவுள்ள

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பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க சில நிபந்தனைகளுடன் பரிந்துரை செய்துள்ளார்கள்.


அனுமதி கோரும் புல எண். 1118/1 ஆனது பட்டா எண் 3333-ன் படி திருமதி.ஜெயலட்சுமி மற்றும் திருமதி. சந்திரா ஆகியோர்கள் பெயரில் கூட்டுப்பட்டாவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. மேற்படி பூமியில் அரசு அனுமதி அளிக்கும் நாளிலிருந்து 10 ஆண்டுகளுக்கு தி/வா.ராஜலட்சுமி சாமப்பா பில்லிங் மெட்ரிசியல்ஸ் கம்பெனி என்ற நிறுவனத்திற்கு சாதாரணகற்கள் மற்றும் கிராவல் வெட்டியெடுக்க தங்களுக்கு எவ்வித ஆட்சேபணையும் இல்லை என பட்டாதாரர்கள் இணைந்து சம்மத கடிதம் அளித்துள்ளார்கள். எனவே மேற்படி பூமியில் தி/வா.ராஜலட்சுமி சாமப்பா பில்லிங் மெட்ரிசியல்ஸ் கம்பெனி குவாரி குத்தகை உரிமம் பெற தகுதியுடையது ஆகும்.

எனவே, வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் வடக்கு மற்றும் உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் ஆகியோரின் பரிந்துரைகளின் அடிப்படையில் கோயம்புத்தூர் மாவட்டம், அன்னூர் வட்டம், 677/1, வெள்ளமடை என்ற முகவரியில் இயங்கி வரும் தி/வா.ஸ்ரீ ராஜலட்சுமி சாமப்பா பில்லிங் மெட்ரிசியல்ஸ் கம்பெனி என்ற நிறுவனத்திற்கு கோயம்புத்தூர் மாவட்டம், கோயம்புத்தூர் வடக்கு வட்டம், பிளிச்சி கிராமம், புல எண். 1118/1-ல் 3.00.36 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 1959-ஆம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் விதி 19(1) மற்றும் 20-ன் படி குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றம் நாளிலிருந்து 10 (பத்து) ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு குவாரி குத்தகை வழங்குவதற்குரிய நிலப்பரப்பாக (Precise Area Communication) கருதப்படுகிறது.

நிபந்தனைகள்

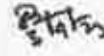
1. அருகிலுள்ள பட்டா நிலங்களுக்கும் மற்றும் பொது மக்களுக்கும், எவ்வித இடையூறும் இன்றி சாதாரண கல் மற்றும் கிராவல் குவாரிப்பணி மேற்கொள்ள வேண்டும்.
2. அருகில் உள்ள பட்டா நிலத்திற்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
3. அனுமதி கோரும் புலத்தின் தென் கிழக்கு பகுதியில் செல்லும் மின்கம்பி பாதைக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
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 சிறுகனிய சலுகை விதிகள்-1959 விதி எண். 41 மற்றும் 42-ன் படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறும், மாநில கற்றுத்தழல் தாக்க மதிப்பீட்டு அதிகார அமைப்பின் அனுமதியினை பெற்று சமர்ப்பிக்கவும் மனுதாரரை 17/04/2023 கொள்ளப்படுகிறது.


உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை
கோயம்புத்தூர்.

பெறுநர்:
தி/வா.பு. ராஜலட்சுமி சாமப்பா பில்லிங்
மெட்ரியல்ஸ் கம்பெனி,
677/1, வெள்ளமடை,
அன்னூர் வட்டம்,
கோயம்புத்தூர் மாவட்டம்.





District : Coimbatore

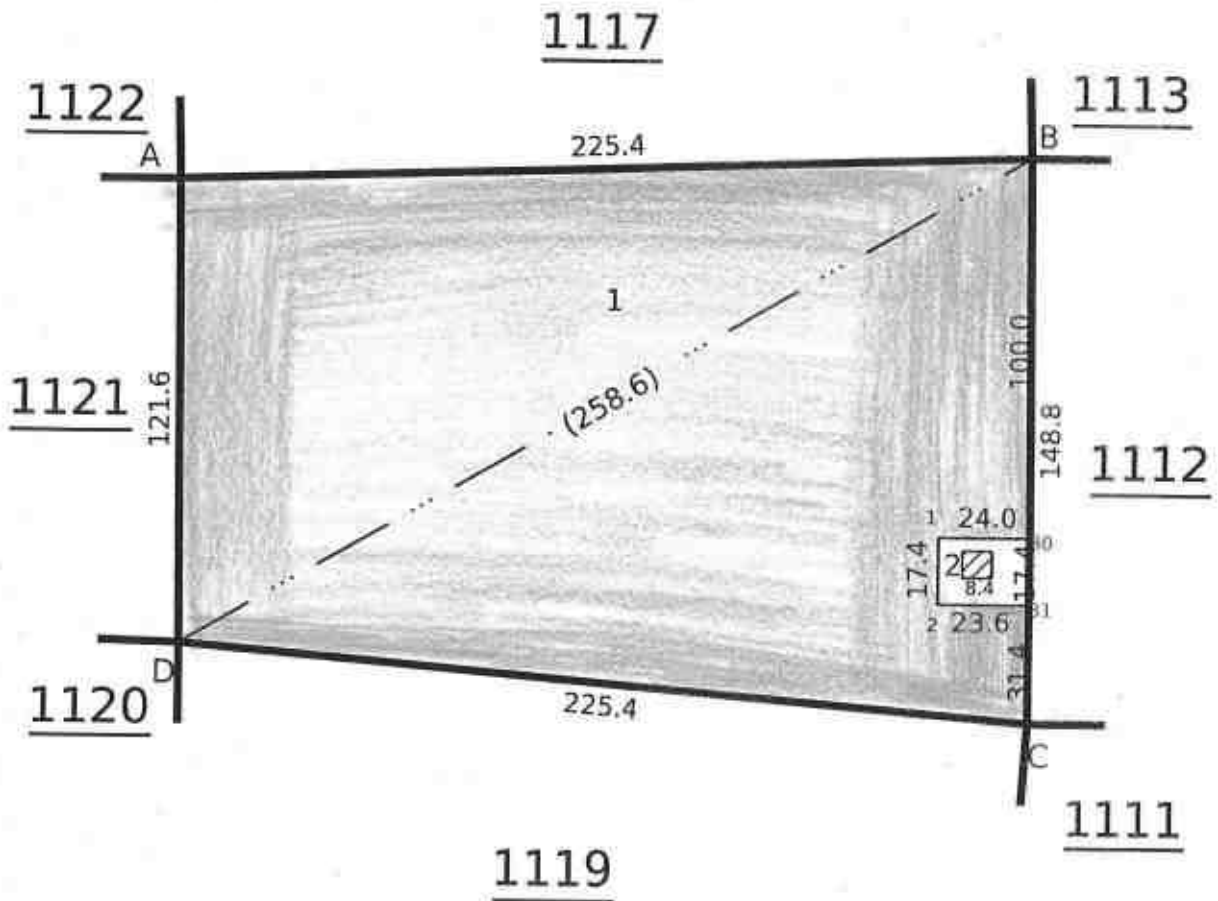
Survey No : 1118

Taluk : COIMBATORE NORTH

Area : Hect 03 Ares 4.50

Village : Billichy (E) (W) [5]

Scale : 1 : 2006 17 APR 2023



/ சிவசுப்பிரமணியன் /
சுற்று

04/03/2023
கிராம நிர்வாக அலுவலர்,
3, பிளாச்சி (கிழக்கு)
கோவை (வடக்கு)

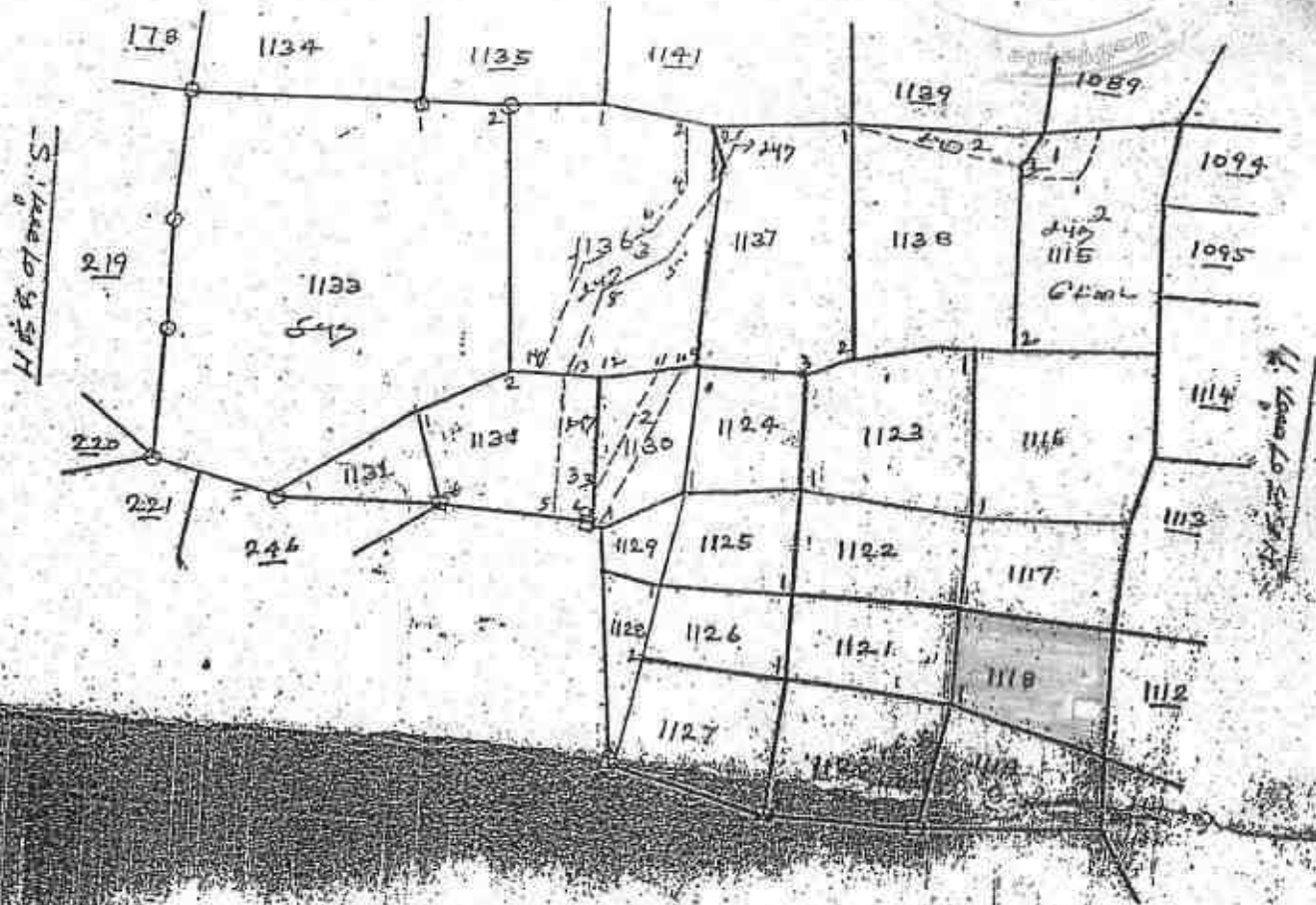
Lease Applied Area-

பிரதீச கிராம கிராமம்

பி.என். 13

பி.என். 13

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VELLAMADAI: NO: 6

பிரதீச கிராமம்

R. S. W
 21/7/22
 கிராம நிர்வாக அலுவலர்,
 3, பிளிச்சி (கிழக்கு)
 கோவை (வடக்கு)

Lease Applied Area

A. கஞ்சனி -
B. கஞ்சனி - 30



தமிழக அரசு

வருவாய்த் துறை

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

வட்டம் : கையம்புத்தூர் வட்டம்

பட்டாள எண் : 3333

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மாவட்டம் : கையம்புத்தூர்
வருவாய்-கிராமம் : பிளீச்சி (பி-பிம்)

உரிமையாளர்கள் பெயர்

1	புறவரிசை குறியீடுகள்	நன்மை		புன்மை		மற்றவை	
		மகனாமி	மகனாமி	மகனாமி	மகனாமி	மகனாமி	மகனாமி
1		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
2		ஒற்றை - ஏர்	கு - மய	ஒற்றை - ஏர்	கு - மய	ஒற்றை A - ஏர்	கு - மய
		3 - 0.36	3.77	3 - 0.36	3.77		

குறிப்பு 2:



1. சமீபகால தகவல் / பாதிக்கப்பட்ட நில உரிமைகள் விவரங்கள் மீள் பதிவேட்டில் குறிப்பிடப்பட்டபடி பெறப்பட்டன. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/02/2023/03333/30552 என்ற குறிப்பு எண்ணை உள்ளிட்டு செப்டி 2023 ஆம் ஆண்டு செப்டி 2023 இல் பெறக்கூடியது.

2. இத் தகவல்கள் 22-01-2019 அன்று 05:58:54 PM நேரத்தில் அச்சிக்கப்பட்டது.

3. சமீபகால கையாடலின் 2D barcodes படிப்பான் மூலம் படித்து 3G/CPRS வழி இணையதளத்தில் சரிபார்க்கவும்.

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1	2	3	4	5	6	7	8	9	10	11	
1116	2	1116-புர	ச	4	...	8-4	6	1 24	0 56.5	0 70	1625 க. ராம சாமி (1), க. பழனிச்சாமி (2), க. கணகராஜ் (3).
	3	-புர	ச	4	...	8-4	6	1 24	0 67.5	0 84	435 க. செவம்ப கவுண்டர்.
	4	-புர	ச	4	...	8-4	6	1 24	0 08.0	0 10	1711 க. ராமசாமி மற்றும் குமரன் குமரன்.
	5	-புர	ச	4	...	8-4	6	1 24	0 75.0	0 93	1625 க. ராம சாமி (1), க. பழனிச்சாமி (2), க. கணகராஜ் (3).
	6	-புர	ச	4	...	8-4	6	1 24	0 71.0	0 88	435 க. செவம்ப கவுண்டர்.
									5 36.0	6 63	
1117	...	1117	ச	4	...	8-4	6	1 24	2 35.5	2 91	895 க. ரங்கசாமி கவுண்டர்.
1118	...	1118	ச	4	...	8-4	6	1 24	3 04.5	3 77	314 ச. சின்னசாமி கவுண்டர்.
1119	...	1119	ச	4	...	8-4	6	1 24	3 36.5	4 16	217 ச. செம்ப மாள்.
1120	1	1120-1	ச	4	...	8-4	6	1 24	0 03.0	0 06	1626 கு. ராமண்ண கவுண்டர் (1), கு. ரங்கசாமி கவுண்டர் (2), கு. சின்னசாமி கவுண்டர் (3).
	2	-2	ச	4	...	8-4	6	1 24	1 52.5	1 88	1006 கு. ராமண்ண கவுண்டர்.
	3	-3	ச	4	...	8-4	6	1 24	1 13.5	1 40	896 கு. ரங்கசாமி கவுண்டர்.
	4A	-4A	ச	4	...	8-4	6	1 24	0 77.0	0 95	748 கு. மாறப்ப கவுண்டர்.
	4B	-4B	ச	4	...	8-4	6	1 24	0 77.5	0 96	309 கு. சின்னசாமி கவுண்டர்.
									4 23.5	5 25	

பிவிசி

பிவிசி

பிவிசி

பிவிசி



தமிழ்நாடு தமிழ்நாடு TAMIL NADU B.201- G.G. Thirupavai
 23.3.2022. ச.சந்திரா G.G. தலைகணி OOAC 312961

2/241 கண்ணார்பாளையம் முத்திரைத்தூர் விற்பனையாளர்
 காரமடை, என்ற விலாசத்தில் வசிக்கும் திரு. S. ஞானசேகரன் மனைவி G. சந்திரா
 உரிமம் எண்: 15882/ஆ1/2011

காரமடை கோவை-641104
 சம்மத கடிதம்

1. கோயம்புத்தூர் மாவட்டம், கதவு எண்.2/241, கண்ணார்பாளையம், சிக்காரம்பாளையம் கிராமம், காரமடை, என்ற விலாசத்தில் வசிக்கும் திரு. S. ஞானசேகரன் மனைவி G. சந்திரா
2. கோயம்புத்தூர் மாவட்டம், கதவு எண்.2/246, கண்ணார்பாளையம், சிக்காரம்பாளையம் கிராமம், காரமடை, என்ற விலாசத்தில் வசிக்கும் திரு. S. பழனிசாமி மனைவி P. ஜெயலட்சுமி. ஆகிய நாங்கள் எழுதி கொடுக்கும் சம்மதக் கடிதம் என்னவென்றால்,
 கோயம்புத்தூர் மாவட்டம், கோவை வடக்கு, பிளிச்சி கிராமம், க.ச.1118 - ல் 3.0.36 ஹெக்டேர் பரப்பு காலையானது பட்டா எண்.3333- என்படி எங்களுக்கு பாத்தியப்பட்டது. மேற்படி கோயம்புத்தூர் மாவட்டம், அன்னூர் வட்டம், வெள்ளமடை கிராமம், 6/177A என்ற விலாசத்தில் இயங்கி வரும் " ஸ்ரீ ராஜலட்சுமி சாமப்பா பில்டிங் மெட்ரீயல்ஸ் " கம்பெனிக்கு கோயம்புத்தூர் மாவட்ட ஆட்சியர் அவர்களால் மேற்படி பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டிபெடுக்க அனுமதி வழங்க ஒப்புதல் அளிக்கப்பட்ட நாளிலிருந்து 10 (பத்து) வருடத்திற்கு மேற்படி பூமியில் கிராவல் மண் வெட்டி எடுத்து செல்ல சம்மதம் தெரிவிக்கிறோம்.

இப்படிக்கு,



தமிழ்நாடு மிலநாடு TAMILNADU ரூ. 100/- அடியாக BF 716796

22.4.2019 Sri Rajalakshmi Samappa

A சதுரங்கி

Building Materials Company

முத்திரைநாள் கட்டுப்பாட்டுப்பாளர்

S.F.No. 677/1, Vellamalai

2-D, கனம் அபிவிருத்தி கழகம்

Coimbatore - 641 110

பி. அ. சி. சி. என்

SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY

PARTNERSHIP DEED

This Deed of Partnership is entered into this 22nd day of April-2019, Between

1. Mr.S.GNANASEKARAN, S/O.SAMAPPA GOWDER, aged about 60 years

Residing at No: 2/241, KANNARPALAYAM, KARAMADAI-641 104.

(HEREINAFTER CALLED THE PARTY OF THE FIRST PART)

2. Mr. S.PALANISAMY, S/O, SAMAPPA GOWDER, aged about 55

years Residing at No: 2/246, KANNARPALAYAM,

KARAMADAI-641 104.

(HEREINAFTER CALLED THE PARTY OF THE SECOND PART)

1.

2.

3.

4.

17 APR 2023



தமிழ்நாடு தமில்நாடு TAMILNADU ரூ.100/- A சத ரூபாய் BF 716797
25-4-2019 Sri Rajalakshmi Samappa A. சத்யவதி

Building Materials Company முத்திரைத்தாள் விற்பனையாளர்
S.F.No. 677/1, vellamadaii 2-D, கோட்டை ரோடு, வல்லாவி
Coimbatore - 641 110 E.B. அபிஷேக ரத்னா
பொது இடம் எண்-641 301
சரிமதி எண்: 7323/B1/2008/16

3. Mrs. M. RAJESWARI, D/O MATHAPPA GOUNDER, aged about 64 years - Residing at No: 10/19, VACHINAMPALAYAM, SIRUMUGAI-641 302.

(HEREINAFTER CALLED THE PARTY OF THE THIRD PART)

4. Mrs. P. MAHESWARI, D/O. PALANISAMY, aged about 37 Years Residing at No: 6/224, MONGAMPALAYAM, THERAMPALAYAM- 641 697.

(HEREINAFTER CALLED THE PARTY OF THE FOURTH PART)

1. *[Signature]*

2. *[Signature]*

3. N. Rajalakshmi

4. K. Maheswari

17 APR 2023



திருநாடு தமில்நாடு TAMILNADU ரூ. 100/- A சத்யவதி
 22-4-2019 Sri Rajalakshmi Samappa A. சத்யவதி BF 716798
 Building Materials Company
 S.F.No. 677/1, Vellamada
 Coimbatore - 641110
 2-D, கோ ஆப்பிரெய்ஸ் காலனி
 E.B. ஆபிஸ் வீதி
 செல்.புலகாமாஸ்-641301
 உரிமைய எண்: 7323/61/2008/18

WHERE AS the above parties have agreed to form a partnership from 22nd day of April - 2019 and under the name and style

"SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY"

AND WHERE AS the parties mutually agreed to enter into partnership on the terms and Condition

TERMS AND CONDITIONS:

1. NAME OF THE FIRM:

The Name of the firm shall be "SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY"

2. REGISTERED OFFICE OF THE FIRM:

The registered office of the firm shall be kept at S.F.No: 677/1, VELLAMADAI, COIMBATORE, TAMILNADU- 641 110.

The Partners may by mutual consent change the registered office of the firm according to their convenience.

1. *[Signature]*

2. *[Signature]*

3. N. Rajadurai

4. K. Mahalingam



3. OBJECT OF THE FIRM:

The object of the firm is to carry on the business in Trading in all kinds of Building Materials, Production and Sales. They may commence any other business mutually agreed between the partners from time to time.

4. DURATION OF THE FIRM:

The duration of the firm shall be "AT WILL"

5. CAPITAL OF THE FIRM:

The capital of the firm shall be Rs.1,00,00,000/- (Rupees One Crore only) which shall be contributed by the partners under.

S.NO	NAME OF THE PARTNER	CAPITAL INVESTMENT
1.	S.GNANASEKARAN	Rs. 30,00,000/-
2.	S.PALANISAMY	Rs. 30,00,000/-
3.	M.RAJESHWARI	Rs. 30,00,000/-
4.	P.MAHESWARI	Rs. 10,00,000/-
	TOTAL	Rs. 1,00,00,000/-

If any further capital over and above these contributed capital be considered necessary by the partners, the same shall be the partners in the same ratio in which they contributed originally

1.

2.

3. N. Rajeswari

A. K. Maheswari

(4)

17 APR 2023

9. MANAGING PARTNERS AND WORKING PARTNERS AND THEIR REMUNERATION:

The First Part of the Partner is Managing Partner and All partners have agreed to working partners actively devote their time and attention to the business of the partnership, it is hereby agreed that in consideration of the part of the all Part actively devoting their time and attention to the business of partnership they shall be entitled to draw monthly salary and remuneration as under. The monthly remuneration payable to each of partners for the each accounting year in the following the

(a)	(b)
In respect of the first Rs. 9,00,000/- of the Profit or in the Case of loss	In respect of Balance Profit
Rs. 12,500/- Each	
Whichever is more	
%	%

1.	S.GNANASEKARAN	27	18
2.	S.PALANISAMY	27	18
3.	M.RAJESHWARI	27	18
4.	P.MAHESWARI	9	6
	TOTAL	90	60

(5)

1. *[Signature]*

2. *[Signature]*

3. N. Rajeswari

4. K. Maheswari

17 APR 2023

ii) The partners shall be entitled to increase the above remuneration and may agree to pay remuneration to other partner or partners. The parties I eto may also agree to revise the calculating the above remuneration and decide to pay salary and grant the benefit of the house rent allowance, rent free quarters, motor car or conveyance allowance, medical expenses accident and / or life insurance policy premium, Provident Fund, Gratuity, Bonus, Commission on sale / gross receipts and / or other benefits to the above and / or the other partners either on monthly or yearly basis as they may agree upon.

10. SHARE OF PROFIT / LOSS:

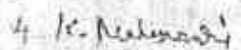
The Net Profit of the partnership business as per the accounts maintained by the partnership including rent / Salaries and other establishment expenses as well as interest and remuneration payable to the partners in accordance with this deed of partnership or any supplementary deed as may be executed by the partners shall be divided and distributed among the partners following ratio.

1.	S.GNANASEKARAN	30%
2.	S.PALANISAMY	30%
3.	M.RAJESHWARI	30%
4.	P.MAHESWARI	10%
	TOTAL	100 %

(7)

1. 

2. 

4. 

16. PARTNERS INDIVIDUAL LIABILITY:

The firm shall in no way be liable to the individual debts, if any existing or future of the partners. Each of the partners shall punctually pay and satisfy all the present and future private debts and engagement and indemnify the other of them and his / her representative and the properties and assets of the partnership there of and from all actions, Proceedings, damages, costs, charges and expenses on account thereof.

17. DISPUTE OF THE FIRM:






In case any dispute arises between the partners the same shall be settling by referring the dispute to any third person agreeable to all the partners.

18. PARTNERSHIP ACT:

The provision of the Indian Partnership Act 1932, in so far as they are specifically mentioned here shall apply to the firm.

IN WITNESS to agreeing the above terms and conditions of Partnership, we the partners Mentioned above do set our hands below in that presence of witnesses mentioned therein

WITNESSES

- | | |
|--|---|
| 1.  (S. KOMARESAN) S/o. M. Subhayan
6/224 - Mangam Palayam, Thanampalayam (P.O.)
641617 | x. 
(S. GNANASEKARAN)
1 st Part of the partner |
| B. Kalayal (B. Kalamoni)
2. S/o. S. Balinga gounder 5/5b. Samivaram
Palayam. Karamadai. 641104 | 
(S. PALANISAMY)
2 nd Part of the partner |
| 3.  (C. Ashok)
S/o. E. Chinnadurai, 6/1181, Mogi-palayam,
Thanampalayam (P.O.), Palayam - 641617. | x. N. Rajeswari
(M. RAJESHWARI)
3 rd Part of the Partner |
| 4.  (J. RAMIAH)
S/o. N. Jaganathan, 30, A, Arcadia Avenue,
Thanampalayam, Karamadai - 641104. | x. K. Maheshwari
(P. MAHESHWARI)
4 th Part of the Partner |




Government of India
Form GST REG-06
[See Rule 10(1)]

17 APR 2023

Registration Certificate

Registration Number : 33ADXFS7875F1Z9

1.	Legal Name	SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY			
2.	Trade Name, if any	SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY			
3.	Constitution of Business	Partnership			
4.	Address of Principal Place of Business	677/1, VELLAMADAI, ANNUR, Coimbatore, Tamil Nadu, 641110			
5.	Date of Liability	01/05/2019			
6.	Period of Validity	From	01/05/2019	To	NA
7.	Type of Registration	Regular			
8.	Particulars of Approving Authority	Centre			
Signature					
Name					
Designation					
Jurisdictional Office					
9. Date of issue of Certificate					
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 approval of application granted on 17/05/2019 by the Jurisdictional authority.



17 APR 2023

GSTIN

33ADXFS7875FLZ9

Legal Name

SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY

Trade Name, if any

SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY

Details of Additional Places of Business

Total Number of Additional Places of Business in the State

0

17 APR 2023



सत्यमेव जयते

GSTIN

33ADXFS7875F1Z9





Legal Name

SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY

Trade Name, if any

SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY

Details of Managing / Authorized Partners

1		Name	PALANISAMY
		Designation/Status	PARTNER
		Resident of State	Tamil Nadu
2		Name	SAMAPPA GOWDER GNANASEKARAN
		Designation/Status	MANAGING PARTNER
		Resident of State	Tamil Nadu
3		Name	NATARAJAN RAJESWARI
		Designation/Status	PARTNER
		Resident of State	Tamil Nadu
4		Name	KUMARESAN MAHESWARI
		Designation/Status	PARTNER
		Resident of State	Tamil Nadu

17 APR 2023



GSTIN

33ADXFS7875F1Z9

Legal Name

SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY

Trade Name, if any

SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY

Details of Additional Places of Business

Total Number of Additional Places of Business in the State

0

3ADXFS7875F1Z9

Call: 93660 95261

SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY

1 1/2" Metal, 1/2" Jally, 3/4" Jally, Chips, M.Sand

SF.No 677/1A Vellamadai, Coimbatore - 641 110

Email : srsbc2019@gmail.com

Date : 3.7.2021

ಶ್ರೀ ರಾಜಲಕ್ಷ್ಮಿ ಸಮಪ್ಪ ಬಿಲ್ಡಿಂಗ್ ಮ್ಯಾಟೀರಿಯಲ್ಸ್ ಕಂಪನಿ ಲಿಮಿಟೆಡ್ ಕೆಂಪುನಗರ ಜಿಲ್ಲಾ ಮಹಾನಗರ ಪಾಲಿಕಾರ್ಡ್ ನಲ್ಲಿ 677/1A ವೆಲ್ಲಮದಾಯಿ ಕೊಠಡಿ ಸಂಖ್ಯೆ 3-7-2021 ಹೆಸರು ಕೆಂಪುನಗರ ಪಾಲಿಕಾರ್ಡ್ ನಲ್ಲಿ ದಾಖಲಾಗಿದೆ. ಈ ಕೆಂಪುನಗರ ಪಾಲಿಕಾರ್ಡ್ ನಲ್ಲಿ ದಾಖಲಾಗಿದೆ. ಈ ಕೆಂಪುನಗರ ಪಾಲಿಕಾರ್ಡ್ ನಲ್ಲಿ ದಾಖಲಾಗಿದೆ.

ಶ್ರೀ ರಾಜಲಕ್ಷ್ಮಿ ಸಮಪ್ಪ ಬಿಲ್ಡಿಂಗ್ ಮ್ಯಾಟೀರಿಯಲ್ಸ್ ಕಂಪನಿ ಲಿಮಿಟೆಡ್ ಕೆಂಪುನಗರ ಜಿಲ್ಲಾ ಮಹಾನಗರ ಪಾಲಿಕಾರ್ಡ್ ನಲ್ಲಿ 677/1A ವೆಲ್ಲಮದಾಯಿ ಕೊಠಡಿ ಸಂಖ್ಯೆ 3-7-2021 ಹೆಸರು ಕೆಂಪುನಗರ ಪಾಲಿಕಾರ್ಡ್ ನಲ್ಲಿ ದಾಖಲಾಗಿದೆ. ಈ ಕೆಂಪುನಗರ ಪಾಲಿಕಾರ್ಡ್ ನಲ್ಲಿ ದಾಖಲಾಗಿದೆ. ಈ ಕೆಂಪುನಗರ ಪಾಲಿಕಾರ್ಡ್ ನಲ್ಲಿ ದಾಖಲಾಗಿದೆ.



ATTESTED

ಹೆಸರು

1. *[Signature]*

2. *[Signature]*

3. N. Rajeswari

4. K. Mahasree

[Signature]
12/07/21
S.M. PRABHAKARAN, B.A., B.L.,
ADVOCATE & NOTARY PUBLIC
(GOVT. OF INDIA) Ent. No. 1649/92
2F, REVATHY BUILDING
GOPALAPURAM 2ND STREET,
COIMBATORE - 641 018.
Call: 93660 95261

17 APR 2023

आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT OF INDIA

भारतीय रिजर्व बैंक द्वारा जारी
Reserve Bank of India Issued

ACXFS7875F

सुरक्षा संख्या
SRI RAJALAKSHMI SAMAPPA BUILDING
MATERIALS COMPANY

22/04/2019



यदि इस कार्ड को खोया जाये तो इसे अमान्य मानना है।
If this card is lost / found, please inform / report to
Income Tax PAN Service Unit, No. 1,
2nd Floor, Market Street,
Plot No. 5/11, Survey No. 997/8,
Model Colony, West Deodurgas, Coimbatore
Pin - 571 016.

Tel: 91 93 22 1 66 10 Fax: 91 40 221 30 10
E-mail: info@pan.irdco.in

ANNEXURE

17 APR 2023


 இந்திய அரசாங்கம்
 Government of India
 சென்னை 5
 Chennai 5
 PIN CODE - DOB 04021952
 காலம் - Male

 4171 8521 8213
 சாதாரண மனிதனின் அதிகாரம்


 இந்திய அரசாங்கம்
 Government of India
 Address: S/O
 Semuppegovindar, 20211,
 KANNARPALAYAM
 KARAMADAI
 Chikkarampalayam,
 Karamadai, Coimbatore,
 Tamil Nadu, 541104
 4171 8521 8213






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 இலச்சினைபுடன் 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).**



Given under the seal of this university



நாள்
Dated: 28-02-2011
சேலம் 636011, தமிழ்நாடு, இந்தியா.
Salem 636011, Tamil Nadu, India.

பதிவாளர்
Registrar

துணைவேந்தர்
Vice-Chancellor

TIN. No. : 3312 2703755
 C.S.T. No. : 880783 / 29.11.2005
 Area Code : 142

Ph : Mines : 0427 - 2403645

Fact : 0427 - 2400046



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.

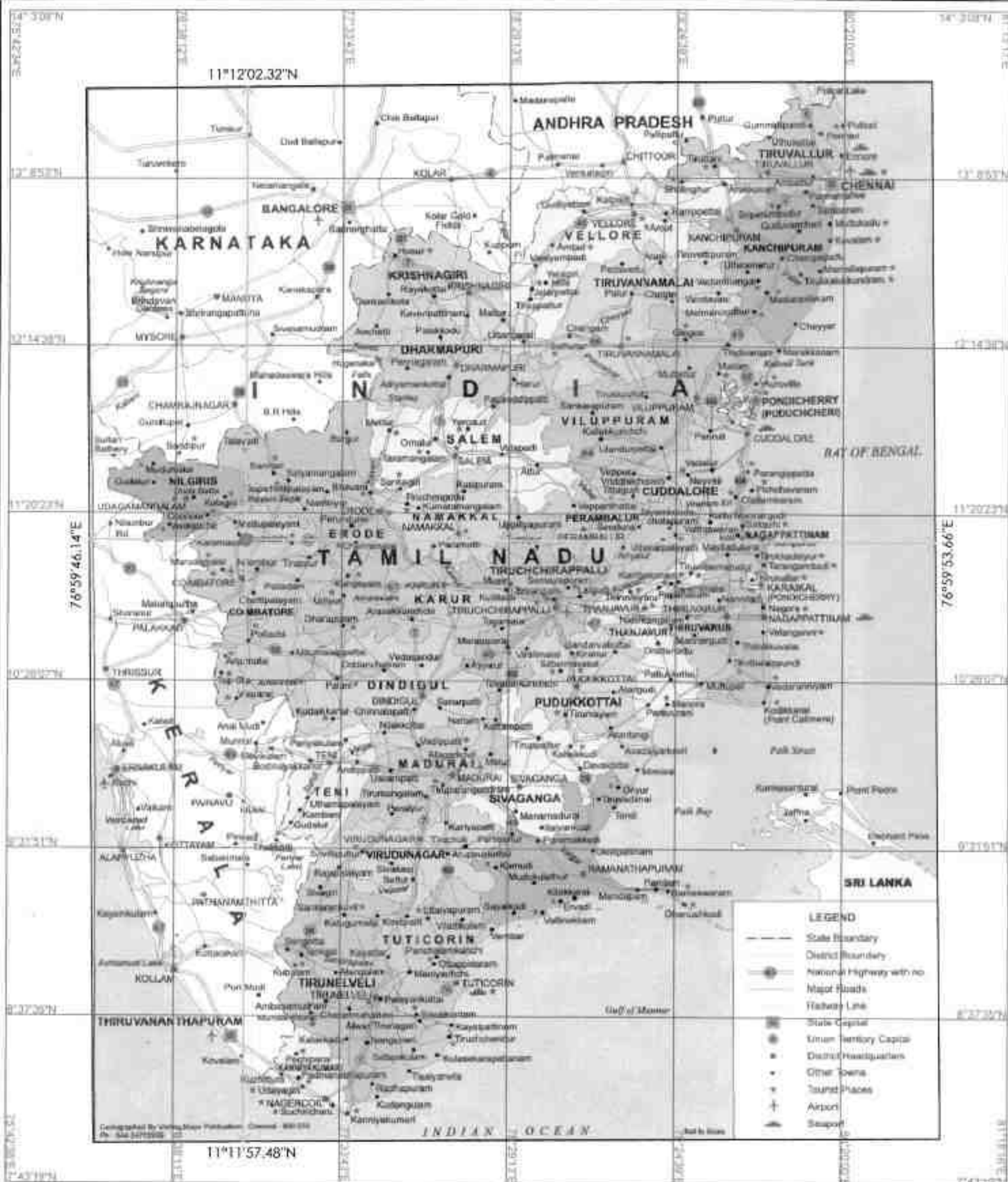
For M/s. SUDHARSHAAN MINING CORPORATION,

SUDHARSHAAN MINING CORPORATION
 SF-77, KUDUVAMPATTI ROAD,
 SALEM - 636 008, Tamilnadu.

G.PASUPATHY,

Proprietor

28 Dec 2015



INDEX

Q.L.APPLIED AREA : ●
 TOPO SHEET NO. : 58 - A/16
 LATITUDE : 11°11'57.48"N to 11°12'02.32"N
 LONGITUDE : 76°59'46.14"E to 76°59'53.66"E

APPLICANT :

TvL S/L RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY,
 No.677/ 1, VELLAMADAL,
 ANNOOR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.No : 1118/ 1,
 EXTENT : 3.00.36 Ha.
 VILLAGE : BILICHI,
 TALUK : COIMBATORE NORTH,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

PLATE NO - I

DATE OF SURVEY : 05.04.2023

LOCATION PLAN

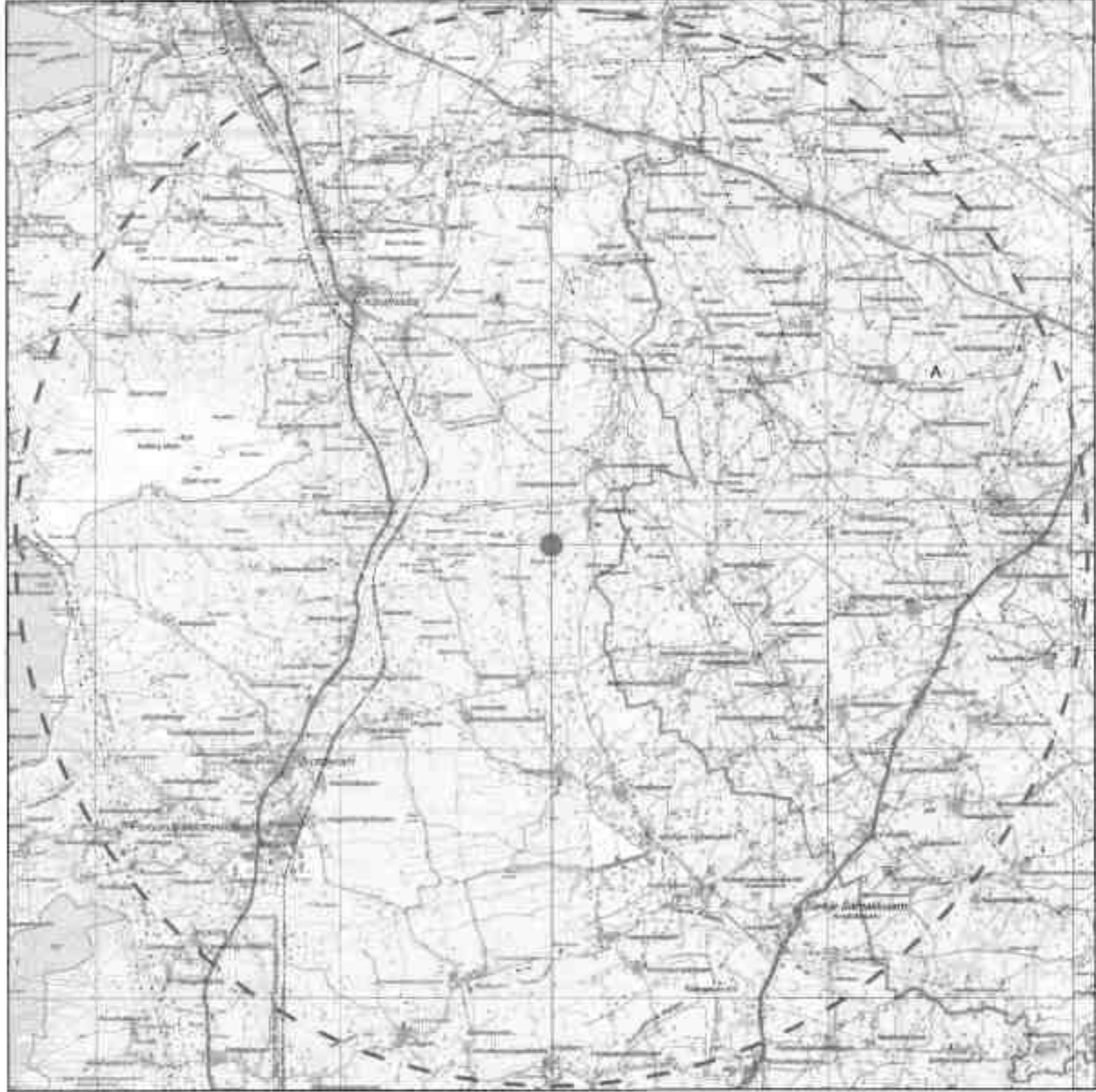
SCALE: 1:24,00,000

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. Venkatesh
 P. VENKATESH, B.Sc.,
 QUALIFIED PERSON

76° 54' 16.54"E



11° 17' 27.70"N

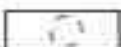
11° 06' 32.09"N




77° 05' 23.21"E

TOPO SHEET NO. : 58 - A/16

LATITUDE : 11°11'57.48"N to 11°12'02.32"N
 LONGITUDE : 76°59'46.14"E to 76°59'53.66"E

10km RADIUS : 

Q.L. APPLIED AREA : 

INDEX

- Express highway; with toll; with bridge; with distance stone.....
- Roads metalled; according to importance.....
- Roads, double carriageway; according to importance.....
- Unmetalled road. Cart-track. Pack-track with pass. Foot-path.....
- Streams: with track in bed; undefined. Canal.....
- Dams: masonry or rock-filled; earthwork. Weir.....
- River; dry with water channel; with island & rocks. Tidal river.....
- Submerged rocks. Shoal. Swamp. Reeds.....
- Wells: lined; unlined. Tubewell. Spring. Tanks; perennial; dry.....
- Embankments: road or rail; tank. Broken ground.....
- Railways, broad gauge: double; single with station; under constm.....
- Railways, other gauges: double; single with distance stone; do.....
- Mineral line or tramway. 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. Chhatti. Church. Mosque. Idgah. Tomb. Graves.....
- Lighthouse. Lightship. Buoys: lighted; unlighted. Anchorage.....
- Mine. Vine on trellis. Grass. Scrub.....
- Palms: palmyra; other. Plantain. Conifer. Bamboo. Other trees.....
- Areas: cultivated; Wooded. Surveyed trees.....
- Boundary, international.....
- Boundary, state: demarcated; undemarcated.....
- Boundary, district; subdivision; taluk or taluk; forest.....
- Boundary pillars: surveyed; unlocated.....
- Heights: triangulated: station: point; approximate.....
- Bench-mark: geodetic; tertiary; canal.....
- Post office. Telegraph office. Overhead tank.....
- Rest house or inspection bungalow. Circuit house. Police station.....
- Camping Ground. Forest: reserved; protected.....
- Spaces names: administrative; locality or tribal.....
- Hospital. Dispensary. Veterinary. Hospital/Dispensary.....
- Aerodrome. Helipad. Tourist site.....
- Powerline: with pylons surveyed; with poles unsurveyed.....

17 APR 2023



APPLICANT :

M. Sri. RAJALAKSHMI SAMAPPA BUILDING
 MATERIALS COMPANY,
 No.677/ 1, VELLAMADAL,
 ANNOOR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.No : 1118/ 1,
 EXTENT : 3.00.36 Ha.,
 VILLAGE : BILICHI,
 TALUK : COIMBATORE NORTH,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

PLATE NO - I-A

DATE OF SURVEY : 05.04.2023

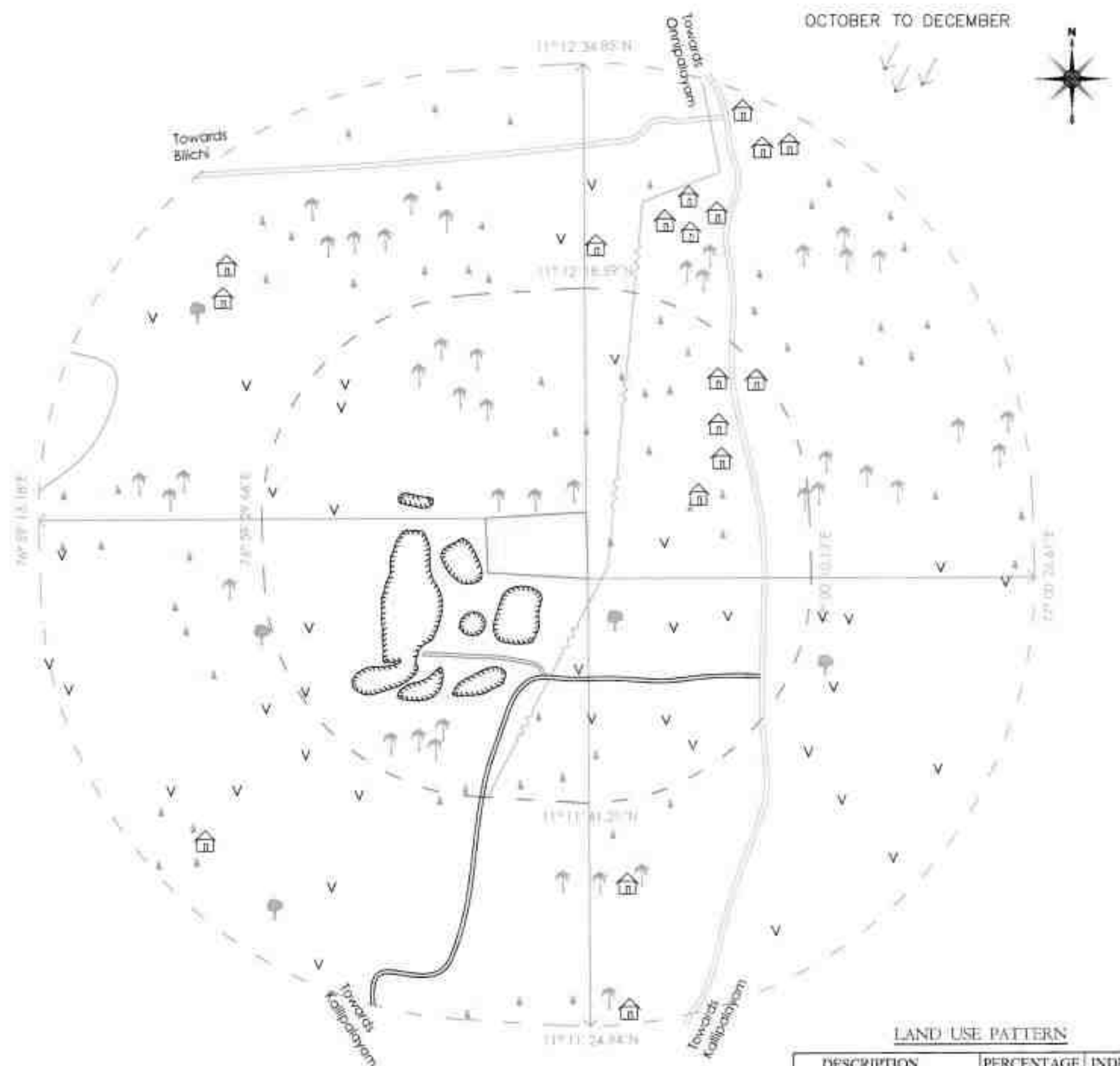
TOPO SKETCH OF QUARRY LEASE APPLIED AREA FOR 10Km RADIUS

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. VISWANATHARAJ, S.C.,
 QUALIFIED PERSON



OCTOBER TO DECEMBER



JULY TO SEPTEMBER

TOPO SHEET NO. : 5B - A/16
 LATITUDE : 11°11'57.48\"/>

LAND USE PATTERN

DESCRIPTION	PERCENTAGE	INDEX
QUARRY PITS	(10%)	☐
TREES/COCO. FARM	(08%)	🌴
SEASONAL AGRI LAND	(39%)	☐
ROADS	(04%)	—
HABITATION	(05%)	🏠
ELEVATED AREA	(04%)	⬭
BARREN LAND	(30%)	V V
TOTAL	100%	

INDEX

- ☐ Q.L. APPLIED AREA
- ☐ 1 Km RADIUS
- ☐ 500m RADIUS
- ☐ SEASONAL AGRICULTURE LAND
- 🌴 TREES & COCONUT-FARM
- 🏠 HABITATION
- ☐ QUARRY PIT
- ☐ WIND DIRECTION
- ☐ PANCHAYAT ROAD
- ☐ APPROACH ROAD
- ☐ CART TRACK
- V V BARREN LAND
- ⬭ ELEVATED AREA



APPLICANT :

M. Sri. RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY,
 No.677/ 1, VELLAMADAI,
 ANNOOR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.No : 1118/1,
 EXTENT : 3.00.36 Ha,
 VILLAGE : BILICHI,
 TALUK : COIMBATORE NORTH,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

PLATE NO - I-B

DATE OF SURVEY : 05.04.2023

ENVIRONMENTAL & LAND USE PLAN

SCALE: 1:10,000

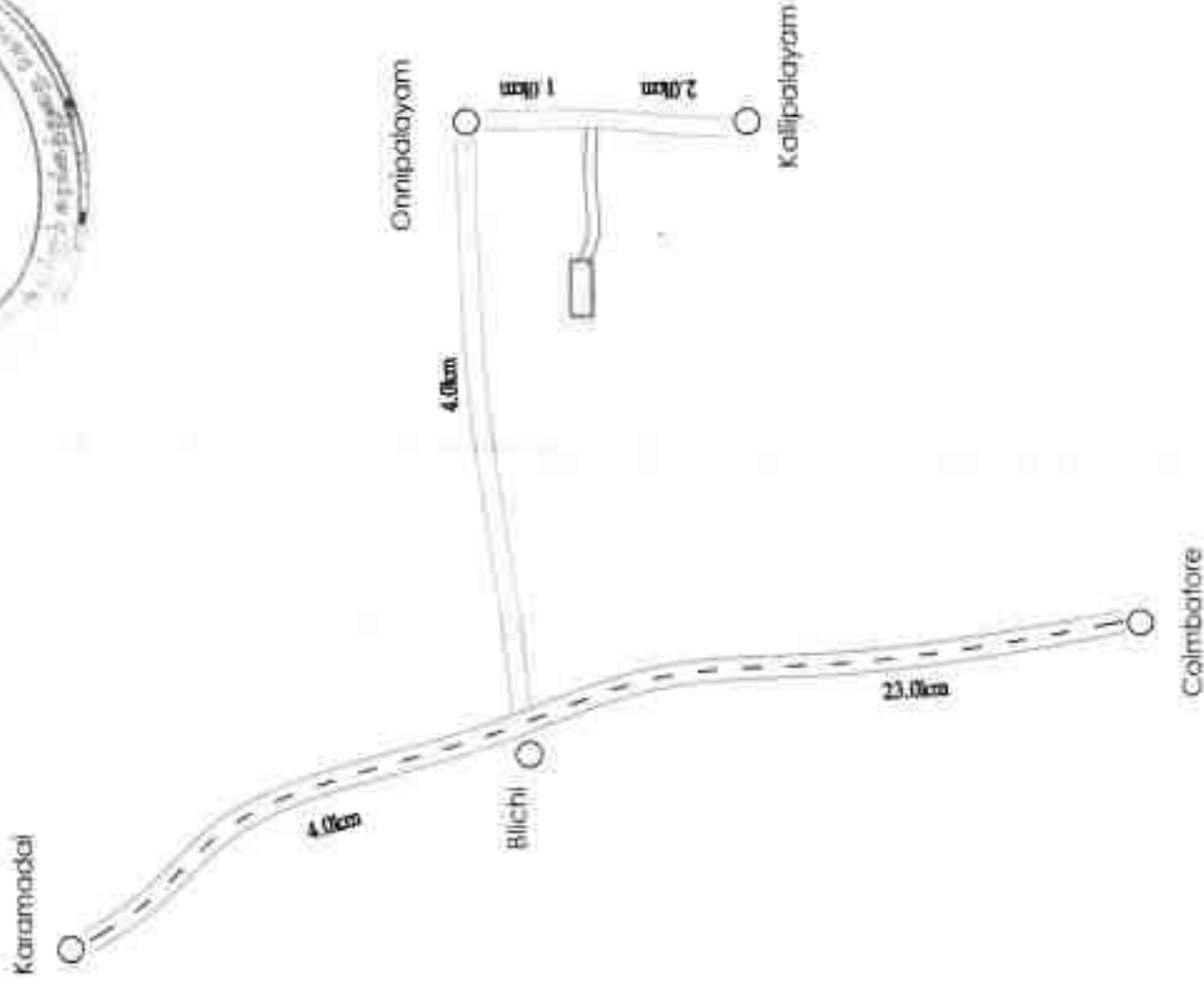
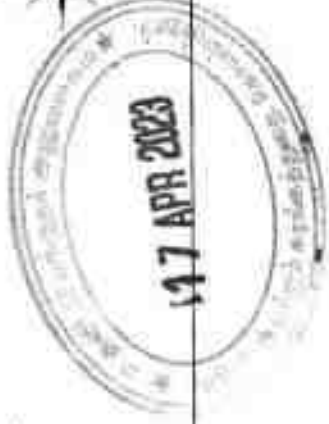
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

P. Viswanathan

P.VISWANATHAN,M.Sc.
 QUALIFIED PERSON

PLATE NO: I-C
ROUTE MAP



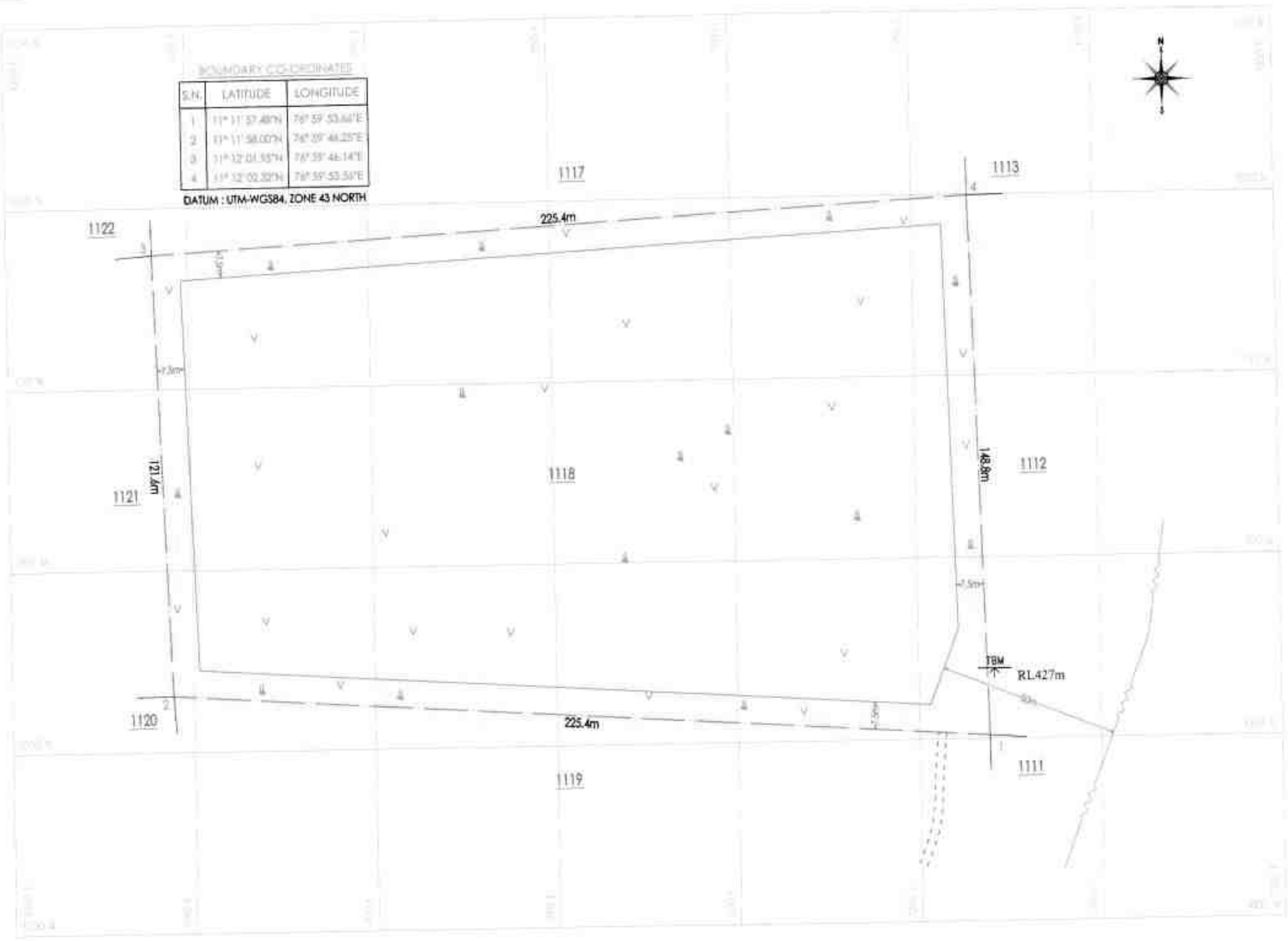
<p><u>INDEX</u></p> <p>LEASE APPLIED AREA </p> <p>NATIONAL HIGHWAY </p> <p>VILLAGE ROAD </p> <p>APPROACH ROAD </p>	<p><u>APPLICANT :</u> T.M. SRI RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY, No.6777/1, VELLAMADAI, ANNOOR TALUK, COIMBATORE DISTRICT.</p> <p><u>LOCATION OF Q.L.A. AREA:</u> S.F.No : 1118/1, EXTENT : 3.00.36 Ha, VILLAGE : BILICHI, TALUK : COIMBATORE NORTH, DISTRICT : COIMBATORE, STATE : TAMIL NADU.</p>	<p><u>SCALE :</u> NOT TO SCALE</p> <p><u>PREPARED BY:</u></p> <p>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> <p><i>P. J. Anandaram</i> P. J. ANANDARAM IYER QUALIFIED PERSON</p>
--	---	--



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	11° 11' 57.48"N	76° 59' 53.66"E
2	11° 11' 58.00"N	76° 59' 44.25"E
3	11° 12' 01.95"N	76° 59' 46.14"E
4	11° 12' 02.32"N	76° 59' 53.50"E

DATUM : UTM-WGS84, ZONE 43 NORTH



- INDEX**
- Q.L. APPLIED AREA BOUNDARY
 - 7.5m & 50m SAFETY DISTANCE
 - TEMPORARY BENCH MARK
 - GRAVEL
 - SHRUBS
 - APPROACH ROAD
 - E.B. LINE

APPLICANT :
 Tvl. Sri. RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY,
 No.677/ 1, VELLAMADAI,
 ANNOOR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF Q.L.A. AREA:
 S.F.No : 1118/ 1,
 EXTENT : 3.00.36 Ha,
 VILLAGE : BILICHI,
 TALUK : COIMBATORE NORTH,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

PLATE NO - II
 DATE OF SURVEY : 05.04.2023

QUARRY LEASE PLAN & SURFACE PLAN
 SCALE. 1:1000

PREPARED BY :
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

P. Viswanathan
 P. VISWANATHAN, M.Sc.,
 QUALIFIED PERSON



STATIONARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	11° 11' 57.48"N	76° 59' 53.64"E
2	11° 11' 58.00"N	76° 59' 46.25"E
3	11° 12' 01.95"N	76° 59' 46.34"E
4	11° 12' 02.32"N	76° 59' 53.56"E

DATUM : UTM-WGS84, ZONE 43 NORTH



INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m & 50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- WEATHERED ROCK
- ROUGHSTONE
- STRIKE & DIP
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- E.B. LINE
- D.O.E. DEPTH OF ESTIMATION

APPLICANT :
 Tvl. Sri. RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY,
 No.677/1, VELLAMADAL,
 ANNOOR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF Q.L.A. AREA:
 S.F.No : 1118/1,
 EXTENT : 3.00.36 Ha,
 VILLAGE: BILICHI,
 TALUK : COIMBATORE NORTH,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

PLATE NO - III-A

DATE OF SURVEY : 05.04.2023

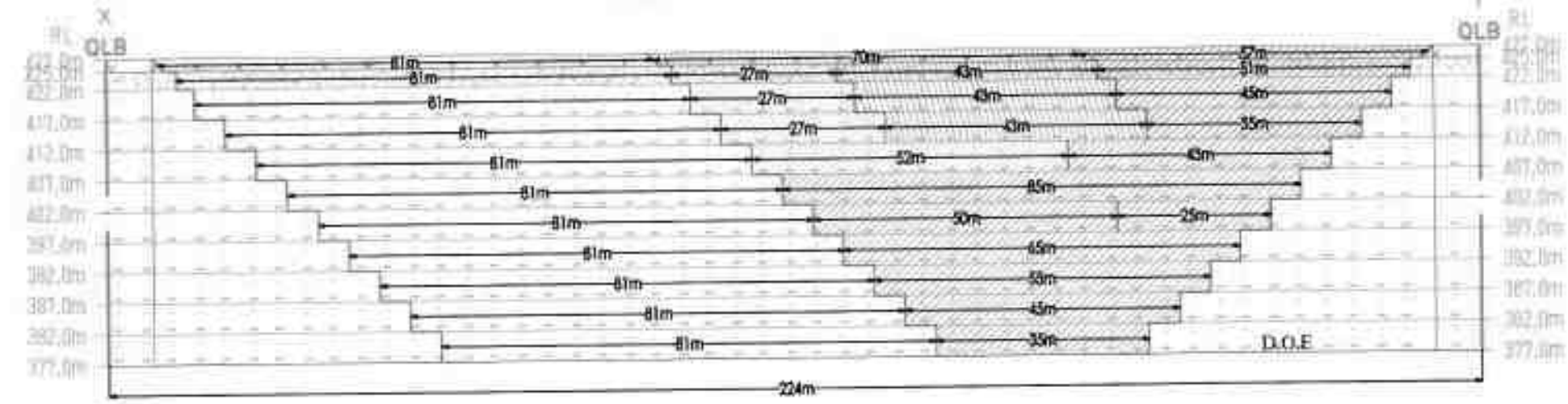
**TOPOGRAPHY, GEOLOGICAL PLAN,
 FIRST FIVE YEARWISE
 DEVELOPMENT & PRODUCTION
 PLAN & SECTIONS**

SCALE: 1:1000

PREPARED BY :
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
 PLATE IS TRUE AND CORRECT TO THE BEST OF MY
 KNOWLEDGE BASED UPON THE LEASE MAP
 AUTHENTICATED BY STATE GOVERNMENT

P. Viswanathan
 P. VISWANATHAN, M.Sc.,
 QUALIFIED PERSON

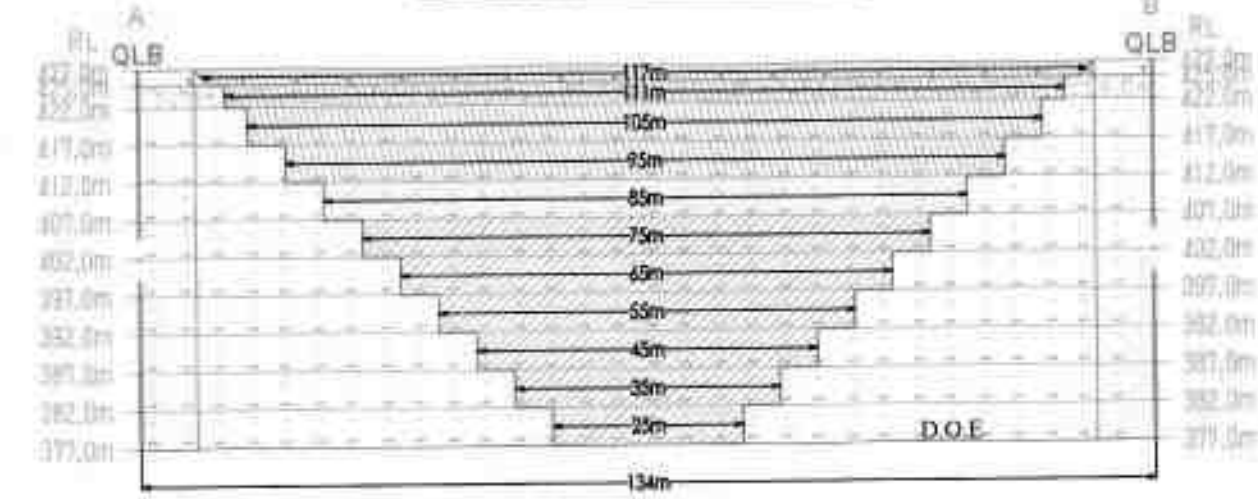
SECTION ALONG X-Y



- SITE SERVICES (Proposed)**
- A - OFFICE
 - B - STORE ROOM
 - C - FIRST AID ROOM
 - D - REST SHELTER
 - E - TOILET

- I - yr Proposed area to be Planted
- II - yr Proposed area to be Planted
- III - yr Proposed area to be Planted
- IV - yr Proposed area to be Planted
- V - yr Proposed area to be Planted

SECTION ALONG A-B

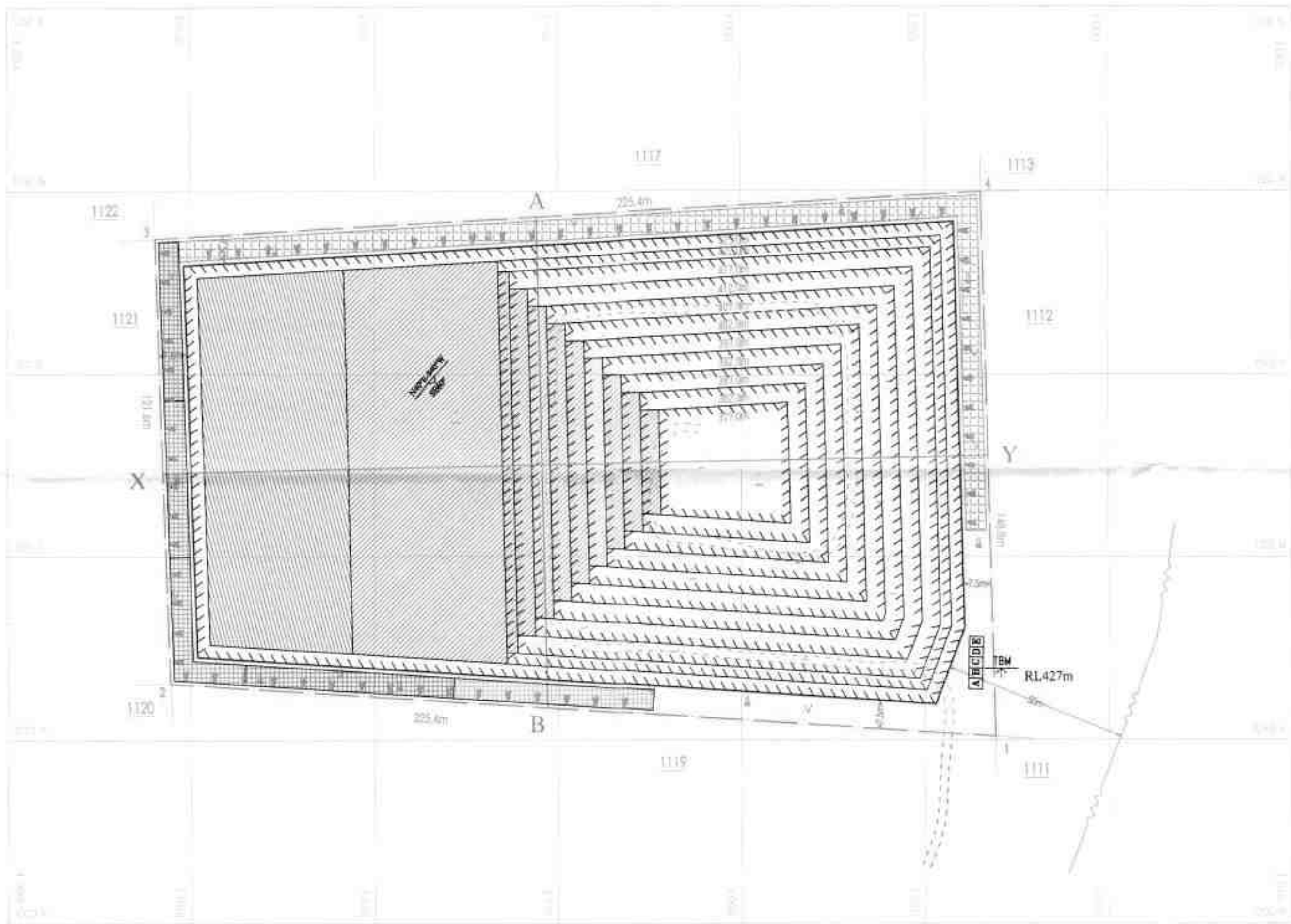


- I - yr Proposed area to be Quarried
- II - yr Proposed area to be Quarried
- III - yr Proposed area to be Quarried
- IV - yr Proposed area to be Quarried
- V - yr Proposed area to be Quarried



POINT NO.	UTM EASTING	UTM NORTHING
1	111° 11' 57.4874"	76° 59' 53.6474"
2	111° 11' 58.0074"	76° 59' 46.3574"
3	111° 12' 01.3574"	76° 59' 46.3474"
4	111° 12' 02.3274"	76° 59' 53.6474"

DATUM : UTM-WGS84, ZONE 43 NORTH

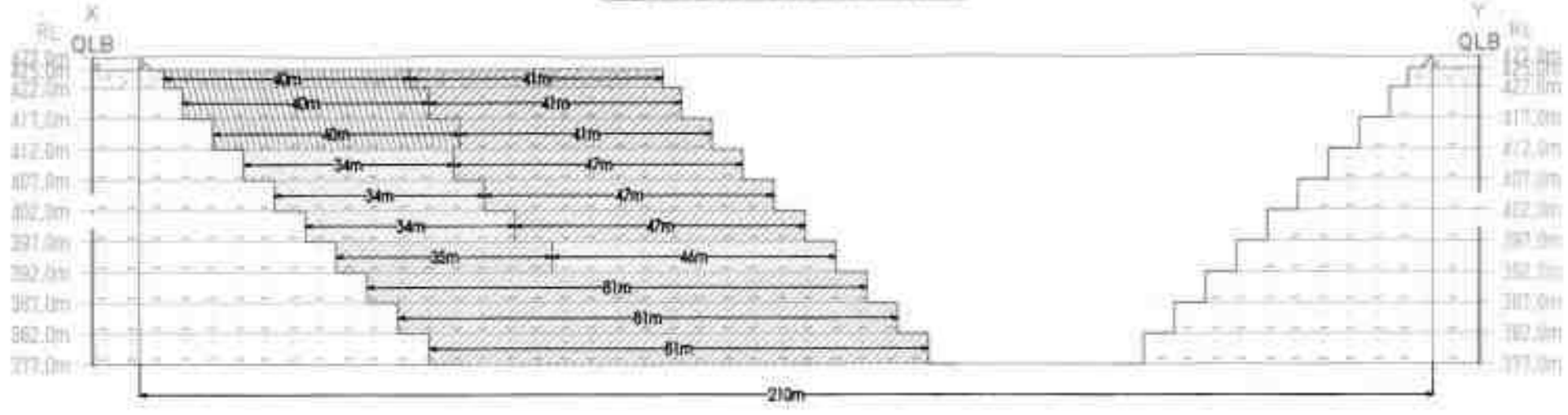


INDEX	
	Q.L. APPLIED AREA BOUNDARY
	7.5m & 50m SAFETY DISTANCE
	TEMPORARY BENCH MARK
	GRAVEL
	WEATHERED ROCK
	ROUGHSTONE
	STRIKE & DIP
	QUARRY PIT
	SHRUBS
	QUARRY HAUL ROAD
	APPROACH ROAD
	E.B LINE
	1-V Yr PLANTATION

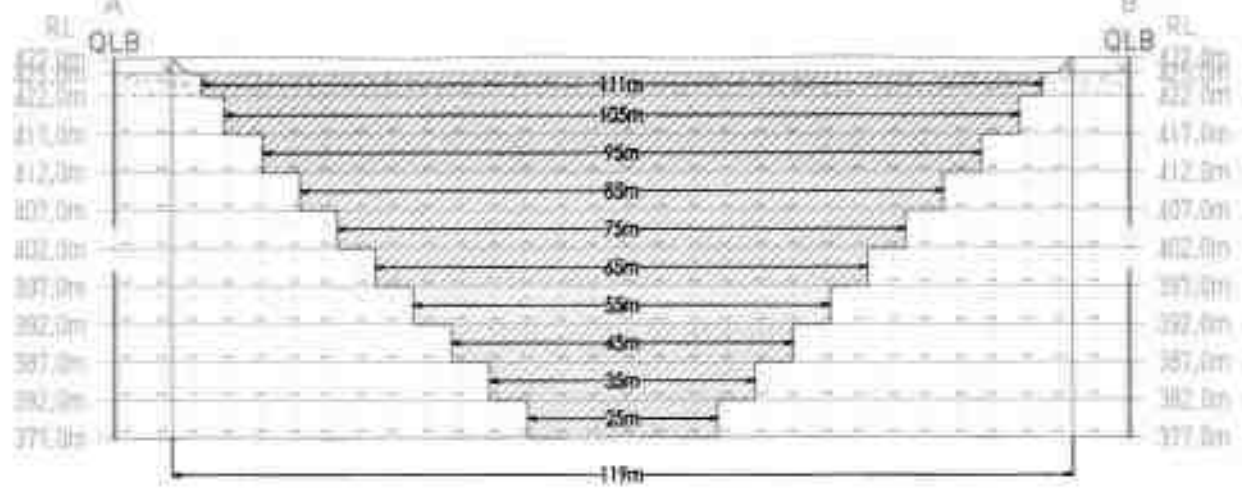
APPLICANT :
 Tvl. Sri. RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY,
 No.677/ 1, VELLAMADAI,
 ANNOOR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF Q.L.A AREA:
 S.F.No : 1116/ 1,
 EXTENT : 3.00.36 Ha.
 VILLAGE : BILICHI,
 TALUK : COIMBATORE NORTH,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

SECTION ALONG X-Y



SECTION ALONG A-B



Proposed Pit Dimension (max)
 Pit-1 = 210mX119mX50m(d)
 (For I to V-yr)

SITE SERVICES
 A - OFFICE
 B - STORE ROOM
 C - FIRST AID ROOM
 D - REST SHELTER
 E - TOILET

- VI - yr Proposed area to be Planted
- VII - yr Proposed area to be Planted
- VIII - yr Proposed area to be Planted
- IX - yr Proposed area to be Planted
- X - yr Proposed area to be Planted

- VI - yr Proposed area to be Quarried
- VII - yr Proposed area to be Quarried
- VIII - yr Proposed area to be Quarried
- IX - yr Proposed area to be Quarried
- X - yr Proposed area to be Quarried

PLATE NO - III-B
 DATE OF SURVEY : 05. 4. 2023

**TOPOGRAPHY, GEOLOGICAL PLAN,
 SECOND FIVE YEARWISE
 DEVELOPMENT & PRODUCTION
 PLAN & SECTIONS**

SCALE: 1:1000

PREPARED BY :
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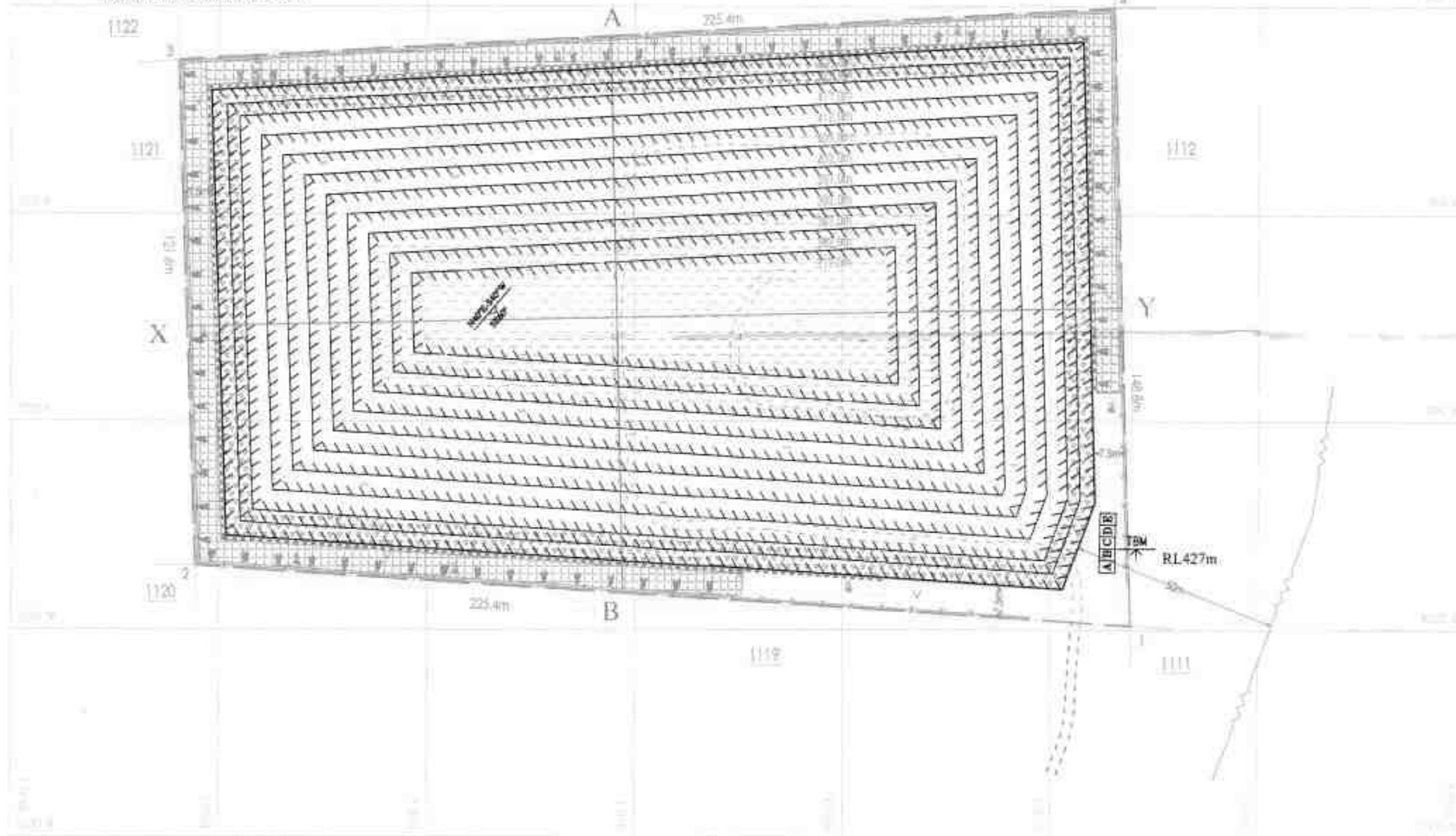
P. V. Srinivasan
 P. VISWANATHAN, S.C.,
 QUALIFIED PERSON



BOUNDARY CO-ORDINATES

S.N	LATITUDE	LONGITUDE
1	11° 11' 57.40"N	76° 59' 33.66"E
2	11° 11' 58.07"N	76° 59' 46.25"E
3	11° 12' 01.93"N	76° 59' 46.14"E
4	11° 12' 02.32"N	76° 59' 53.54"E

DATUM : UTM-WGS84, ZONE 43 NORTH



INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m & 50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- WEATHERED ROCK
- ROUGHSTONE
- STRIKE & DIP
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- E.B LINE
- I-V Yr PLANTATION
- VI-X Yr PLANTATION
- BARBED WIRE FENCING
- PROPOSED GARLAND DRAIN
- EXISTING LAND FORM
- SOIL LAYER
- REHABILITATED LAND FORM
- OLD SURFACE LEVEL
- FINISHED SURFACE LEVEL
- RAIN WATER STORAGE

APPLICANT :
 Tvl. Sri. RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY,
 No.677/ 1, VELLAMADAL
 ANNOOR TALUK,
 COIMBATORE DISTRICT.

LOCATION OF Q.L.A AREA:
 S.F.No : 1118/ 1,
 EXTENT : 3.00,36 Ha.
 VILLAGE : BILICHI,
 TALUK : COIMBATORE NORTH,
 DISTRICT : COIMBATORE,
 STATE : TAMIL NADU.

PLATE NO - IV
 DATE OF SURVEY : 05.04.2023

PROGRESSIVE QUARRY CLOSURE PLAN & SECTIONS
 SCALE: 1:1000

PREPARED BY :
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

 P. VISWANATHAN, Sr. QUALIFIED PERSON

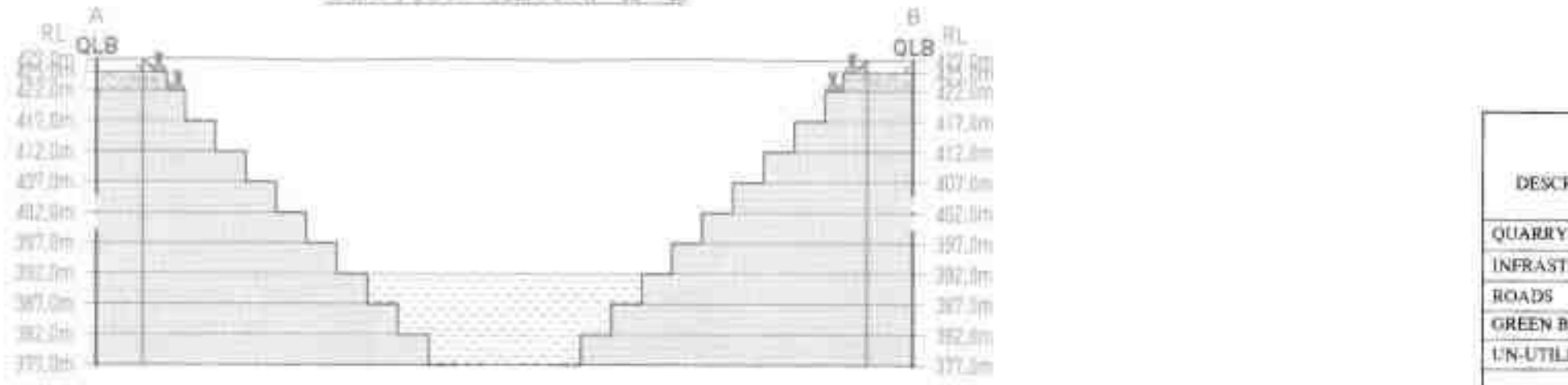
SECTION ALONG X-Y



SITE SERVICES
 A - OFFICE
 B - STORE ROOM
 C - FIRST AID ROOM
 D - REST SHELTER
 E - TOILET

Proposed Pit Dimension (max)
 = 210mX119mX50m(d)

SECTION ALONG A-B



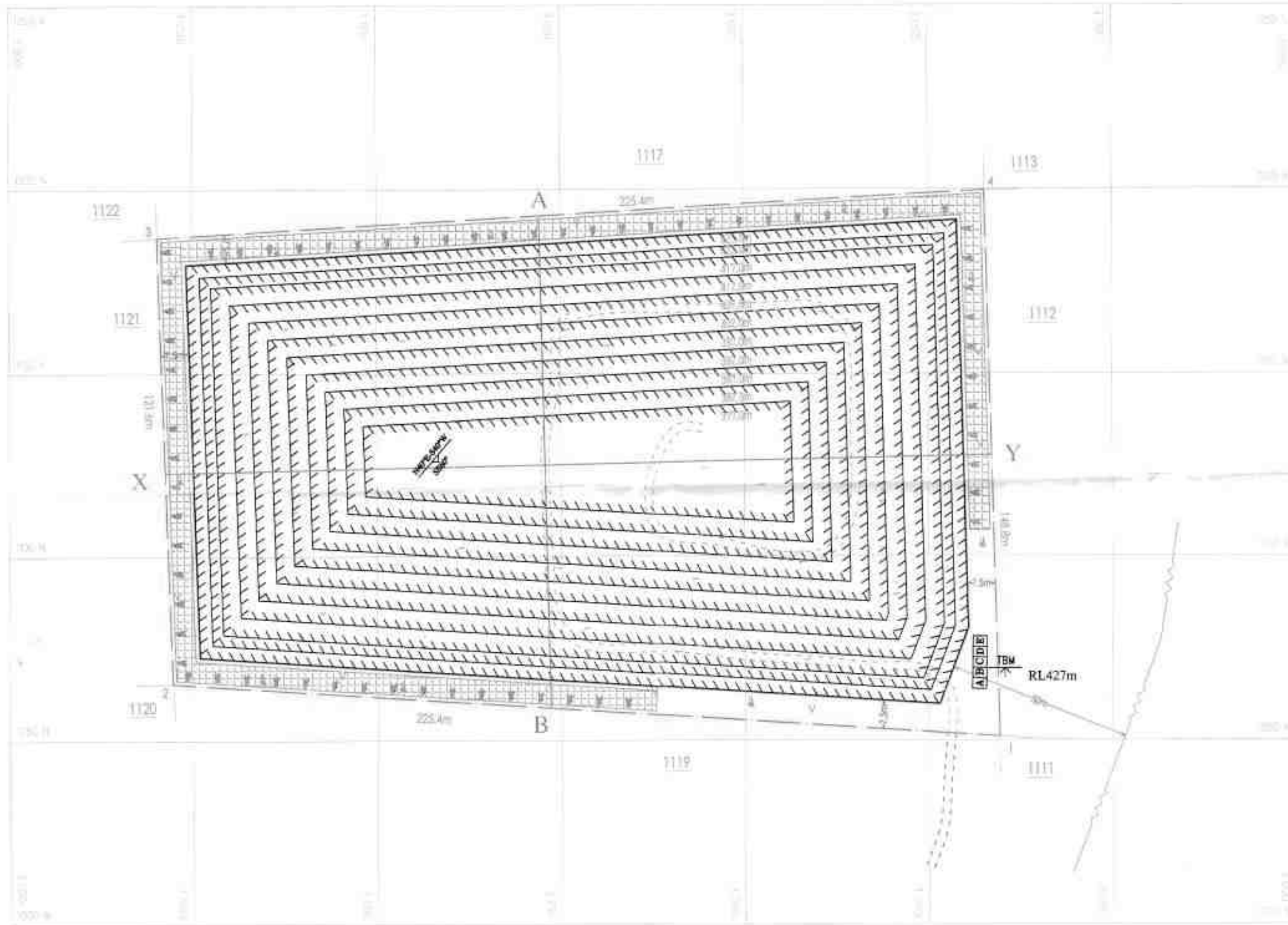
LAND USE PATTERN

DESCRIPTION	PRESENT AREA IN (Ha)	AREA REQUIRED DURING THE FIRST FIVE YEARS OF PLAN PERIOD (Ha)	AREA AT THE END OF LEASE PERIOD (Ha)
QUARRYING PIT	Nil	2.50.00	2.50.00
INFRASTRUCTURE	Nil	0.01.00	0.01.00
ROADS	Nil	0.02.00	0.02.00
GREEN BELT	Nil	0.17.00	0.31.00
UN-UTILIZED AREA	3.00,36	0.30,36	0.16,36
TOTAL	3.00,36	3.00,36	3.00,36



S.N.	LATITUDE	LONGITUDE
1	11° 11' 57.48" N	76° 59' 53.44" E
2	11° 11' 58.00" N	76° 59' 46.23" E
3	11° 12' 01.98" N	76° 59' 46.14" E
4	11° 12' 02.32" N	76° 59' 53.56" E

DATUM : UTM-WGS84, ZONE 43 NORTH



INDEX

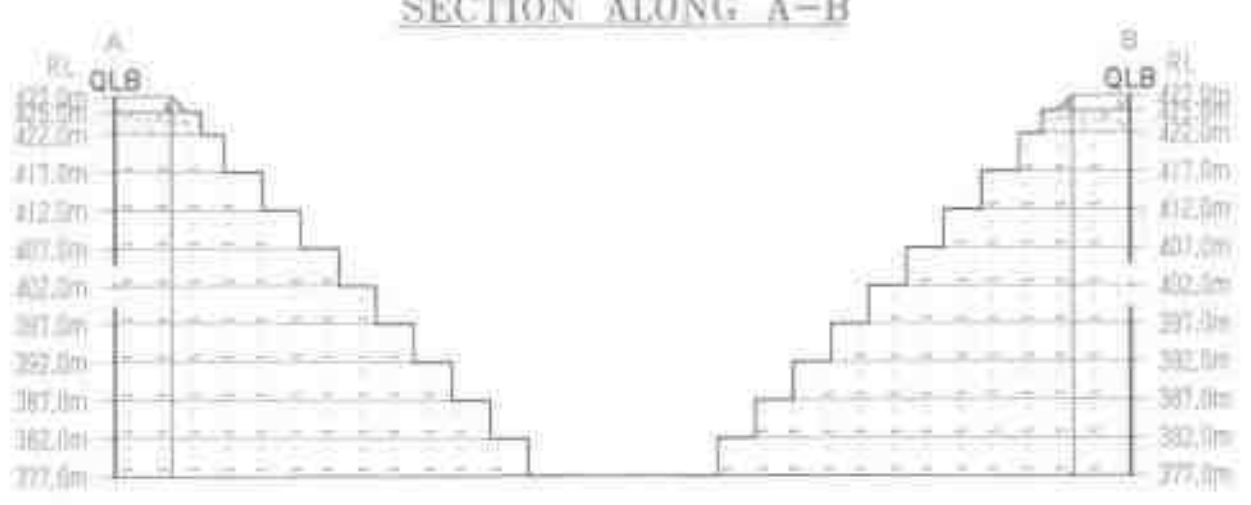
- Q.L. APPLIED AREA BOUNDARY
- 7.5m & 50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- WEATHERED ROCK
- ROUGHSTONE
- STRIKE & DIP
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- E.B LINE
- I-V Yr PLANTATION
- VI-X Yr PLANTATION

SECTION ALONG X-Y



- SITE SERVICES**
- A - OFFICE
 - B - STORE ROOM
 - C - FIRST AID ROOM
 - D - REST SHELTER
 - E - TOILET

SECTION ALONG A-B



Ultimate Pit Dimension (max)
= 210mX119mX50m(d)

APPLICANT :
Tvl. Sri. RAJALAKSHMI SAMAPPA BUILDING MATERIALS COMPANY,
No.677/ 1, VELLAMADAI,
ANNOOR TALUK,
COIMBATORE DISTRICT.

LOCATION OF Q.L.A AREA:
S.F.No : 1118/ 1,
EXTENT : 3.00.36 Hc.
VILLAGE : BILICHI,
TALUK : COIMBATORE NORTH,
DISTRICT : COIMBATORE,
STATE : TAMIL NADU.

PLATE NO - V
DATE OF SURVEY : 05.04.2023

CONCEPTUAL PLAN & SECTIONS
SCALE: 1:1000

PREPARED BY :
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT.
P. Viswanathan
P. VISWANATHAN, M.Sc.,
QUALIFIED PERSON

கோவை அலகில் உள்ள ௧௩.௩.பிளீசர்
 கிராமம் ௧௩.௩.பிளீசர் கிளக்கு கிராமத்தில் உள்ள
 எண். 3333 அல்லது திரு. பி.சுப்பிரமணியன் காலனில்
 தொழிலாளர் திரு. சி.சுப்பிரமணியன் மனைவி சித்திரா
 சுவாமி கிளக்குக்கு மேற்படி கிராம க.ச. 1118/1
 ௧௩ காலனில் 4.௧௨.3.00 36 அளவிற்குள்ளும்
 புகளும் மத்தியிலும் எண்ணம் க.ச. ௧௩. 1118/1
 காலனில் 300 கிலோ அளவிற்கும் கிராம காலனில்
 உள்ள அளவில் தொழிலாளர்கள், கோவை, மிளகாயில்
 சில காலனில் ஒரு அளவிற்கும் அளவிற்கும்.

25/04/2023
 கிராம நிர்வாக அலுவலர்,
 3, பிளீசர் (கிழக்கு)
 கோவை (வடக்கு)

**TOPOGRAPHICAL VIEW OF BILICHI ROGH STONE &
GRAVEL QUARRY LEASE APPLIED AREA**



Name of the Applicant : **M/s. Sri Rajalakshmi Samappa Building Materials Company,**
Address : No. 677/1, Vellamadai,
Annoor Taluk,
Coimbatore District – 641 110,
Tamil Nadu State.

Location:

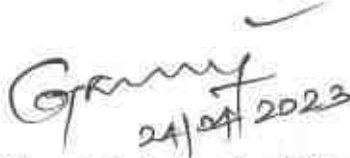
S.F.No. : 1118/1
Extent : 3.00.36 Ha
Village : Bilichi
Taluk : Coimbatore North
District : Coimbatore

Signature of the applicant

For M/s. Sri Rajalakshmi Samappa Building
Materials Company


S.Gnanasekaran

(Managing Partner & Authorized Person)


24/04/2023
(Village Administrative Officer)

கிராம் நிர்வாக அலுவலர்,
3, பிளிச்சி (கிழக்கு)
கோவை (வடக்கு)

பொது மக்கள் வாக்குமூலம்

கோயம்புத்தூர் மாவட்டம் வடக்கு வட்டம் நெ.3 பிளிச்சி (கிழக்கு) கிராமம், ஒன்றிபாளையம் பகுதியில் வசிக்கும் பொது மக்களாகிய நாங்கள் கொடுக்கும் வாக்கு மூலம் என்னவென்றால்

கோயம்புத்தூர் மாவட்டம் வடக்கு வட்டம் நெ.3 பிளிச்சி (கிழக்கு) கிராமத்தில் .ச. எண் 1118/1 ல் 4. ஹெக்டேர் 3.00.36 ஏர்ஸ் விஸ்தீரணம் உள்ள பட்டா பூமியில் தி/வா ஸ்ரீ ராஜலட்சுமி சாமப்பா பில்டிங் மெட்ரிரியல்ஸ் கம்பெனி சாதாரண கற்கள் மற்றும் கிராவல் குத்தகை உரிமம் வழங்க எங்களுக்கு எவ்வித ஆட்சயனையும் இல்லை என்பதை தெரிவித்துக் கொள்கிறோம்.

1. R. சிவராஜ் S/o R. ராஜகௌம் 3/101 ஒன்றிபாளையம்
2. சிதம்பரபி S/o ரமணி 3/31 ஒன்றிபாளையம்
3. லாரப்பா S/o ராமசம்பா 3/35 ஒன்றிபாளையம்
4. குக்குமணி S/o ரமணி 3/38 ஒன்றிபாளையம்
5. செந்தி S/o சந்திரன் 3/48 ஒன்றிபாளையம்
6. Kasthuri S/o லாரப்பா 3/32 ஒன்றிபாளையம்
7. M. சண்முகம் S/o ரமணி 3/47 ஒன்றிபாளையம்
8. C. ரமந்திரன் S/o சிவராஜ் 3/38 ஒன்றிபாளையம்
9. Senthikumar S/o சிதம்பரபி 3/28 ஒன்றிபாளையம்
10. S. Divya w/o Sivaraj.R 3/101 ஒன்றிபாளையம்



GOVERNMENT OF TAMILNADU
REGISTRATION DEPARTMENT
தமிழ்நாடு அரசு
பதிவுத்துறை

Certificate of Encumbrance on Property
சொத்து தொடர்பான வில்லங்கச் சான்று

S.R.O /சா.ப.அ: பெரியநாயக்கன் பாளையம்	Date / நாள்: 22-Jan-2019
Village /கிராமம்:பிளிச்சி	Survey Details /சர்வே விவரம்: 1118

Search Period /தேடுதல் காலம்: 01-Jan-2005 - 21-Jan-2019

Sr. No./வ. எண்	Document No.& Year/ ஆவண எண் மற்றும் ஆண்டு	Date of Execution & Date of Presentation & Date of Registration/எழுதிக் கொடுத்த நாள் & தாக்கல் நாள் & பதிவு நாள்	Nature/தன்மை	Name of Executant(s)/ எழுதிக் கொடுத்தவர்/பெயர்(கள்)	Name of Claimant(s)/ எழுதி வாங்கியவர்/பெயர்(கள்)	Vol.No & Page No/ தொகுதி எண் மற்றும் பக்க எண்
1	393/2019	10-Jan-2019 10-Jan-2019 10-Jan-2019	விற்பனை ஆவணம்/விற்பனை ஆவணம்	1. சின்னசாமி 2. எஸ் ராஜாமணி 3. சுந்தரம்மாள் 4. ராஜேந்திரன் 5. ஜெயராஜன்	1. சந்திரா 2. ஜெயலட்சுமி	
Consideration Value/கைமாற்றுத் தொகை: ரூ. 45,98,000/-			Market Value/சந்தை மதிப்பு: ரூ. 45,98,000/-		PR Number/முத்தைய ஆவண எண்: 20/1978	
Schedule A Details: Property Type/சொத்தின் வகைப்பாடு: விவசாய நிலம்				Property Extent/சொத்தின் விஸ்தீர்ணம்: 7 ஏக்கர், 53.0 சென்ட்		
Village & Street/கிராமம் மற்றும் தெரு: பிளிச்சி				Survey No./புல எண் : 1118/1		
				Schedule Remarks/சொத்து விவரம் தொடர்பான குறிப்புகள்: பட்டா எண் 1118/1 று காலம் 14. ஏ. 7.53 விஸ்தீர்ணமுள்ள பூமி முழுதும் சகிதம்		

Number of Entries/பதிவுகளின் எண்ணிக்கை: 1

Disclaimer: The details of the above property have been provided with due care and with reference to the Acts and Rules. However in case of any error or omission, the

அனுப்புநர்

வே.பண்டரிநாதன், பி.எஸ்.சி.,
வருவாய் கோட்டாட்சியர்,
கோயமுத்தூர் வடக்கு(பொ)
கவுண்டம்பாளையம்,
கோயம்புத்தூர் - 641 030.

பெறுநர்

மாவட்ட ஆட்சித்தலைவர்,
கோயம்புத்தூர்.

ந.க..எண். 1811/2022/அ3 நாள் : 13.2.2023.

அய்யா,

பொருள்: கனிமங்களும் - சுரங்கங்களும் - சாதாரண கற்கள் மற்றும் கிராவல் மண் - வெட்டியெடுக்க — கோயம்புத்தூர் மாவட்டம், கோயம்புத்தூர் வடக்கு வட்டம் - பிளிச்சி கிராமம், புல எண்.1118/1-ல் 3.00.36 ஏர்ஸ் பரப்பளவுள்ள பட்டா பூமியில் தி/வா ஸ்ரீராஜலட்சுமி சாமப்பா பில்லிங் மெட்ரீயல்ஸ் என்ற நிறுவனம் சாதாரணக் கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் கோரி விண்ணப்பம் செய்துள்ளது — அறிக்கை அனுப்புதல் - தொடர்பாக.

பார்வை:

1. தி/வா ஸ்ரீ ராஜலட்சுமி சாமப்பா பில்லிங் மெட்ரீயல்ஸ் என்பவரது மனு
2. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை ந.க.எண்.312/கனிமம்/2022 நாள்: 31.03.2022
3. கோவை வடக்கு வட்டாட்சியரின் அறிக்கை ந.க.6797/2022/அ5 நாள்: 07.11.2022

கோயம்புத்தூர் மாவட்டம், கோயம்புத்தூர் வடக்கு வட்டம், பிளிச்சி கிராமம், புல எண்.1118/1 நெ.காலையில் பு.ஹெக் 3.00.36 ஏர்ஸ் பரப்பளவுள்ள பட்டா பூமியில் தி/வா ஸ்ரீராஜலட்சுமி சாமப்பா பில்லிங் மெட்ரீயல்ஸ் கம்பெனி நிறுவனத்தினர் சாதாரணக் கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் கோரியது தொடர்பாக பார்வை 3-ல் காணும் கோவை வடக்கு வட்டாட்சியர் அறிக்கை சமர்ப்பித்துள்ளார். மேற்படி கோவை வடக்கு வட்டாட்சியரின் அறிக்கையின் பேரில் எனதறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பித்துக் கொள்கிறேன்.

கோயம்புத்தூர் மாவட்டம், கோவை வடக்கு வட்டம், பிளிச்சி கிராமம், புல எண்: 1118/1 நெ.காலையில் பு.ஹெக்.3.00.36 ஏர்ஸ் (பு.ஏக் 7.42 சென்ட்)பூமியானது ஞானசேகரன் மனைவி சந்திரா (1) பழனிசாமி மனைவி ஜெயலட்சுமி (2) ஆகியோருக்கு பட்டா எண்: 3333-ன்படியும் பெரியநாயக்கன்பாளையம் சார்பதிவாளர் அலுவலக பத்திர எண்: 393/2019-ன்படி கூட்டாக பாத்தியப்பட்டதாகும். மேற்படி ஞானசேகரன் மனைவி சந்திரா (1) பழனிசாமி மனைவி ஜெயலட்சுமி (2) ஆகியோர்கள் கூட்டாக சேர்ந்து அண்ணூர் வட்டம்,

வெள்ளமடை கிராமம், 6/177A என்ற முகவரியில் இயங்கி வரும் ஸ்ரீ ராஜலட்சுமி சாமப்பா பில்டிங் மெட்ரீரியல்ஸ் நிறுவனத்தினருக்கு மேற்படி பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மணர் எடுக்க 10 ஆண்டுகளுக்கு சம்மத கடிதம் கொடுத்துள்ளார்கள்.

மேற்படி பூமிக்கு வடக்கில் க.ச.1117 நெ. காலை பட்டா பூமியும், தெற்கில் க.ச.எண்: 1119 நெ. காலை பட்டா பூமியும், கிழக்கில் க.ச.எண்: 1112 நெ. காலை பட்டா பூமியும், மற்றும் மேற்கில் க.ச.எண்: 1121 நெ.காலை பட்டா பூமியும் எல்லைகளாக அமைந்துள்ளது.

மேலும் மேற்படி காலையில் க.ச.எண்: 1118/2 நெ.காலையில் உள்ள பு.ஹெக் 0.04.14 ஏர்ஸ் பூமியானது ரயத்துவாரி நத்தம் என உள்ளது. மேற்படி பூமியில் நிலையில் குடியிருப்புகள் ஏதுமில்லை. மேற்படி பிரஸ்தாப புலத்திலிருந்த 300 மீ சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகள், குடியிருப்புகள், கிராம நத்தம் ஆகியவை ஏதுமில்லை. மேற்படி புலத்திலிருந்து 50 மீ சுற்றளவில் உயர் மின் அழுத்த, தாழ்வழுத்த மின்கம்பிகள், நீர்வழிபாதைகள் ஏதுமில்லை. பிரஸ்தாப புலத்தை ஒட்டி அரசு புறம்போக்கு நிலங்கள் ஏதுமில்லை.

எனவே கோவை மாவட்டம், கோயம்புத்தூர் வடக்கு வட்டம், பிளிச்சி கிராமம், புல எண்.1118/1 நெ.காலையில் பு.ஹெக் 3.00.36 ஏர்ஸ் பரப்பளவுள்ள பட்டா பூமியில் தி/வா ஸ்ரீராஜலட்சுமி சாமப்பா பில்டிங் மெட்ரீரியல்ஸ் கம்பெனி நிறுவனத்தினர் சாதாரணக் கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் வழங்கலாம் எனவும் இத்துடன் தொடர்புடைய ஆவணங்கள் ஆகியவை இத்துடன் இணைத்தனுப்பியுள்ளேன் என்பதை பணிவுடன் தெரிவித்துக் கொள்கிறேன்.

இணைப்பு : தொடர்புடைய ஆவணங்கள்

தங்கள் உண்மையுள்ள,

வருவாய் கோட்பாட்டியர்,
கோயம்புத்தூர் வடக்கு(பொ)

13-2-2023

புலத்தணிக்கை குறிப்பு

வட்டம்	கோவை வடக்கு வட்டம்
கிராமம்	பிளிச்சி கிராமம்
புல எண்.	1118/1
புலத்தணிக்கை செய்த நாள்	11.02.2023

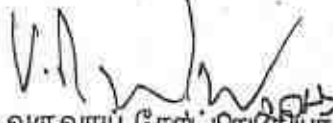
கோயம்புத்தூர் மாவட்டம், கோயம்புத்தூர் வடக்கு வட்டம், பிளிச்சி கிராமம், புல எண்.1118/1 நெ.காலையில் பு.ஹெக் 3.00.36 ஏர்ஸ் பரப்பளவுள்ள பட்டா பூமியில் தி/வா ஸ்ரீராஜலட்சுமி சாமப்பா பில்லிங் மெட்ரிசியல்ஸ் கம்பெனி நிறுவனத்தினர் சாதாரணக் கற்கள் மற்றும் கிராவல் குவாரி குத்தகை உரிமம் வழங்கக் கோரியது தொடர்பாக என்னால் இன்று (11.02.2023) புலத்தணிக்கை மேற்கொள்ளப்பட்டது.

கோயம்புத்தூர் மாவட்டம், கோவை வடக்கு வட்டம், பிளிச்சி கிராமம், புல எண்: 1118/1 நெ.காலையில் பு.ஹெக்.3.00.36 ஏர்ஸ் (பு.ஏக் 7.42 சென்ட்) பூமியானது ஞானசேகரன் மனைவி சந்திரா (1) பழனிசாமி மனைவி ஜெயலட்சுமி (2) ஆகியோருக்கு பட்டா எண்: 3333-ன்படியும் பெரியநாயக்கன்பாளையம் சார்பதிவாளர் அலுவலக பத்திர எண்: 393/2019-ன்படி கூட்டாக பாத்தியப்பட்டதாகும். மேற்படி ஞானசேகரன் மனைவி சந்திரா (1) பழனிசாமி மனைவி ஜெயலட்சுமி (2) ஆகியோர்கள் கூட்டாக சேர்ந்து அண்ணார் வட்டம், வெள்ளமடை கிராமம், 6/177A என்ற முகவரியில் இயங்கி வரும் ஸ்ரீ ராஜலட்சுமி சாமப்பா பில்லிங் மெட்ரிசியல்ஸ் நிறுவனத்தினருக்கு மேற்படி பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் எடுக்க 10 ஆண்டுகளுக்கு சம்மத கடிதம் கொடுத்துள்ளார்கள்.

மேற்படி பூமிக்கு வடக்கில் க.ச.1117 நெ. காலை பட்டா பூமியும், தெற்கில் க.ச.எண்: 1119 நெ. காலை பட்டா பூமியும், கிழக்கில் க.ச.எண்: 1112 நெ. காலை பட்டா பூமியும், மற்றும் மேற்கில் க.ச.எண்: 1121 நெ.காலை பட்டா பூமியும் எல்லைகளாக அமைந்துள்ளது.

மேலும் மேற்படி காலையில் க.ச.எண்: 1118/2 நெ.காலையில் உள்ள பு.ஹெக் 0.04.14 ஏர்ஸ் பூமியானது ரயத்துவாரி நத்தம் என உள்ளது. மேற்படி பூமியில் நிலையில் குடியிருப்புகள் ஏதுமில்லை. மேற்படி பிரஸ்தாப புலத்திலிருந்த 300 மீ சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகள், குடியிருப்புகள், கிராம நத்தம் ஆகியவை ஏதுமில்லை. மேற்படி புலத்திலிருந்து 50 மீ சுற்றளவில் உயர் மின் அழுத்த, தாழ்வழுத்த மின்கம்பிகள், நீர்வழிபாதைகள் ஏதுமில்லை. பிரஸ்தாப புலத்தை ஒட்டி அரசு புறம்போக்கு நிலங்கள் ஏதுமில்லை.

எனவே கோவை மாவட்டம், கோயம்புத்தூர் வடக்கு வட்டம், பிளிச்சி கிராமம், புல
எண்.1118/1 நெ.காலையில் பூணைக் 300.36 ஏர்ஸ் பரப்பளவுள்ள பட்டா பூமியில் தி/வா
ஸ்ரீராஜலட்சுமி சமீபப் பித்தல் வெட்டியல்ஸ் கம்பெனி நிறுவனத்தினர் சாதாரணக் கற்கள்
மற்றும் கிராலல் குவாரி குத்தகை உரிமை வழங்கலாம் என மாவட்ட ஆட்சித்தலைவர்
அவர்களுக்கு முன்பொழிவுகள் அனுப்பலாம்.


வருவாய் கோட்டாட்சியா
கோயம்புத்தூர் வடக்கு(பொ)

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அனுப்பநர்
திரு. A.சரவணன், M.Sc.,
வட்டாட்சியர்,
கோயம்புத்தூர் வடக்கு.

பெறுநர்
வருவாய் கோட்டாட்சியர்,
கோயம்புத்தூர் வடக்கு

A3

ந.க:6797/2022/அ5

நாள்: 07.11.2022

18/11/2022/அ

ஆய்வா,



பொருள்: கனிமங்களும் சுரங்கங்களும் - கோயம்புத்தூர் மாவட்டம், கோயம்புத்தூர் வடக்கு வட்டம் - பிளிச்சி கிராமம் - புல எண்.1118/1 நெ காலையில் பு.ஹெக்.3.00.36 ஏர்ஸ் உள்ள பட்டா பூமியில் தி/வா. ஸ்ரீ ராஜலட்சுமி சாமப்பா பில்டிங் மெட்ரீரியல்ஸ் நிறுவனம் - சாதாரண கற்கள் மற்றும் கிராவல் குத்தகை உரிமம் கோரியது - தொடர்பாக.

- பார்வை: 1. பிளிச்சி கிராம நிர்வாக அலுவலர் அறிக்கை நாள்: 21.07.2022
2. பெரியநாயக்கன்பாளையம் வருவாய் ஆய்வாளர் அறிக்கை நாள்: 21.07.2022

கோயம்புத்தூர் மாவட்டம், கோவை வடக்கு வட்டம், பிளிச்சி கிராமம், புல எண்.1118/1 நெ காலையில் பு.ஹெக்.3.00.36 ஏர்ஸ் உள்ள பட்டா பூமியில் தி/வா. ஸ்ரீ ராஜலட்சுமி சாமப்பா பில்டிங் மெட்ரீரியல்ஸ் நிறுவனத்தினர் சாதாரண கற்கள் மற்றும் கிராவல் குத்தகை உரிமம் கோரியது தொடர்பாக புலத்தணிக்கை மேற்கொண்டு எனதறிக்கையினை கீழ்க்கண்டவாறு சமர்ப்பித்துக் கொள்கிறேன்.

1. மேற்படி பிளிச்சி கிராமம், புல எண்.1118/1 நெ காலையில் பு.ஹெக்.3.00.36 ஏர்ஸ்(பு.ஏக்.7.42 செண்ட்) பூமியானது ஞானசேகரன் மனைவி சந்திரா(1) பழனிசாமி மனைவி ஜெயலட்சுமி(2) ஆகியோருக்கு பட்டா எண்.3333ன்படியும், பெரியநாயக்கன்பாளையம் சார் பதிவாளர் அலுவலக பத்திர எண்.393/2019ன்படியும் கூட்டாகப் பாத்தியப்பட்டதாகும். மேற்படி ஞானசேகரன் மனைவி சந்திரா(1) பழனிசாமி மனைவி ஜெயலட்சுமி(2) என்பவர்கள் கூட்டாக சேர்ந்து அன்னார் வட்டம், வெள்ளமடை கிராமம், 6/177A என்ற முகவரியல் இயங்கி வரும் ஸ்ரீ ராஜலட்சுமி சாமப்பா பில்டிங் மெட்ரீரியல்ஸ் நிறுவனத்தினருக்கு மேற்படி பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் எடுக்க 10 ஆண்டுகளுக்கு சம்மத கடிதம் கொடுத்துள்ளார்கள்.
2. மேற்படி பூமிக்கு வடக்கில் க.ச.எண்.1117 நெ பட்டா பூமியும், தெற்கில் க.ச.எண்.1119 நெ பட்டா பூமியும், கிழக்கில் க.ச.எண்.1112 நெ பட்டா பூமியும் மற்றும் மேற்கில் க.ச.எண்.1121 நெ பட்டா பூமியும் அமைந்துள்ளது.
3. மேலும், மேற்படி காலையில் க.ச.எண்.1118/2 நெ காலையில் உள்ள பு.ஹெக்.0.04.14 ஏர்ஸ் பூமியானது ரயத்துவாரி நத்தம் என உள்ளது. நிலையில் குடியிருப்புகள் ஏதுமில்லை.

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4. மேற்படி பிரதஸ்தாப புலத்திலிருந்து 300மீ சுற்றளவில் அய்க்கரிக்கப்பட்ட வீட்டுமனைகள், குடியிருப்புகள், கிராம நத்தம் ஆகியவை ஏதுமில்லை.
5. மேற்படி புலத்திலிருந்து 50மீ சுற்றளவில் உயர் அழுத்த தாழ்வழுத்த மின்கம்பிகள், நீர்வழிபாதைகள் ஏதுமில்லை.
6. பிரதஸ்தாப புலத்தை ஒட்டி அரசு புறம்போக்கு நிலங்கள் ஏதுமில்லை.

எனவே, மேற்படி யூமிக்கு மனுதாரர் கோரும் சாதாரண கற்கள் மற்றும் கிராவல் குத்தகை உரிமம் வழங்க பரிந்துரை செய்து இத்துடன் அ1 அறிவிப்பு, பொது மக்கள் வாக்குமூலம், கிராம ஆவணங்கள் ஆகியவற்றை இணைத்தனுப்பியுள்ளேன் என்பதை பணிவுடன் தெரிவித்துக் கொள்கிறேன்.

இணைப்பு:மேற்கண்டவாறு

தங்கள் உண்மையுள்ள,
ஓம்//****//
வட்டாட்சியர்,
கோயம்புத்தூர் வட்டக்கு.

நகல்: கோயம்புத்தூர் மாவட்ட ஆட்சித் தலைவர் அவர்களுக்கு தகவலுக்காக
பணிநிதனுப்பப்படுகிறது

/உ.ந.உய./

வட்டாட்சியருக்காக

21/11/2022

(2/2)

AS/679.7/2022



இணைப்பு - VI

(விதி 19)

சாதாரண கல்/ மண் குவாரி குத்தகை உரிமம் செய்வதற்கான விண்ணப்பப் படிவம்
(மூன்று பிரதிகளில் சமர்ப்பிக்கப்பட வேண்டும்)

நாள்.

அனுப்புநர்

பெறுநர்

ஸ்ரீராமலட்சுமி சாஸ்யா
மிஸ்டர் வித்தையன்
கம்பென்
6177-A - ரவீந்திரா
கோவை - 110

மாவட்ட ஆட்சியர் அவர்கள்
கோயம்புத்தூர் மாவட்டம்.

அய்யா,

நான், தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959- இல் விதி 19 இன் கீழ்
சாதாரண கல் / மண் வெட்டி யெடுக்க அனுமதி கோரி விண்ணப்பிக்கிறேன்.

தேவையான விபரங்கள் கீழ்க்கண்டவாறு

1. பெயர் மற்றும் முகவரி

ஸ்ரீராமலட்சுமி சாஸ்யா மிஸ்டர்
வித்தையன் கம்பென் 6177/A
ரவீந்திரா
கோவை-110

2. (அ)

மனுதாரர் தனிப்பட்ட நபரா?
தனியார் நிறுவனமா? அல்லது
நிறுவனமா? என்ற விபரம்.

:- தனி நபர்

(ஆ)

மனுதாரர் தனிப்பட்ட நபராக
இருந்தால் இந்திய குடிமகனா?

:-

(இ)

மனுதாரர் தனியார் நிறுவனம்
அல்லது கூட்டு நிறுவனமாக
இருந்தால் அதன்
இயக்குநர்கள் / பங்குதாரர்கள்
/ அங்கத்தினர்கள் விபரம்
மற்றும் நாட்டினம் (ஆதாரம்
இணைக்கப்பட வேண்டும்.)

:- 1. சி. நான்குமணி. 2. சி. பச்சைச்சாலை
3. ப. ராமசுந்தரன் 4. K. 108கம்

3. விண்ணப்பக் கட்டணம் செலுத்திய விபரம்
கேட்புக் காசோலை / அசல் சலான் எண்
மற்றும் வங்கியின் பெயர்.

ரூ. 1500/- சலான் எண். 20220328
நாள் பாரதி லக்ஷி
கோயம்புத்தூர்.

4. மனுதாரர் கீழ்க்கண்டவாறு உறுதிமொழி அளிக்க வேண்டும்.

(அ) நாளதுதேதி வரை வருமான வரி அறிக்கை இணைக்கப்பட்டுள்ளது. ஒப்படைக்கப்பட்டுள்ளதா?

அபிடாவிட் இணைக்கப்பட்டுள்ளது

(ஆ) மதிப்பீடு செய்யப்பட்ட வருமானவரி செலுத்தப்பட்டு விட்டதா?

அபிடாவிட் இணைக்கப்பட்டுள்ளது

(இ) வருமானவரி சட்டம் 1961 ன் கீழ்கயமதிப்பீடு செய்து, வருமானவரி செலுத்தப்பட்டு விட்டதா?

5. விண்ணப்பதாரர் குவாரி செய்பு விரும்பும் சிறுகனிமத்தின் பெயர்.

கல் / மண் / கிராவல்

6. விண்ணப்பதாரர் கோரும் குத்தகை காலம்

10 வருடம்

7. குவாரிக் குத்தகை வழங்கக் கோரும் மொத்தப் பரப்பு

8. குவாரி குத்தகை வழங்கக் கோரும் இடத்தின் விவரம்

மாவட்டம்

வட்டம்

கிராமம்

புல எண்

மொத்த பரப்பு
ஹெக்டெரில்

விண்ணப்பி
செய்த
பரப்பு

கோயில்கள், இணை உட்கட்டு கிடைக்க

1118

3-0.36

3.0

9.

தமிழ்நாட்டில் உள்ள குவாரிகளில் ஏற்கனவே குத்தகை உரிமம் பெற்றிருந்தால் அதன் விவரம்.

இல்லை

(அ) கவிமணி நிலுவையில்லா சான்றிதழ் இணைக்கப்பட்டுள்ளதா?

இணைக்கப்பட்டுள்ளது

(ஆ) இந்த விண்ணப்ப நாளுக்கு முன்பு விண்ணப்பதாரருக்கு குவாரிக் குத்தகை இல்லாத பட்சத்தில் ஆணை உறுதி வாக்கு மூலம் கொடுக்கப்பட்டுள்ளதா?

கொடுக்கப்பட்டுள்ளது

11.

விண்ணப்பதாரர்மேற்க்கொண்டு சமர்ப்பிக்க விரும்பும் விவரங்கள்

மேற்கண்ட விவரங்கள் அனைத்தும் சரியானவை என சான்றளிக்கின்றேன் / சான்றளிக்கின்றேன். அரசு அல்லது மாவட்ட ஆட்சியர் கோரும் ஏனைய விவரங்கள் கொடுக்கவும் மற்றும் பிணை வைப்புத் தொகையும் செலுத்த ஆயத்தமாக உள்ளேன் / உள்ளேன். நான் / நாங்கள் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 மற்றும் குவாரி குத்தகை நிபந்தனைகள் போன்றவற்றை நன்கு அறிவேன் / அறிவோம். குவாரி குத்தகை வழங்கப்படும் பகுதியில் ஏற்றுமதித்தரம் வாய்ந்த பெரியக் கற்குண்டங்களோ பலகைக் கற்கள் அல்லது மெருகூட்ட ஏதுவாக பெரிய அளவுள்ள கற்களை உற்பத்தி செய்ய மாட்டேன். / மாட்டோம். என உறுதி அளிக்கின்றேன் / அளிக்கின்றேன்.

நாள்:-

இடம்:- கோயம்புத்தூர்

For Sri Rajalakshmi Samappa Building
Materials Company

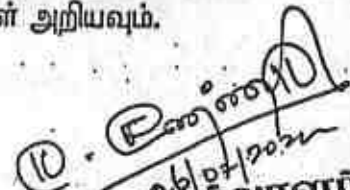


Partner

விண்ணப்பதாரரின் கையொப்பம்

அ1 அறிவிப்பு


கோயம்புத்தூர் மாவட்டம் வடக்கு வட்டம் நெ.3 பிளிச்சி (கிழக்கு) கிராமத்தில், க.ச. எண் 1118/1 ல் 4. ஹெக்டேர் 3.00.36 ஏர்ஸ் விஸ்தீரணம் உள்ள பட்டா பூமியில் தி/வா ஸ்ரீ ராஜலட்சுமி சாமப்பா பில்லிங் மெட்ரீரியல்ஸ் கம்பெனி சாதாரண கற்கள் மற்றும் கிராவல் குத்தகை உரிமம் கோரி விண்ணப்பம் செய்துள்ளது தொடர்பாக, நெ.3 பிளிச்சி (கிழக்கு) கிராமம், ஒன்னிபாளையம் பொதுமக்களுக்கு ஆட்சேபணை ஏதும் இருப்பின் இவ்வறிவிப்பு செய்யப்பட்ட 15 நாட்களுக்குள் பெரியநாயக்கன்பாளையம் நில வருவாய் ஆய்வாளரிடமோ அல்லது கோயம்புத்தூர் வடக்கு வருவாய் வட்டாட்சியர் அவர்களிடமோ நேரில் ஆஜராகியோ அல்லது எழுத்துபூர்வமாகவோ தெரிவிக்க வேண்டியது. அவ்வாறு 15 தினங்களுக்குள் ஆட்சேபணைகள் ஏதும் வரப்பெறவில்லை எனில் ஆட்சேபணைகள் ஏதும் இல்லை எனக்கருதி, சாதாரண கற்கள் மற்றும் கிராவல் குத்தகை உரிமம் வழங்க நடவடிக்கை மேற்கொள்ளப்படும் என்பதை மேற்படி நெ.3 பிளிச்சி (கிழக்கு) கிராம பொதுமக்கள் அறியவும்.


வருவாய் ஆய்வாளர்
பெரியநாயக்கன்பாளையம்
கோவை வடக்கு வட்டம்

கிராம நிர்வாக அலுவலருக்கு

மேற்கண்ட அ 1 அறிவிப்பினை கிராம சாவடிகளில் ஒட்டியும் தண்டோரா மூலம் பிரசித்தம் செய்தும் பொதுமக்களிடம் கையொப்பம் பெற்று மீள சமர்ப்பிக்க வேண்டியது.

- 1) R. சிவராஜ் s/o B. ரங்கசாமி 3/101 பூக்கிபாளையம்
- 2) சிதம்பரன் s/o பெரும்புளி 3/81 சின்னிபாளையம்
- 3) சிதம்பரன் s/o கௌண்டிப்பன் 3/35 சின்னிபாளையம்
- 4) சிதம்பரன் s/o பெரும்புளி 3/32 சின்னிபாளையம்
- 5) சிதம்பரன் s/o சிவராஜன் 3/48 சின்னிபாளையம்


வருவாய் ஆய்வாளர்
பெரியநாயக்கன்பாளையம்
கோவை வடக்கு வட்டம்

- | | | | |
|----|------------------------|-------|---------------|
| 7 | M சிண்டிகேட் டிபா | 3/47 | சுன்னைபாளையம் |
| 8 | C சிண்டிகேட் டிபா | 3/138 | சுன்னைபாளையம் |
| 9 | Senttikumar & டிபா | 3/28 | சுன்னைபாளையம் |
| 10 | S. DIVYA w/o Sivaraj.R | 3/101 | சுன்னைபாளையம் |

சென்னை சிண்டிகேட் டிபா கிளர்ச்சி கிராம நிர்வாக அலுவலர்
 தனித்தனியாகவும் மூலக் கிராம நிர்வாக அலுவலர் மூலமாகவும் பெறப்பட்டது.

2/7/10
 கிராம நிர்வாக அலுவலர்
 3, பிளிச்சி (கிழக்கு)
 கோவை (வடக்கு)

பி.அ

கோவை மருத்துவம், கோவை அலக்டிவிலி,
3-மார்ச் கிளப்பம், 4-ஆவது ஹவுஸ் 1118/1 ல்
அளித்திருக்கும் 4-ஆவது 3.00.36 ஏன் உண்மையான
தி/211 பீரங்கலிக்கு எப்போது பங்கிட்டு மெட்ரோபிளம்
கட்டுப்பாடு சாத்திரம் கற்கும் மருந்து கிளப்பம் குறி
உள்ள கோவை அலக்டிவிலி மருந்துகளைத் தடுப்பது
பிரச்சினையைத் தடுக்க ஏதாவது உத்தேசத்தை
சுமுகமாகவேண்டும்.

கேள்வி கிளப்பம் க.ச.எண் 1118/1, 4-ஆவது
4-ஆவது 3.00.36 ஏன் (அ) 4.9.7.42 மருந்து,
கருவியைக் கொடுக்கப்பட்டு மருந்து கிளப்பம், 1118/1
பிரச்சினையைத் தடுப்பது (ஆ) உத்தேசத்தை
புதுப்பிப்பது (புதுப்பிப்பது 393/2019), கிளப்பம்
புதுப்பிப்பது (புதுப்பிப்பது 3333) பீரங்கலிக்கு கேள்வி
கிளப்பம் 1118/1 மருந்து மருந்துகளைக் கொடுக்க
கேள்வி மருந்து அலக்டிவிலி, மருந்துகளைக் கிளப்பம், 6/1
மருந்து அலக்டிவிலி கிளப்பம் அலக்டிவிலி "பீரங்கலிக்கு
எப்போது பங்கிட்டு மெட்ரோபிளம்" கட்டுப்பாடு கேள்வி
கருவியை சாத்திரம் கற்கும் மருந்து கிளப்பம்
மருந்து மருந்து 10 மருந்துகளைக் கொடுக்கப்படுகிறது
அளித்திருக்கிறார்.

கேள்வி மருந்து அலக்டிவிலி 1117 மருந்து
மருந்து 1119 மருந்துகளைக், கிளப்பம் 1112 மருந்து
மருந்து கேள்வி 1121 மருந்துகளைக் அளித்திருக்கிறது

பேர்த் பேர்ப்பு கணம்தில் 1118/2 த்து
(2011)2016 4 த்து: 0.04.14 த்து) த்து த்து த்து
த்து த்து த்து. த்து த்து த்து த்து த்து த்து த்து த்து

பேர்த் 4 த்து த்து த்து த்து த்து 300 த்து த்து த்து
த்து த்து த்து த்து த்து த்து த்து த்து த்து த்து
த்து த்து த்து த்து த்து த்து த்து த்து த்து த்து

பேர்த் 4 த்து த்து த்து த்து 50 த்து த்து த்து த்து
த்து த்து த்து த்து த்து த்து த்து த்து த்து த்து
த்து த்து த்து த்து த்து த்து த்து த்து த்து த்து

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Ri 1118/2
த்து த்து
திராம த்து த்து த்து
3, த்து த்து (த்து)
த்து த்து (த்து)

ப.அ.:

கோயம்புத்தூர் மாவட்டம், கோவை வட்டம், 3-அளச்சி கிராமம், 405-ச
4வ் எண். 1118/1-வ் அல்தீரணம் 4. அக 3.00.36 ஏர்ஸ் உள்ள ஹட்டா பூமியில் த/வா பரிசீலனாட்சி சாம்பா மல்தாப் மட்டில் -யில் கம்பென் சாதாரண கந்தள் மற்றும் கிராமம் சீத்தகை உரிமம் இகார் அண்ணப்பல் செவீதுள்ளது தொடர்பாக ஹத்தீரணத்தை செயி ஹிள்வடுமாயு சிந்தனை சம்பல்க்கப்படுகிறது.

பெறப்படு கிராமத்தீர், க.ச. எண்.

1118/1 அக. கோவைவில் 4. அக 3.00.36 ஏர்ஸ் (அ) 4. ஏ. 7.42 அகண்டி பூமியானது தானகே

மண்ணை சீத்தீரா ① பதீரணம் மண்ணை அலயவட்சி ② சிகியோடுடு, பதீர எண் 393/2019 - ன்பபூயம், கிராம சுவணாடீகர் னி

-பபூயம் (ஹட்டா எண். 3333) ஹத்தீயப்பல்து

பெறப்படு சீத்தீரா ① மற்றும் அலயவட்சி ② சிகியோடீகர்ப்பாக சீத்தீது சிண்ணார்பட்டம், அண்ணமடைகிராமம், 6/177A எண் சுவரிய

இயங்குவதும் " பரி ராஜவட்சி சாம்பா மல்தாப்

மெட்டிரியலின் கட்டுப்பாட்டு கெற்பு
குடியின் சாதாரண கந்தள் மற்றும் கிராமல்
மார் 1955 10 ஆண்டுகளுக்கு சமீபகாலம்
அளித்துள்ளனர்.

கெற்பு குடிக்கு வடக்கில் 1117

பட்டா குடியும், தெற்கில் 4. எம். 1119 பட்டா
குடியும், கிழக்கில் 4. எம். 1112 பட்டா
- குடியும் மற்றும் கெற்கில் 4. எம். 1121
பட்டா குடியும் அமைத்துள்ளது.

மேலும் கெற்பு காணயில் 1118/2

தாண்டி (அம். 4. எம். 0.04.14. ஏம்))
நவத்துயாரி துத்தம் தாண்டி உள்ளது. தாண்டி
அதில் குடியகப்புகள் தகுதி கிடைக்கலாம்.

கெற்பு பிரஸ்தாப புத்தகத்தின்

300 மீ சுற்றளவில் அங்கீகரிக்கப்பட்ட
உயர்மனைகள், குடியகப்புகள், கிராம
துத்தம் சுகியலை ஏதும் கிடைக்கலாம்.

கெற்பு புத்தகத்தின் 50 மீ

சுற்றளவில் உயர் அடுத்த தாண்டி
அங்கப்புகள் நீண்டபாறைகள் ஏதும் கிடைக்கலாம்.

பிரஸ்தாப புத்தகத்தின் 50 மீ

அரசு புத்தகத்தின் அங்கப்புகள் ஏதும் கிடைக்கலாம்.

எனவே, இவற்றை யுட்கு மனுதார
 கோடும் சாதாரண கனிகள் மந்தும் மா
 குவார குத்தகை உட்கும் உட்கும் சாத
 மண்து சமர்ப்பிக் கம்பகிறது.

(10) ரெண்டி
 வருவாய் ஆய்வாளர்
 பெரியநாயக்கன்பாளையம்
 கோவை வடக்கு வட்டம்

பெறுநர்
 உடுவாடி அட்டாட்சியர்
 கோவை வடக்கு.



Malar Explosives

To

Sri Rajalakshmi Samappa Building Materials Company,

677/1, Vellamadaï,

Annur taluk,

Coimbatore 641110.

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.

As you proposed, we are willing to undertake blasting work on contract basis at your site M/S Sri Rajalakshmi Samappa Building Materials Company Sf no 1118/1 over an extent of 3.00.36 hec in Bilichi village, Coimbatore North taluk, Coimbatore district, Tamilnadu state.

Thanking you!!!

Date: 25.04.2023

Lic copy enclosed.

Yours Faithfully,





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, Shastry Bhavan

26 हड्डोडस रोड, नुंगम्बक्कम चेन्नै | 26 Haddoos Road, Nungambakkam Chennai 600006

फोन (Phone):- 28281023 | फैक्स (Fax):- 28284848

संख्या (No.): E/SC/TN/22/717(E94771)

दिनांक (Date): 08/03/2022

सेवा में | To,

M/s. Malar Explosives,
3/412B, M. Goundampalayam, Moodathurai Village, Mettupalayam Taluk, Town/Village - Moodathurai
District-COIMBATORE, State-Tamil Nadu, Pincode - 638459

विषय: Survey No.329/1, ग्राम Moodathurai Village, जिला COIMBATORE, राज्य Tamil Nadu में मैसर्स M/s. Malar Explosives द्वारा विस्फोटक के मैगजीन में उपयोग के लिए कब्जा हेतु विस्फोटक नियम, 2008 के अंतर्गत LE-3 में जारी अनुज्ञप्ति सं E/SC/TN/22/717(E94771) के संशोधन संदर्भ में।
(विस्फोटक की मात्रा / मासिक खरीद सीमा में परिवर्तन)

Subject: Possession for Use of of Explosives from magazine situated at Survey No.:329/1, Moodathurai 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 उपर्युक्त 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 पथा 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 कलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3 (ख) और (ग) के अधीन 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

(डा.टी.एल.थनुलिंगम | 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:

- District Magistrate, COIMBATORE, Tamil Nadu with reference to his No. N. R. Dis. 11026/2016/31 Dated: 12/07/2017
- Superintendent of Police, COIMBATORE, Tamil Nadu.

कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives
दक्षिणांचल, चेन्नै | South Circle, Chennai

(अधिक जानकारी वैसे 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.

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 रुपए (Annual Fee Rs.) : 4400/-

1. Licence is hereby granted to

M/s. Malar Explosives (अधिभोगी / Occupier : PARJUN), 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 प्राप्ति | 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. सं. 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

(b) Quantity of explosives to be purchased in a calendar month [applicable for licence under article 3(b) and (c)] :

20 times as above.

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञप्ति परिसर की पुष्टि 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 है। The licensed premises are situated at following address:

Survey No. 329/1, ग्राम (Town/Village) : Mooduthurai Village

जिला (District)

COIMBATORE

दूरभाष (Phone)

पुलिस थाना (Police Station) : Sirumugai

राज्य (State)

Tamil Nadu

ई मेल (E-Mail)

पिनकोड (Pincode)

638459

फैक्स (Fax)

7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्भूत हैं।
The licensed premises consist of following facilities.

One high Explosives Storage Room, one lobby and one Detonator Room

8. अनुज्ञप्ति समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 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, 2004 framed there under and the conditions, additional conditions and the following Annexures.

1. उपर्युक्त क्रम सं. 5 में पथा कथित रेखाचित्र (स्थान, संश्रिमाण संबंधी और अन्य विवरण दर्शाते हुए)।
Drawings (showing site, constructional and other details) as stated in serial No. 5 above.

2. अनुज्ञप्ति प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञप्ति की शर्तों और अतिरिक्त शर्तों।
Conditions and Additional Conditions of this licence signed by the licensing authority.

3. 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, जहां वह लागू हो।
This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 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 : 02/03/2019
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 08/03/2022

नवीनीकरण के पृष्ठांकन के लिए स्थान

Space for Endorsement of Renewal

नवीनीकरण 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

31/03/2027

Sd/-

Jt. Chief Controller of Explosives, South Circle, Chennai

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चलाने या उनका दुरुपयोग विधि के अधीन गंभीर दंडिक 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.

Hydrogeological Report For
Rough Stone and Gravel Quarry
Over an extent of 3.00.36Ha of Patta lands in
S.F.No.1118/1 of Bilichi Village,
Coimbatore North Taluk, Coimbatore District,
Tamil Nadu State

HYDROGEOLOGICAL REPORT FOR BILICHI

ROUGH STONE AND GRAVEL QUARRY

1. INTRODUCTION

NAME OF THE APPLICANT WITH ADDRESS-

Name of the applicant : M/s. Sri Rajalakshmi Samappa Building
Materials Company

Address : No. 677/1, Vellamadai,
Annoor Taluk, Coimbatore District.

Pin Code : 641 110

Mobile No : +91 90959 15146 & 98422 04259

Aadhaar No : 4171 8521 8213

Email ID : srspc2019@gmail.com

DETAILS OF THE AREA-

Land Classification : Patta land

Survey No : 1118/1

Extent : 3.00.36Ha

Village : Bilichi

Taluk : Coimbatore North,

District : Coimbatore

The Client requires detailed information on ground water occurrences at proposed project site of 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/16 Latitude between 11°11'57.48"N to 11°12'02.32"N and Longitude between 76°59'46.14"E to 76°59'53.66"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 Hornblend Biotite 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:

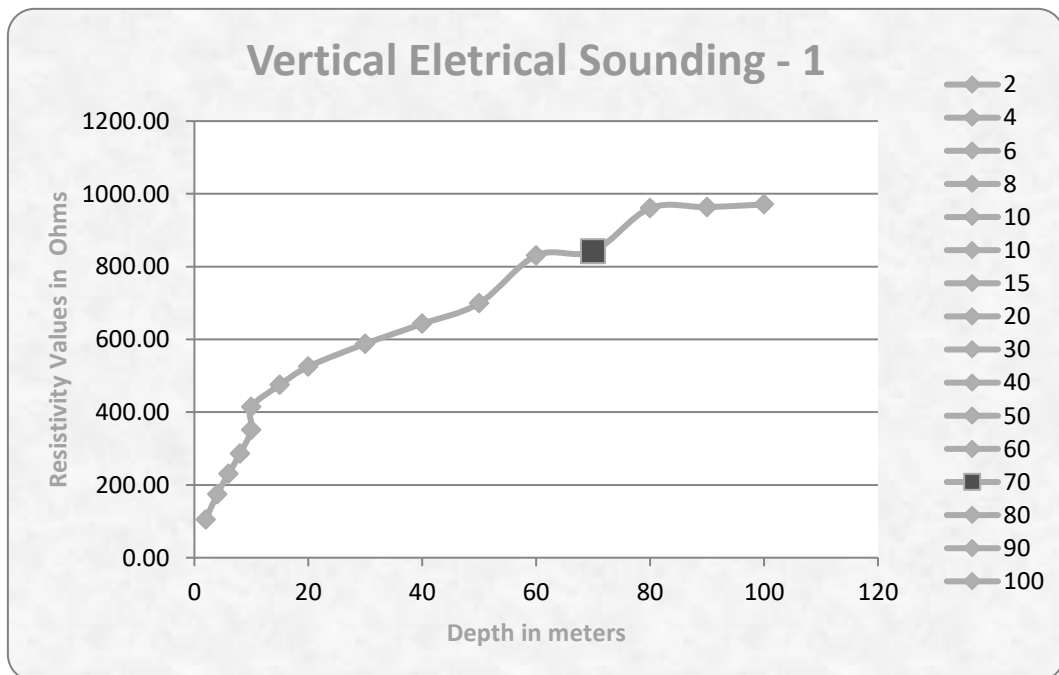
$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

Vertical Electrical Sounding (VES)

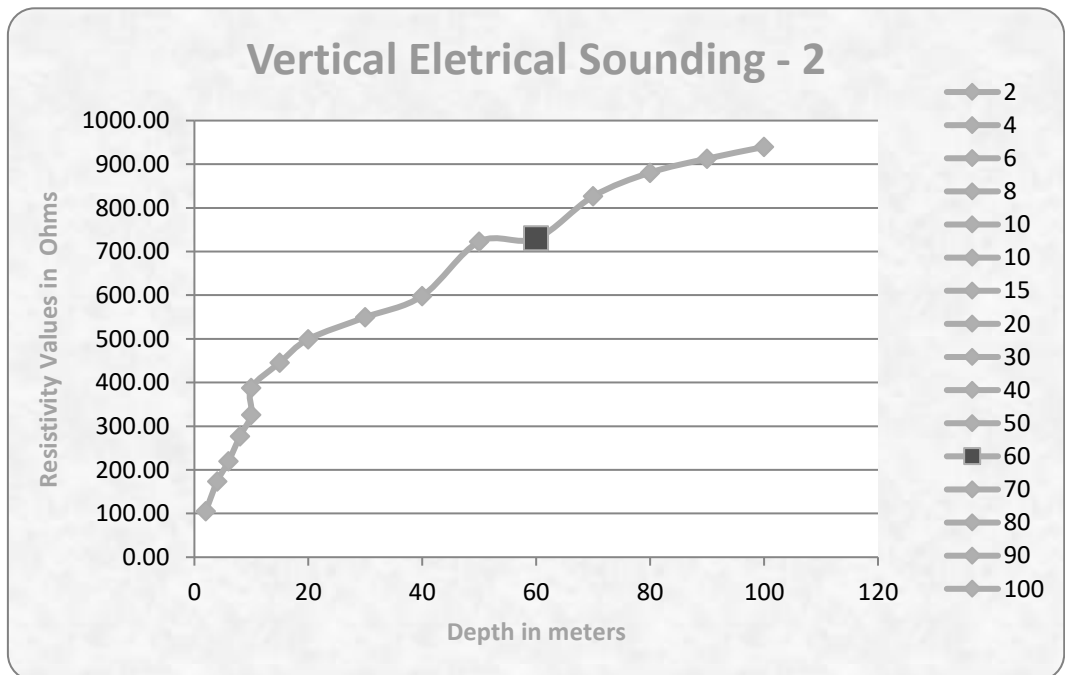
When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, 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°11'57.48"N 76°59'46.14"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

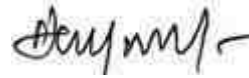


STATION-2					
GPS Coordinates - 11°12'02.32"N 76°59'53.66"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	22.46	105.79
2	4	1	23.55	7.36	173.33
3	6	1	54.95	4.00	219.80
4	8	1	98.91	2.80	276.95
5	10	1	155.45	2.10	326.45
6	10	5	23.55	16.46	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 **50m (2m Gravel + 3m Weathered Rock + 45m Rough stone) below ground level for 1st five years**, 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,

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E-Mail: infogeoexploration@gmail.com

From
Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To
Tvl.Sri Rajalakshmi Samappa
Building Materials Company,
No.677/1A, Vellamadai,
Coimbatore District.

Rc.No.875/Mines/2021 Dated: 31.12.2021

Sir,

Sub: Mines & Minerals - Minor Mineral - Coimbatore District - Coimbatore North Taluk - Bilichi Village - Survey Nos.1120/2 (1.52.50 Hec) and 1121/2 (1.08.00 Hec) - over an extent of 2.60.50 hectares of patta land - Application preferred by Tvl.Sri Rajalakshmi Samappa Building Materials Company for quarrying Roughstone and Gravel- Submission of mining plan for approval - approved - regarding.

- Ref: 1. Quarry lease application dated 12.07.2021 preferred by Tvl.Sri Rajalakshmi Samappa Building Materials Company, Coimbatore District.
2. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.875/Mines/2021, Dated: 02.12.2021.
3. Tvl.Sri Rajalakshmi Samappa Building Materials Company letter dated 29.12.2021

In response to the precise area communicated by the Assistant Director of Geology and Mining, Coimbatore the applicant Tvl.Sri Rajalakshmi Samappa Building Materials Company vide reference 3rd cited has submitted three copies of mining plan for the grant of Roughstone and Gravel quarry lease over an extent of 2.60.50 hectares of patta land in Survey Nos.1120/2 (1.52.50 Hec) and 1121/2 (1.08.00 Hec) of Bilichi Village, Coimbatore Taluk, Coimbatore District.

2. The mining plan submitted for the grant of Rough stone and gravel quarry lease over an extent of 2.60.50 hectares of patta land in Survey Nos.1120/2 (1.52.50 Hec) and 1121/2 (1.08.00 Hec) of Bilichi Village, Coimbatore 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.875/Mines/2021, Dated: 02.12.2021 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 lands from the lease 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 copies of Approved Mining Plan.


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

Copy submitted to:
The Director of Geology and Mining, Chennai-32.


31/12/21

31/12/21



THIRU. GIRIDHAR K.V., I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY - TAMIL NADU

3rd Floor, Panagal Mualigai,
No.1, Jeeris Road, Saidapet,
Chennai-15.

Phone No.044-24359973

Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

I.r. No.SEIAA-TN/E.No.6979/1(a)/EC.No:4366/2020 dated:30.09.2020

To

Thiru. P. Siddharthamouli,
S/o. Palanisamy,
No. 2/246, Kannarpalayam,
Karamadai,
Coimbatore District - 641 104.

Sir/Madam,

Sub: SEIAA-TN - Rough Stone and Gravel Quarry over an extent of 4.62.50Ha in S.F.Nos. 1119, 1120/4B & 1121/4B at Bilichi (E-W) Village of Coimbatore North Taluk, Coimbatore District, Tamil Nadu by Thiru. P. Siddharthamouli - issue of Environmental Clearance -Reg

- Ref:**
1. Online Proposal No. SIA/TN/MIN/37102/2019, Dated: 31.05.2019.
 2. Application for Environmental Clearance dated: 30.07.2019.
 3. Minutes of the 135th SEAC meeting held on 06.09.2019.
 4. Proponent reply dated: 16.11.2019.
 5. Minutes of the 151st SEAC meeting held on 11.05.2020.
 6. Minutes of the 167th SEAC meeting held on 04.08.2020.
 7. Minutes of the 398th SEIAA Meeting held on 23.09.2020.


MEMBER SECRETARY
SEIAA-TN



Details of Minor Mineral Activity:-

This has reference to your application second cited. The proposal is for obtaining Environmental Clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below.

1	Name of Project Proponent and address	Thiru. P. Siddharthamouli, S/o. Palamisamy, No. 2/246, Kannarpalayam, Karamadai, Coimbatore District - 641 104.
2	Location of the Proposed Activity	
	Survey Number	1119, 1120/4B & 1121/4B
	Latitude and Longitude	11°11'51.83"N to 11°12'01.78"N 76°59'44.32"E to 76°59'54.24"E
	Village	Bilichi (E-W)
	Taluk	Coimbatore North
	District	Coimbatore
3	Proposed Activity	
	i. Minor mineral	Rough Stone and Gravel
	ii. Mining Lease Area	4.62.50Ha
	iii. Approved quantity	2,82,076m ³ of Rough Stone and 70,592m ³ of Gravel
	iv. Depth of Mining	22m
	v. Type of mining	Opencast mechanized mining method
	vi. Category(B1/B2)	B2
	vii. Precise area communication approved by the District Collector with date	Re. No. 617/Mines/2018, dated: 07.03.2019
	viii. Mining plan approval by Assistant	Re. No. 617/Mines/2018, dated:



	Director of Geology and Mining with date	29.03.2019
	ix. Mining 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:	30 Employees
6	Utilities	
	i. Source of Water :	Water Vendors & Existing Bore well
	ii. Quantity of Water Requirement in KLD:	5.0 KLD
	a. Domestic & Drinking purpose	1.5 KLD
	b. Green Belt & Dust Suppression	3.5 KLD
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial purpose	237424 Liters of HSD
7	Cost	
	i. Project Cost	Rs.106.61 lakhs
	ii. EMP Cost	Rs.3.80 lakhs
8	Validity: This Environmental Clearance is granted for the production of 2,82,076m ³ of Rough Stone & 70,592m ³ of Gravel for the period of 5 Years from the date of execution of the mining lease.	

Affidavit

The Proponent has furnished affidavit in Hundred Rupees stamp paper attested by the Notary stating that

I, P. Siddharthamouli, S/o. Palanisamy, No. 2/246, Kannarpalayam, Karamadai, Coimbatore District, solemnly declare and sincerely affirm that;




MEMBER SECRETARY
SEIAA-TN

I have applied for getting Environmental Clearance to SEIAA, Tamilnadu for quarry lease for quarrying of Rough Stone & Gravel Quarry in S.F.Nos. 1119, 1120/4B & 1121/4B over an extent of 4.62.50ha of Patta Land in Bilichi (E-W) Village, Coimbatore North Taluk, Coimbatore District.

1. I swear to state and confirm that within 10km area of the quarry site, I have applied for environmental clearance, none of the following is situated.
 - a. Protected areas notified under the wild life (Protection) Act, 1972,
 - b. Critically polluted areas as notified by the Central Pollution Control Board constituted under Water (Prevention and Control of Pollution) Act, 1974,
 - c. Interstate boundaries within 10 km radius from the boundary of the proposed site.
2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.

CER Activity	Project Cost (Rs. In Lakh)	CER Cost 2.0% of project cost (Rs. In Lakh)
Developing the Library / Sports / Drinking water facilities in Government School	110.41	2.20
Total Cost Allocation	110.41	2.20

3. I solemnly declare & affirm that there is no quarry within the radius of 500m from the periphery of the quarry site.
4. There will not be hindrance or disturbance to the public during transportation. No villages are enrooted during transportation.
5. There is no approved habitation within 300m radius from the periphery of my quarry.
6. I swear that Greenbelt will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the labourers working in my quarry site.
8. Approach road belongs to local panchayat only and no other private patta roads encountered.
9. I will not engage any child labour in our quarry site and I aware that engaging child labour is punishable under the law.
10. All types of safety / protective equipment will be provided to all the labourers working in my quarry.




MEMBER SECRETARY
SEIAA-TN

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 of Geology & Mining (i/c), Coimbatore District in his Rc. No. 617/Mines/2018, dated: 22.01.2020 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.Nos.	Extent in Hect.	Lease Period	Remarks
---NIL---					

ii) Abandoned quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease Period	Remarks
1.	N.S. Selvaraj	Vellamada 676/1D	1.31.0	15.11.2006 to 14.11.2026	Non-Operation and abandoned

iii) Proposed quarries

Sl. No.	Name of the Owner	Village & S.F.Nos.	Extent in Hect.	Lease Period	Remarks
1.	Thiru. P. Siddharthamouli	Bilichi (E-W) 1119 1120/4B 1121/4B	4.62.50	-	Subject Area
2.	Thiru. S. Palanisamy	Bilichi (E-W) 1118/1	3.0.36	-	Lease Application cancelled vide District Collector, Coimbatore Letter R.C. 40/Mines/2019, dated: 21.01.2020.



iv) Future Proposed quarries

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

Appraisal by SEAC:-

The proposal was placed in the 135th SEAC Meeting held on 06.09.2019 & 151st SEAC Meeting held on 11.05.2020. After detail deliberation, SEAC noted that the project proponent has submitted application through online on 30.7.2019, Department of Geology and Mining, Coimbatore vide Rc. No. 617/Mines/2018 dated 22.01.2020 in which in the proposed quarries the lease application cancelled vide District collector, Coimbatore Letter R.C.40/mines/2019 dated 21.02.2020 for Thiru S. Palanisamy mines. Since, Thiru S. Palanisamy mines cancelled recently by District collector, Coimbatore Letter R.C.40/mines/2019 dated 21.02.2020. SEAC decided that the project proponent Thiru.P.Siddharthamoull shall re-apply for seeking Environment Clearance with the latest updates as stated above along with the copy of the lease application cancelled vide District collector, Coimbatore Letter R.C.40/mines/2019 dated 21.02.2020 for Thiru. S. Palanisamy mines.

The SEAC decided to direct the proponent to furnish the copy of the lease cancelled by the district collector Coimbatore vide R.C.40/mines/2019 dated 21.02.2020 for Thiru.S.Palanisamy mines. On receipt of the above SEAC will decide further course of action. The Project proponent has re-applied through online for the Environment Clearance through PARIVESH portal with latest updates vide SIA/TN/MIN/165581/2020 submitted the details to SEIAA-TN on 28.07.2020. The Proposal was placed in this 167th SEAC held on 04.08.2020. After detail deliberation, the SEAC decided to recommend the proposal for grant of Environmental Clearance to SEIAA subject to the following conditions in addition to normal conditions;


1. Groundwater level and quality should be monitored once in six months in few wells around the quarry and the record should be maintained and annual report should be submitted to the TNPCB
2. After mining is completed, proper leveling should be done by the Project proponent & Environmental Management Plan furnished by the Proponent should be strictly followed.




MEMBER SECRETARY
SEIAA-TN

3. The proponent should erect fencing all around the boundary of the proposed area with gates for entry/exit as per the conditions and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
4. Proper barrier to reduce noise level, dust pollution and to hold down any possible fly material (*debris*) should be established by providing green belt and/or metal sheets along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
5. 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 which is fit for growth of fodder, flora, fauna etc.
6. The operation of the quarry should not affect the agriculture activities & water bodies near the project site.
7. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
8. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
9. The proponent shall develop adequate green belt with native species on the periphery of the mine lease area before commencement of the mining activity, in consultation with DFO of the concern district/agriculture university.
10. 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.
11. The recommendation for the issue of environmental clearance is subject 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).




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12. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance.
13. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of mining operation.
14. The mine closure plan submitted by the project proponent shall be strictly followed after the lapse of the mine.
15. The amount of Rs. 2,76,500/- (2% of the total project cost) shall be utilized as CER activities to provide the sanitation facilities & Drinking Water Facilities for Bilichi (E-W) Village Government School as reported before obtaining the CTO from TNPCB.

Discussion by SEIAA and the Remarks:-

The proposal was placed before the SEIAA in its 398th Meeting held on 23.09.2020. After detailed discussion the Authority decided to grant Environmental Clearance subject to the conditions as recommended by the SEAC and subject to General conditions in addition to normal conditions.

1. The proponent shall ensure that quarry operation is not carried out in S.F.No.1118/1 for which lease application by Thiru.S.Palanisamy has been cancelled by District Collector vide Letter No. Rc.40/Mines/2019 dated: 21.01.2020.
2. All the condition imposed by the Assistant Director (i/c) of Geology and Mining vide Rc. No. 617/Mines/2018, dated: 29.03.2019 should be strictly followed.
3. The EMP Cost shall be deposited in a nationalized bank by opening separate account and head wise expense statement shall be furnished to TNPCB with a copy to SEIAA annually.
4. 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.
5. A detailed post-COVID health management plan for workers as per ICMR and MHA guidelines or the State Govt. guideline may be followed and report shall be furnished.
6. If there is any change in the production or lease area application for amendment has to be submitted to SEIAA for further approval.




MEMBER SECRETARY
SEIAA-TN


Part-A: Conditions to be Complied before commencing mining operations:-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that

- I. The project has been accorded Environmental Clearance.
- II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
- III. Environmental Clearance may also be seen on the website of the SEIAA.
- IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.

2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. The mine closure plan submitted by the project proponent shall be strictly followed after the lapse of the mine.
4. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
5. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
6. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
7. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
8. The proponent shall ensure that First Aid Box is available at site.
9. The excavation activity shall not alter the natural drainage pattern of the area.
10. The excavated pit shall be restored by the project proponent for useful purposes.




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11. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
12. The quarrying operation shall be restricted between 7AM and 5 PM.
13. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
14. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
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. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
19. 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.
20. 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.
21. 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
22. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment




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- 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.
23. 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.
24. 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.
25. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
26. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
27. 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.
28. 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.
29. 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.
30. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.




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31. 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.
32. 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.
33. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
34. 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.
35. 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.
36. 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.
37. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.




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39. Bunds to be provided at the boundary of the project site.
40. 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.
41. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
42. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
43. The Project Proponent shall provide solar lighting system to the nearby villages.
44. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
45. Safety equipments to be provided to all the employees.
46. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
47. 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.
48. 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.
49. 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.
50. 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.
51. 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.
52. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
53. 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.
54. 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.
55. 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.
56. All the commitment made by the project proponent in the proposal shall be strictly followed.
57. 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.
58. 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).

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




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- 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.
 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




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- 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.




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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 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 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. EIA Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.



TEST REPORT

Report No	EHS360/TR/2022-23/001	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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	AAQ 1 – CORE ZONE Project Area 11°12'0.51"N 76°59'39.01"E		

Date	Period. hrs	PM10(µg/m ³)	PM2.5(µg/m ³)	SO2 (µg/m ³)	NO2 (µg/m ³)	O3 (µg/m ³)	NH3 (µg/m ³)	CO (mg/ m ³)
01.12.2022	7:00-7:00	45.5	22.3	6.5	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2022	7:15-7:15	44.2	22.1	6.1	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2022	7:00-7:00	45.3	23.6	6.0	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2022	7:15-7:15	46.1	24.1	6.5	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2022	7:00-7:00	47.2	23.4	5.2	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2022	7:15-7:15	45.2	24.1	5.2	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2022	7:00-7:00	44.0	22.0	5.2	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2022	7:15-7:15	43.2	24.1	5.0	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2022	7:00-7:00	44.1	21.0	6.8	25.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2022	7:15-7:15	45.0	22.1	6.5	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2023	7:00-7:00	44.3	22.3	8.8	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2023	7:15-7:15	45.8	24.2	7.0	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2023	7:00-7:00	46.2	23.1	6.2	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2023	7:15-7:15	47.0	25.3	8.2	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2023	7:00-7:00	46.2	23.1	6.3	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2023	7:15-7:15	47.3	26.1	7.2	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2023	7:00-7:00	45.1	22.2	8.3	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2023	7:15-7:15	44.3	22.3	6.6	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2023	7:00-7:00	45.3	21.1	7.3	25.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2023	7:15-7:15	44.6	22.3	8.5	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2023	7:00-7:00	45.8	22.4	8.3	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2023	7:15-7:15	45.3	23.5	6.3	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2023	7:00-7:00	43.2	22.1	7.0	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2023	7:15-7:15	42.0	22.3	7.2	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2023	7:00-7:00	44.6	22.4	6.4	24.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2023	7:15-7:15	45.2	22.1	6.3	24.3	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	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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	AAQ 1 – CORE ZONE Project Area 11°12'0.51"N 76°59'39.01"E		

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)
01.12.2022	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)
02.12.2022	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.12.2022	7:00-7:00	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.12.2022	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.12.2022	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)
16.12.2022	7:15-7:15	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.12.2022	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)
23.12.2022	7:15-7:15	68.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.12.2022	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)
30.12.2022	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)
05.01.2023	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)
06.01.2023	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)
12.01.2023	7:00-7:00	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.01.2023	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)
19.01.2023	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)
20.01.2023	7:15-7:15	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.01.2023	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)
27.01.2023	7:15-7:15	66.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.02.2023	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)
03.02.2023	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)
09.02.2023	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)
10.02.2023	7:15-7:15	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.02.2023	7:00-7:00	69.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.02.2023	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)
23.02.2023	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.02.2023	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)
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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[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	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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 – Onnipalayam - 11°12'26.87"N 77°0'7.67"E		

Date	Period. hrs	PM10(µg/m ³)	PM2.5(µg/m ³)	SO2 (µg/m ³)	NO2 (µg/m ³)	O3 (µg/m ³)	NH3 (µg/m ³)	CO (mg/ m ³)
01.12.2022	7:00-7:00	47.5	25.2	6.5	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2022	7:15-7:15	46.3	24.4	6.2	23.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2022	7:00-7:00	45.3	25.8	7.8	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2022	7:15-7:15	48.2	26.0	6.5	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2022	7:00-7:00	49.0	25.3	7.5	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2022	7:15-7:15	45.2	26.2	6.8	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2022	7:00-7:00	46.3	23.2	6.4	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2022	7:15-7:15	47.1	24.3	6.1	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2022	7:00-7:00	48.2	24.6	6.5	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2022	7:15-7:15	49.3	25.3	7.3	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2023	7:00-7:00	45.2	26.1	6.0	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2023	7:15-7:15	45.1	27.0	7.5	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2023	7:00-7:00	44.5	24.3	6.8	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2023	7:15-7:15	45.6	25.0	6.2	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2023	7:00-7:00	46.0	26.1	7.3	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2023	7:15-7:15	47.3	27.3	6.4	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2023	7:00-7:00	49.2	25.3	6.6	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2023	7:15-7:15	48.3	26.5	7.2	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2023	7:00-7:00	48.0	27.0	6.8	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2023	7:15-7:15	47.2	25.3	7.5	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2023	7:00-7:00	46.2	26.4	6.2	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2023	7:15-7:15	45.0	27.1	7.3	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2023	7:00-7:00	46.3	25.6	6.4	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2023	7:15-7:15	47.2	26.1	7.3	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2023	7:00-7:00	48.4	27.3	7.5	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2023	7:15-7:15	49.0	26.6	6.8	22.5	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/2022-23/002	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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 – Onnipalayam - 11°12'26.87"N 77°0'7.67"E		

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)
01.12.2022	7:00-7:00	60.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.12.2022	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)
08.12.2022	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)
09.12.2022	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)
15.12.2022	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)
16.12.2022	7:15-7:15	63.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.12.2022	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)
23.12.2022	7:15-7:15	61.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.12.2022	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)
30.12.2022	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)
05.01.2023	7:00-7:00	61.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.01.2023	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)
12.01.2023	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)
13.01.2023	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)
19.01.2023	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)
20.01.2023	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)
26.01.2023	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)
27.01.2023	7:15-7:15	63.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.02.2023	7:00-7:00	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.02.2023	7:15-7:15	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.02.2023	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)
10.02.2023	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)
16.02.2023	7:00-7:00	63.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.02.2023	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)
23.02.2023	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)
24.02.2023	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)
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

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	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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	AAQ3 – Kallipalayam - 11°10'44.19"N 76°59'22.55"E		

Date	Period. hrs	PM10(µg/m ³)	PM2.5(µg/m ³)	SO2 (µg/m ³)	NO2 (µg/m ³)	O3 (µg/m ³)	NH3 (µg/m ³)	CO (mg/ m ³)
01.12.2022	7:00-7:00	44.2	23.5	6.2	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2022	7:15-7:15	46.1	23.8	5.5	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2022	7:00-7:00	45.2	24.2	6.3	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2022	7:15-7:15	43.1	23.0	7.0	20.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2022	7:00-7:00	47.2	25.4	5.8	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2022	7:15-7:15	48.0	23.8	6.2	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2022	7:00-7:00	46.2	24.2	7.2	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2022	7:15-7:15	45.3	25.6	6.3	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2022	7:00-7:00	43.1	23.1	5.5	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2022	7:15-7:15	44.5	25.4	6.2	19.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2023	7:00-7:00	46.3	23.2	7.2	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2023	7:15-7:15	47.1	25.2	6.0	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2023	7:00-7:00	48.3	24.6	5.8	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2023	7:15-7:15	44.5	23.4	5.3	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2023	7:00-7:00	45.1	25.5	6.4	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2023	7:15-7:15	46.3	23.6	6.8	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2023	7:00-7:00	44.0	24.1	7.0	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2023	7:15-7:15	46.2	25.3	7.8	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2023	7:00-7:00	45.3	24.1	6.3	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2023	7:15-7:15	44.3	25.3	5.2	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2023	7:00-7:00	48.0	23.2	6.3	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2023	7:15-7:15	46.2	24.1	7.4	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2023	7:00-7:00	47.2	25.3	6.8	19.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2023	7:15-7:15	45.3	22.3	8.2	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2023	7:00-7:00	44.1	24.1	7.9	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2023	7:15-7:15	45.3	25.6	8.0	21.0	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

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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	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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	AAQ3 - Kallipalayam - 11°10'44.19"N 76°59'22.55"E		

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)
01.12.2022	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)
02.12.2022	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)
08.12.2022	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)
09.12.2022	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)
15.12.2022	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)
16.12.2022	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)
22.12.2022	7:00-7:00	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.12.2022	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)
29.12.2022	7:00-7:00	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.12.2022	7:15-7:15	61.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.01.2023	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)
06.01.2023	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)
12.01.2023	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)
13.01.2023	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)
19.01.2023	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)
20.01.2023	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)
26.01.2023	7:00-7:00	61.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.01.2023	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)
02.02.2023	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)
03.02.2023	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)
09.02.2023	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)
10.02.2023	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)
16.02.2023	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)
17.02.2023	7:15-7:15	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.02.2023	7:00-7:00	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.02.2023	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)
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/2022-23/004	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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 – Muthalipalayam - 11°10'19.43"N 77°2'38.39"E		

Date	Period. hrs	PM10(µg/m ³)	PM2.5(µg/m ³)	SO2 (µg/m ³)	NO2 (µg/m ³)	O3 (µg/m ³)	NH3 (µg/m ³)	CO (mg/ m ³)
01.12.2022	7:00-7:00	43.2	22.3	5.5	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2022	7:15-7:15	42.2	23.6	6.0	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2022	7:00-7:00	43.0	26.3	5.2	20.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2022	7:15-7:15	44.5	27.1	6.3	20.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2022	7:00-7:00	45.5	22.5	5.2	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2022	7:15-7:15	46.2	23.0	6.4	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2022	7:00-7:00	44.2	24.5	5.8	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2022	7:15-7:15	42.5	25.6	6.0	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2022	7:00-7:00	43.6	24.3	5.2	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2022	7:15-7:15	45.1	25.0	6.3	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2023	7:00-7:00	46.2	22.3	5.1	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2023	7:15-7:15	43.6	23.5	6.4	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2023	7:00-7:00	44.2	24.3	6.0	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2023	7:15-7:15	45.1	26.5	5.8	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2023	7:00-7:00	46.3	27.1	6.4	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2023	7:15-7:15	44.2	25.2	6.3	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2023	7:00-7:00	46.3	26.3	6.2	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2023	7:15-7:15	45.1	27.4	6.4	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2023	7:00-7:00	44.2	26.3	6.1	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2023	7:15-7:15	42.3	24.1	5.2	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2023	7:00-7:00	43.1	22.3	5.3	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2023	7:15-7:15	44.5	25.8	6.4	25.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2023	7:00-7:00	45.6	26.5	5.8	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2023	7:15-7:15	46.3	25.0	6.2	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2023	7:00-7:00	42.3	24.6	6.4	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2023	7:15-7:15	44.5	23.1	5.5	23.6	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	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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 Muthalipalayam - 11°10'19.43"N 77°2'38.39"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
01.12.2022	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)
02.12.2022	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)
08.12.2022	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.12.2022	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)
15.12.2022	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)
16.12.2022	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.12.2022	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)
23.12.2022	7:15-7:15	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.12.2022	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)
30.12.2022	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)
05.01.2023	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)
06.01.2023	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)
12.01.2023	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)
13.01.2023	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)
19.01.2023	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)
20.01.2023	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)
26.01.2023	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)
27.01.2023	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.02.2023	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)
03.02.2023	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)
09.02.2023	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)
10.02.2023	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)
16.02.2023	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)
17.02.2023	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)
23.02.2023	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)
24.02.2023	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)
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/2022-23/005	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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 – Bettadapuram -11°13'26.14"N 76°57'26.99"E		

Date	Period. hrs	PM10($\mu\text{g}/\text{m}^3$)	PM2.5($\mu\text{g}/\text{m}^3$)	SO2 ($\mu\text{g}/\text{m}^3$)	NO2 ($\mu\text{g}/\text{m}^3$)	O3 ($\mu\text{g}/\text{m}^3$)	NH3 ($\mu\text{g}/\text{m}^3$)	CO (mg/ m ³)
01.12.2022	7:00-7:00	45.5	24.3	7.2	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2022	7:15-7:15	46.3	23.1	6.0	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2022	7:00-7:00	44.2	22.1	7.8	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2022	7:15-7:15	42.3	21.0	6.2	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2022	7:00-7:00	46.3	23.1	7.2	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2022	7:15-7:15	44.5	22.5	6.0	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2022	7:00-7:00	43.2	24.6	7.1	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2022	7:15-7:15	46.5	25.0	7.5	18.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2022	7:00-7:00	47.1	21.2	8.2	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2022	7:15-7:15	45.3	22.5	6.2	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2023	7:00-7:00	46.2	23.5	7.3	18.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2023	7:15-7:15	43.2	24.3	8.1	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2023	7:00-7:00	44.6	25.2	6.3	20.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2023	7:15-7:15	45.3	22.3	8.1	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2023	7:00-7:00	46.3	23.5	7.5	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2023	7:15-7:15	47.2	24.1	8.3	18.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2023	7:00-7:00	43.5	25.5	7.1	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2023	7:15-7:15	44.5	24.6	7.3	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2023	7:00-7:00	46.3	23.1	7.2	18.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2023	7:15-7:15	47.2	22.5	6.3	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2023	7:00-7:00	44.3	23.5	6.2	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2023	7:15-7:15	45.2	24.2	8.1	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2023	7:00-7:00	43.1	25.3	6.3	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2023	7:15-7:15	44.6	24.2	7.4	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2023	7:00-7:00	45.8	23.6	8.0	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2023	7:15-7:15	46.1	22.1	7.5	24.3	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

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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	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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 – Bettadapuram -11°13'26.14"N 76°57'26.99"E		

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)
01.12.2022	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)
02.12.2022	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)
08.12.2022	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)
09.12.2022	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)
15.12.2022	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)
16.12.2022	7:15-7:15	62.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.12.2022	7:00-7:00	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.12.2022	7:15-7:15	63.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.12.2022	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)
30.12.2022	7:15-7:15	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.01.2023	7:00-7:00	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.01.2023	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.01.2023	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)
13.01.2023	7:15-7:15	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.01.2023	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)
20.01.2023	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.01.2023	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)
27.01.2023	7:15-7:15	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.02.2023	7:00-7:00	66.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.02.2023	7:15-7:15	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.02.2023	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)
10.02.2023	7:15-7:15	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.02.2023	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)
17.02.2023	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)
23.02.2023	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)
24.02.2023	7:15-7:15	64.0	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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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	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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 - Periya Puthur - 11°13'38.24"N 77°1'43.30"E		

Date	Period. hrs	PM10(µg/m ³)	PM2.5(µg/m ³)	SO2 (µg/m ³)	NO2 (µg/m ³)	O3 (µg/m ³)	NH3 (µg/m ³)	CO (mg/ m ³)
01.12.2022	7:00-7:00	44.0	22.5	6.2	18.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2022	7:15-7:15	45.2	23.2	7.2	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2022	7:00-7:00	46.3	24.3	6.8	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2022	7:15-7:15	44.2	21.0	7.0	17.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2022	7:00-7:00	43.2	22.1	7.4	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2022	7:15-7:15	43.0	25.0	6.3	17.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2022	7:00-7:00	45.2	26.1	7.2	18.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2022	7:15-7:15	45.0	22.3	6.8	20.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2022	7:00-7:00	45.2	26.1	6.9	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2022	7:15-7:15	46.2	23.2	7.4	17.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2023	7:00-7:00	44.2	25.1	7.3	18.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2023	7:15-7:15	45.2	22.8	6.2	18.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2023	7:00-7:00	46.3	23.1	6.3	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2023	7:15-7:15	45.0	22.0	7.1	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2023	7:00-7:00	46.1	23.6	7.5	17.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2023	7:15-7:15	44.2	22.1	6.8	18.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2023	7:00-7:00	46.5	23.4	7.3	17.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2023	7:15-7:15	44.0	22.6	6.9	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2023	7:00-7:00	45.0	26.1	7.2	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2023	7:15-7:15	46.3	23.4	7.0	17.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2023	7:00-7:00	44.1	26.0	6.8	18.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2023	7:15-7:15	44.5	23.5	6.5	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2023	7:00-7:00	43.8	22.4	7.4	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2023	7:15-7:15	44.2	22.1	7.3	18.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2023	7:00-7:00	44.6	22.3	6.4	19.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2023	7:15-7:15	45.3	24.1	6.6	20.6	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/2022-23/006	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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 - Periya Puthur - 11°13'38.24"N 77°1'43.30"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
01.12.2022	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)
02.12.2022	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)
08.12.2022	7:00-7:00	60.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.12.2022	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)
15.12.2022	7:00-7:00	63.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.12.2022	7:15-7:15	62.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.12.2022	7:00-7:00	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.12.2022	7:15-7:15	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.12.2022	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)
30.12.2022	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)
05.01.2023	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)
06.01.2023	7:15-7:15	60.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.01.2023	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)
13.01.2023	7:15-7:15	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.01.2023	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)
20.01.2023	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.01.2023	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)
27.01.2023	7:15-7:15	62.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.02.2023	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)
03.02.2023	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)
09.02.2023	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)
10.02.2023	7:15-7:15	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.02.2023	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)
17.02.2023	7:15-7:15	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.02.2023	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)
24.02.2023	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)
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

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TEST REPORT

Report No	EHS360/TR/2022-23/007	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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 – Mathampalayam -11°11'53.08"N 76°57'22.51"E		

Date	Period. hrs	PM10(µg/m ³)	PM2.5(µg/m ³)	SO2 (µg/m ³)	NO2 (µg/m ³)	O3 (µg/m ³)	NH3 (µg/m ³)	CO (mg/ m ³)
01.12.2022	7:00-7:00	44.1	22.0	6.2	16.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2022	7:15-7:15	43.5	22.3	6.0	17.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2022	7:00-7:00	42.1	21.5	7.1	18.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2022	7:15-7:15	45.3	23.2	7.2	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2022	7:00-7:00	46.1	24.1	6.8	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2022	7:15-7:15	47.2	22.3	7.1	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2022	7:00-7:00	43.1	24.1	6.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2022	7:15-7:15	44.6	25.3	7.4	18.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2022	7:00-7:00	45.2	24.6	6.3	17.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2022	7:15-7:15	46.3	26.5	7.3	16.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2023	7:00-7:00	47.0	23.0	6.4	20.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2023	7:15-7:15	44.5	22.4	6.5	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2023	7:00-7:00	45.3	23.4	7.1	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2023	7:15-7:15	43.5	22.1	7.6	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2023	7:00-7:00	43.0	23.0	6.4	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2023	7:15-7:15	44.2	22.1	7.3	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2023	7:00-7:00	45.3	20.5	6.0	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2023	7:15-7:15	46.5	23.5	7.4	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2023	7:00-7:00	47.2	22.4	7.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2023	7:15-7:15	45.0	23.2	6.5	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2023	7:00-7:00	46.3	23.6	7.0	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2023	7:15-7:15	47.2	24.1	7.3	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2023	7:00-7:00	45.2	22.3	7.4	18.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2023	7:15-7:15	44.2	25.1	6.2	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2023	7:00-7:00	46.3	26.3	7.8	21.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2023	7:15-7:15	47.1	22.0	6.6	22.6	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/2022-23/007	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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 – Mathampalayam -11°11'53.08"N 76°57'22.51"E		

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)
01.12.2022	7:00-7:00	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.12.2022	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)
08.12.2022	7:00-7:00	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.12.2022	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)
15.12.2022	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)
16.12.2022	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.12.2022	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)
23.12.2022	7:15-7:15	62.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.12.2022	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)
30.12.2022	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)
05.01.2023	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)
06.01.2023	7:15-7:15	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.01.2023	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)
13.01.2023	7:15-7:15	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.01.2023	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)
20.01.2023	7:15-7:15	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.01.2023	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)
27.01.2023	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)
02.02.2023	7:00-7:00	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.02.2023	7:15-7:15	66.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.02.2023	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)
10.02.2023	7:15-7:15	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.02.2023	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)
17.02.2023	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)
23.02.2023	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)
24.02.2023	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)
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/2022-23/008	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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 – Sengalipalayam - 11°11'46.02"N 77°1'18.17"E		

Date	Period. hrs	PM10(µg/m ³)	PM2.5(µg/m ³)	SO2 (µg/m ³)	NO2 (µg/m ³)	O3 (µg/m ³)	NH3 (µg/m ³)	CO (mg/ m ³)
01.12.2022	7:00-7:00	44.3	22.3	5.2	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2022	7:15-7:15	42.1	21.5	5.5	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2022	7:00-7:00	43.5	22.6	5.3	23.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2022	7:15-7:15	45.1	25.1	5.0	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2022	7:00-7:00	46.1	26.3	6.2	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2022	7:15-7:15	47.2	27.4	6.5	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2022	7:00-7:00	44.0	28.0	6.1	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2022	7:15-7:15	45.3	24.1	6.4	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2022	7:00-7:00	46.3	25.3	6.3	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2022	7:15-7:15	47.0	26.5	6.6	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2023	7:00-7:00	44.1	27.4	7.2	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2023	7:15-7:15	46.3	26.0	6.8	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2023	7:00-7:00	47.2	28.3	7.0	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2023	7:15-7:15	45.2	24.2	6.9	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2023	7:00-7:00	46.3	26.3	6.5	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2023	7:15-7:15	43.0	28.1	6.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2023	7:00-7:00	42.1	27.1	6.3	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2023	7:15-7:15	44.3	22.3	6.6	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2023	7:00-7:00	45.1	24.1	6.4	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2023	7:15-7:15	46.2	23.1	6.3	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2023	7:00-7:00	47.2	22.2	6.8	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2023	7:15-7:15	43.1	22.4	7.0	23.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2023	7:00-7:00	44.2	22.1	6.4	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2023	7:15-7:15	45.2	25.3	6.3	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2023	7:00-7:00	44.0	22.0	7.5	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2023	7:15-7:15	46.3	23.1	7.3	22.1	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	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
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 – Sengalipalayam - 11°11'46.02"N 77°1'18.17"E		

Date	Period. hrs	SPM (µg/m ³)	As (ng/m ³)	C6H6 (µg/m ³)	BaP (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)
01.12.2022	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)
02.12.2022	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)
08.12.2022	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.12.2022	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)
15.12.2022	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.12.2022	7:15-7:15	68.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.12.2022	7:00-7:00	66.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.12.2022	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.12.2022	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)
30.12.2022	7:15-7:15	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.01.2023	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)
06.01.2023	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)
12.01.2023	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)
13.01.2023	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)
19.01.2023	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)
20.01.2023	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.01.2023	7:00-7:00	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.01.2023	7:15-7:15	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.02.2023	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)
03.02.2023	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)
09.02.2023	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)
10.02.2023	7:15-7:15	63.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.02.2023	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)
17.02.2023	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)
23.02.2023	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.02.2023	7:15-7:15	68.2	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/ 001	Report Date	02.03.2023
Site Location	<i>Tvi. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha</i>		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 001
Sample Description	Ambient Noise	Sample Collected Date	24.02.2023

Location	N1 – Core Zone - 11°11'54.54"N 76°59'40.76"E			N2 – Onnipalayam - 11°12'27.14"N 77° 0'7.93"E		
	Min	Max	Result	Min	Max	Result
Parameter						
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	42.2	47.1	45.3	41.2	44.2	43.0
07:00-08:00	42.3	45.2	44.0	40.3	43.2	42.0
08:00-09:00	44.3	43.2	43.8	41.2	45.1	43.6
09:00-10:00	41.3	47.2	45.2	42.1	46.2	44.6
10:00-11:00	40.2	45.3	43.5	40.6	45.2	43.5
11:00-12:00	41.2	44.3	43.0	40.2	47.2	45.0
12:00-13:00	42.1	47.6	45.7	41.2	46.2	44.4
13:00-14:00	43.2	47.3	45.7	40.2	46.3	44.2
14:00-15:00	41.2	44.5	43.2	42.1	45.2	43.9
15:00-16:00	43.2	46.3	45.0	42.3	47.2	45.4
16:00-17:00	41.8	48.2	46.1	42.1	46.3	44.7
17:00-18:00	42.6	46.3	44.8	40.3	48.2	45.8
18:00-19:00	40.2	46.3	44.2	41.3	44.2	43.0
19:00-20:00	42.1	45.2	43.9	37.2	43.2	41.2
20:00-21:00	40.3	43.2	42.0	35.2	42.1	39.9
21:00-22:00	38.2	40.2	39.3	36.1	39.2	37.9
22:00-23:00	36.2	42.1	40.1	36.5	38.2	37.4
23:00-00:00	37.5	39.1	38.4	34.2	36.2	35.3
00:00-01:00	35.6	37.2	36.5	33.5	34.1	33.8
01:00-02:00	34.2	36.1	35.3	32.1	36.2	34.6
02:00-03:00	32.1	35.2	33.9	34.6	36.5	35.7
03:00-04:00	34.5	36.1	35.4	35.2	37.1	36.3
04:00-05:00	36.5	38.2	37.4	34.1	36.5	35.5
05:00-06:00	34.2	36.4	35.4	33.6	37.1	35.7
Result	Day Means		43.8	Day Means		42.9
	Night Means		36.0	Night Means		35.3

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.

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	02.03.2023
Site Location	<i>Tvi. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha</i>		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 002
Sample Description	Ambient Noise	Sample Collected Date	24.02.2023

Location	N3 – Kallipalayam - 11°10'43.86"N 76°59'24.02"E			N4 – Muthalipalayam - 11°10'20.38"N 77° 2'38.46"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	38.2	40.2	39.3	38.2	40.2	39.3
07:00-08:00	39.2	42.1	40.9	37.1	40.1	38.9
08:00-09:00	40.2	42.3	41.4	36.2	39.8	38.4
09:00-10:00	42.1	44.2	43.3	35.2	39.4	37.8
10:00-11:00	39.5	41.2	40.4	40.1	42.1	41.2
11:00-12:00	38.2	44.2	42.2	34.2	38.2	36.6
12:00-13:00	37.2	40.2	39.0	33.1	36.1	34.9
13:00-14:00	44.2	46.3	45.4	32.2	35.1	33.9
14:00-15:00	42.1	44.2	43.3	42.1	44.3	43.3
15:00-16:00	41.2	45.3	43.7	40.1	42.1	41.2
16:00-17:00	40.3	42.3	41.4	38.2	40.3	39.4
17:00-18:00	37.2	40.2	39.0	39.2	42.1	40.9
18:00-19:00	36.6	42.1	40.2	42.1	44.3	43.3
19:00-20:00	35.2	40.2	38.4	44.3	46.1	45.3
20:00-21:00	34.2	36.1	35.3	36.5	38.6	37.7
21:00-22:00	33.2	34.2	33.7	38.1	40.2	39.3
22:00-23:00	32.1	35.2	33.9	36.5	38.2	37.4
23:00-00:00	33.2	36.1	34.9	35.2	37.6	36.6
00:00-01:00	32.1	35.2	33.9	34.2	37.2	36.0
01:00-02:00	31.4	34.1	33.0	33.2	36.1	34.9
02:00-03:00	33.6	35.2	34.5	32.1	37.6	35.7
03:00-04:00	34.2	36.3	35.4	33.4	35.6	34.6
04:00-05:00	35.2	37.2	36.3	31.2	33.5	32.5
05:00-06:00	36.4	38.2	37.4	34.6	36.4	35.6
Result	Day Means		40.0	Day Means		39.3
	Night Means		35.0	Night Means		35.1

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.



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/ 003	Report Date	02.03.2023
Site Location	<i>Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha</i>		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 003
Sample Description	Ambient Noise	Sample Collected Date	24.02.2023

Location	N5 – Bettadapuram - 11°13'26.18"N 76°57'26.45"E			N6 – Periya Puthur - 11°13'37.40"N 77° 1'42.33"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	36.3	38.6	37.6	36.5	38.2	37.4
07:00-08:00	34.2	36.8	35.7	35.5	38.9	37.5
08:00-09:00	36.2	38.2	37.3	34.2	36.5	35.5
09:00-10:00	31.2	38.2	36.0	33.2	38.2	36.4
10:00-11:00	32.6	33.4	33.0	31.2	36.4	34.5
11:00-12:00	33.4	35.2	34.4	33.6	36.2	35.1
12:00-13:00	35.6	38.6	37.4	34.2	38.2	36.6
13:00-14:00	38.2	39.1	38.7	33.6	39.2	37.2
14:00-15:00	38.6	39.9	39.3	34.1	40.2	38.1
15:00-16:00	36.8	38.2	37.6	36.5	42.3	40.3
16:00-17:00	37.2	39.2	38.3	38.2	43.1	41.3
17:00-18:00	38.1	39.2	38.7	40.2	44.2	42.6
18:00-19:00	35.2	39.7	38.0	42.1	46.3	44.7
19:00-20:00	33.5	42.3	39.8	44.3	46.2	45.4
20:00-21:00	32.2	44.2	41.5	40.2	44.2	42.6
21:00-22:00	33.6	45.3	42.6	38.1	40.2	39.3
22:00-23:00	34.2	36.2	35.3	32.2	42.3	39.7
23:00-00:00	32.1	37.2	35.4	36.2	41.2	39.4
00:00-01:00	31.8	33.6	32.8	34.2	38.6	36.9
01:00-02:00	31.1	33.4	32.4	36.1	40.3	38.7
02:00-03:00	31.6	39.2	36.9	34.2	38.6	36.9
03:00-04:00	35.2	39.5	37.9	33.6	36.5	35.3
04:00-05:00	34.2	41.2	39.0	35.1	38.9	37.4
05:00-06:00	33.1	40.1	37.9	34.2	39.2	37.4
Result	Day Means		37.7	Day Means		39.1
	Night Means		36.0	Night Means		37.4

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

- 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	02.03.2023
Site Location	<i>Tvi. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha</i>		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/ 004
Sample Description	Ambient Noise	Sample Collected Date	24.02.2023

Location	N7 - Mathampalayam - 11°11'53.10"N 76°57'21.12"E			N8 – Sengalipalayam - 11°11'46.34"N 77° 1'18.16"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	38.2	40.2	39.3	36.2	38.2	37.3
07:00-08:00	35.6	39.2	37.8	38.2	40.2	39.3
08:00-09:00	34.2	36.5	35.5	34.2	38.2	36.6
09:00-10:00	35.6	38.2	37.1	33.2	39.2	37.2
10:00-11:00	36.4	38.6	37.6	34.6	38.2	36.8
11:00-12:00	35.1	40.2	38.4	33.1	35.6	34.5
12:00-13:00	36.5	38.2	37.4	32.1	36.4	34.8
13:00-14:00	38.6	42.3	40.8	35.2	38.6	37.2
14:00-15:00	37.2	41.3	39.7	36.2	40.2	38.6
15:00-16:00	31.2	33.2	32.3	32.5	42.3	39.7
16:00-17:00	34.2	36.4	35.4	34.2	43.1	40.6
17:00-18:00	35.6	38.6	37.4	34.1	38.2	36.6
18:00-19:00	36.1	38.1	37.2	33.2	37.2	35.6
19:00-20:00	38.2	40.2	39.3	32.6	38.2	36.2
20:00-21:00	37.2	39.2	38.3	31.2	34.2	33.0
21:00-22:00	33.5	36.5	35.3	32.6	38.2	36.2
22:00-23:00	32.4	36.5	34.9	33.2	36.2	35.0
23:00-00:00	31.2	35.4	33.8	31.2	34.1	32.9
00:00-01:00	32.6	36.5	35.0	30.2	33.2	32.0
01:00-02:00	33.5	34.2	33.9	32.6	35.6	34.4
02:00-03:00	34.2	36.5	35.5	32.5	38.2	36.2
03:00-04:00	35.6	38.2	37.1	31.6	36.9	35.0
04:00-05:00	34.2	36.5	35.5	32.5	37.8	35.9
05:00-06:00	33.5	38.2	36.5	30.2	36.9	34.7
Result	Day Means		37.3	Day Means		36.8
	Night Means		35.3	Night Means		34.4

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.



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/ 001	Report Date	02.03.2023
Site Location	Tvi. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 001
Sample Description	Soil 1	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 KG	Sample Received On	25.02.2023
Sample Condition	Good	Test Commenced On	25.02.2023
Sampling Location	Core Zone		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.04
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	410 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.6 %
04	Bulk Density	By Cylindrical Method	1.2 g/cm ³
05	Porosity	By Gravimetric Method	42.8 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	125.5 mg/kg
07	Magnesium as Mg		67.8 mg/kg
08	Chloride as Cl		110 mg/kg
09	Soluble Sulphate as SO ₄		0.011 %
10	Total Phosphorus as P		2.1 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	300 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.93 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.12 %

*****End of Report*****

Page 1 of 1

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Authorised Signatory

A-S7

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	02.03.2023
Site Location	Tvi. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 001
Sample Description	Soil 1	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 KG	Sample Received On	25.02.2023
Sample Condition	Good	Test Commenced On	25.02.2023
Sampling Location	Core Zone		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	35.5 %
	Sand		31.9 %
	Silt		32.6 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	25 mg/kg
16	Zinc as Zn		1.62 mg/kg
17	Boron as B		3.3 mg/kg
18	Potassium as K		32 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		0.81 mg/kg
23	Iron as Fe		2.35 mg/kg
24	Cation Exchange Capacity		USEPA – 1986

*****End of Report*****

Page 1 of 1

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Authorised Signatory

[Signature]

Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 002	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 002
Sample Description	Soil 2	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 KG	Sample Received On	25.02.2023
Sample Condition	Good	Test Commenced On	25.02.2023
Sampling Location	Onnipalayam		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.10
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	523 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	48.7 %
04	Bulk Density	By Cylindrical Method	1.25 g/cm ³
05	Porosity	By Gravimetric Method	42.5 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	158 mg/kg
07	Magnesium as Mg		88.4 mg/kg
08	Chloride as Cl		120 mg/kg
09	Soluble Sulphate as SO ₄		0.0011 %
10	Total Phosphorus as P		1.3 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	270 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.90 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.52 %

*****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/ 002	Report Date	02.03.2023
Site Location	Tvi. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 002
Sample Description	Soil 2	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 KG	Sample Received On	25.02.2023
Sample Condition	Good	Test Commenced On	25.02.2023
Sampling Location	Onnipalayam		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	35.5 %
	Sand		36.9 %
	Silt		27.6 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	30.8 mg/kg
16	Zinc as Zn		2.6 mg/kg
17	Boron as B		1.9 mg/kg
18	Potassium as K		40.1 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		0.59 mg/kg
23	Iron as Fe		1.22 mg/kg
24	Cation Exchange Capacity		USEPA – 1986

*****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/ 003	Report Date	02.03.2023
Site Location	Tvi. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 003
Sample Description	Soil 3	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 KG	Sample Received On	25.02.2023
Sample Condition	Good	Test Commenced On	25.02.2023
Sampling Location	Kallipalayam		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.75
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	520 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.9 %
04	Bulk Density	By Cylindrical Method	1.21 g/cm ³
05	Porosity	By Gravimetric Method	46.1 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	91.8 mg/kg
07	Magnesium as Mg		82 mg/kg
08	Chloride as Cl		130 mg/kg
09	Soluble Sulphate as SO ₄		0.009 %
10	Total Phosphorus as P		1.10 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	355 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.03 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.18 %

*****End of Report*****

Page 1 of 1

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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	02.03.2023
Site Location	Tvi. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 003
Sample Description	Soil 3	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 KG	Sample Received On	25.02.2023
Sample Condition	Good	Test Commenced On	25.02.2023
Sampling Location	Kallipalayam		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	37.2 %
	Sand		35.9 %
	Silt		26.9 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	25 mg/kg
16	Zinc as Zn		1.3 mg/kg
17	Boron as B		2.5 mg/kg
18	Potassium as K		34.5 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		0.7 mg/kg
23	Iron as Fe		1.10 mg/kg
24	Cation Exchange Capacity		USEPA – 1986

*****End of Report*****

Page 1 of 1

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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/ 004	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 004
Sample Description	Soil 4	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 KG	Sample Received On	25.02.2023
Sample Condition	Good	Test Commenced On	25.02.2023
Sampling Location	Periya Puthur		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.60
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	409 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.2. %
04	Bulk Density	By Cylindrical Method	1.1 g/cm ³
05	Porosity	By Gravimetric Method	45.3 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	200 mg/kg
07	Magnesium as Mg		69.1 mg/kg
08	Chloride as Cl		86.5 mg/kg
09	Soluble Sulphate as SO ₄		0.005 %
10	Total Phosphorus as P		1.6 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	410 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.93 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.12 %


*****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/ 004	Report Date	02.03.2023
Site Location	<i>Tvi. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha</i>		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 004
Sample Description	Soil 4	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 KG	Sample Received On	25.02.2023
Sample Condition	Good	Test Commenced On	25.02.2023
Sampling Location	Periya Puthur		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	37.9 %
	Sand		35.5 %
	Silt		26.6 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	26.7 mg/kg
16	Zinc as Zn		1.3 mg/kg
17	Boron as B		1.5 mg/kg
18	Potassium as K		47.3 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		0.71 mg/kg
23	Iron as Fe		2.38 mg/kg
24	Cation Exchange Capacity		USEPA – 1986

*****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/ 005	Report Date	02.03.2023
Site Location	Tvi. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 005
Sample Description	Soil 5	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 KG	Sample Received On	25.02.2023
Sample Condition	Good	Test Commenced On	25.02.2023
Sampling Location	Mathampalayam		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	7.55
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	480 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	46.9 %
04	Bulk Density	By Cylindrical Method	0.95 g/cm ³
05	Porosity	By Gravimetric Method	42.4 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	120 mg/kg
07	Magnesium as Mg		77 mg/kg
08	Chloride as Cl		96.7 mg/kg
09	Soluble Sulphate as SO ₄		0.0031 %
10	Total Phosphorus as P		2.55 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	308 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.76 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.02 %

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Name: Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 005	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 005
Sample Description	Soil 55	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 KG	Sample Received On	25.02.2023
Sample Condition	Good	Test Commenced On	25.02.2023
Sampling Location	Mathampalayam		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	34.4 %
	Sand		37.5 %
	Silt		28.1 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	23.5 mg/kg
16	Zinc as Zn		1.01 mg/kg
17	Boron as B		1.3 mg/kg
18	Potassium as K		30.8 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		0.6 mg/kg
23	Iron as Fe		2.22 mg/kg
24	Cation Exchange Capacity		USEPA – 1986

*****End of Report*****

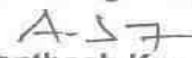
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Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 006	Report Date	02.03.2023
Site Location	<i>Tvi. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha</i>		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 006
Sample Description	Soil 6	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 KG	Sample Received On	25.02.2023
Sample Condition	Good	Test Commenced On	25.02.2023
Sampling Location	Beerjepalli		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	7.55
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	485 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	48.4 %
04	Bulk Density	By Cylindrical Method	0.94 g/cm ³
05	Porosity	By Gravimetric Method	43.1 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	138 mg/kg
07	Magnesium as Mg		88 mg/kg
08	Chloride as Cl		100 mg/kg
09	Soluble Sulphate as SO ₄		0.0011 %
10	Total Phosphorus as P		3.7 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	390 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.93 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.12 %

*****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/ 006	Report Date	02.03.2023
Site Location	<i>Tvi. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha</i>		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 006
Sample Description	Soil 6	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 KG	Sample Received On	25.02.2023
Sample Condition	Good	Test Commenced On	25.02.2023
Sampling Location	Beerjepalli		

S. No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	34.8 %
	Sand		37.9 %
	Silt		27.3 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	23.8 mg/kg
16	Zinc as Zn		1.10 mg/kg
17	Boron as B		1.06 mg/kg
18	Potassium as K		25.1 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		0.77 mg/kg
23	Iron as Fe		2.01 mg/kg
24	Cation Exchange Capacity		USEPA – 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/2022-23/001	Report Date	02.03.2023
Site Location	<i>Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha</i>		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/001
Sample Description	Surface Water (SW-1)	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	25.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	25.02.2023
Sampling Location	Belladhi Lake		

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	7.10
4	Conductivity @ 25°C	IS 3025 Part 14:2013	1202 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	4.5 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	710 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	197.76 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	35.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	26.8 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	257.1 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	200 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	71.7 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.14 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	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	8.8 mg/l

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Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/001	Report Date	02.03.2023
Site Location	<i>Tvi. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha</i>		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/001
Sample Description	Surface Water (SW-1)	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	25.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	25.02.2023
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)	6.8 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	40 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.5 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)	2.2 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)	20.2 mg/l
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	850 MPN/100ml
41	Escherichia coli	APHA 23 rd Edn. 2017:9221F	140 MPN/100ml

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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/2022-23/002	Report Date	02.03.2023
Site Location	<i>Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha</i>		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/002
Sample Description	Surface Water (SW-2)	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	25.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	25.02.2023
Sampling Location	Agrahasamakulam 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	7.29
4	Conductivity @ 25°C	IS 3025 Part 14:2013	933 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	2.9 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	550 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	152.17 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	27.7 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	20.2 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	184 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	140 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	65.6 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.22 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.19 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	7.7 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/2022-23/002	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/002
Sample Description	Surface Water (SW-2)	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	25.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	25.02.2023
Sampling Location	Agrahasamakulam 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)	5.1 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	28 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.5 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)	2.6 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)	17.3 mg/l
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	800 MPN/100ml
41	Escherichia coli	APHA 23 rd Edn. 2017:9221F	90 MPN/100ml

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 Name: Santhosh Kumar A
 Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/001	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/001
Sample Description	Ground Water (WW-1)	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	25.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	25.02.2023
Sampling Location	Near Project Area		

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)	7.10
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	746 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.5 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	440 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	136.18 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	24.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	18.5 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	124 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	97.5 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	57.2 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.29 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	0.21 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	8.1 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/2022-23/001	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/001
Sample Description	Ground Water (WW-1)	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	25.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	25.02.2023
Sampling Location	Near Project Area		

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	190 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/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/2022-23/002	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/002
Sample Description	Ground Water (WW-2)	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	25.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	25.02.2023
Sampling Location	Krishnapuram		

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)	7.73
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	934 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	2.2 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	550 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	203.05 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	35.9 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	27.6 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	165 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	130 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	75 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.23 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	0.21 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	5.8 mg/l

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Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/002	Report Date	02.03.2023
Site Location	Tv. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/002
Sample Description	Ground Water (WW-2)	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	25.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	25.02.2023
Sampling Location	Krishnapuram		

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	140 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****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/2022-23/001	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/001
Sample Description	Ground Water (BW -1)	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	25.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	25.02.2023
Sampling Location	Near Project Area		

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)	8.03
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	785 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	463 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	156.82 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	26.6 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	22 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	138 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	114 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	65.4 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	0.15 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	3.2 mg/l

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Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/001	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/001
Sample Description	Ground Water (BW - 1)	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	25.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	25.02.2023
Sampling Location	Near Project Area		

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	90 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/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/2022-23/002	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/002
Sample Description	Ground Water (BW -2)	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	25.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	25.02.2023
Sampling Location	Periya Puthur		

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)	7.99
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	813 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.5 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	480 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	168.18 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	30 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	22.7 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	140 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	112 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	55 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	0.19 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	4.9 mg/l

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Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/002	Report Date	02.03.2023
Site Location	Tvl. SRI RAJALAKSHMI SAMAPPA ROUGH STONE & GRAVEL QUARRY S.F.Nos. 1120/2 & 1121/2, Bilichi Village, Coimbatore North Taluk, Coimbatore District. Cluster Extent: 7.23.0 ha		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/002
Sample Description	Ground Water (BW -2)	Sample Collected Date	24.02.2023
Qty. of Sample Received	2 Litres	Sample Received On	25.02.2023
Sample Condition	Fit for Analysis	Test Commenced On	25.02.2023
Sampling Location	Periya Puthur		

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	220 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

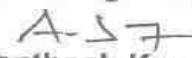
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 Name: Santhosh Kumar A
 Designation: Quality Manager

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Certificate of Accreditation

Geo Exploration & Mining Solutions, Salem

No. 17, Advaita Ashram Road, Fairlands, Salem – 636 004, Tamilnadu, India.

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S.No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals opencast only	1	1 (a) (i)	A
2	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	B
3	Building and construction projects	38	8(a)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Jan 06, 2023 and posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2684 dated Feb 20, 2023. The accreditation needs to be renewed before the expiry date by Geo Exploration & Mining Solutions, Salem following due process of assessment.

Sr. Director, NABET
Dated: Feb 20, 2023

Certificate No.
NABET/EIA/2225/RA 0276

Valid up to
August 06, 2025

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to the QCI-NABET website.