DRAFT ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENT MANAGEMENT PLAN

FOR OBTAINING

Environmental Clearance under EIA Notification – 2006

Schedule Sl. No. 1 (a) (i): Mining Project

"B1" CATEGORY – MINOR MINERAL – CLUSTER – NON-FOREST LAND

CLUSTER EXTENT = 6.00.0 hectares

At

Kondappanayanapalli Village, Krishnagiri Taluk,

Krishnagiri District, Tamil Nadu State

ToR letter No. Lr. No. SEIAA-TN/F.No.10368/SEAC/1(a)ToR- 1612/2023

Dated:06.11.2023

NAME AND ADDRESS OF THE PROPOSED PROJECT PROPONENT

Name and Address	Extent & S.F.No.	Mineral Production
M/s. Sri Venkateshwara Blue Metals Prop.A.M.Murugan, S/o.Mannathan, No.4/4, 109, Mutthampatty Post, Mettur Taluk, Salem District	**3.00.0 Ha &** **202/1 (Part-A)**	**Rough Stone-1218973 m^3**

ENVIRONMENTAL CONSULTANT

GEO TECHNICAL MINING SOLUTIONS

No: 1/213-B, Ground Floor, Natesan Complex
Oddapatti, Collectorate Post office,
Dharmapuri-636705. Tamil Nadu.
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NABET ACC. NO: NABET/EIA/2124/SA 0184
Valid till: 02/04/2024

ENVIRONMENTAL LAB

Ekdant Enviro Services (P) Limited

R-7/1, AVK Towers, Ground Floor, North main road

Anna Nagar, West Extn, Chennai - 101, Tamil Nadu

NABL Certificate Number: TC-11742, Valid Until : 31.05.2025

Baseline Study Period – October 2023 through December 2023

TERMS OF REFERENCE (ToR) COMPLIANCE

ToR issued vide

Lr No. SEIAA-TN/F.No.10368/SEAC/1(a)ToR-1612/2023 Dated:06.11.2023

for M/s. Sri Venkateshwara Blue Metals Rough stone Quarry

1	The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, place of worship, industries, factories, sheds, etc.		The map showing the structures such as dwelling houses, places of worship, industries, factories, sheds, etc. within the radius of 500m from the proposed project area will be included in the final EIA report.
2	The proponent shall discuss in detail regarding the drainage pattern and discuss about the mitigation measures in the EIA report.		The details of the drainage pattern is discussed in the Section 3.1.4 under Chapter III, p.29 and the map showing drainage drainage pattern is shown in the Figure 3.4, p.31. The mitigation measures are discussed in the Section 4.1 under Chapter IV, p.90-109.
3	The proponent shall obtain the details regarding the validity of the lease period from the AD (Mines) while submitting the EIA report.		The details regarding the validity of the lease period from the AD(Mines) is attached in the Annexure III.
	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	As the proposed project is a new lease area, the conditions are not applicable to this project.
	(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		The VAO certificate is attached in the Annexure IV**.**
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, (iv) 300 m, (v) 500 m 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.		The map showing the structures such as dwelling houses, places of worship, industries, factories, sheds, etc. within the radius of 500m from the proposed project area will be included in the final EIA report.
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.		Detailed hydrogeological study was carried out. The results have been discussed Section 3.2 under Chapter III, pp.35-47.
5	The proponent shall carry out Bio diversity study through reputed institution and the same shall be included in EIA Report.		The biodiversity study report will be submitted in the final 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.	The DFO letter is attached in the Annexure V.
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.	It is a new lease area; the condition is not applicable.
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.	It is a new lease area, the condition is not applicable.
9	The PP Shall furnish the affidavit stating that the blasting operation in the proposed	The affidavit for blasting has been enclosed in the approved mining plan

	quarry is carried out by the statutory competent person as per the MMR l96l such as blaster. mining mate, mine foreman. II/I Class mines manager appointed by the proponent.	report in Annexure III.
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.	A conceptual design of blasting has been given in Section 2.6 under Chapter II, pp.16-23.
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.	Photographic evidences showing mining activities of the project proponent will be submitted during the presentation.
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?	As the proposed project is a new lease area, the conditions are not applicable to this project.
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 lease 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.	
15	All corner coordinates of the mine lease area. superimposed on a High-Resolution Imagery/Toposheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	All corner coordinates of the mine lease area have been superimposed on a high-resolution Google Earth Image, as shown in Figure 2.3 under Chapter II, p.12.
16	The PP shall carry out Drone video survey covering the cluster, green belt, fencing etc.,	The drone video will be submitted during presentation.
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.	Photographs of adequate fencing, green belt along the periphery of the project area and the photographs showing nearby water bodies will be included in final EIA report.
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.	The Resources and Reserves of Rough Stone were calculated based on cross-section method by plotting sections to cover the maximum lease area for the proposed project. The plate used for reserve estimation has been presented in Figure 2.4 and 2.4a results of geological resources and reserves have been shown in Table 2.3. under Chapter II, p.13 & 14.

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 Mines Act, 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Details of manpower required for this project have been given in Table 2.14 under Chapter II, p.24.
20	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/ TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly – be shown whether working will intersect groundwater, Necessary data and documentation in this regard may be provided.	Detailed hydrogeological study was carried out. The results have been discussed Section 3.2 under Chapter III, pp.35-47.
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.	The baseline data were collected for the environmental components including land, soil, water, air, noise, biology, socio-economy, and traffic and the results have been discussed under Chapter III, pp. 25-89.
22	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry	Results of cumulative impact study due to mining operations are given in Section 7.4 under Chapter VII, pp.120-123.

	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.	
23	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	As part of rainwater harvesting measures, the rain water from garland drainage system will be diverted to nearby check dams after treating the water in settling tanks.
24	Land use of the study area delineating forest area, agricultural land, gazing 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 of the study area delineating forest area, agricultural land2grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features has been discussed in Section 3.1, under Chapter III pp.26-34. The details of surrounding sensitive ecological features have been provided in Table 3.42 under Chapter III, p.88 & 89. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Table 2.8 under Chapter II, p.19.
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.	This condition is not applicable to this project because no dumps have been proposed outside the lease area.

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.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
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.	As part of rainwater harvesting measures, the rain water from garland drainage system will be diverted to nearby check dams after treating the water in settling tanks.
28	Impact on local transport infrastructure due to the project should be indicated.	The traffic density study is given in EIA report, Section 3.7, under Chapter III. pp.85-87.
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.	A detailed tree survey was caried out within 300 m radius and the results have been discussed in Section 3.5 under Chapter III, pp.61-78.
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	A progressive mine closure plan has been attached with the approved mining plan report in Annexure III. The budget details for the progressive mine closure plan are shown in Table 2.9 under Chapter II, p.19.
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	The EIA coordinator and the FAE for ecology and biodiversity visited the study area and educated the local students about the importance of protecting the

	preserving local flora and fauna by involving them in the study, wherever possible.	biological environment.
32	The purpose of green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	A detailed greenbelt development plan has been provided in Section 4.6 under Chapter IV, pp.103-106.
33	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities, botanist/Horticulture with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	The FAE of ecology and biodiversity has advised the project proponent that saplings of one year old raised in the eco-friendly bags should be purchased and planted with the spacing of 3 m between each plant around the proposed project area as per the advice of local forest authorities/botanist.
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.	A disaster management plan for the project has been provided in Section 7.3 under Chapter VII, pp.118-119.
35	A Risk Assessment and management plan shall be prepared and included in the	A risk assessment plan for the project has been provided in Section 7.2 under

	EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Chapter VII, p.116-118.
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 of the project and preventive measures have been discussed in detail in Section 4.8 under Chapter IV, pp.107 & 108.
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.	No public health implications are anticipated due to this project. Details of CSR and CER activities have been discussed in Sections 8.6 and 8.7 under Chapter VIII, pp.126 & 127.
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.	No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 18 people directly as discussed in Section 8.1 under Chapter VIII, p.125.
39	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No litigation is pending in any court against this project.
40	Benefits of the Project if the Project is	Benefits of the project details have been

	implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	given under Chapter VIII, pp.125-127.
41	If any quarrying operation were carried out in the proposed quarrying sile for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF & CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is a fresh lease area, the CCR is not applicable to this project.
42	The PP Shall prepare the EMP for the entire life/lease period of mine and also Furnish the sworn affidavit starting to Abide the EMP for the entire life of mine.	A detailed environment management plan has been prepared following the suggestion made by SEAC, as shown in Chapter X, pp.129-135. The sworn affidavit stating to abide the EMP for the entire life of mine will be submitted during final EIA presentation.
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.	The EIA report has been prepared keeping in mind the fact that concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may lead to withdrawal of this terms of reference besides attracting penal provisions in the Environment (Protection) Act, 1986.
	Discussion by SEIAA and the Remarks: - The subject was placed in the 670th Authority meeting held on 06.11.2023. The authority noted that the subject was appraised in the 416th SEAC meeting held on 13.10.2023. Based on the presentation and documents furnished by the project proponent, SEAC after detailed deliberations, decided to recommend the proposal for the grant of Terms of Reference (TOR)	

	After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the following conditions and the conditions in **Annexure 'B'** of this minute.	
	Annexure 'B'	
1	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	A cluster management committee including all the proponents of the rough stone quarrying projects within the cluster of 500 m radius will be constituted for the effective implementation of green belt development plan, water sprinkling, blasting, etc.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development Water sprinkling, tree plantation, blasting etc.,	The members of the cluster management committee will be instructed to carry out EMP in coordination.
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	The list of members of the committee formed will be submitted to AD/Mines before the execution of mining lease.
4	Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	All the information has been discussed in Section 2.6 under Chapter II, pp.16-23.
5	The committee shall deliberate on risk management plan pertaining to the cluster in	It will be informed to the committee.

	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.	It will be advised to the cluster management committee to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised will be given in detail.
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	A proper action plan regarding the restoration will be followed by the committee.
8	The committee shall furnish the Emergency Management plan within the cluster.	The committee will submit the emergency management plan to the respective authority in the stipulated time period.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	The information on the health of the workers and the local people will be updated periodically.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	A proper action plan with reference to water, sanitation & safety will be devised and submitted by the committee to the respective authority.
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	The committee will submit the fire safety and evacuation plan as discussed in Section 7.3 under Chapter VII, pp.118-119.

	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.	Soil health and biodiversity have been discussed in Sections 3.1 and 3.5 respectively under Chapter III, pp.26-34 & pp. 61-78.
	b)	Climate change leading to Droughts, Floods etc.	Climatic condition of the proposed project area has been discussed in Section 3.3 under Chapter III, pp.47-57.
	c)	Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local People.	The information about CO_2 emission has been added to Section 4.6 under Chapter IV, pp.103-106.
	d)	Possibi1ities of water contamination and impact on aquatic ecosystem health.	Possibilities of both surface and ground water contamination have been discussed in Section 4.3 under Chapter IV, pp.91. The impact on aquatic species has been discussed in Section 4.6 under Chapter IV, pp.103-106.
	e)	Agriculture, Forestry, & Traditional practices.	Sorgum, millet, groundnut, and coconut are the primary crops that are cultivated in the study area.
	f)	Hydrothermal/Geothermal effect due to destruction in the Environment.	The average geothermal gradient of earth is 25^0C/km. As the proposed depth of mining is 92 m below the local ground level, the temperature will increase by 2.3^0C at the depth of mining.
	g)	Bio-geochemical processes and its foot prints including environmental stress.	Data is not included.

	h)	Sediment geochemistry in the surface streams.	The details regarding sediment geochemistry is discussed in the Table 3.4 under Chapter III, p.34.
	Agriculture & Agro-Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining area.		There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly, as shown in Section 4.6 under Chapter IV, pp.103-106.
14	Impact on soil flora & vegetation around the project site.		The details on flora have been provided in Section 3.5 under Chapter III, pp.61-78. There is no schedule I species of animals observed within study area as per Wildlife Protection Act, 1972 and no species falls in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area shall be given and if so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.		Details of vegetation in the lease area have been provided in Section 3.5 under Chapter III, pp. 61-78. Details about transplantation of plants have been provided in Section 4.6 under Chapter IV, pp.103-106.
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.		The ecological details have been provided in Section 3.5 under Chapter III, pp. 61-78 and measures have been provided in Section 4.6 under Chapter IV, pp. 103-106.
17	Action should specifically suggest for		All the essential environmental

	sustainable management of the area and restoration of ecosystem for flow of goods and services.	protective measures will be followed by the proponent to manage the surrounding environment and restore the ecosystem, as discussed in Chapter IV, pp.90-109.
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	The impact of project on the land environment has been discussed in Section 4.1 under Chapter IV, p.90-109.
	Forests	
19	The project proponent shall study on impact of mining on Reserve forests free ranging wildlife.	The project proponent shall do barbed wire fencing work and develop a green belt around the lease area to prevent wildlife from entering the site.
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The impacts of the project on ecology and biodiversity have been discussed in Section 4.6 under Chapter IV, pp.103-106.
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	The impacts of the project on standing trees and the existing trees have been discussed in Section 4.6 under Chapter IV, pp.103-106.
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National parks, corridors and wildlife pathways, near project site.	The details of protected areas, National Parks, Corridors and Wildlife pathways near project site and the list of environmentally sensitive areas has been provided in Table 3.42 under Chapter III, pp.88 & 89.
	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	Detailed hydrogeological study was carried out. The results have been discussed Section 3.2 under Chapter III, pp.35-47.

	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.	Garland drainage structures will be constructed around the lease area to control the erosion, as discussed in Section 4.3 under Chapter IV, pp.91.
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby villages, waterbodies/rivers & any ecological fragile areas.	The matter has been discussed under Chapter IV, pp.90-109.
26	The project proponent shall study impact on fish habitats and the food WEB/food chain in the water body and Reservoir.	An analysis for food chain in aquatic ecosystem has been discussed in Section 3.5 under Chapter 3, pp. 61-78.
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	The impacts of the proposed project on the surrounding environment have discussed in Chapter IV, pp. 90-109.
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 sits possible land form changes visual and aesthetic impacts.	The impact of the proposed project on aquatic plants and animals in water bodies has been discussed in Section 4.6 under Chapter IV, pp. 103-106.
29.	The Terms of Reference should	The impact of mining on soil

	specifically study impact on soil health, soil erosion, the soil physical, chemical components.	environment has been discussed in Section 4.2 under Chapter IV, pp.90-91.
30	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	The impacts on water bodies, streams, lakes have been discussed in Section 4.3 under Chapter IV, p.91.
	Energy	
31	The measures taken to control Noise, Air, water, Dust control and steps adopted to efficiently utilise the Energy shall be furnished.	The measures taken to control noise, air, water, and dust have been given under Chapter IV, pp.90-109.
	Climate Change	
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	The carbon emission and the measures to mitigate carbon emission have been discussed in Section 4.6 under Chapter IV, pp. 103-106.
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	The matter has been discussed in Chapter IV, pp. 90-109.
	Mine Closure Plan	
34	Detailed Mine closure plan covering the entire mine lease period as per precise area communication order issued.	A progressive mine closure plan has been attached with the approved mining plan report in Annexure III. The budget details for the progressive mine closure plan are shown in Table 2.9 under Chapter II, p.19.
	EMP	
35	Detailed Environment Management plan	A detailed Environment Management

	along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	plan has been given under Chapter X, pp.129-135.
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	A detailed Environment Management plan has been given in Tables 10.1 & 10.2 under Chapter X, pp.130-135.
	Risk Assessment	
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	The risk assessment and management plan for this project has been provided in Section 7.2 under Chapter VII, pp.116-118.
	Disaster Management Plan	
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	The disaster management plan for this project has been provided in Section 7.3 under Chapter VII, pp.118-119.
	Others	
39.	The project proponent shall furnish VAO certificate with reference to 300 m radius regard to approved habitations, schools, Archaeological sites, structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, river, lake pond, tank etc.	The VAO certificate of 300 m radius have been attached in the attached in the Annexure IV.
40	As per the MoEF & CC office	The concerns raised during the public

	memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management plan.	consultation will be submitted in the final EIA report.
41	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	The matter on plastic waste management has been given in Section 7.4 under Chapter VII, pp.120-123.
STANDARD TERMS OF REFERENCE		
1.	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not applicable. This is not a violation category project. This proposal falls under B1 category.
2.	A copy of the document in support of the fact that the proponent is the rightful lessee of the mine should be given.	The proposed site for quarrying is a private land. A copy of the document showing that the proponent is the rightful lessee has been enclosed along with the approved mining plan in Annexure III.
3.	All documents including approved mine plan, 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	All the documents related to mining plan, EIA and public hearing are compatible to each other and have been provided in the annexure part.

	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/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	All corner coordinates of the mine lease area have been superimposed on a high-resolution Google Earth Image, as shown in Figure 2.3 under Chapter II, p.12.
5.	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Toposheets of Survey of India have been used for showing sampling locations of air, soil, water, and noise, as shown in Chapter III.
6.	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The lease area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.
7.	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/ procedures to bring into focus any infringement/ deviation/ violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the	The proponent has framed Environmental Policy and the same has been discussed in Section 10.1 under Chapter X, pp.129 & 130.

	Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	
8.	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an opencast quarrying operation proposed to operate in Manual method. The rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 90^0 bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
9.	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc., should be for the life of the mine / lease period.	The study area considered for this study is of 5 km radius for air, soil, water, and noise level sample collections, while the study area is 10 km radius for ecology and biodiversity studies and all data contained in the EIA report such as waste generation etc., is for the life of the mine / lease period.
10.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park,

	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.	migratory routes of fauna, water bodies, human settlements and other ecological features has been discussed in Section 3.1 under Chapter III, pp.26-34. The details of surrounding sensitive ecological features have been provided in Table 3.42 under Chapter III, p.88 & 89. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Table 2.8 under Chapter II, p.19.
11.	Details of the land for any over burden dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given	It is not applicable as no dumps have been proposed outside the lease area. The entire quarried out rough stone will be transported to the needy customers.
12.	Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	It is not applicable as there is no forest land involved within the proposed project area. The details have been discussed in Table 3.42 under Chapter III, pp.88 & 89.
13.	Status of forestry clearance for the broken-up area and virgin forestland involved in the	It is not applicable as the proposed project area does not involve any forest

	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.	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 as there are neither forests nor forest dwellers / forest dependent communities in the mine lease area. There shall be no forest impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project.
15.	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	No Reserve Forest is found within the study area. The details of reserve forest within 10km have been discussed Table 3.42 under Chapter III, pp.88 & 89. Flora and Fauna vegetation details is attached in the Annexure IV.
16.	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	There is no any wildlife/protected area from the periphery of the project area. Information regarding wildlife /protected area within 10km has been given in Table 3.42 under Chapter III, pp.88 & 89.
17.	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant	The details of National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km

	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	radius from the periphery of the project area has been given in Table 3.42 under Chapter III, pp.88 & 89.
18.	A detailed biological study of the study area [core zone and buffer zone (10 KM radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	A detailed biological study was carried out in both core and buffer zones and the results have been discussed in Section 3.5 under Chapter III, pp. 61-78.
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	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.

	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 w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable The project doesn't attract the C.R.Z. Notification, 2018.
21.	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	Not Applicable. There are no approved habitations of SCs/STs and other weaker sections in the lease area. Therefore, R&R Plan / Compensation Plan for the Project Affected People (PAP) are not provided.
22.	One season (non-monsoon) [i.e., March-	Baseline data were collected for the

	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.	period of October 2023 - December 2023 as per CPCB notification and MoEF & CC Guidelines. Primary baseline data and the results have been included in Sections 3.1-3.8 under Chapter III, pp. 26-89.
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 GLCs of pollutants was carried out using AERMOD view 11.2.0. The model results have been given in Section 4.4 under the Chapter IV, pp.92-98.
24.	The water requirement for the project, its	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.	availability and source have been provided in Table 2.11 under Chapter II, p.22.
25.	Necessary clearance from the competent Authority for drawl of requisite quantity of water for the project should be provided.	Not Applicable. Water for dust suppression, greenbelt development and domestic use will be sourced from accumulated rainwater/seepage water in mine pits and purchased from local water vendors through water tankers on daily requirement basis. Drinking water will be sourced from the approved water vendors.
26.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Part of the working pit will be allowed to collect rain water during the spell of rain. The water thus collected will be used for greenbelt development and dust suppression. The mine closure plan has been prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
27.	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact studies and mitigation measures of water environment including surface water and ground water have been discussed in Section 4.3 under Chapter IV, p.91.
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	Not Applicable. The ground water table is found at the depth of 100 m below ground level. The

	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.	ultimate depth of quarry is 92m (8m above base level & 84m below base level). Therefore, the mining activity will not intersect the ground water table. Data regarding the occurrence of groundwater table have been provided in Section 3.2 under Chapter III, pp.35-47.
29.	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	Not Applicable. There are no streams, seasonal or other water bodies passing within the project area. Therefore, no modification or diversion of water bodies is anticipated.
30.	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.	The highest elevation of the project area is 578 m AMSL. Ultimate depth of the mine is 92m (8m AGL + 84m BGL). Depth to the water level in the area is 100 m BGL.
31.	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The	Greenbelt development plan has been given in Section 4.6 under Chapter IV, pp. 103-106.

	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.	Traffic density survey was carried out to analyse the impact of transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from the project area. Details have been provided in Section 3.7 under Chapter III, p.85-87.
33.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Infrastructure & other facilities will be provided to the mine workers after the grant of quarry lease and the same has been discussed in Section 2.6.7 under Chapter II, p.22.
34.	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Progressive mine closure plan has been prepared for this project and is given in Section 2.6.4 under Chapter II, p.19.
35.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail.	Occupational health impacts of the project and preventive measures have been explained in detail in Section 4.8

	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.	under Chapter IV, pp.107 & 108.
36.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	No public health implications are anticipated due to this project. Details of CSR and CER activities have been discussed in Sections 8.6 and 8.7 under Chapter VIII, pp.126 & 127.
37.	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	No negative impact on socio-economic environment of the study area is anticipated and this project shall benefit the socio-economic environment by offering employment for 18 people directly as discussed in Section 8.1 under Chapter VIII, p.125.
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.	A detailed Environment Management Plan has been prepared and provided in Tables 10.1 & 10.2 under Chapter X, pp.130-135.
39.	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	The outcome of public hearing will be submitted in the final EIA report.
40.	Details of litigation pending against the	No litigation is pending in any court

	project, if any, with direction /order passed by any Court of Law against the Project should be given.	against this project.
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Project Cost is Rs. 89,30,000/- CER Cost is Rs. 5,00,000/- In order to implement the environmental protection measures, an amount of Rs.13387757 as capital cost and recurring cost as Rs.4641874 as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the overall EMP cost for 5 years will be Rs.39139043, as shown in Tables 10.1 & 10.2 under Chapter X, pp.129-135.
42	A disaster management Plan shall be prepared and included in the EIA/EMP Report.	The disaster management plan for this project has been provided in Section 7.3 under Chapter VII, pp.118-119.
43.	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Benefits of the project details have been given under Chapter VIII, pp.125-127.
44.	Besides the above, the below mentioned general points are also to be followed:	
a)	Executive Summary of the EIA/EMP Report	Executive summary has been enclosed as a separate booklet.
b)	All documents to be properly referenced with index and continuous page numbering.	All the documents have been properly referenced with index and continuous page numbering.
c)	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	List of tables and source of the data collected have been mentioned.

d)	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.	Original Baseline monitoring report will be submitted in the final EIA report.
e)	Where the documents provided are in a language other than English, an English translation should be provided.	All the documents provided here are in English language.
f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	The questionnaire will be attached in the final EIA report.
g)	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA. II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) dated 4th August, 2009 have been followed while preparing the EIA report.
h)	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF & CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.	No changes are made in the basic scope and the project parameters.
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	It is fresh lease area and the CCR is not applicable to this project.

	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.	All the plans including surface & geological plans, and progressive closure plan have been included in Annexure III.

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CHAPTER I
INTRODUCTION

1.0 PREAMBLE

Environmental Impact Assessment (EIA) study is a process used to identify the environmental, social and economic impacts of a project prior to decision-making. EIA systematically examines both beneficial and adverse consequences of the proposed project and ensure that these impacts are considered during the project designing. According to the Ministry of Environment and Forests, Govt. of India, EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 3977 (E) of 14th August 2018, all the mining projects are broadly classified into two categories, i.e., category A and category B, based on the spatial extent of the projects. The category B projects are further divided in to B1 and B2 on the basis of the guidelines issued of the Ministry of Environment and Forests. All mining projects included in category B1 require an EIA report for obtaining environmental clearance from the State Environment Impact Assessment Authority (SEIAA). As the proposed project falls within the cluster of quarries of overall extent of greater than 5 ha and less than 50 ha in the case of non-coal mine lease, the proposed project falls under the category B1 and the project requires preparation and submission of an EIA report after public consultation to SEIAA for obtaining environmental clearance as per the order dated 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018.

In compliance with ToR obtained vide Lr.No.SEIAA-TN/F.No.10368/SEAC/1(a) ToR-1612/2023 Dated 06.11.2023 this EIA report has been prepared for the project proponent, **M/s.Sri Venkateshwara Blue Metals** applied for rough stone quarry lease in the Government Poramboke land falling in S.F.No.202/1 (Part-A) over an extent of 3.00.0 ha in Kondappanayanapalli Village, Krishnagiri Taluk, Krishnagiri District and Tamil Nadu. This EIA report takes into account the rough stone quarry within the cluster of 500 m radius from the periphery of the proposed project site. The cluster contains two proposed projects known as P1, P2. All the projects mentioned above have been taken for cluster extent calculation as per MoEF & CC Notification S.O. 2269 (E) Dated 1st July 2016. The total extent of all the quarries in the cluster is 6.00.0 ha also known as the cluster extent. The quarries involved in the calculation of cluster extent are shown in Figure 1.1.

Table 1.1 Details of Quarries within the Cluster Area of 500 m Radius

Proposed Quarries					
Code	**Name of the Owner**	**S.F. No**	**Village**	**Extent (ha)**	**Status**
P1	Sri Venkateshwara Blue Metals Thiru.A.M.Murugan	202/1 (Part-A)	Kondappanayanapalli	3.00.0	Proposed Area
P2	Sri Venkateshwara Blue Metals Thiru.A.M.Murugan	202/1 (Part-B)	Kondappanayanapalli	3.00.0	Applied Area
Existing Quarries					

Expired Quarries					

	Total Cluster Extent			**6.00.0**	---

Source:

DD Letter: Rc.No.170/2018/Mines, Dated:24.05.2023

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

1.1 PURPOSE OF THE REPORT

The purpose of the report is to study baseline environmental conditions in and around the proposed project area for the period of **October 2023 to December 2023** according to the provisions of MoEF & CC Office Memorandum dated 29.08.2017 and MoEF & CC Notification, S.O. 996 (E) dated 10.04.2015 to analyse impacts and provide mitigation measures.

1.2 ENVIRONMENTAL CLEARANCE

The Environmental Clearance process for the project will comprise of four stages. These stages are screening, scoping, public consultation & appraisal.

Screening

Screening is the first stage of the EIA process. In this stage, the State level Expert Appraisal Committee (SEAC) examined the application of EC made by the proponent in Form 1 through online (Proposal No. SIA/TN/ MIN/442329/2023, Dated.29.08.2023) and decided

that the project requires detailed environmental studies for the preparation of EIA report. Therefore, the proponent submitted application for Terms of Reference (ToR) on 31.08.2023.

Scoping

The proposal was placed in the 416th meeting of SEAC on 13.10.2023. Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of Terms of Reference (ToR) and the recommendation for ToR is subjected to the outcome of the Honourable NGT, Principal Bench, New Delhi (O.A No.186 of 2016 (M.A.No.350/2016) and O.A. No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No. 758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A. No. 843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No. 981/2016, M.A.No.982/2016 & M.A.No.384/2017).

Public Consultation

In this stage, an application along with the draft of EIA and EMP report will be made to the Member Secretary of the Tamil Nadu Pollution Control Board (TNPCB) to conduct Public Hearing ensuring public participation at the project site or in its close proximity in the district. During public hearing, an opportunity will be given to the people living nearby the project site to express their opinions about the impact of the proposed project on the environment. The outcome of the public hearing meeting will be updated in the final EIA report for appraisal.

Appraisal

In this stage, an application along with final EIA report including the outcome of the public consultations will be made to the SEIAA. The application thus made will be scrutinized by the SEAC. Then, the SEAC will make recommendations to grant EC or reject the application to the SEIAA.

1.3 TERMS OF REFERENCE (ToR)

The SEAC framed a comprehensive Terms of Reference (ToR) based on the information provided in the Form 1 and information collected from the proposed project site visit and issued ToR to the proponent vide Letter No. SEIAA-TN/F.No.10368/SEAC/1(a) ToR-1612/2023 Dated 06.11.2023 for the preparation of an EIA report.

Figure 1.1 Location of Proposed and Existing Rough Stone Quarry in the Cluster of 500 m Radius

1.4 POST ENVIRONMENT CLEARANCE MONITORING

For category B projects, irrespective of its clearance by MoEF/SEIAA, the project proponent shall prominently advertise in the newspapers indicating that the project has been accorded environmental clearance and the details of MoEF website where it is displayed. After obtaining EC, the project proponent will submit a half-yearly compliance report of stipulated environmental clearance terms and conditions to MoEF & CC Regional Office & SEIAA on 1st June and 1st December of every year.

1.5 TRANSFERABILITY OF ENVIRONMENTAL CLEARANCE

A prior environmental clearance granted for a specific project or activity to an applicant may be transferred during its validity to another legal person entitled to undertake the project or activity on application by the transferor or the transferee with a written "no objection" by the transferor, to, and by the regulatory authority concerned, on the same terms and conditions under which the prior environmental clearance was initially granted, and for the same validity period (EIA Guidance Manual for Mining of Minerals, 2010.

1.6 IDENTIFICATION OF THE PROJECT PROPONENT

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

1.2 Details of Project Proponent

Name of the Project Proponent	**M/s.Sri Venkateshwara Blue Metals**
Address	Prop.A.M.Murugan, S/o.Mannathan, No.4/4, 109, Mutthampatty Post, Mettur Taluk, Salem District.
Status	Proprietor

1.7 BRIEF DESCRIPTION OF THE PROJECT

The proposed project deals with excavation of rough stone which is primarily used in construction projects. The method adopted for rough stone excavation is open cast semi mechanized method involving formation of benches with 7 m height and 5 m width. The proposed project site is located in Kondappanayanapalli Village, Krishnagiri Taluk, Krishnagiri District and Tamil Nadu. Some of the important features of the proposed project have been provided in Table 1.3.

Table 1.3 Salient Features of P1

Name of the Quarry	M/s. Sri Venkateshwara Blue Metals	
Type of Land	Government Poramboke Land	
Extent	3.00.0 ha	
S.F. No	202/1 (Part-A)	
Toposheet No	57-L/02	
Highest Elevation	578 m AMSL	
Latitude	12°39'58.32"N to 12°40'05.09"N	
Longitude	78°07'42.23"E to 78°07'50.93"E	
Ultimate Pit Dimension	92m (8 AGL + 84m BGL)	
Geological Resources	Rough stone (m^3)	Top Soil (m^3)
	3384633	29862
Mineable Reserves	Rough stone (m^3)	Top Soil (m^3)
	1292851	25628
Proposed production for 5 years	Rough stone (m^3)	Top Soil (m^3)
	1218973	25628
Method of Mining	Open cast semi mechanized mining method	
Topography	Hill Terrain	
Machinery proposed	Jack hammer	6
	Excavator	1
	Compressor	1
	Tipper	3
Proposed Manpower Deployment	18	
Project Cost	Rs.89,30,000/-	
Proposed Water Requirement	3.5 KLD	

1.8 SCOPE OF THE STUDY

The main scope of the EIA study is to quantify the cumulative impact of the quarries in the cluster on the study area and formulate the effective mitigation measures for each individual lease. A detailed account of the emission sources, emissions control equipment, back ground air quality levels, meteorological measurements, dispersion model and all other aspects of pollution like effluent discharge, and dust generation has been provided in this report. The baseline monitoring study has been carried out during the period of **October 2023-December**

2023 for various environmental components such as land, soil, air, water, noise, ecology, etc. to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project. The sampling methodologies for the various environmental parameters required for the study, frequency of sampling, method of sample analysis, etc., are given in Table 3.1 in chapter III.

1.9 Legislation Applicable to Mining of Mineral Sector

A few important legislations are given below:

- The Mines Act, 1952
- The Mines and Mineral (Development and Regulation) Act, 1957
- Mines Rules, 1955
- Mineral Concession Rules, 1960
- Mineral Conservation and Development Rules, 1988
- State Minor Mineral Concession Rules, 1960
- Granite Conservation and Development Rule, 1999
- The Water (Prevention and Control of pollution) Act, 1974
- The Air (Prevention and Control of pollution) Act,1981
- The Environment (Protection) Act, 1986
- The Forest (Conservation) Act, 1988
- The Wildlife (Protection) Act, 1972.

CHAPTER II

PROJECT DESCRIPTION

2.0 GENERAL INTRODUCTION

The open cast mining method, also known as open-pit mining has been proposed to extract the mineral deposit. It is the most commonly used surface mining method all over the world and is generally suitable for mining low-grade mineral deposits that are found close to the surface of the earth and distributed uniformly over a large area. Open pits are also termed quarries when the pits are used for the extraction of building materials and dimension stones.

Opencast mining starts with the development of benches, the widths of which will be determined in such a way to accommodate the use of heavy machinery. The walls of open pits will be dug at an angle that will be decided based on well-established industry standards to provide safety. In some cases where the walls are composed of weak material such as soil and highly weathered rocks, dewatering holes will be drilled horizontally to relieve the water pressure to avoid wall collapse inside the mine site.

The required mine-related infrastructures will be established close to the open pit. The mining infrastructures may include an administration building, a maintenance garage, and a warehouse. The materials mined from open pits will be brought to the surface using trucks. The waste rocks will be piled up in a suitable location, usually close to the open pit. The structure produced by the waste rock pile is known as a waste dump. The dimension of the waste dump will be determined based on industrial safety standards to prevent the rocks from falling into the surrounding area.

2.1 DECSCRIPTION OF THE PROJECT

The proponent, M/s. Sri Venkateshwara Blue Metals is involved in the undertaking of establishment, construction, development, and closure of opencast mines. He, through the exploration phase, identified the proposed project site as the one that has a great potential of producing an economically viable quantity of rough stone. Therefore, the proponent had applied for quarry lease on 06.02.2018 to extract rough stone. The precise area communication letter was issued by Department of Geology and Mining, Krishnagiri vide (Rc.No.170/2018/Mines Dated 09.03.2018). Based on the precise area communication letter, mining plan was prepared. The mining plan thus prepared was approved by Deputy Director Department of Geology and Mining, Krishnagiri (Rc.No.170/2018/Mines Dated 27.05.2018). The overall view of the project site is shown in Figure 2.1.

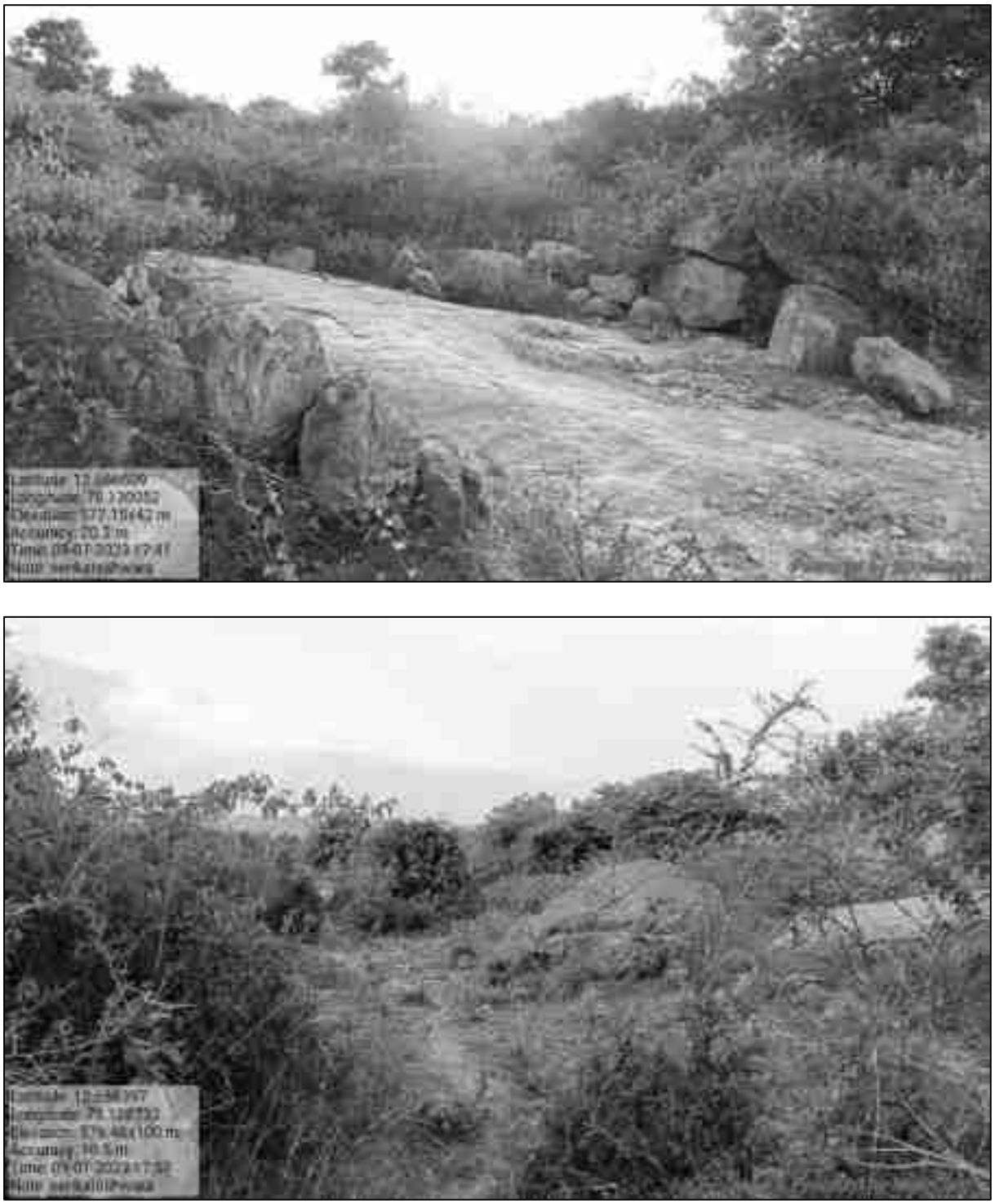


Figure 2.1 Overall View of Proposed Project Site

2.2 LOCATION AND ACCESSIBILITY

The proposed quarry project is located in Kondappanayanapalli Village, Krishnagiri Taluk, Krishnagiri District and Tamil Nadu, as shown in Figure 2.2. The area lies between Latitudes from 12°39'58.32"N to 12°40'05.09"N and Longitudes from 78°07'42.23"E to 78°07'50.93"E. The maximum altitude of the project area is 578 m AMSL. Accessibility details to the proposed project site have been given in Table 2.1.

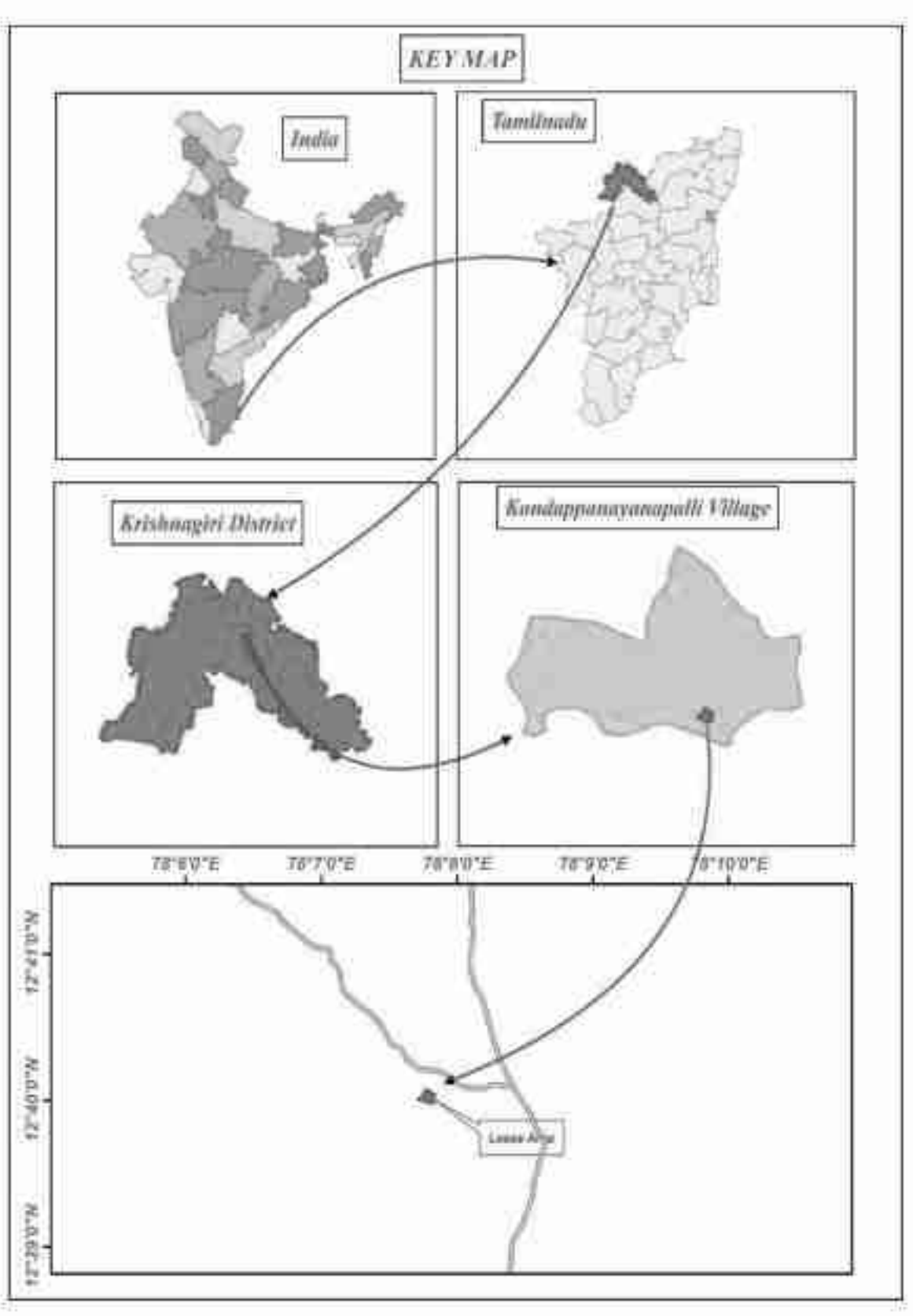


Figure 2.2 Key Map Showing Location of Project Site

Table 2.1 Site Connectivity to the Project Area

Type of Features	Name/Location	Distance (km)	Direction
Nearest Roadways	NH – 44 Chennai - Bangalore	7.20	S
	Village Road Appinayakkankottai - Avalnatham	0.25	N
	Village Road Verupasandiram - Gollapalli	8.0	S
	Gollapalli - Krishnagiri	13.5	S
Nearest Railway	Hosur	33.0	W
Nearest Town	Verupasandiram	2.0	E
Nearest Airport	Bangalore	74.0	W
Nearest Seaport	Chennai	245.0	E
Nearest Villages	Appinayakkankotti	1.9	N
	Verupasandiram	1.4	E
	Chennasandiram	1.4	S
	Avalnatham	2.0	W

2.3 LEASEHOLD AREA

- The extent of the proposed project site is 3.00.0 ha.
- The proposed project is site specific.
- There is no mineral beneficiation or processing proposed inside the project area.
- There is no forest land involved in the proposed area and is devoid of major vegetation and trees.

2.3.1 Corner Coordinates

- The boundary corner geographic coordinates are given in Table 2.2 and the proposed project site with boundary coordinates has been shown in Figure 2.3.

Table 2.2 Corner Coordinates of Proposed Project

Pillar ID	Latitude	Longitude
1	12°40'02.44"N	78°07'50.93"E
2	12°39'58.34"N	78°07'50.02"E
3	12°40'05.11"N	78°07'46.34"E
4	12°40'00.00"N	78°07'42.23"E

2.4 GEOLOGY

The lease area geologically occurs over grey hornblende biotite gnesis, commercially called as rough stone. Also, the lease area geomorphologically occurs over Moderately Dissected Structural Hills and Valleys.

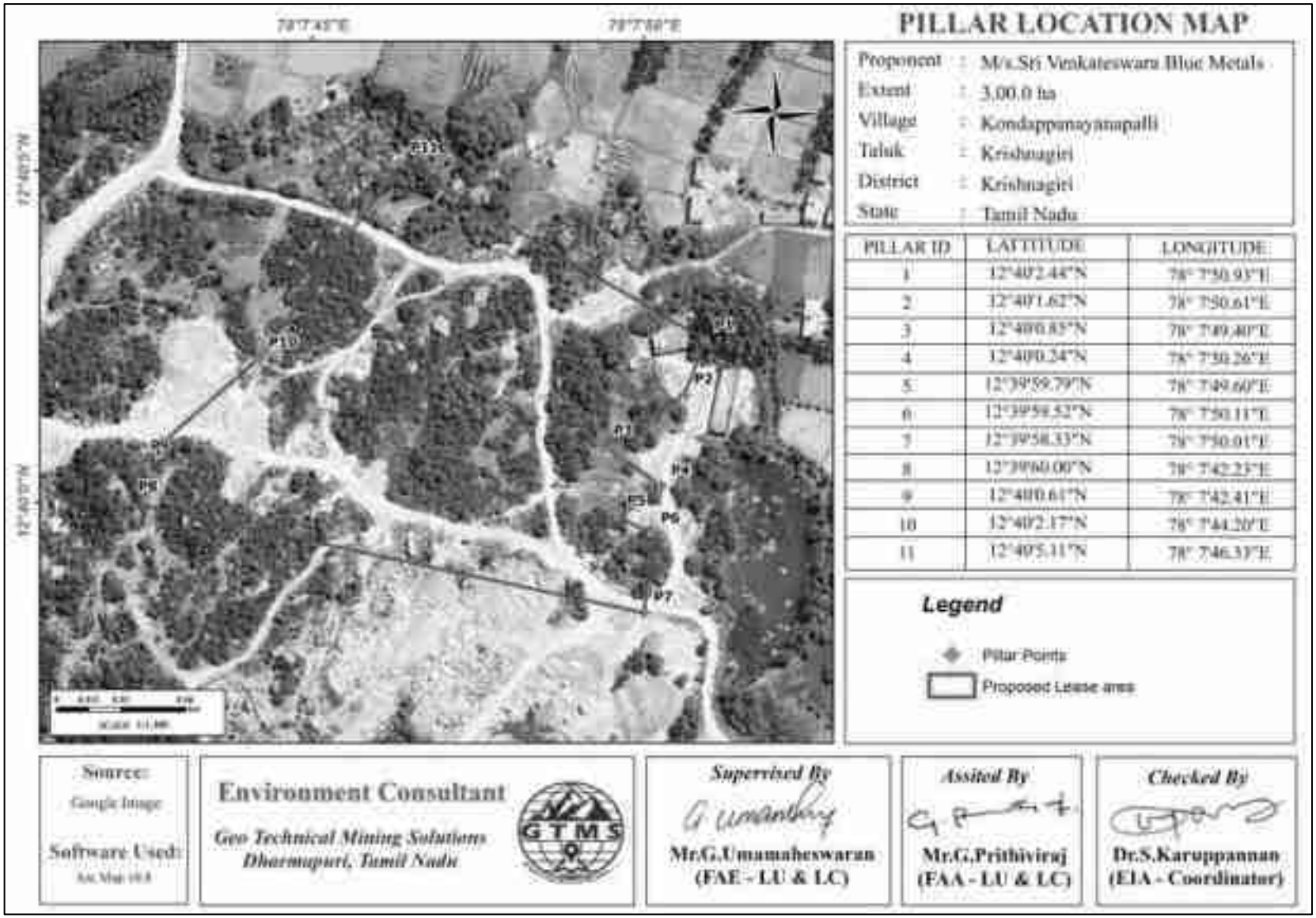


Figure 2.3 Google Earth Image Showing Pillar Coordinates of Lease Area

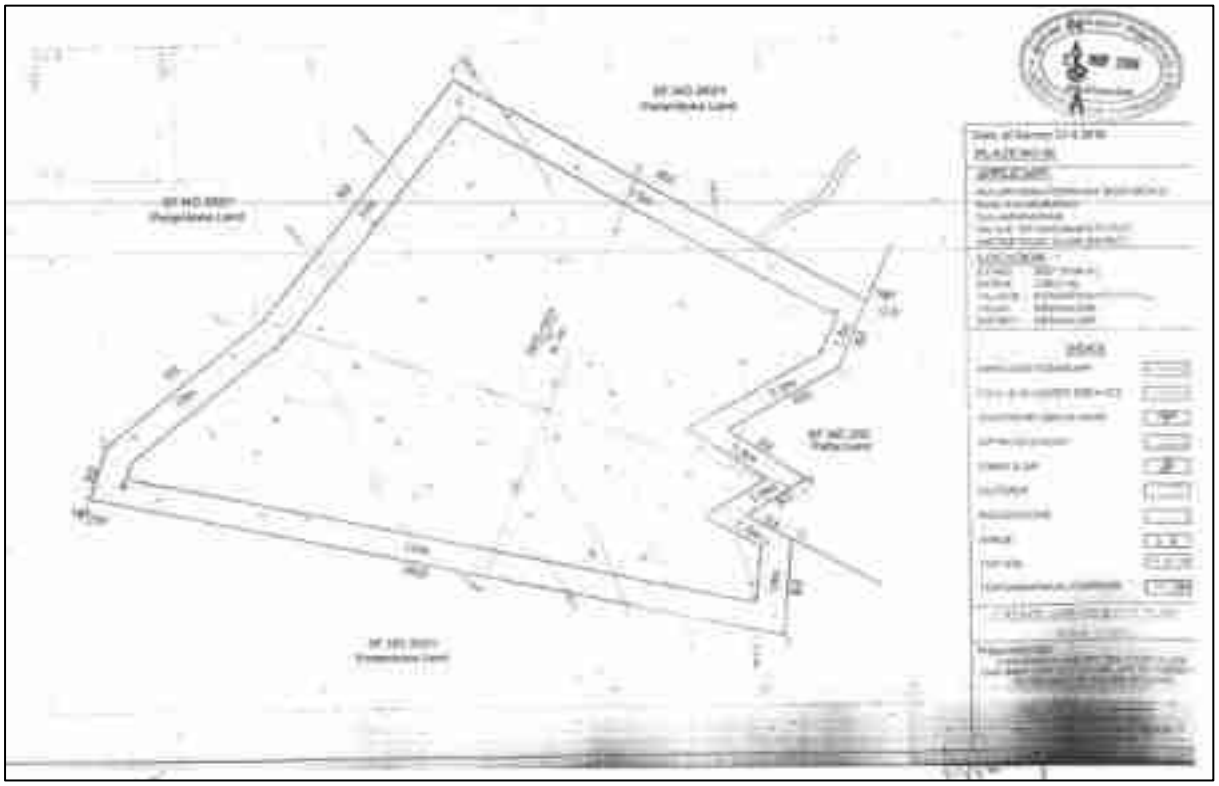


Figure 2.4 Surface and Geological Plan

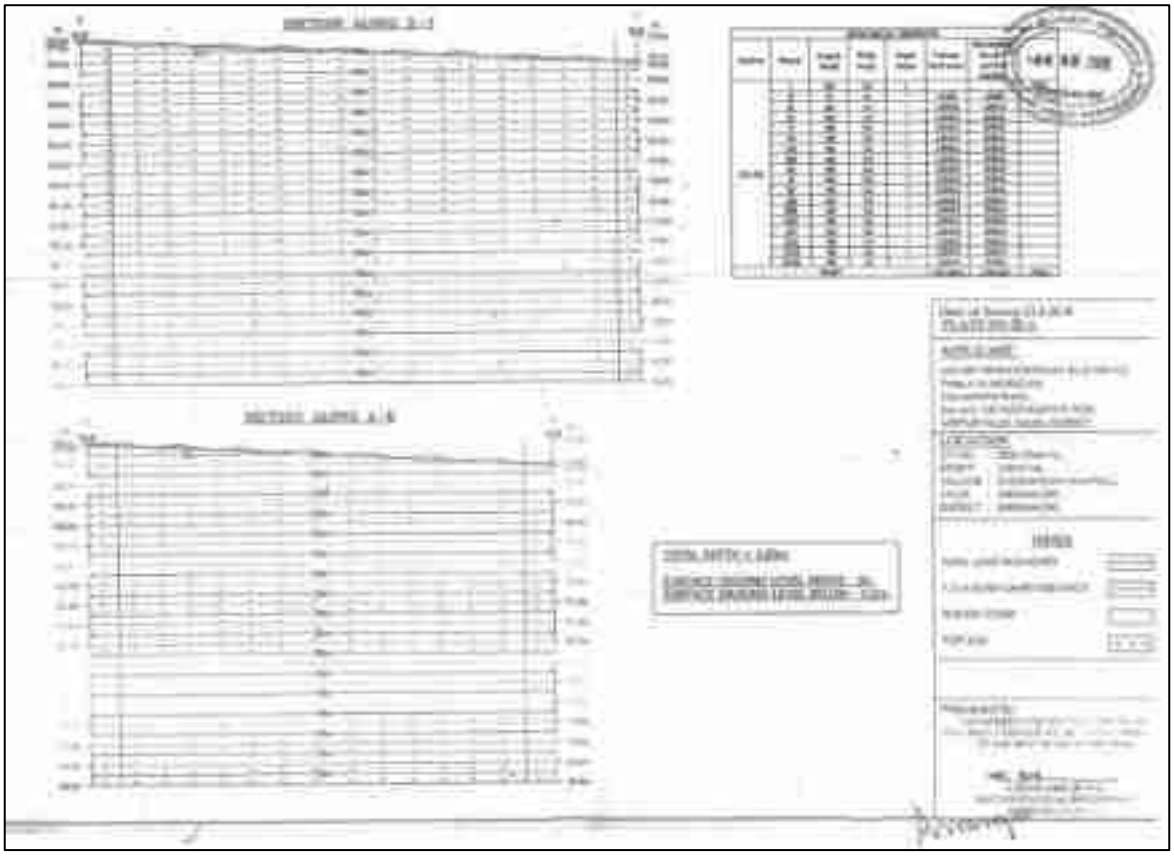


Figure 2.4a Surface and Geological Section

2.5 QUANTITY OF RESERVES

The resources and reserves of rough stone and gravel were calculated based on cross-section method by plotting sections to cover the maximum lease area for the proposed project. Based on the availability of geological resources, the mineable reserves are calculated by considering excavation system of bench formation and leaving essential safety margins, as shown in Figure 2.5 and deducting the locked-up reserves during bench formation (also called as Bench Loss). The mineable reserves are calculated up to the depth of 92 m considering there is no waste / overburden / side burden (100% Recovery anticipated) for the proposed project. The results of geological resources and reserves have been shown in Table 2.3.

Table 2.3 Estimated Resources and Reserves of the Project

Resource Type	Rough Stone in m^3	Top Soil in m^3
Geological Resource in m^3	3384633	29862
Mineable Reserves in m^3	1292851	25628
Proposed production for 5 years m^3	1218973	25628

Based on the year wise development and production plan and sections, as exemplified in Figures 2.5 & 2.5a the year wise production results have been provided in Table 2.4.

Table 2.4 Year-Wise Production Details

Year	Rough Stone (m^3)	Top Soil (m^3)
I	208271	25628
II	299159	---
III	241339	---
IV	265846	---
V	204358	---
Total	**1218973**	**25628**

Source: Approved Mining Plan & ToR

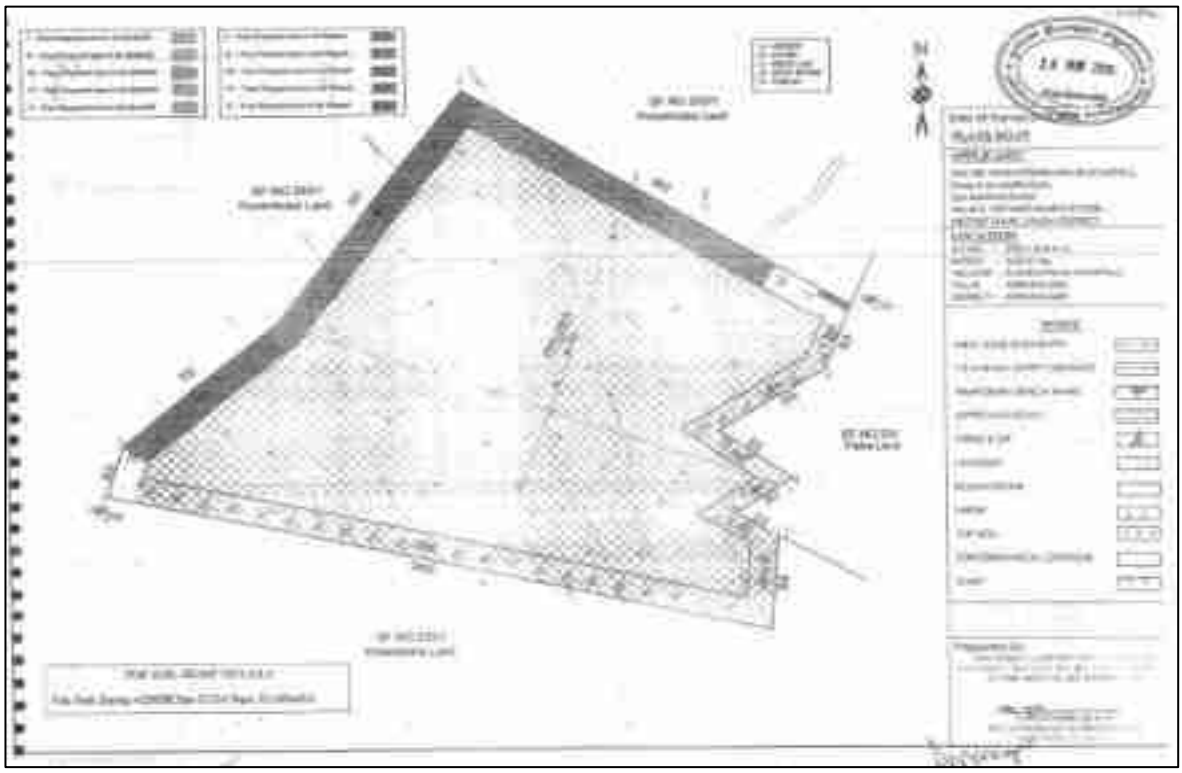


Figure 2.5a Yearwise Development and Production Plan

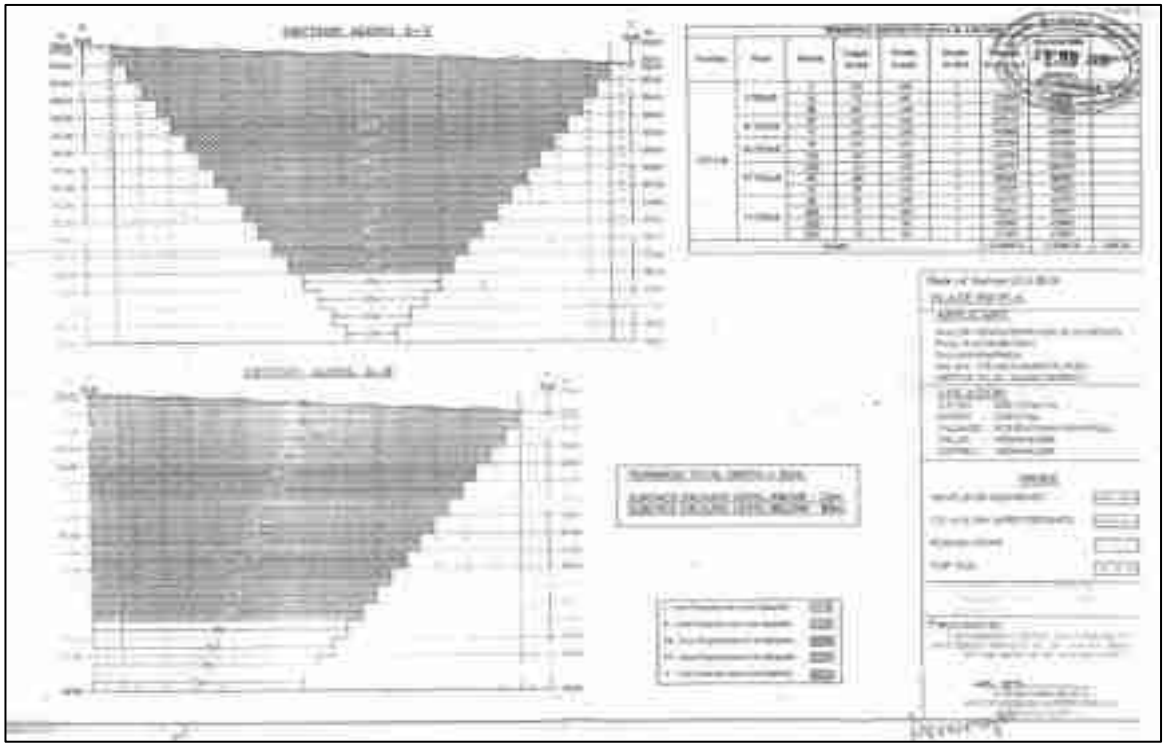


Figure 2.5a Yearwise Development and Production Section

2.6 MINING METHOD

The Quarrying operation is proposed to be carried out by open cast semi-mechanized mining method with the bench height and width of 5 m each. The open cast semi-mechanized method involving drilling and blasting is proposed to extract rough stone. The extracted rough stone will be loaded manually to the trucks for dispatch to the customers. In this project, NONEL blasting will be adopted to extract rough stone.

2.6.1 Conceptual Blasting Design

In this project, NONEL blasting will be employed to win rough stone. This method will involve closed spaced perimeter holes to reduce the overbreak/backbreak on a blast. The objective of the blasting design is to prevent fly rocks from damaging the nearby structures.

Rules of Thumb for Blast Design

Based on practical experience and technical information, a set of rules for blasting have been provided as below (Chapter8 (nps.gov)). These rules will be applied to blast rocks in the proposed project.

Rule 1: **The detonation velocity (VOD) of the explosive should be close to the same value of the sonic velocity (VSO) of the rock to be blasted.**

The sonic velocity of a rock is considered to be a reliable indicator of its structural integrity and resistance to fragmentation. As the VOD of the explosive approaches close to the VSO of the rock, the blasting would result in relatively smaller size of fragmentation with uniformity. There is no value in using an explosive that has a VOD greatly in excess of the VSO of the rock, since there is little or no improvement in fragmentation above the VSO. When selecting an explosive to match up the VSO of a rock mass, variance of <10% in the velocities is acceptable.

Rule 2: Generally, select the densest explosive possible.

When the density of explosives is higher, the potential energy of the explosives can be greater and the more of it can be placed within a borehole of a given size.

Rule 3: Select explosives according to the characteristics of the rock formation to be blasted.

When planes of separation in the rock are smaller than the degree of fragmentation required, the rock can often be blasted by using lower density and lower detonation velocity explosives.

Rule 4: When using slurry or water gel explosives, always determine the critical temperature below which the explosive will fail to reliably detonate.

Almost all slurry explosives have a critical temperature below which they may not detonate, or may not sustain detonation in elongated columns. The explosives should not be used when the temperature of the explosive at time of loading is below that critical temperature.

Rule 5: The distance between holes (spacing) should not be greater than one-half the depth of the borehole.

When the distance between holes in a row is greater than one-half the depth of the hole, the angles of breakage intersect above the bottom of the holes. This causes both a great deal of vertical throw and a very uneven bottom.

Rule 6: Stemming should be equal to the burden.

Stemming is useful to confine and maximize efficient use of the explosive's energy. It also reduces noise as much as possible. If the stemming is greater than the burden, the rock at the top of the borehole will have less cracking from reflection and refraction of compressive and tensile waves. Therefore, stemming should be equal to burden. Drill fines can be used for loading the borehole.

Rule 7: Subdrill (if necessary) should be between 0.3 and 0.5 of spacing/burden.

Subdrill should be equal to 0.3 of burden. It will work when there is row-for-row delay. In blasts where the delay system is both row-for-row and hole-for-hole, the subdrill should be determined by the largest dimension, which can be the spacing or the burden. An average subdrill of 0.4 of spacing is best to use for planning purposes. Based on the above-mentioned rules, blasting design has been conceptualized and has been provided in Table 2.5.

Table 2.5 Conceptual Blasting Design

Blasthole Diameter (D) in mm	32
Burden (B) in m	1.5
Spacing (S) in m	1.30
Subdrill in m	0.45
Charge length (C) in m	0.64
Stemming	1.5
Hole Length (L) in m	2.6
Bench Height (BH) in m	2.1
Mass of explosive/hole in g	400
Stemming material size in mm	3.2

Burden stiffness ratio	1.43
Blast volume/hole in m^3	4.16
Production of rough stone/day in m^3	903
Number of blastholes/day	217
Blasthole pattern	Staggered / Rectangular
Mass of explosive /day in kg	86.9
Powder factor in kg/m^3	0.10
Loading density	0.63
Type of explosives	Slurry
Diameter of packaging in mm	25
Initiation system	NONEL
Fly rock distance in m	19

2.6.2 Magnitude of Operation

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

Table 2.6 Operational Details for Proposed Project

	Rough Stone / 5 years
Proposed production	1218973
Number of Working Days	270
Production /Day (m^3)	903
No. of Lorry Loads	150

2.6.3 Extent of Mechanization

List of machineries proposed for the quarrying operation is given in Table 2.7.

Table 2.7 Machinery Details

S. No.	**Type**	**No. of Unit**	**Size/Capacity**	**Make/Dia of Hole (mm)**	**Motive Power/ H.P**
1	Jack Hammers	6	Hand Held	25.5 mm/Atlas Copco	Diesel Drive 60 H.P
2	Compressor	1	AIR	---	Diesel Drive
3	Excavator	1	1.2 M.T	L&T or EX200	Diesel Drive 120 H.P
Haulage & Transport Equipment					
4	Tipper	3	10 M.T	Ashok Leyland	Diesel Drive 110 H.P

2.6.4 Progressive Quarry Closure Plan

The progressive quarry closure plan of the proposed project shows past, present, and future land use statistics. According to the land use results, at Present, about 3.00.0 ha of land is designated as unutilized area. Whereas, at the end of the mine life, about 2.51.0 ha of land would have been quarried; about 0.01.0 ha of land would have been used for establishing infrastructures; about 0.02.0 ha of land would have been used for road development; about 0.30.4 ha of land would have been used for green belt development.

Table 2.8 Land Use Data at Present, During Scheme of Mining, and at The End of Mine Life

Description	Present Area (ha)	Area at the end of life of quarry (ha)
Area under quarry	Nil	2.51.0
Infrastructure	Nil	0.01.0
Roads	Nil	0.02.0
Green Belt	Nil	0.30.4
Unutilized area	3.00.0	0.15.6
Total	**3.00.0 ha**	**3.00.0 ha**

2.6.5 Quarry Closure Budget

As the proposed project has the enormous potential for continuous operations even after the expiry of lease period, final mine closure plan is not proposed for now. Based on the environment management plan as discussed in Chapter X, the mine closure cost is given in Table 2.9.

Table 2.9 Mine Closure Budget

Activity	Capital Cost
600 Plants Inside the Lease Area	120000
900 Plants Outside the Lease Area	270000
Wire Fencing	600000
Garland Drain	30000
Total	**1020000**

Source: Environment Management Plan

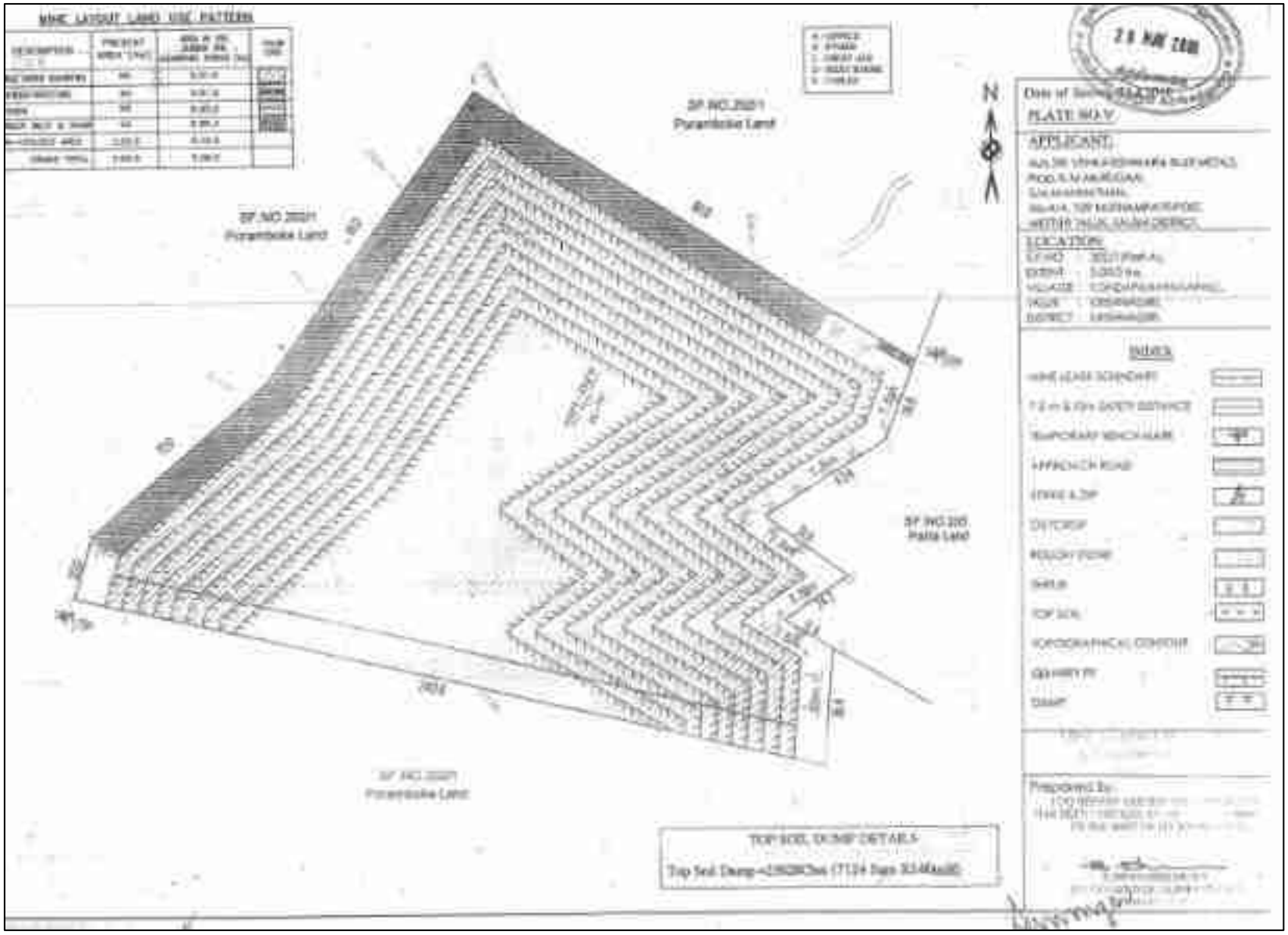


Figure 2.6 Mine Layout Plan and Land Use Pattern

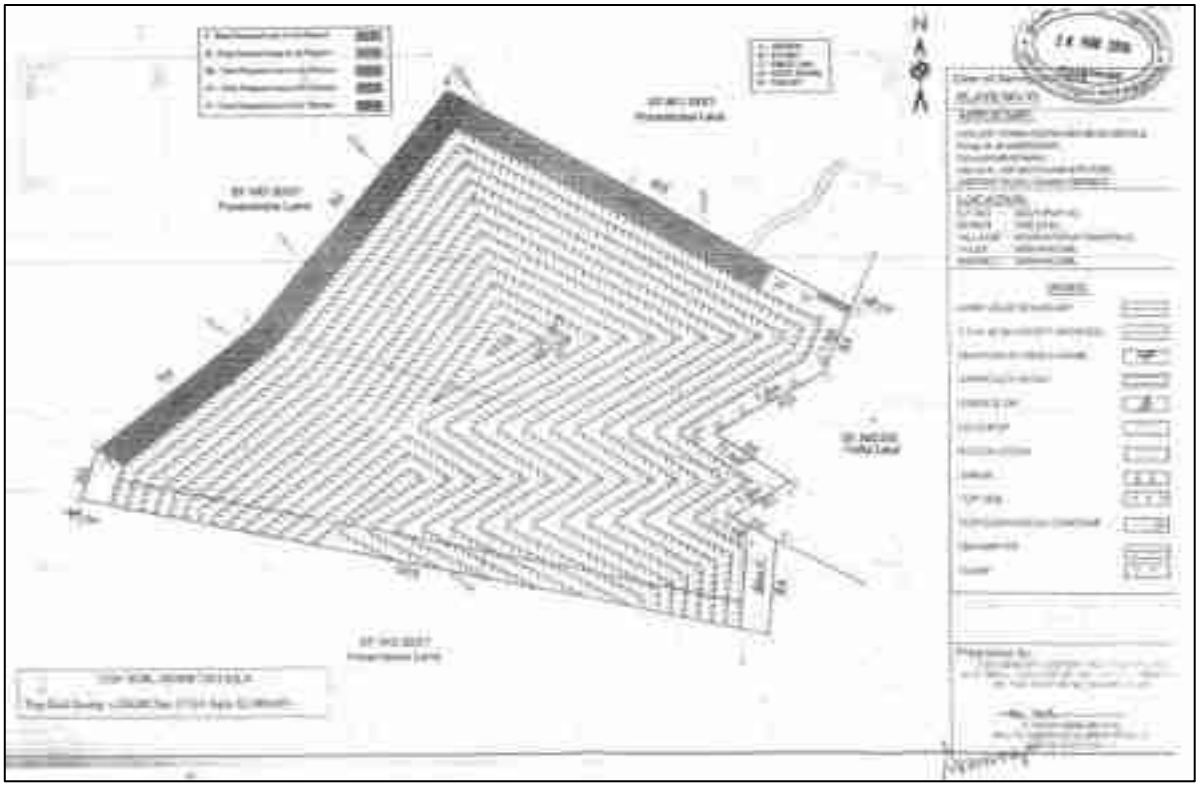


Figure 2.7 Conceptual Plan

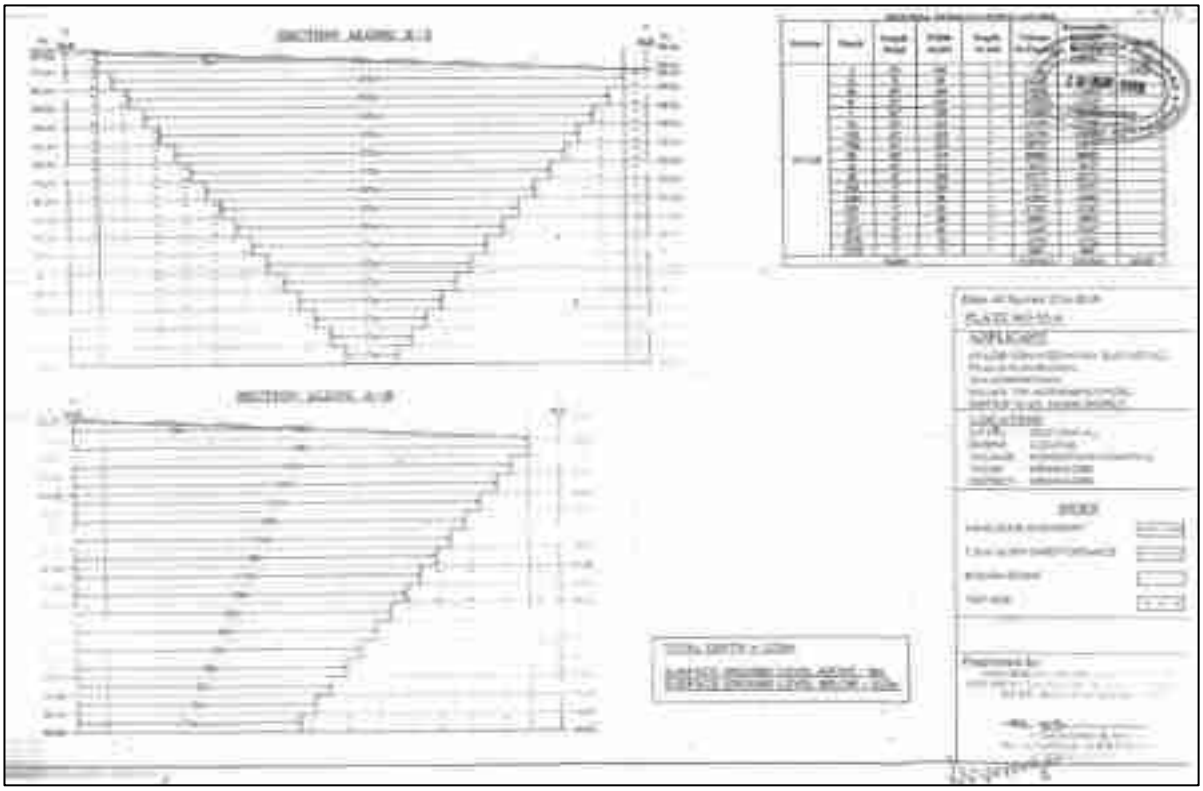


Figure 2.7a Conceptual Section

2.6.6 Conceptual Mining Plan

The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc. The ultimate pit dimension derived from Figures 2.7 and 2.7a is provided in Table 2.10.

Table 2.10 Ultimate Pit Dimension

Pit	Length (m)	Width (m)	Depth (m)
I	172	149	92

Source: Approved Mining Plan & ToR

2.6.7 Infrastructures

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

Other Infrastructure Requirement

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

2.6.8 Water Requirement

Details of water requirement in 3.5 KLD is given in Table 2.11.

Table 2.11 Water Requirement for the Project

Purpose	Quantity	Source
Dust Suppression	1.0 KLD	Existing bore wells nearby the lease area
Green Belt development	0.5 KLD	Existing bore wells nearby the lease area
Drinking & Domestic	2.0 KLD	Existing bore wells and approved water vendors
Total	**3.5 KLD**	

Source: Prefeasibility Report

2.6.9 Energy Requirement

High speed Diesel (HSD) will be used for quarrying machineries. As per the data shown in Table 2.12, Around **5159873 litres of HSD** will be used for rough stone extraction during this 5 years plan period. The diesel will be brought to the site from nearby diesel pumps.

Table 2.12 Fuel Requirement Details

Fuel Requirement for Excavator			
Details	**Rough Stone (1218973 m^3)**	**Top Soil (25628 m^3)**	**Total Diesel (litre)**
Average Rate of Fuel Consumption (l/hr)	16	10	---
Working Capacity (m^3/hr)	20	60	---
Time Required (hours)	60949	427	---
Total Diesel Consumption for 5 years (litre)	975178	4271	979450
Fuel Requirement for Compressor			
Average Rate of Fuel Consumption/hole (litre)	0.4	**---**	**---**
Number of Drillholes/day	217	**---**	**---**
Total Diesel Consumption for 5 years (litre)	117180	**---**	117180
Fuel Requirement for Tipper			
Average Rate of Fuel Consumption/Trip (litre)	20	0	---
Carrying Capacity in m^3	6	6	---
Number of Trips / days	150	0	---
Number of Trips / 5 years	203162	0	---
Total Diesel Consumption for 5 years (litre)	4063243	0	4063243
Total Diesel Consumption by Excavator, Compressor and Tipper			**5159873**

2.6.10 Capital Requirement

The project proponent will invest Rs.89,30,000 to the project. The breakup summary of the investment has been given in Table 2.13.

Table 2.13 Capital Requirement Details

S. No.	**Description**	**Cost (Rs.)**
1	Fixed Asset	65,60,000
2	Machinery	20,00,000
3	EMP	3,70,000
Total Project Cost		**89,30,000**

Source: Approved Mining Plan

2.7 MANPOWER REQUIREMENT

The skilled, competent qualified statutory persons will be engaged for quarrying operation, preference will be given to the local community. Number of employees required for this project have been provided in Table 2.14.

Table 2.14 Employment Potential for the Proposed Project

S. No.	Category	Role	Nos.
1	Highly Skilled	Operator	2
		Mechanic	1
		Blaster / Mat	1
2	Semi - Skilled	Driver	2
3	Unskilled	Musdoor/ Labours	5
		Cleaners	3
		Office Boy	1
4	Management & Supervisory Staff		3
Total			**18**

Source: Prefeasibility Report

2.8 PROJECT IMPLEMENTATION SCHEDULE

The commercial operation will commence after the grant of Environmental Clearance. CTO and CTE will be obtained from the Tamil Nadu State Pollution Control Board. The conditions imposed during the environmental clearance will be compiled before the start of mining operation. Expected time schedule for the quarrying operation is given Table 2.15.

Table 2.15 Expected Time Schedule

S. No.	Particulars	Time Schedule (in Months)					Remarks if any
		1st	2nd	3rd	4th	5th	
1	Environmental Clearance						
2	Consent to Establish						Project Establishment Period
3	Consent to operate						Production starting period.
Time line may vary; subjected to rules and regulations /& other unforeseen circumstances							

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

CHAPTER III
DESCRIPTION OF THE ENVIRONMENT

3.0 GENERAL

This chapter presents a regional background to the baseline data at the very onset, which will help in better appreciation of micro-level field data, generated on several environmental and ecological attributes of the study area. The baseline status of the project environment is described section wise for better understanding of the broad-spectrum conditions. The baseline environment quality represents the background environmental scenario of various environmental components such as land, water, air, noise, biological and socio-economic status of the study area. Field monitoring studies to evaluate the base line status of the project site were carried out covering **October-2023 through December-2023,** with CPCB guidelines. Environmental baseline data were collected by an NABL accredited and MoEF notified **Ekdant Enviro Services (P) Limited** for the environmental attributes including soil, water, air, and noise and by FAEs for ecology and biodiversity, traffic, and socio-economy.

Study Area

The study area has been divided into two zones: core zone and buffer zone. Core zone is considered as lease area and buffer zone as 5 km radius from the periphery of the cluster, except for ecological study, which considers 10 km as buffer zone. Both core and buffer zones are taken as the study area. The data was collected from the study area to understand the existing environment conditions of the above-mentioned environmental components. Sampling methodologies for the various environmental parameters, including frequency of sampling, method of sample analysis, etc., are briefly given in Table 3.1.

Table 3.1 Monitoring Attributes and Frequency of Monitoring

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land Use/ Land Cover	Land-use Pattern within 5 km radius of the study area	Once during the study period	Study Area	Satellite Imagery & Primary Survey
*Soil	Physico-Chemical characteristics	Once during the study period	6 (1 in core & 5 in buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi

*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	7 (3 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	24 hours, twice a week	6 (1 core & 5 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient noise	Hourly observation for 24 hours per location	6 (1 core & 5 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing flora and fauna	Through field visit during the study period	Study area	Primary Survey by Quadrate & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio-economic characteristics, Population statistics and existing infrastructure in the study area	Site visit & Census Handbook, 2011	Study area	Primary Survey, census handbook & need based assessments.

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

3.1 LAND ENVIRONMENT

3.1.1 Geology and Geomorphology

Study area is mainly composed of Grey Hornblende biotite gneiss and Biotite hornblende genesis, as shown in Figure 3.1. The lease area occurs in Grey Hornblende biotite gneiss terrain.

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

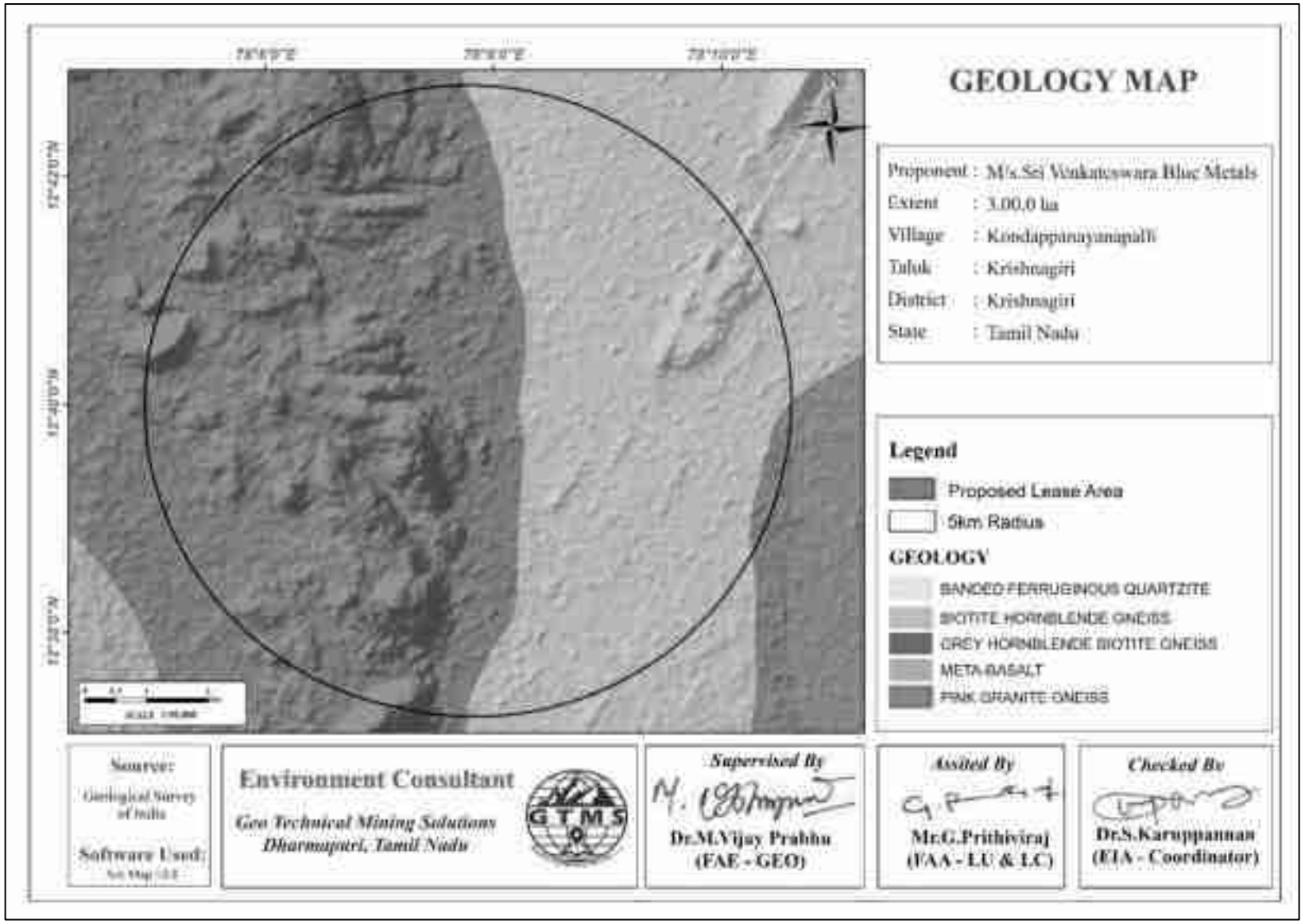


Figure 3.1 Geology Map of 5 km Radius from Proposed Project Site

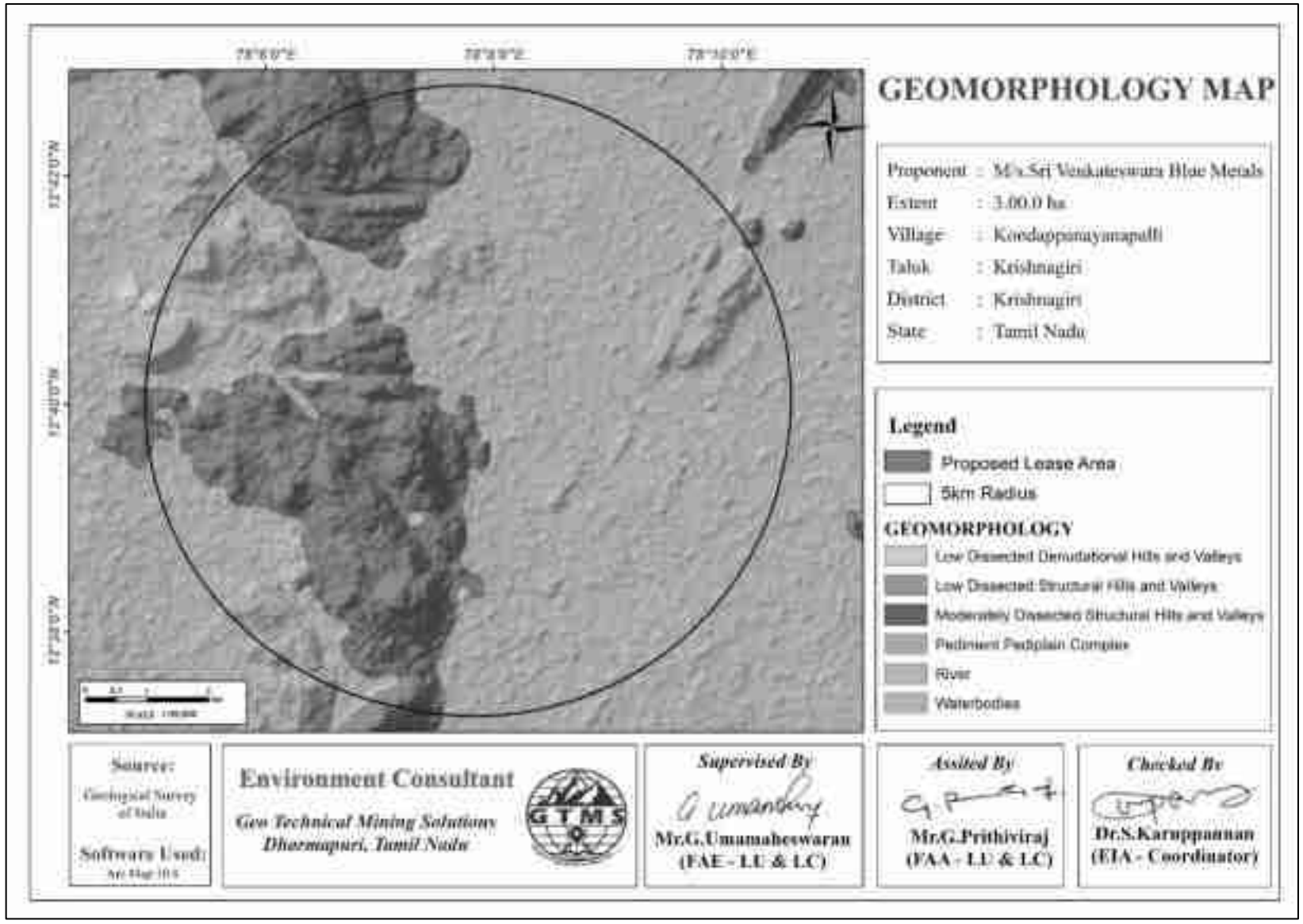


Figure 3.2 Geomorphology Map of 5 km Radius from Proposed Project Site

3.1.2 Land Use/ Land Cover

Land Use and Land Cover (LULC) map, as shown in Figure 3.3 was prepared using Sentinel II image for the study area of 5 km radius to provide a baseline status of the study area covering 5 km radius around the proposed mine site. Totally,8 LULCs were mapped. The areal extent of each LULC is provided in Table 3.2. Of the total area, mining area covers only 10.96 ha accounting for 0.14 %, of which lease area of 3.00.0 ha contributes only about 0.0392 %. This small percentage of mining activities shall not have any significant impact on the land environment.

Table 3.2 LULC Statistics of the Study Area

S. No.	Classification	Area (ha)	Area (%)
1	Crop land	1452.25	18.98
2	Dense Forest	451.66	5.90
3	Fallow land	345.75	4.52
4	Land with or without scrub	4309.69	56.33
5	Mining / Industrial wastelands	10.96	0.14
6	Plantations	973.05	12.72
7	Settlement	19.26	0.25
8	Water bodies	87.54	1.14
Total		**7650.16**	**100.0**

Source: Sentinel II Satellite Imagery

3.1.3 Topography

The proposed lease area is located in a flat terrain with gentle elevation 8 m above surface ground level and slope towards North Eastern side.

3.1.4 Drainage Pattern

Drainage pattern is the pattern formed by the streams, rivers, and lakes in a particular drainage basin over time that reveals characteristics of the kind of rocks and geological structures in a landscape. The proposed area shows dendritic drainage pattern indicating uniform lithology beneath the surface, as shown in Figure 3.4.

3.1.5 Seismic Sensitivity

The proposed lease area is situated in a Seismic Zone II, as defined by National Center for Seismology (Official Website of National Centre of Seismology). The Zone II is defined as the region where only minor damage is expected from seismic events. In this respect, the proposed lease area is located in a low earthquake hazard area.

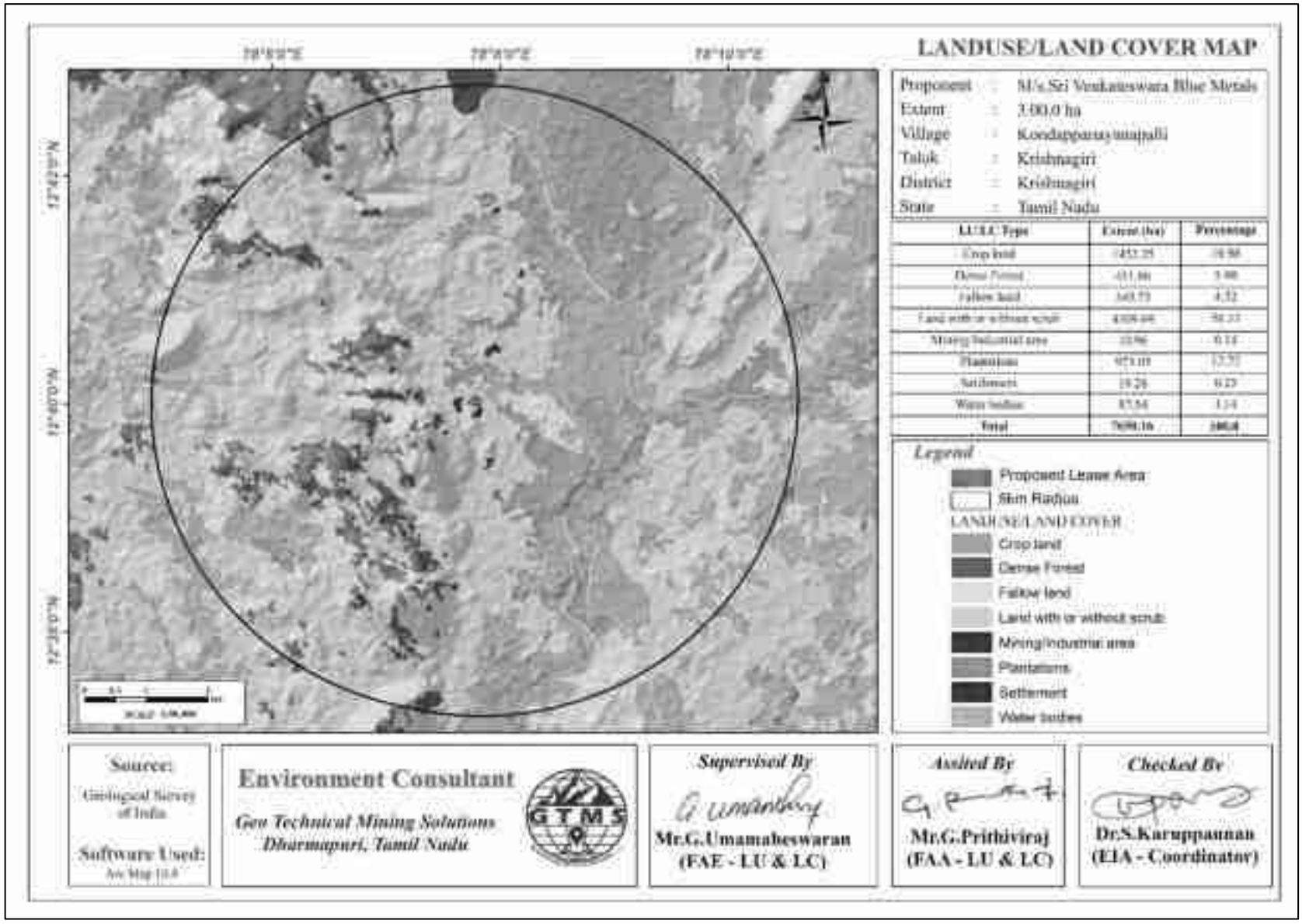


Figure 3.3 LULC Map of 5 km Radius from Proposed Project Site

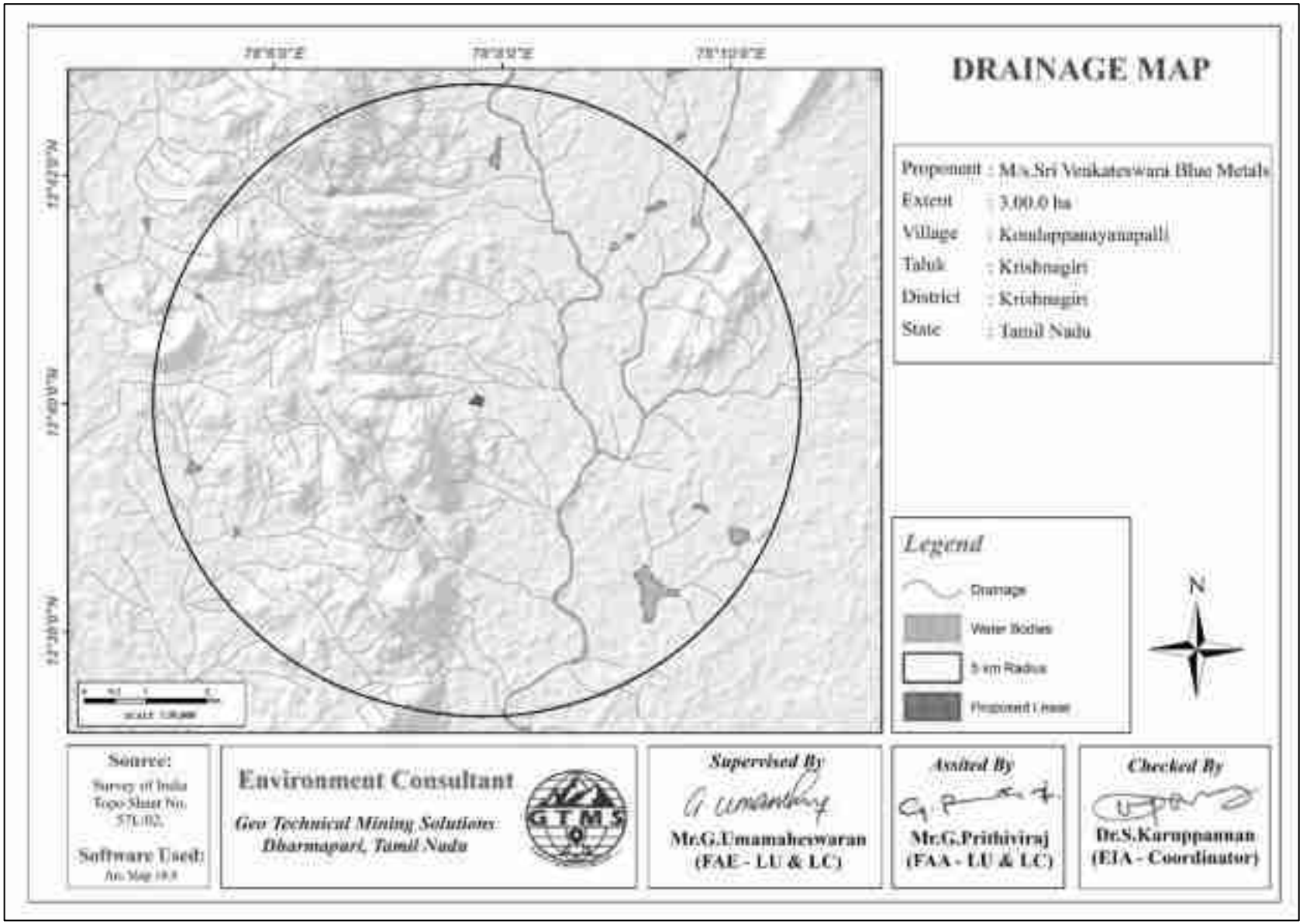


Figure 3.4 Drainage Map of 5 km Radius from Proposed Project Site

3.1.6 Soil

Composite soil samples were collected from 6 locations of the study area to determine the baseline soil characteristics of the soil. The locations were selected for soil sampling based on soil types, vegetative cover, and industrial & residential activities including infrastructure facilities. Soil samples were collected up to 90 cm depth, filled in polythene bags, coded and sent to laboratory for analysis. The locations of the sampling sites are shown in Table 3.3 and Figure 3.3. The samples thus collected were analysed for physical and chemical characteristics. The physical and chemical characteristic results of soil samples are provided in Table 3.4.

Table 3.3 Soil Sampling Locations

S.No.	Sampling ID	Location	Distance (km)	Direction	Coordinates
1	S01	Core	---	---	12°39'59.74"N 78° 7'46.03"E
2	S02	Nedusalai	1.98	SE	12°39'35.31"N 78° 8'45.81"E
3	S03	Marachandram	3.44	SSE	12°38'28.12"N 78° 8'41.90"E
4	S04	Kathiripalli	4.52	NE	12°41'51.98"N 78° 9'33.60"E
5	S05	Ponnalnatham	4.69	W	12°40'19.75"N 78° 5'47.12"E
6	S06	Mallasandiram	4.41	SW	12°38'40.69"N 78° 5'52.14"E

*Source: Sampling Results by **Ekdant Enviro Services (P) Limited,** in Association with GTMS.*

Physical Characteristics & Chemical Characteristics

The soil samples in the study area show loamy textures varying between silty clay loam, sandy loam and Clay Loam. pH of the soil varies from 6.8 to 7.9 indicating slightly acidic and alkaline nature. Electrical conductivity of the soil varies from 225 to 263 µs/cm. Bulk density ranges between 1.15 and 1.65 g/cm^3. Potassium ranges between 15.34 and 32.8 mg kg^{-1}. Calcium ranges between 118 and 167 mg kg^{-1}. Organic Matter ranges between 1.25 and 1.63 %. Chlorides ranges between 136 and 149 mg kg^{-1} soil.

Soil Quality Assessment

Soil quality is the foundation of sustainable crop production. Soil quality assessment helps to understand soil conditions and adopt suitable production practices. It can be done using physical, chemical, and biological properties of soil. For this assessment, four soil quality parameters including PH, EC, OM, CEC and BD were taken into account. The soil quality score for each sample has been provided in Table 3.4a.

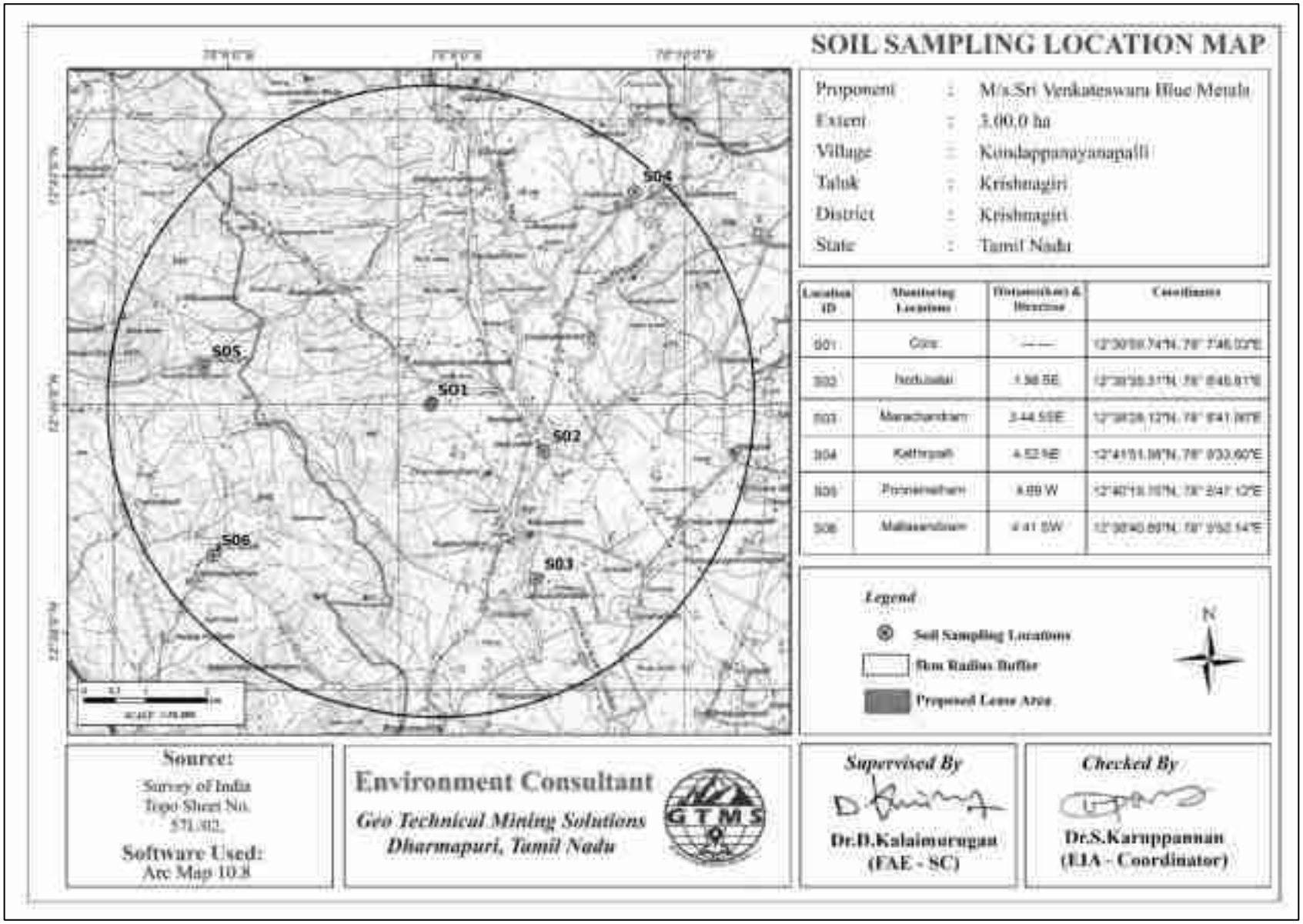


Figure 3.5 Map Showing Soil Sampling Locations within 5 km Radius around Proposed Project Site

Table 3.4 Soil Quality of the Study Area

S. No	Parameters	Unit	S01 core	Minimum	Maximum	Average
1	pH value @ 25°C	-	7.1	6.8	7.9	7.36
2	EC @ 25°C	µS /cm	211	225	263	236.6
3	Texture	-	Silt Loam	Clay Loam, Sandy Loam, Clay Loam, Sandy Clay Loam		
4	Sand	%	27.60	38.2	63.2	53.86
5	Silt	%	57.20	14.2	35.2	24.52
6	Clay	%	15.20	11.5	36.2	21.62
7	Bulk Density	g/cc	1.46	1.15	1.65	1.38
8	Water Content	%	2.86	2.62	4.51	3.232
9	Organic Matter	%	1.03	1.25	1.63	1.43
10	Alkalinity	mg/kg	65.3	63.23	71.2	67.492
11	Potassium (K)	mg/kg	35.10	15.34	32.8	25.032
12	Water Holding Capacity	%	34.6	38.2	66.55	46.796
13	Calcium (Ca)	mg/kg	131	118	167	141.6
14	Magnesium (Mg)	mg/kg	26.20	24.56	35.45	28.708
15	Sodium (Na)	mg/kg	137	143	174	158.4
16	Iron (Fe)	mg/kg	113.25	63.54	143.42	110.106
17	Copper (Cu)	mg/kg	BLQ (LOQ=0.05)	BLQ (LOQ=0.05)	BLQ (LOQ=0.0 5)	BLQ (LOQ=0. 5)
18	Chlorides (Cl)	mg/kg	135	136	149	142.4

*Source: Sampling Results by **Ekdant Enviro Services (P) Limited,** in Association with GTMS.*

Table 3.4a Assigning Scores to Soil Quality Indicators

S. No.	OM	BD	PH	EC	Total Score	Recommendation
1	33	7	20	11	71	The soil requires major and immediate treatment
2	33	1	20	11	67	
3	33	13	20	11	78	
4	33	2	13	11	60	
5	33	7	13	11	64	
6	33	7	13	11	64	

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

Source : PSS-2262_Soil_Quality_Monitoring.pdf (okstate.edu)

3.2 WATER ENVIRONMENT

The water resources, both surface and groundwater play a significant role in the development of the area. The purpose of this study is to assess the baseline quality of surface and ground water.

Table 3.5 Water Sampling Locations

S. No.	Sampling ID	Location	Distance (km)	Direction	Coordinates
1	SW1	Markanda River	1.20	NE	12°40'07.66"N, 78°8'30.19"E
2	SW2	Kondapanayanapalli Lake	0.04	E	12°39'58.46"N, 78°7'51.34"E
3	SW3	Dasiripalli lake	4.07	NE	12°41'42.80"N, 78°9'17.29"E
4	BW1	Kondappanayanapalli	0.74	NW	12°40'19.92"N, 78°7'26.97"E
5	BW2	Beerapalli	3.99	SW	12°38'42.93"N, 78°5'55.86"E
6	BW3	Avalnatham	2.12	NW	12°41'00.05"N, 78°7'03.63"E
7	OW1	Chennasandiram	2.53	SSE	12°38'37.41"N, 78°8'05.35"E

Source: Sampling Results by ***Ekdant Enviro Services (P) Limited,*** *in Association with GTMS.*

3.2.1 Surface Water Resources and Quality

Markanda River, Kondapanayanapalli Lake and Dasiripalli lake are the three prominent surface water resources present in the study area. The proposed project area is located 1.20 km NE of the lake Markanda River, 0.04 km E of the Kondapanayanapalli Lake and 4.07 km NE Dasiripalli lake as shown in Table 3.5 and Figure 3.7. Totally, three surface water samples, known as SW1, SW2 and SW3 were collected from the river and lakes to assess the baseline water quality. Result for surface water sample in the Table 3.6a indicate that the physical, chemical and biological parameters are within permissible limits in comparison with standards of IS10500:2012.

3.2.2 Ground Water Resources and Quality

Groundwater in the study area occurs in the crystalline rocks of Archaean age and recent alluvium. The movement of the groundwater is controlled by the intensity of weathering and fracturing of crystalline rocks. Dug wells and bore wells are the most common ground water abstraction structures in the area. However, in dry season, people in the study area heavily rely on bore wells for their domestic and agriculture purpose.

Four groundwater samples, known as BW1, BW2, BW3 and OW1 were collected from bore wells and open well were analysed for physico-chemical conditions and bacteriological

contents in order to assess baseline quality of ground water. Ground water sampling locations and their distance and direction from the lease area are provided in Table 3.5 and the spatial occurrence of water sampling locations is shown in Figure 3.7. Table 3.6 summarizes ground water quality data of the four samples.

Results for ground water samples in the Table 3.6 indicate that the physical, chemical and biological parameters are within permissible limits in comparison with standards of IS10500:2012.

3.2.3 Hydrogeological Studies

The area within 2 km radius consists of numerous open wells and deep wells. Groundwater level data were collected both from open wells and bore wells for two monsoon seasons as discussed in the following section.

3.2.3.1 Rainfall

Rainfall data for the study area were collected for the period of 1981-2022(POWER | Data Access Viewer (nasa.gov)). Long term monthly average rainfall was estimated from the data of 1981-2022 and compared with the monthly rainfall for the year 2022, shown in Figure 3.6. The Figure 3.6 shows that monthly rainfall in 2022 is generally high in the months of May, August, October when compared to the long term monthly average rainfall.

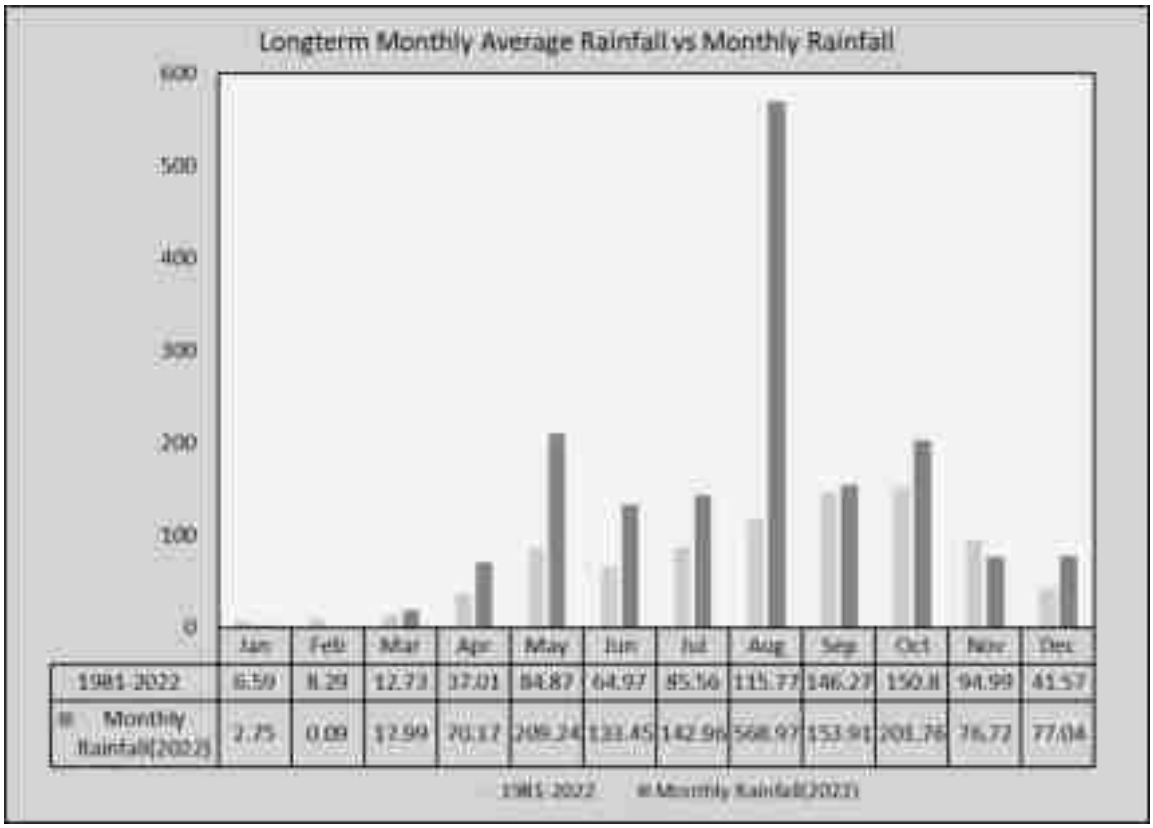


Figure 3.6 Long-Term Monthly Average Rainfall Vs Monthly Rainfall

3.2.3.2 Groundwater Levels and Flow Direction

Data regarding depth to groundwater levels are essential to infer the direction of groundwater movement within the study area. Knowledge of groundwater flow direction is must in choosing location for background groundwater quality monitoring well and in locating recharge and discharge areas. Therefore, data regarding groundwater elevations were collected from 9 open wells and 9 bore wells at various locations within 2 km radius around the proposed project sites for the period from March through May 2023 (Pre-Monsoon Season) and from October through December, 2023 (Post Monsoon Season).

The open well water level data thus collected onsite are provided in Tables 3.7 and 3.8. According to the data, average depths to the static water table in open wells range from 21.80 to 24.57 m BGL in pre monsoon and 17.92-18.90 m BGL in post monsoon. The bore well data thus collected onsite are provided in Tables 3.9 and 3.10. The average depths to static potentiometric surface in bore wells for the period of October through December 2023 (Post-Monsoon Season) vary from 96.6- 98.1m and from 105.4 – 107.6 m for the period of March through May, 2023 (Pre-Monsoon Season). Data on the depths to static water table and potentiometric surface were used to draw contour lines connecting groundwater elevation (also known as equipotential hydraulic head) to determine the groundwater flow direction perpendicular to the contour lines.

From the maps of open well groundwater flow direction shown in Figures 3.8-3.9, it is understood that most of the open well groundwater for the post- and pre-monsoon seasons flows towards the open well number 1,6 located in southeast direction of the proposed project site. The groundwater flow maps in Figures 3.10-3.11 show that most of the bore well groundwater for the post- and pre-monsoon seasons flow towards the bore well number 5 and 6. It is located in southeast direction of the proposed project site. On the basis of the groundwater flow information, both open wells and bore wells mentioned above can be chosen for water quality monitoring purpose as the wells may get easily affected by the contaminants resulting from the mining activities of the sites in future.

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

Table 3.6 Ground Water Quality Result

S. No.	Parameters	Units	RESULT			Standards as Per IS 10500: 2012	
			Minimum Limit	Maximum Limit	Average	Acceptable Limit	Permissible Limit
1	pH@ 25°C	--	6.9	7.6	7.3	6.5-8.5	No relaxation
2	Turbidity	NTU	BLQ (LOQ=0.1)			1	300
3	Electrical Conductivity @ 25°C	µs/cm	475	1850	959.8	Not specified	Not specified
4	TSS	mg /l	BLQ (LOQ=0.1)			Not specified	Not specified
5	TDS	mg /l	432	1230	684.3	500	2000
6	Total Hardness	mg /l	218	282	242.8	200	600
7	Chloride (Cl)	mg /l	123	236	167.5	250	1000
8	Sulphate (SO_4)	mg /l	46	252	139.0	200	400
9	Iron (Fe)	mg /l	BLQ (LOQ=0.1)			0.3	No relaxation
10	Silica (SiO_2)	mg /l	-			Not specified	Not specified
11	Total Coliform	MPN/ 100ml	Absent			Shall not be detectable in any 100 ml water	Shall not be detectable in any 100 ml water
12	E-Coli	MPN/ 100ml	Absent			Shall not be detectable in any 100 ml water	Shall not be detectable in any 100 ml water

*Source: Sampling Results by **Ekdant Enviro Services (P) Limited,** in association with GTMS*

Table 3.6a Surface Water Quality Results

S. No.	Parameters	Units	RESULT			Standards as Per IS 10500: 2012	
			Minimum Limit	Maximum Limit	Average	Acceptable Limit	Permissible Limit
1	pH@ 25°C	--	7.3	7.5	7.4	6.5-8.5	No relaxation
2	Turbidity	NTU	BLQ (LOQ=0.1)			1	5
3	Electrical Conductivity @ 25°C	µs/cm	432	512	472	Not specified	Not specified
4	TSS	mg /l	BLQ (LOQ=0.1)			Not specified	Not specified

5	TDS	mg /l	252	267	259.5	500	2000
6	Total Hardness	mg /l	106	122	114	200	600
7	Chloride (Cl)	mg /l	88	152	120	250	1000
8	Sulphate (SO_4)	mg /l	14	34	24	200	400
9	Iron (Fe)	mg /l	BLQ (LOQ=0.1)			0.3	No relaxation
10	Silica (SiO_2)	mg /l	-			Not specified	Not specified
11	Total Coliform	MPN/ 100ml	Absent			Shall not be detectable in any 100 ml water	Shall not be detectable in any 100 ml water
12	E-Coli	MPN/ 100ml	Absent			Shall not be detectable in any 100 ml water	Shall not be detectable in any 100 ml water

*Source: Sampling Results by **Ekdant Enviro Services (P) Limited,** in association with GTMS*

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

Station ID	Depth to Static Water Table BGL (m)				Latitude	Longitude
	Mar-2023	Apr-2023	May- 2023	Average		
DW01	20.8	21.5	23.4	21.90	12°39'51.30"N	78° 8'6.87"E
DW02	21.2	22.2	23.2	22.20	12°40'17.50"N	78° 8'4.02"E
DW03	20.9	21.4	23.1	21.80	12°40'33.00"N	78° 8'18.80"E
DW04	21.2	22.1	22.4	21.90	12°40'28.89"N	78° 7'34.12"E
DW05	20.4	21.9	23.1	21.80	12°40'9.24"N	78° 8'24.89"E
DW06	21.1	21.8	23.2	22.03	12°39'32.87"N	78° 8'18.83"E
DW07	20.5	26.1	27.1	24.57	12°39'4.56"N	78° 8'9.29"E
DW08	20.8	25.2	27.4	24.47	12°40'34.82"N	78° 7'59.41"E
DW09	21.30	24.8	27	24.37	12°40'42.59"N	78° 8'36.60"E

Source: Onsite monitoring data

Table 3.8 Post-Monsoon Water Level of Open Wells within 2 km Radius

Station ID	Depth to Static Water Table BGL(m)				Latitude	Longitude
	OCT-2023	NOV- 2023	DEC-2023	Average		
DW01	19.5	17.8	16.5	17.93	12°39'51.30"N	78° 8'6.87"E
DW02	19.6	17.4	16.8	17.93	12°40'17.50"N	78° 8'4.02"E
DW03	20.1	19.2	17.1	18.80	12°40'33.00"N	78° 8'18.80"E

DW04	19.9	18.5	16.8	18.40	12°40'28.89"N	78° 7'34.12"E
DW05	20.1	19.4	17.2	18.90	12°40'9.24"N	78° 8'24.89"E
DW06	20.2	19.2	16.5	18.63	12°39'32.87"N	78° 8'18.83"E
DW07	19.5	19.6	16.8	18.63	12°39'4.56"N	78° 8'9.29"E
DW08	20.4	19.4	16.4	18.73	12°40'34.82"N	78° 7'59.41"E
DW09	20.60	18.8	17.2	18.87	12°40'42.59"N	78° 8'36.60"E

Source: Onsite monitoring data

Table 3.9 Pre-Monsoon Water Level of Bore Wells within 2 km Radius

Station ID	Depth to Static Potentiometric Surface BGL(m)				Latitude	Longitude
	Mar-2023	Apr-2023	May- 2023	Average		
BW01	105.4	106.1	109.5	107.00	12°40'10.35"N	78° 7'37.52"E
BW02	105.5	106.4	109.4	107.10	12°40'27.07"N	78° 7'27.80"E
BW03	105.6	106.5	108.6	106.90	12°40'40.73"N	78° 8'18.30"E
BW04	106.9	107.4	108.5	107.60	12°40'1.66"N	78° 8'27.32"E
BW05	104.4	106.3	109.1	106.60	12°39'39.71"N	78° 8'8.90"E
BW06	104.3	106.4	108.9	106.53	12°39'23.41"N	78° 8'18.67"E
BW07	103.1	106.5	108.5	106.03	12°39'14.42"N	78° 8'1.91"E
BW08	104.2	104.2	107.9	105.43	12°40'39.46"N	78° 7'15.11"E
BW09	104.5	106.4	109.5	106.80	12°40'3.67"N	78° 7'55.95"E

Source: Onsite monitoring data

Table 3.10 Post-Monsoon Water Level of Bore Wells within 2 km Radius

Station ID	Depth to Static Potentiometric Surface BGL (m)				Latitude	Longitude
	Oct-2023	Nov-2023	Dec-2023	Average		
BW01	102	96	92	96.67	12°40'10.35"N	78° 7'37.52"E
BW02	103.2	97.2	93.1	97.83	12°40'27.07"N	78° 7'27.80"E
BW03	102.2	97.2	94.1	97.83	12°40'40.73"N	78° 8'18.30"E
BW04	102.9	96.8	93.5	97.73	12°40'1.66"N	78° 8'27.32"E
BW05	103.4	96.6	94.6	98.20	12°39'39.71"N	78° 8'8.90"E
BW06	102.1	96.5	93.5	97.37	12°39'23.41"N	78° 8'18.67"E
BW07	103.6	97.6	93.9	98.37	12°39'14.42"N	78° 8'1.91"E
BW08	103.5	97.8	94.1	98.47	12°40'39.46"N	78° 7'15.11"E
BW09	103.2	98.6	94.5	98.77	12°40'3.67"N	78° 7'55.95"E

Source: Onsite Monitoring Data

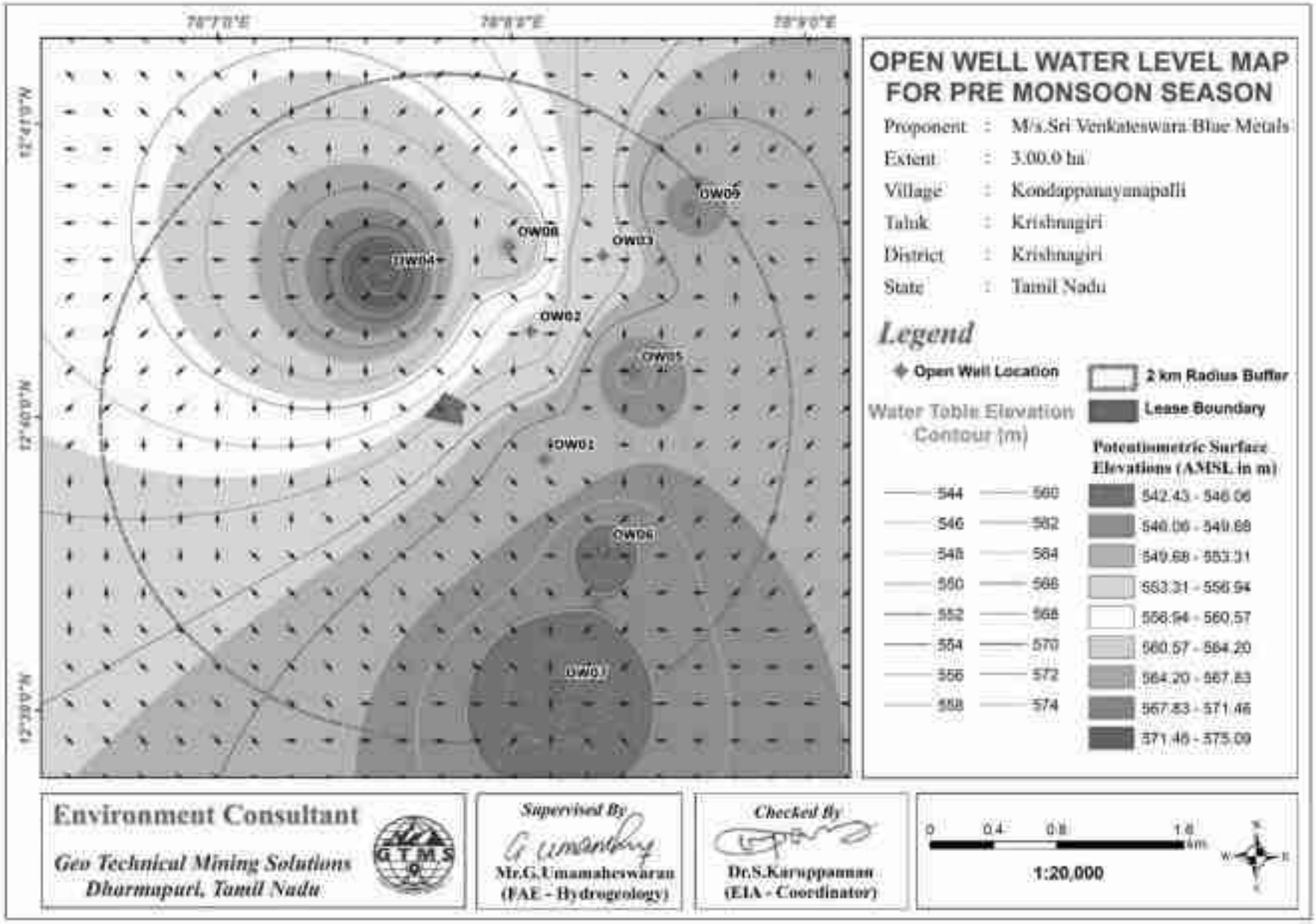


Figure 3.8 Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow During Pre-Monsoon Season

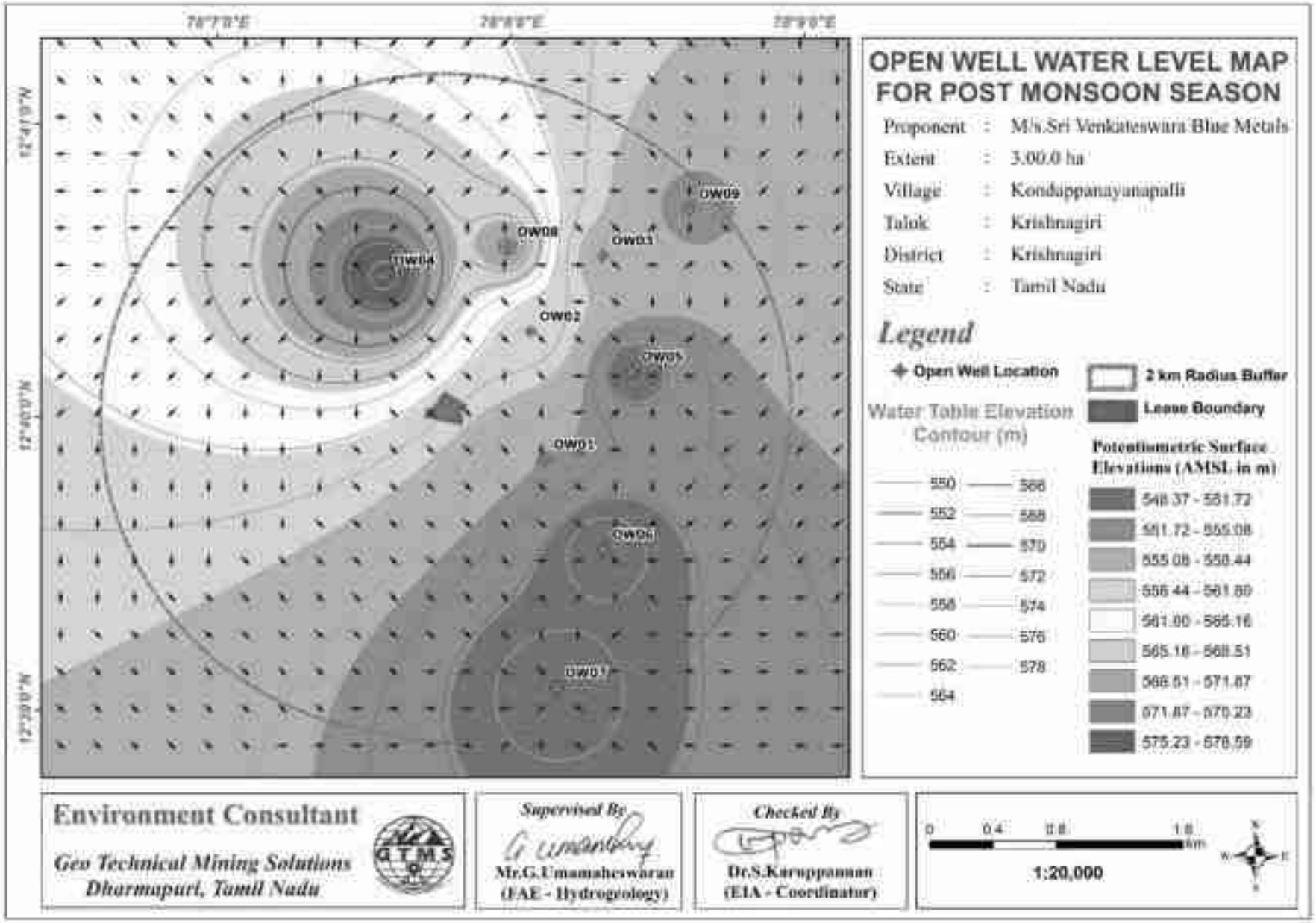


Figure 3.9 Open Well Static Groundwater Elevation Map Showing Direction of Groundwater Flow During Post-Monsoon Season

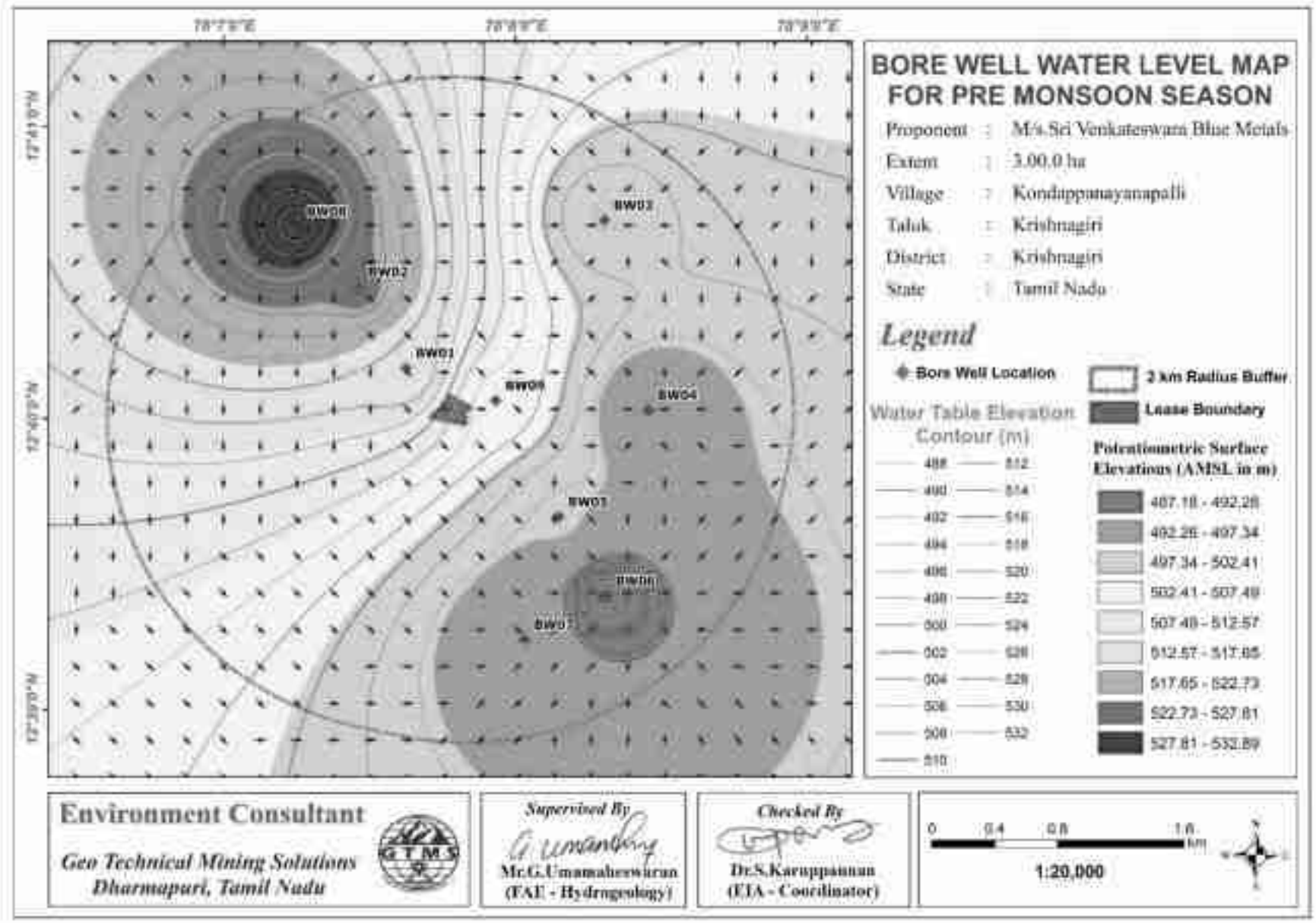


Figure 3.10 Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow During Pre-Monsoon Season

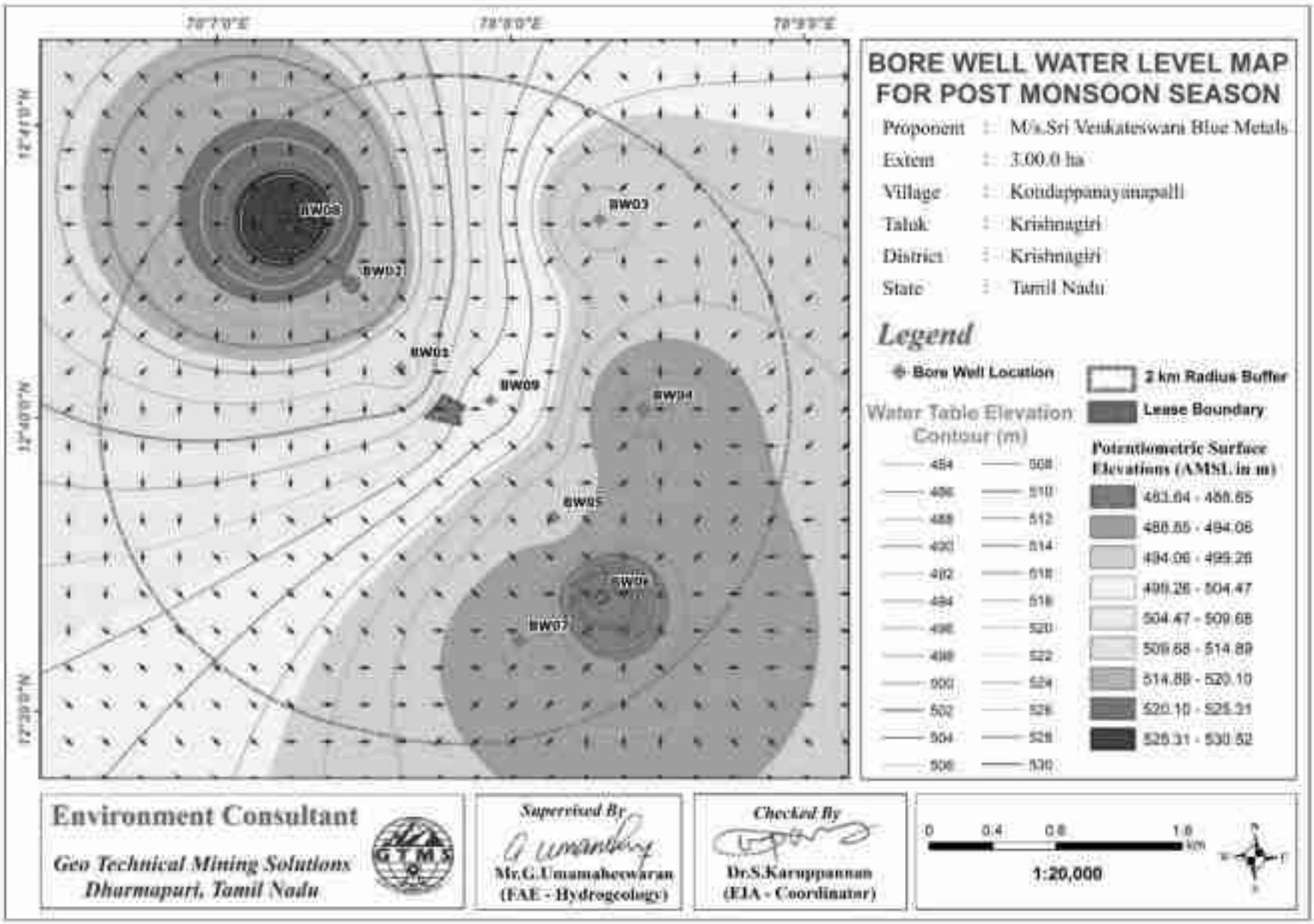


Figure 3.11 Borewell Static Groundwater Elevation Map Showing Direction of Groundwater Flow During Post-Monsoon Season

3.2.3.3 Electrical Resistivity Investigation

Electrical resistivity investigation is especially useful in the areas where there are no adequate exploratory well data about the aquifer conditions. The present study makes use of vertical electric sounding (VES) to delineate earth's subsurface layers. The electrical resistivity investigation uses four electrodes set up where current is sent through outer electrodes into the ground and the inner electrodes measure the potential difference.

Result

The Geophysical VES data obtained from the project site have been shown in Table 3.11. The field data obtained from a detailed geophysical investigation were plotted using excel spreadsheet for interpretation. The plot for the purpose of interpretation has been shown in Figure 3.12.

Table 3.11 Vertical Electrical Sounding Data

Location Coordinates - 12°40'0.09"N 77°7'46.04"E					
S. No.	**AB/2 (m)**	**MN/2 (m)**	**Geometrical Factor (G)**	**Resistance in Ω**	**Apparent Resistivity in Ωm**
1	2	2	11.78	12.44	146.5
2	4	2	49.46	7.42	367.04
3	6	5	112.26	4.98	559.28
4	8	5	200.18	2.86	572.71
5	10	5	75.36	8.49	640.03
6	15	10	173.49	4.53	786.42
7	20	10	310.86	3.18	987.56
8	25	10	487.49	2.29	1118.76
9	30	10	274.75	5.28	1451.78
10	35	10	376.8	4.22	1590.54
11	40	10	494.55	3.33	1649.12
12	45	10	628	2.75	1729.18
13	50	10	777.15	2.39	1857.16
14	65	20	453.6	4.50	2041.05
15	70	20	989.1	2.17	2149.5
16	80	20	1256	1.91	2400.45
17	90	20	1554.3	1.69	2630.93
18	100	20	1653.6	1.32	2180.44
19	110	20	1724.10	1.59	2748.98
20	120	20	1960.00	1.44	2824.56

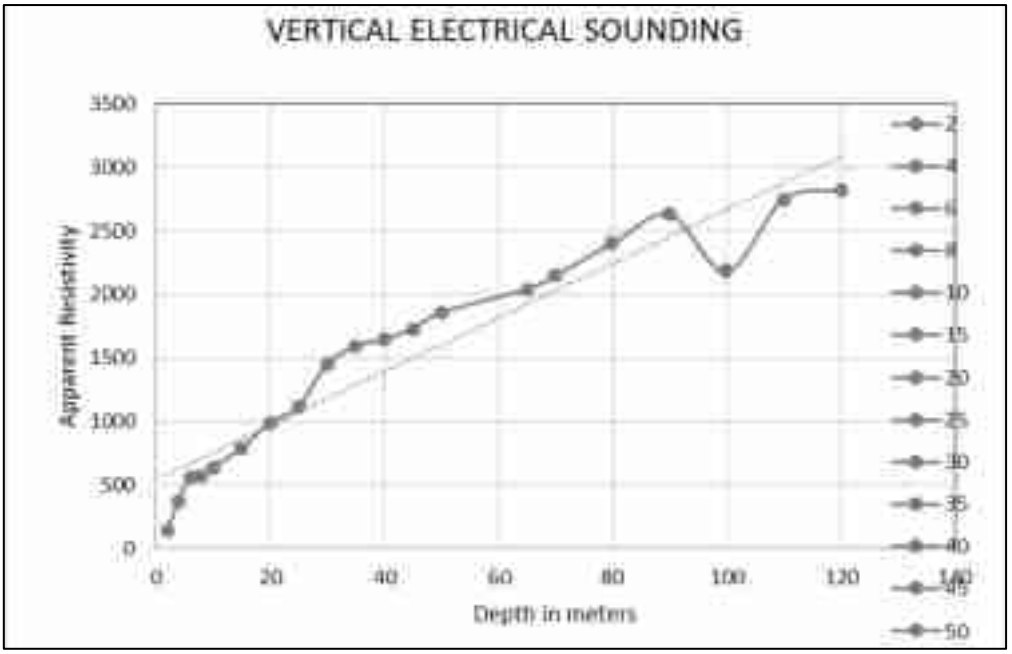


Figure 3.12 Graph Showing Occurrence of Water Bearing Fracture Zones at the Depth of 100 m Below Ground Level in Proposed Project

The rock formation of low resistivity values indicates occurrence of water at the depth of about 100 m below ground level. The maximum depth proposed for the proposed project is 92 (8 m AGL +84 m BGL). Therefore, the mining operation will not affect the aquifer throughout the entire mine life period.

3.3 AIR ENVIRONMENT

The baseline studies on air environment include identification of specific air pollutants and their existing levels in ambient air. The sources of air pollution in the region are mostly due to vehicular traffic, dust arising from unpaved village road and domestic & agricultural activities.

3.3.1 Meteorology

3.3.1.1 Climatic Variables

A temporary meteorological station was installed at the project sites by covering cluster quarries. The station was installed at a height of 3 m above the ground level as there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature. Meteorological data obtained from the onsite monitoring station are provided in Table 3.12.

According to the onsite data, the temperature in October, 2023 varied from 15.33^0 C to 30.59^0 C with the average of 23.88^0 C; in November, 2023 from 17.64 to 29.24^0 C with the average of 22.97^0 C; and in December, 2023 from 14.63 to 29.40^0 C with the average of 21.70^0C. In October, 2023, relative humidity ranged from 40.81 to 100 % with the average of 81.44%; in November, 2023, from 56.38 to 100% with the average of 88.64%; and in

December, 2023, from 52.31 to 100 % with the average of 85.94%. The wind speed in October, 2023 varied from 0.52 to 7.70m/s with the average of 2.56 m/s; in November, 2023 from 0.54 to 6.49 m/s with the average of 2.99 m/s; and in December, 2023 from 0.72 to 6.64 m/s with the average of 3.33m/s. In October,2023, wind direction varied from 1.07 to 359.60^0 with the average of 125.70^0; in November, 2023, from 7.58 to 228.10^0 with the average of 75.10^0; and in December, 2023, from 2.36 to 359.83^0 with the average of 87.66^0. In October,2023, surface pressure varied from 93.56 to 94.47kPa with the average of 94.08 kPa; in November, 2023, from 93.76 to 94.52 kPa with the average of 94.15 kPa; and in December, 2023, from 93.50 to 94.71 kPa with the average of 94.18kPa**.**

Table 3.12 Onsite Meteorological Data

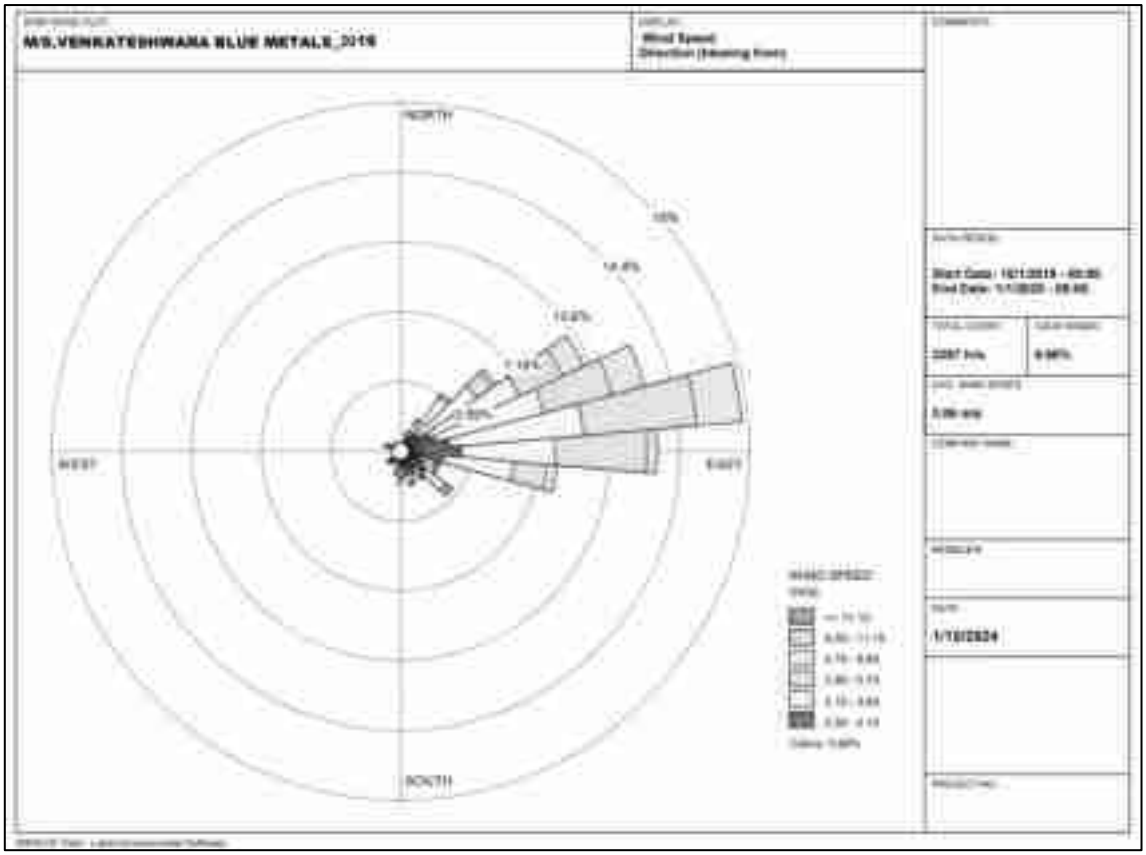
S. No.	Parameters		OCT,2023	NOV,2023	DEC,2023
1	Temperature (^{0}C)	Min	15.33	17.64	14.63
		Max	30.59	29.24	29.40
		Avg	23.88	22.97	21.70
2	Relative Humidity (%)	Min	40.81	56.38	52.31
		Max	100.00	100.00	100.00
		Avg	81.44	88.64	85.94
3	Wind Speed (m/s)	Min	0.52	0.54	0.72
		Max	7.70	6.49	6.64
		Avg	2.56	2.99	3.33
4	Wind Direction (degree)	Min	1.07	7.58	2.36
		Max	359.60	228.10	359.83
		Avg	125.70	75.10	87.66
5	Surface Pressure(kPa)	Min	93.56	93.76	93.50
		Max	94.47	94.52	94.71
		Avg	94.08	94.15	94.18

Source: Sampling Results by ***Ekdant Enviro Services (P) Limited,*** *in association with GTMS.*

3.3.1.2 Wind Pattern

Wind pattern will largely influence the dispersion pattern of air pollutants and noise from the proposed project site. Analysis of wind pattern requires hourly site-specific data of wind speed and direction. Two types of wind rose were generated: historical seasonal wind rose for the period of October through December of the years from 2019 to 2022 and the seasonal wind rose for the study period of October through December 2023. The wind rose diagrams thus produced are shown in Figures 3.13-3.13a. Figure 3.14 reveals that:

- ❖ The measured average wind velocity during the study period is 2.96m/s.
- ❖ Predominant wind was dominant in the directions ranging from Northeast to Southwest.



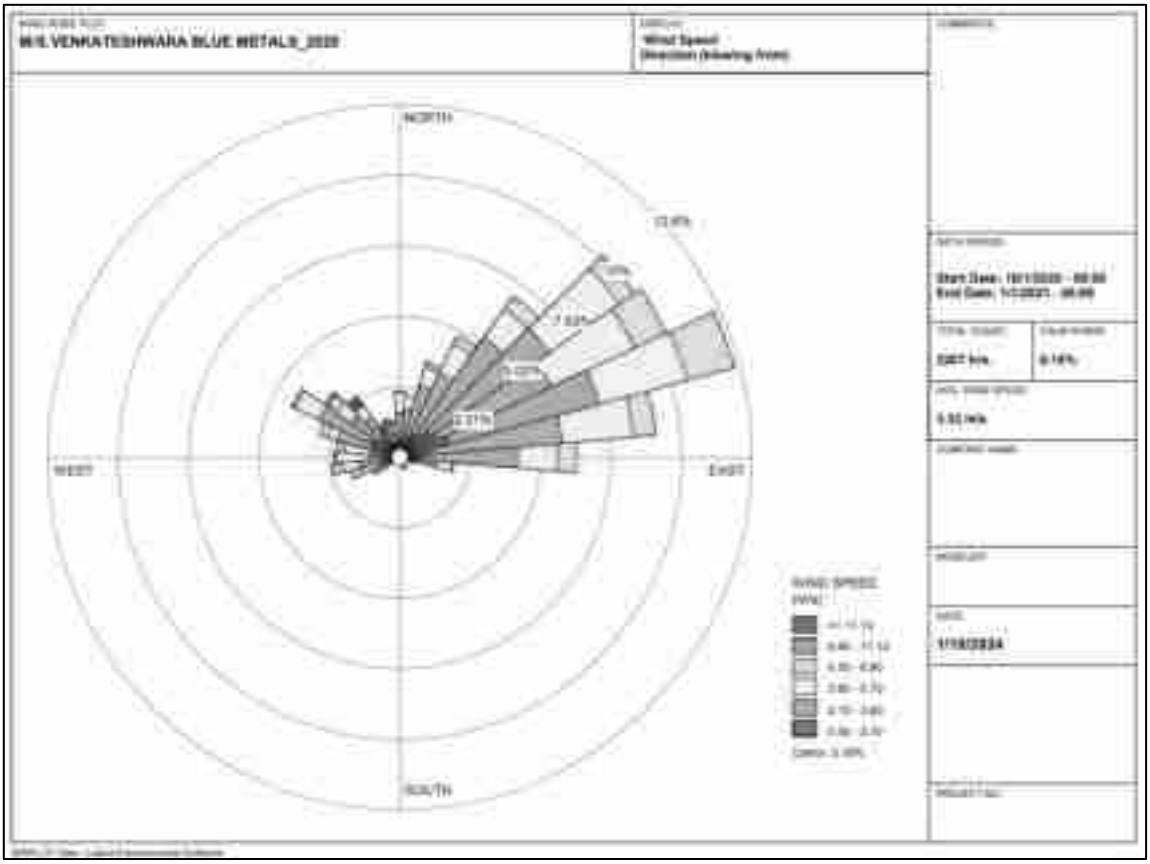


Figure 3.13 Windrose Diagram for 2019-2020 (October to December)

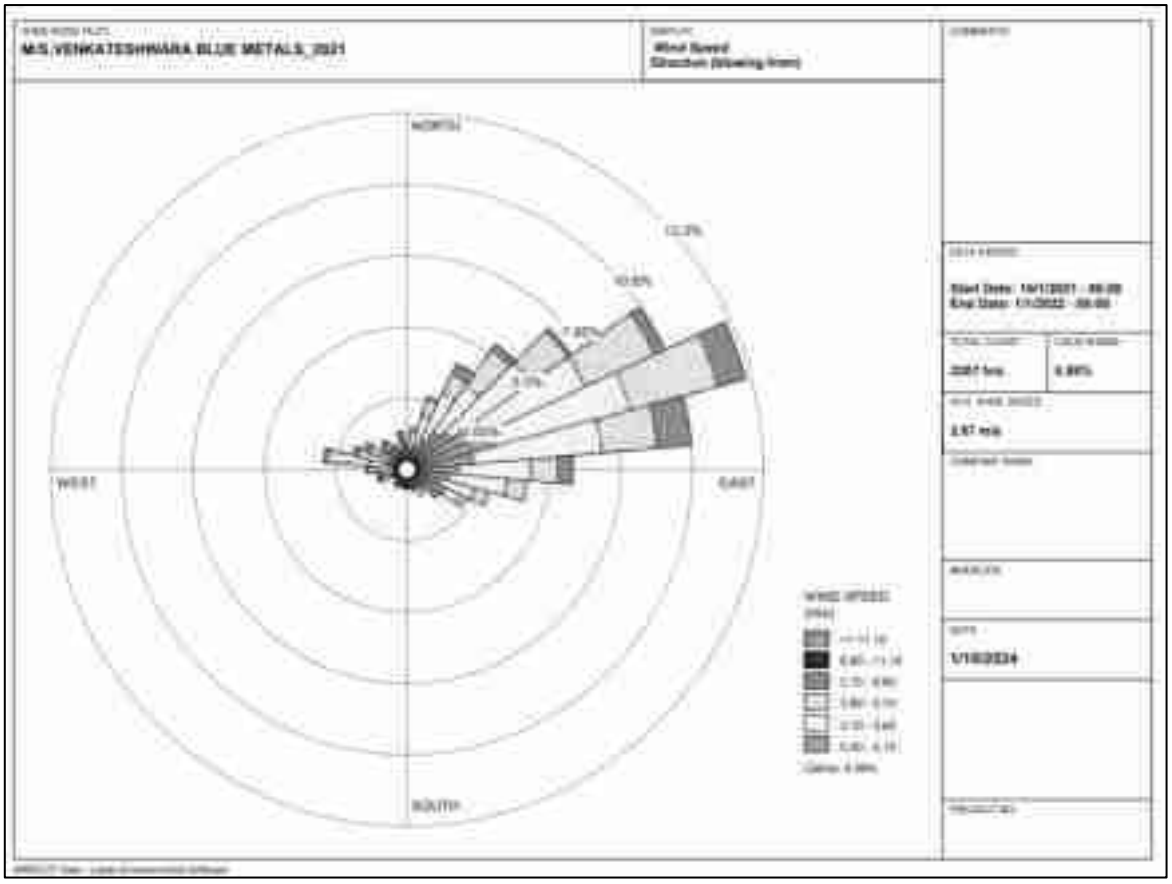


Figure 3.13a Windrose Diagram for 2021-2022 (October to December)

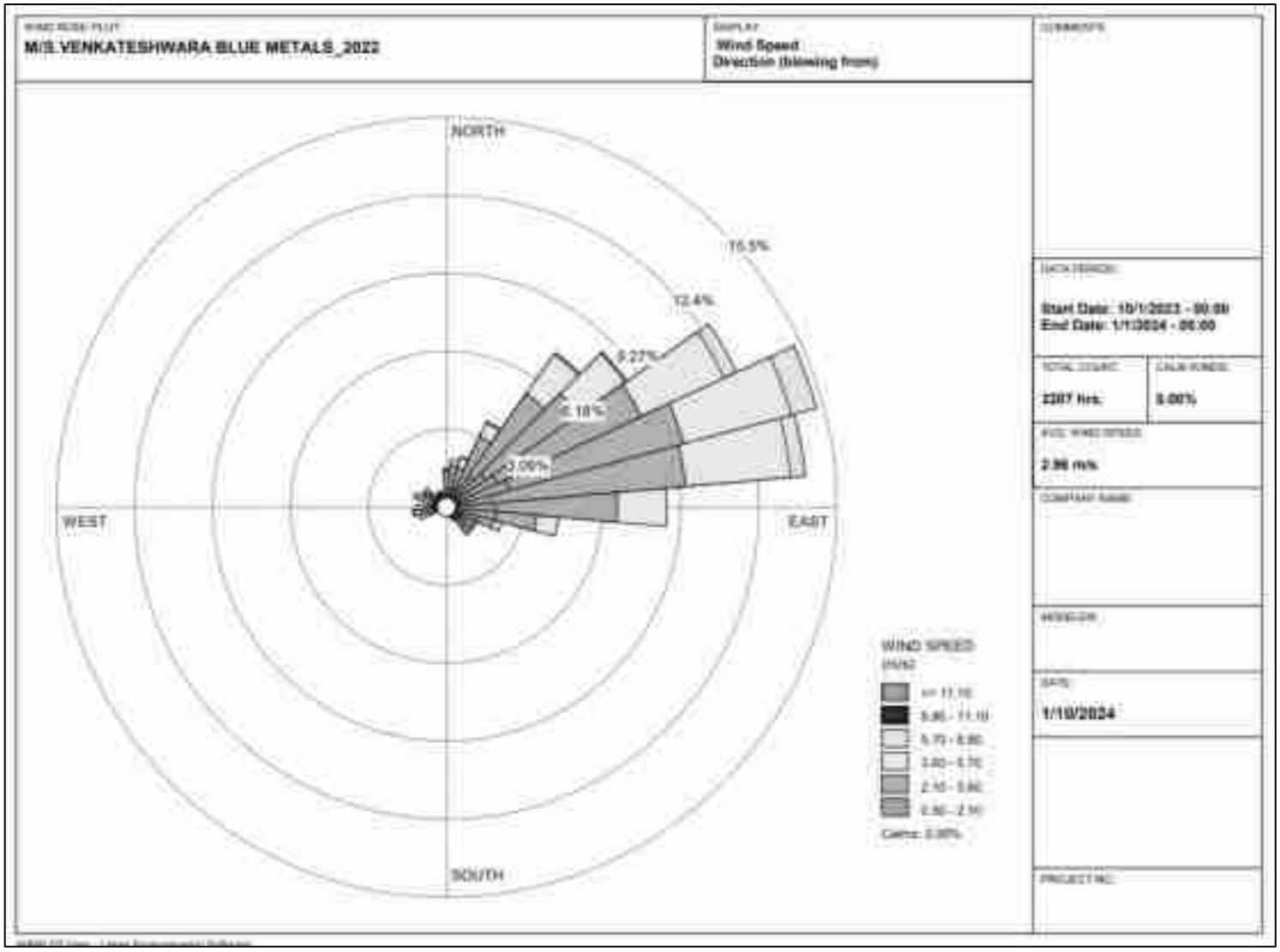


Figure 3.14 Onsite Wind Rose Diagram

3.3.2 Ambient Air Quality Study

The baseline ambient air quality is studied through a scientifically designed ambient air quality monitoring network considering the followings:

- Meteorological condition on synoptic scale
- Topography of the study area
- Representatives of regional background air quality for obtaining baseline status
- Location of residential areas representing different activities
- Accessibility and power availability

Table 3.13 Methodology and Instrument Used for AAQ Analysis

Parameter	Method	Instrument
$PM_{2.5}$	Gravimetric method Beta attenuation method	Fine Particulate Sampler
PM_{10}	Gravimetric method Beta attenuation method	Respirable Dust Sampler
SO_2	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler with gaseous attachment
NOx	IS-5182 Part II (Jacob & Hoch heiser modified method)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

*Source: Sampling Methodology based on **Ekdant Enviro Services (P) Limited** & CPCB Notification*

Table 3.14 National Ambient Air Quality Standards

S. No.	Pollutant	Time Weighted Average	Concentration in ambient air	
			Industrial, Residential, Rural & other areas	Ecologically Sensitive area (Notified by Central Govt.)
1	SO_2 ($\mu g/m^3$)	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	NO_x ($\mu g/m^3$)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	PM_{10} ($\mu g/m^3$)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	$PM_{2.5}$ ($\mu g/m3$)	Annual Avg. 24 hours	40.0 60.0	40.0 60.0

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

Methodology

Ambient air quality monitoring was carried out with a frequency of two samples per week at six (06) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period **October through December 2023,** as per the CPCB, MoEF guidelines and notifications.

It was ensured that the equipment was placed preferably at a height of at least 3 ± 0.5 m above the ground level at each monitoring station for negating the effects of wind-blown ground dust. The equipment was placed at space free from trees and vegetation which otherwise act as a sink of pollutants resulting in lower levels in monitoring results. The baseline data of ambient air were generated for $PM_{2.5}$, PM_{10}, sulphur dioxide (SO_2) and nitrogen dioxide (NO_x). The sampling locations are shown in Figure 3.15 and average concentrations of air pollutants are summarized in Tables 3.15 and are shown in Figures 3.16-3.20.

Table 3.15 Ambient Air Quality (AAQ) Monitoring Locations

S. No.	Location Code	Monitoring Locations	Distance (km)	Direction	Coordinates	
					Latitude	Longitude
1	AAQ1	Core	--	--	12°39'58.45"N	78° 7'49.90"E
2	AAQ2	Kondappanayanapalli	0.57	NW	12°40'19.00"N	78° 7'33.91"E
3	AAQ3	Kentarpalli	3.89	NNE	12°42'10.21"N	78° 8'5.31"E
4	AAQ4	Dasiripalli	4.45	NE	12°41'45.97"N	78° 9'32.05"E
5	AAQ5	V.Madepalli	4.66	ESE	12°39'30.36"N	78°10'21.93"E
6	AAQ6	Kuppachiparai	2.40	SSE	12°38'46.95"N	78° 8'22.61"E

*Source: On-site monitoring/sampling by **Ekdant Enviro Services (P) Limited** in association with GTMS*

Results

As per the monitoring data, $PM_{2.5}$ ranges from 16.6 µg/m^3 to 18.4 µg/m^3, PM_{10} from 38.8 µg/m^3 to 43.1µg/m^3, SO_2 from 3.4 µg/m^3 to 4.9 µg/m^3, NO_X from 10.9µg/m^3 to 15.7g/m^3. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

Air quality Index (AQI)

The AQI shows that the air quality of the study area falls within good category 41causing minimal impact to human health.

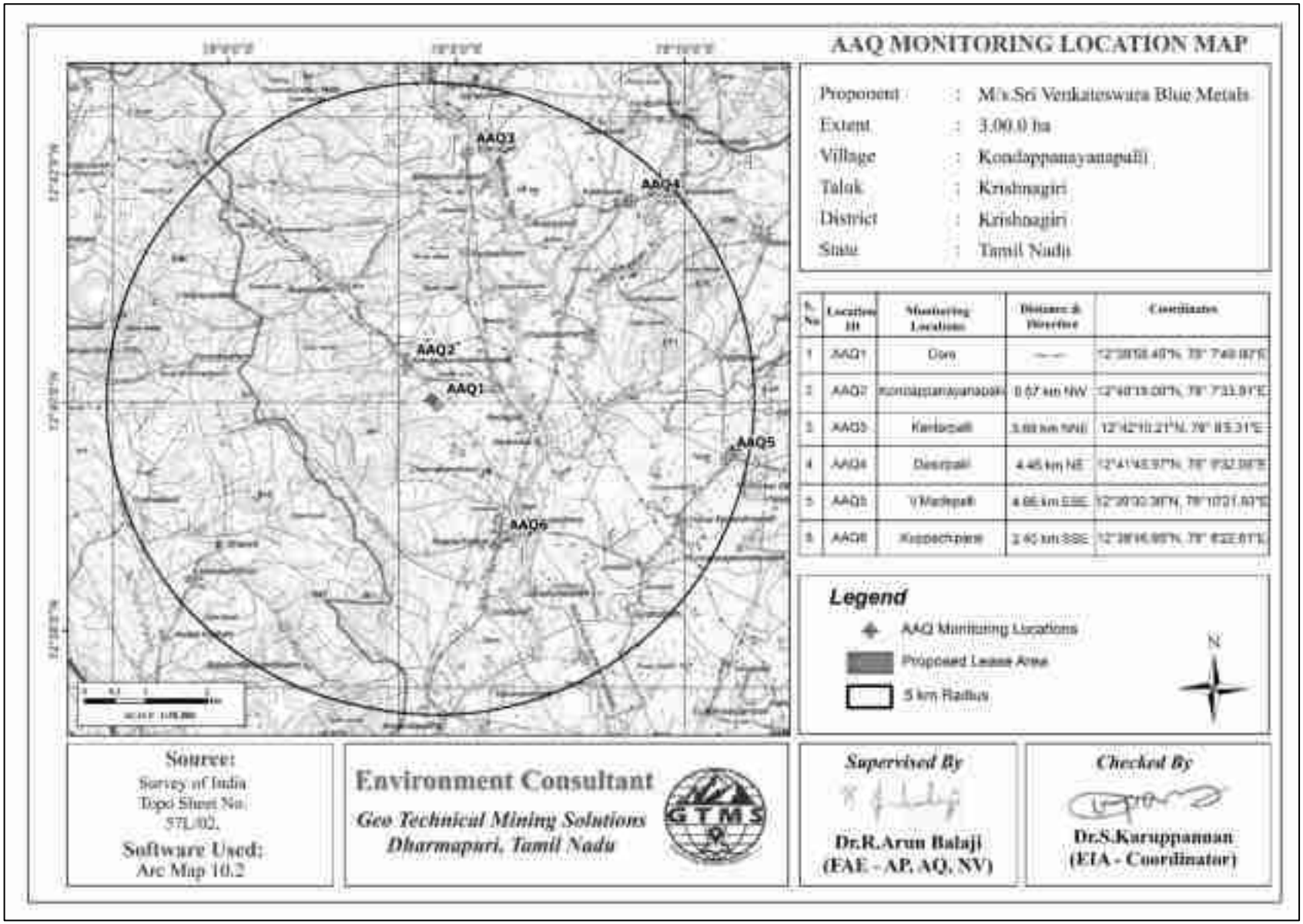


Figure 3.15 Map Showing Ambient Air Quality Monitoring Station Locations Around 5 km Radius from Proposed Project Site

Table 3.16 Summary of AAQ Result

	$PM_{2.5}$				PM_{10}			
Station ID	**Max**	**Min**	**Mean**	**98th Percentile**	**Max**	**Min**	**Mean**	**98th Percentile**
AAQ1	20.2	17.9	19.1	20.0	47.6	42.2	44.8	47.0
AAQ2	18.1	16.9	17.5	18.1	42.4	39.6	40.9	42.3
AAQ3	19.1	17.3	18.0	18.3	41.8	37.8	39.3	41.2
AAQ4	18.3	16.4	17.5	18.2	40.6	36.5	38.8	40.6
AAQ5	16.9	15.4	16.0	16.9	41.3	37.5	39.0	41.2
AAQ6	17.9	15.7	16.6	17.7	44.8	39.2	41.4	44.3
	SO_2				NO_x			
AAQ1	5.1	3.8	4.4	5.1	15.8	11.8	13.7	15.8
AAQ2	4.9	3.1	4.1	4.9	15.4	10.1	13.0	15.4
AAQ3	4.9	2.9	3.9	4.2	15.2	9.0	12.1	15.0
AAQ4	3.4	2.6	3.0	3.4	12.9	9.9	11.4	12.9
AAQ5	5.2	3.3	3.8	5.0	16.1	10.2	11.9	15.5
AAQ6	6.0	4.6	5.2	5.9	18.6	14.3	16.0	18.3

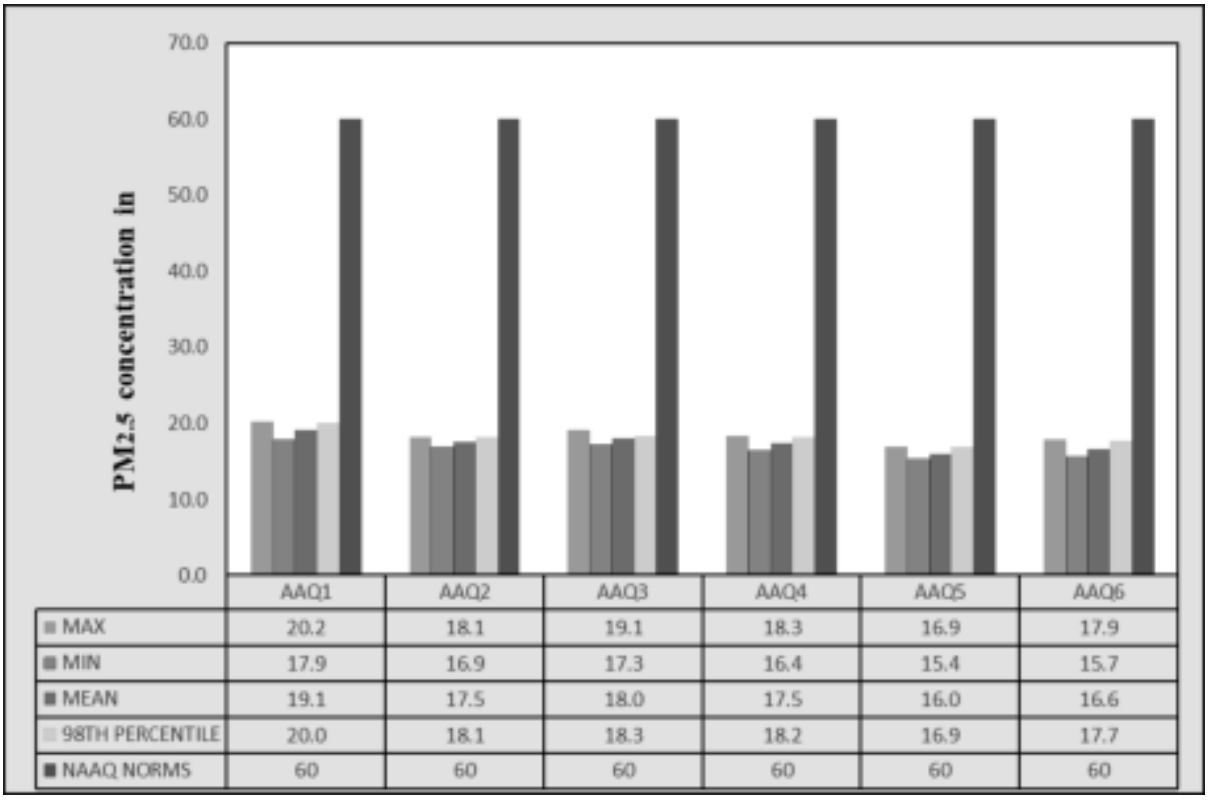
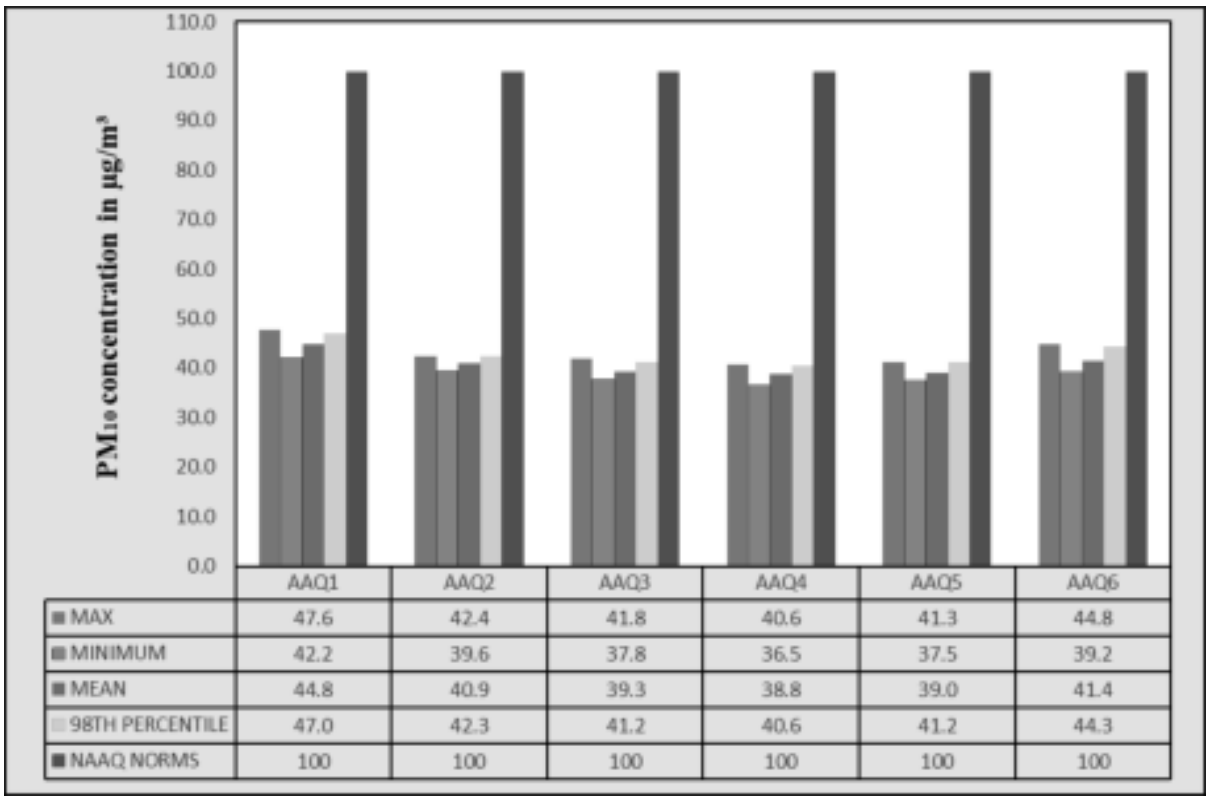


Figure 3.16 Bar Chart Showing Maximum, Minimum, and Average Concentrations of $PM_{2.5}$ Measured from 6 Air Quality Monitoring Stations within 5 km Radius



	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6
MAX	47.6	42.4	41.8	40.6	41.3	44.8
MINIMUM	42.2	39.6	37.8	36.5	37.5	39.2
MEAN	44.8	40.9	39.3	38.8	39.0	41.4
98TH PERCENTILE	47.0	42.3	41.2	40.6	41.2	44.3
NAAQ NORMS	100	100	100	100	100	100

Figure 3.17 Bar Chart Showing Maximum, Minimum, and Average Concentrations of PM_{10} Measured from 6 Air Quality Monitoring Stations within 5 km Radius

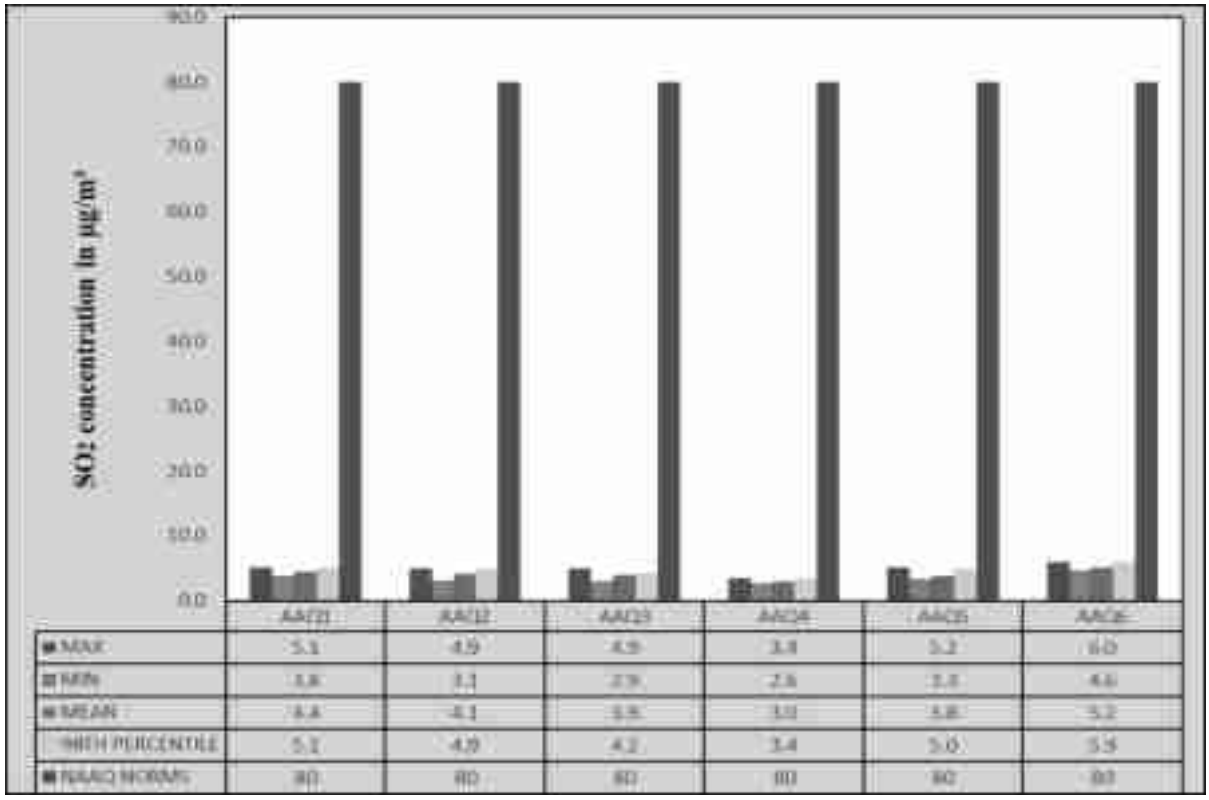
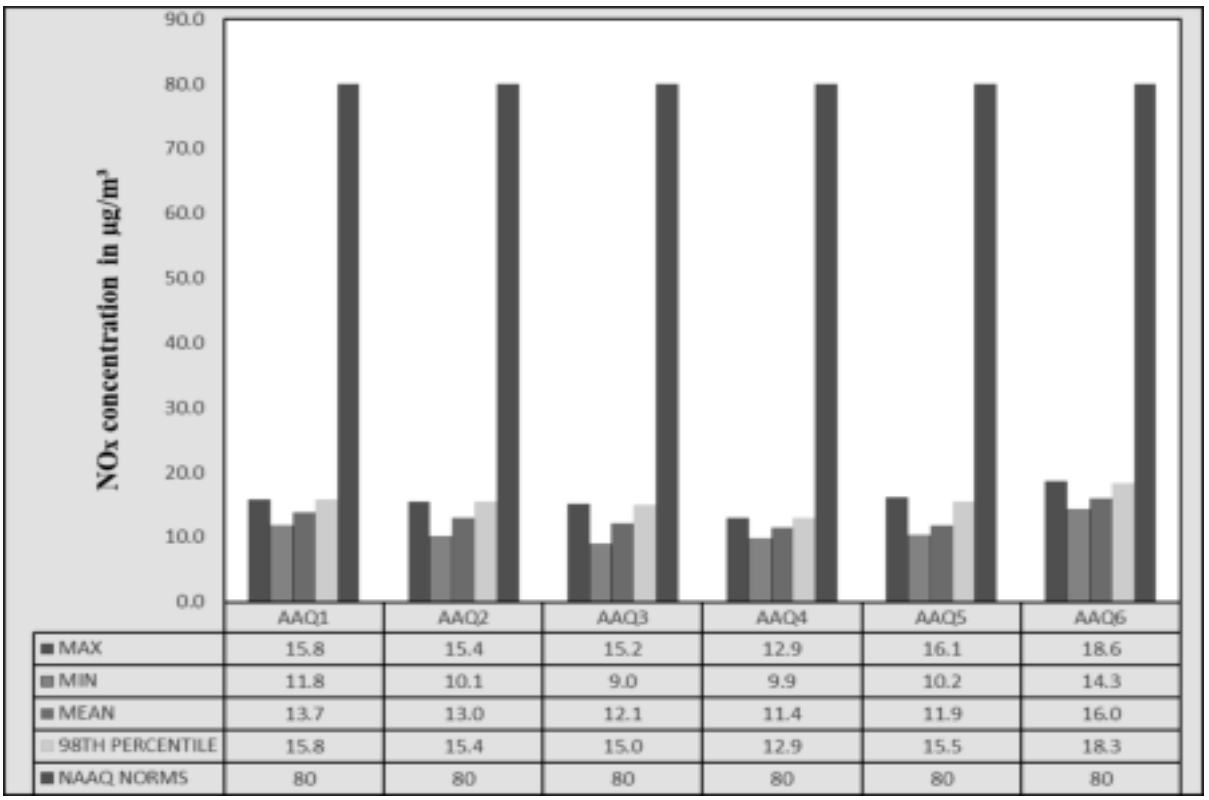
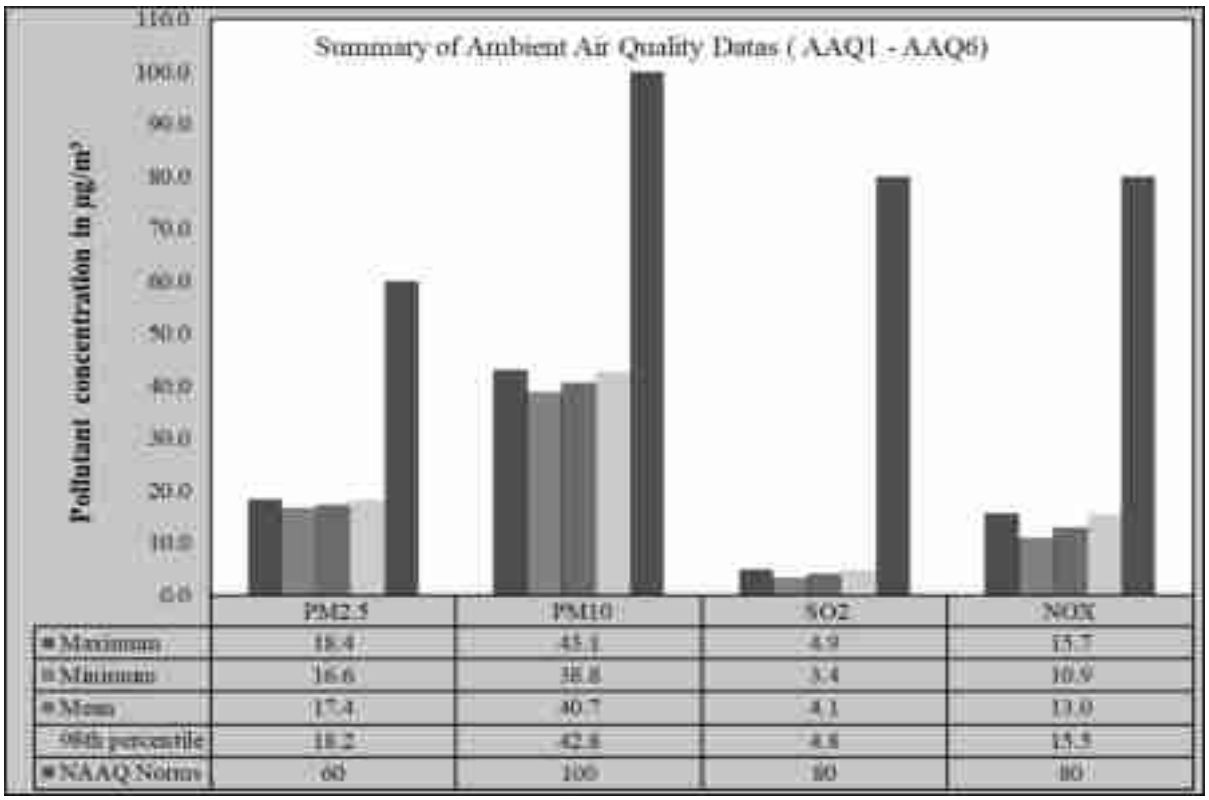


Figure 3.18 Bar Chart Showing Maximum, Minimum, and Average Concentrations of SO_2 Measured from 6 Air Quality Monitoring Stations within 5 km Radius



	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6
MAX	15.8	15.4	15.2	12.9	16.1	18.6
MIN	11.8	10.1	9.0	9.9	10.2	14.3
MEAN	13.7	13.0	12.1	11.4	11.9	16.0
98TH PERCENTILE	15.8	15.4	15.0	12.9	15.5	18.3
NAAQ NORMS	80	80	80	80	80	80

Figure 3.19 Bar Chart Showing Maximum, Minimum, and Average Concentrations of No_x Measured from 6 Air Quality Monitoring Stations within 5 km Radius



	PM2.5	PM10	SO2	NOX
Maximum	18.4	45.1	4.9	15.7
Minimum	16.6	38.8	3.4	10.9
Mean	17.4	40.7	4.1	13.0
98th percentile	18.2	42.8	4.8	15.5
NAAQ Norms	60	100	80	80

Figure 3.20 Bar Chart Showing Maximum, Minimum, and Average Concentrations of Pollutants in Atmosphere within 5 km Radius

3.4 NOISE ENVIRONMENT

The vehicular movement on road and mining activities is the major sources of noise in the study area. The main objective of noise monitoring in the study area is to establish the baseline noise level, which will in turn be used to assess the impact of the total noise expected to be generated during the project operations around the project site. In order to assess the ambient noise levels within the study area, noise monitoring was carried out at Six (6) locations covering commercial, residential, rural areas within the radius of 5 km. Details of noise monitoring locations are provided in Table 3.17 and spatial occurrence of the locations are shown in Figure 3.23.

Table 3.17 Noise Monitoring Locations

S. No.	Location Code	Monitoring Locations	Distance (km)	Direction	Coordinates	
					Latitude	Longitude
1	N1	Core	--	--	12°40'3.01"N	78° 7'49.30"E
2	N2	Kondappanayanapalli	0.59	NW	12°40'19.86"N	78° 7'33.65"E
3	N3	Kentarpalli	3.91	NNE	12°42'11.05"N	78° 8'5.79"E
4	N4	Dasiripalli	4.45	NE	12°41'45.20"N	78° 9'32.80"E
5	N5	V.Madepalli	4.67	ESE	12°39'29.44"N	78°10'22.08"E
6	N6	Kuppachiparai	2.43	SSE	12°38'46.15"N	78° 8'22.85"E

*Source: On-site Monitoring/Sampling by **Ekdant Enviro Services (P) Limited** in Association with GTMS*

Table 3.18 Ambient Noise Quality Result

Station ID	Location	Environmental setting	Average day noise level (dB(A))	Average night noise level (dB(A))	Day time (6.00 AM – 10.00 PM)	Night time (10.00 PM – 6.00 AM)
					Standard (L_{eq} in dB (A))	
N1	Core	Industrial Area	46.7	38.8	75	70
N2	Kondappanayanapalli	Residential Area	42.2	36.6	55	45
N3	Kentarpalli		44.8	37.8		
N4	Dasiripalli		40.8	35.4		
N5	V.Madepalli		41.2	35.8		
N6	Kuppachiparai		49.6	40.8		

*Source: On-site Monitoring/Sampling by **Ekdant Enviro Services (P) Limited** in Association with GTMS*

The Table 3.18 shows that noise level in core zone was 46.7 dB (A) Leq during day time and 38.8dB(A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 40.8 to 49.6dB (A) Leq and during night time from 35.4 to 40.80dB (A) Leq. Thus, the noise level for industrial and residential area meets the requirements of CPCB. The results are also depicted below in Figures 3.21 and 3.22.

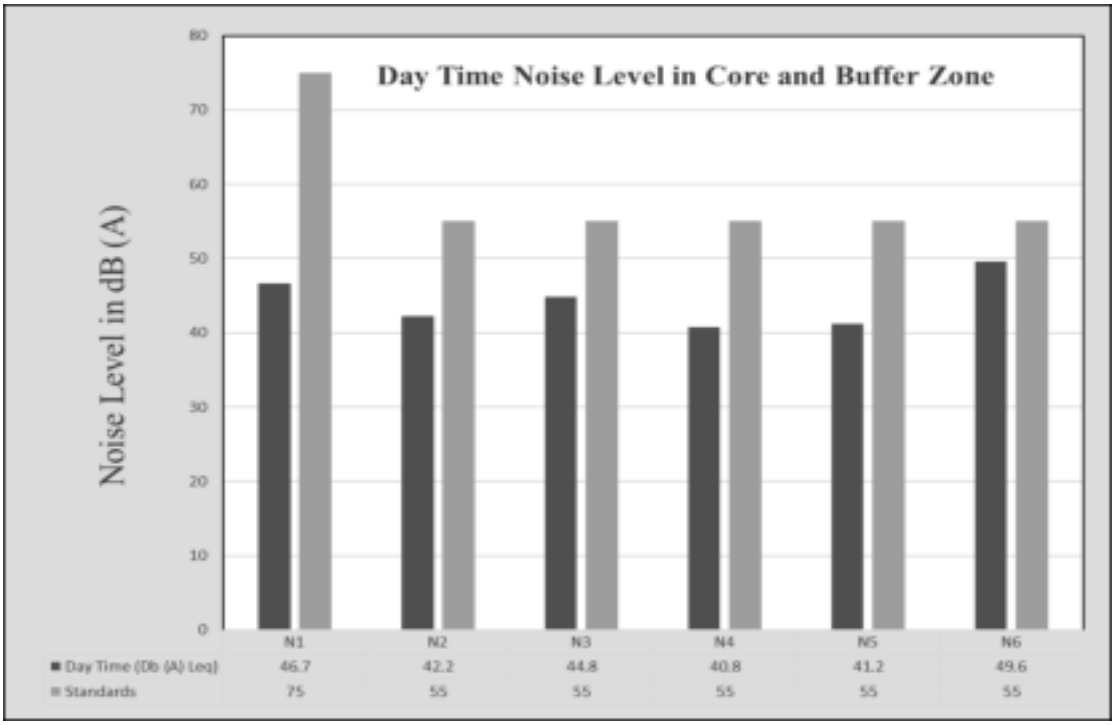


Figure 3.21 Bar Chart Showing Day Time Noise Levels Measured in Core and Buffer Zones

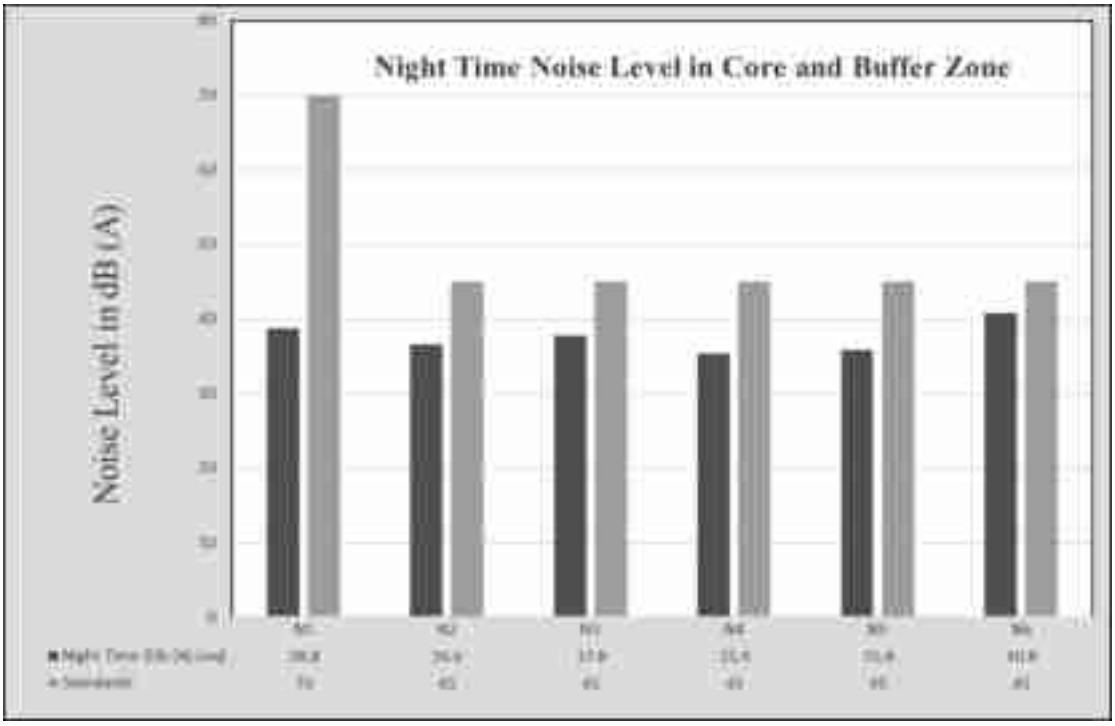


Figure 3.22 Bar Chart Showing Night Time Noise Levels Measured in Core and Buffer Zones

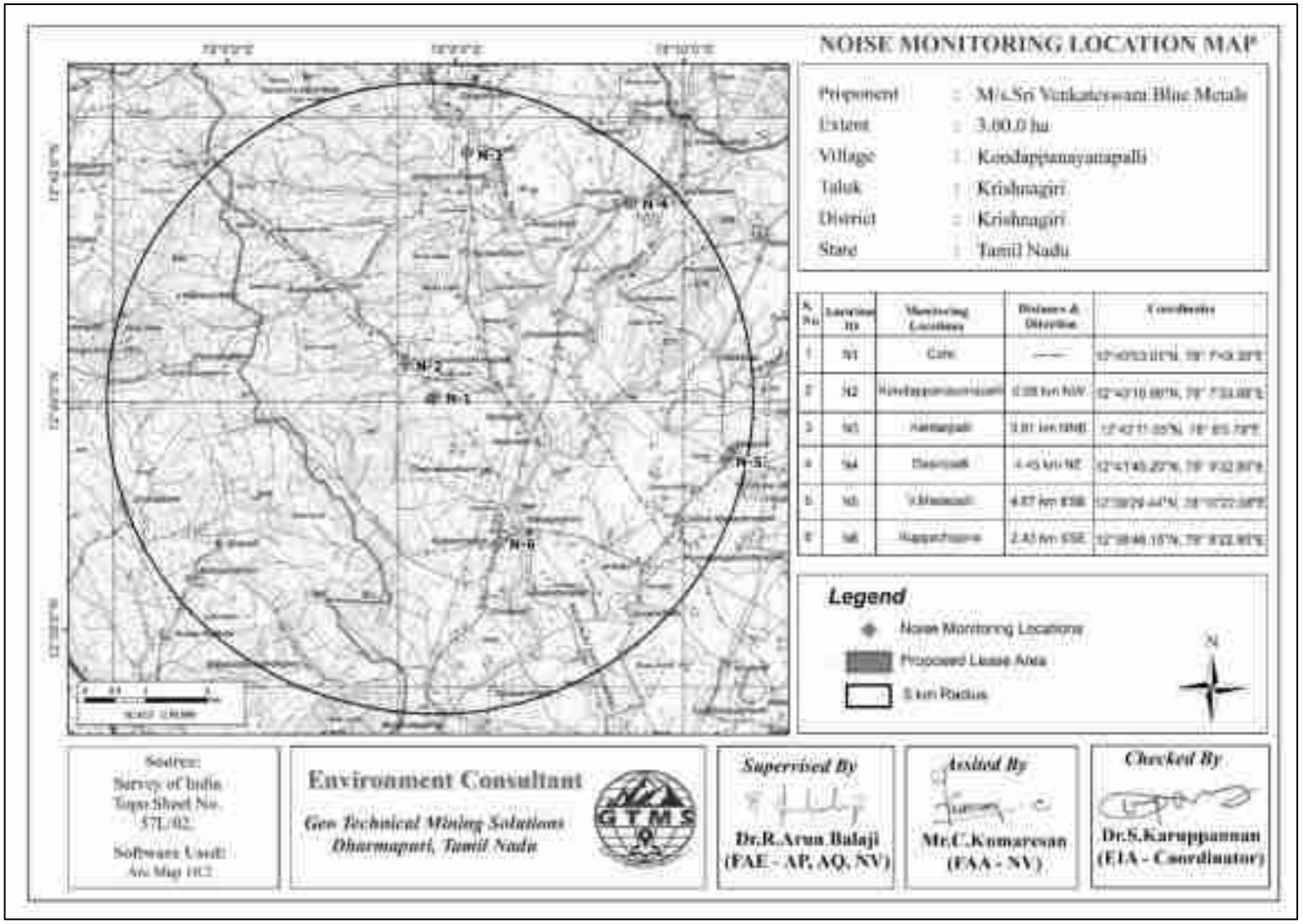


Figure 3.23 Map Showing Noise Level Monitoring Station Locations around 5 km Radius from Proposed Project Site

3.5 BIOLOGICAL ENVIRONMENT

An ecological survey was conducted to collect the baseline data regarding flora and fauna in the study area of 10 km radius. Data were also collected from different sources, i.e., government departments such as District Forest Office, Government of Tamil Nadu. On the basis of onsite observations as well as forest department records the checklist of flora and fauna was prepared.

Methodology

Sampling locations were selected with reference to topography, land use, vegetation pattern, etc. In this study**,** quadrats of 25 m × 25 m were laid down to assess trees and quadrats of 10 m × 10 m were laid down for shrubs.

Figure 3.24 Quadrates Sampling Methods of Flora

Phyto-Sociological Studies

Phyto-sociological parameters, such as ***Density, Frequency, Abundance and Importance Value Index*** of individual species were determined in randomly placed quadrat of different sizes in the study area, as shown in Table 3.19. Relative frequency, and relative density were calculated and the sum of these three represented Importance Value Index (IVI) for various species. For shrubs, herbs and grasses, ***Density, Frequency, Relative Density & Relative Frequency were found***. Sample plots were selected in such a way to get maximum representation of different types of vegetation and plots were laid out in different part of the study area of 10 km radius. Analysis of the vegetation will help in determining the relative importance of each species in the study area and to reveal if any economically valuable species is threatened in the process.

Table 3.19 Calculation of Density, Frequency (%), Dominance, Relative Density, Relative Frequency, Relative Dominance & Important Value Index

Parameters	Formula
Density	Total No. of individuals of species/ Total No. of Quadrats used in sampling
Frequency (%)	(Total No. of Quadrats in which species occur/ Total No. of Quadrats studied)100
Abundance	Total No. of individuals of species/ No. of Quadrats in which they occur
Relative Density	(Total No. of individuals of species/Sum of all individuals of all species) * 100
Relative Frequency	(Total No. of Quadrats in which species occur/ Total No. of Quadrats occupied by all species) * 100
Important Value Index	Relative Density + Relative Frequency

Shannon – Wiener Index, Evenness and Richness

Biodiversity index is a quantitative measure that reflects how many different types of species, there are in a dataset, and simultaneously takes into account how evenly the basic entities (such as individuals) are distributed among those types of species. The value of biodiversity index increases both when the number of types increases and when evenness increases. For a given number of type of species, the value of a biodiversity index is maximized when all type of species is equally abundant. The corresponding formulas are given in Table 3.20.

Table 3.20 Calculation of Species Diversity by Shannon – Wiener Index, Evenness and Richness

Description	Formula
Species diversity – Shannon – Wien Index	**$H= \sum[(p_i)*\ln(p_i)]$** Where p_i: Proportion of total sample represented by species i: number of individuals of species i/ total number samples

Evenness	H/H max H_{max} = ln(s)= maximum diversity possible S=No. of species
Species Richness by Margalef	RI = S-1/ln N Where S = Total Number of species in the community N = Total Number of individuals of all species in the Community

3.5.1 Flora

Flora study was conducted using the above said methodology to inventory the existing terrestrial plants in both core and buffer zones. Details of plants have been described in the succeeding sections.

Flora in mine lease area (core zone)

Taxonomically 17 species belonging to 13 families have been recorded from the core mining lease area. Based on habitat classification of the enumerated plants the majority of species were 3 Tree followed by Herbs & Climbers & Grass 8, Shrubs 6. Details of flora with the scientific name were mentioned in Table.3.21-3.23.

Flora in 300 m radius buffer zone

Taxonomically 39 species belonging to 25 families have been recorded from the 300 m radius buffer zone. Based on habitat classification of the enumerated plants the majority of species were seven Tree 11 followed by Herbs & Climbers & Grass 21, Shrubs 7. Details of flora with the scientific name and species richness index were mentioned in Table.3.24-3.25.

Flora in 10 km radius buffer zone

Similar type of environment also in buffer area but with more flora diversity compare than core zone area, because of nearby agriculture land was found to be dominate in all the directions. Majority of the flat landscape around project unit is occupied by agriculture fields. It contains a total of 89 species belonging to 43 families have been recorded from the buffer zone. The floral (89) varieties among them Trees 37 (42%) Shrubs 13 (14%) and Herbs & Climbers & Creeper & Cactus 39 (44%). Details of flora with the scientific name were mentioned in Table.3.26

Table 3.21 Flora in Mine Lease Area

S. No	Local name	Scientific name	Family name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IVI	IUCN Conservation Status
Trees													
1	Karuvealan	*Prosopis juliflora*	Fabaceae	4	3	5	0.8	60.0	1.3	50.0	50.0	100.0	NE
2	Unjai maram	*Albizia amara*	Fabaceae	9	5	5	1.8	100.0	1.8	15.3	15.6	30.9	NE
3	Vetpalai maram	*Wrightia tinctoria*	Apocynaceae	3	2	5	0.6	40.0	1.5	37.5	33.3	70.8	NE
Shrubs													
4	Avaram chadi	*Senna auriculata*	Fabaceae	4	3	5	0.8	60.0	1.3	21.1	18.8	39.8	NE
5	Earuku	*Calotropis gigantea*	Apocynaceae	3	3	5	0.6	60.0	1.0	15.8	18.8	34.5	NE
6	Unichadi	*Landana camera*	Verbenaceae	5	4	5	1.0	80.0	1.3	26.3	25.0	51.3	NE
7	Surai mullui	*Ziziphus oenopolia*	Rhamnaceae	1	1	5	0.2	20.0	1.0	5.3	6.3	11.5	LC
8	Sapathikalli	*Cereus pterogonus*	Cactus	4	3	5	0.8	60.0	1.3	21.1	18.8	39.8	NE
9	Karaimullu	*Canthium coromandelicum*	Rubiaceae	2	2	5	0.4	40.0	1.0	10.5	12.5	23.0	
Herbs/Climber													
10	Perandai	*Cissus quadrangularis*	Vitaceae	3	2	5	0.6	40.0	1.5	5.1	6.3	11.3	NE
11	Thathapondu	*Tridax procumbens*	Asteraceae	8	5	5	1.6	100.0	1.6	13.6	15.6	29.2	NE
12	Kolunji chadi	*Tephrosia purpurea*	Fabaceae	7	4	5	1.4	80.0	1.8	11.9	12.5	24.4	NE
13	Onnakodi	*Ipomoea staphylina*	Convolvulaceae	9	5	5	1.8	100.0	1.8	15.3	15.6	30.9	NE
14	Korai	*Cyperus rotundus*	Cyperaceae	10	5	5	2.0	100.0	2.0	16.9	15.6	32.6	NE
15	Nerunji	*Tribulus terrestris*	Zygophyllales	7	4	5	1.4	80.0	1.8	11.9	12.5	24.4	NE
16	Nayuruvi	*Achyranthes aspera*	Amaranthaceae	6	3	5	1.2	60.0	2.0	10.2	9.4	19.5	NE
17	Communist pacha	*Chromolaena odorata*	Asteraceae	9	4	5	1.8	80.0	2.3	15.3	12.5	27.8	NE

Table 3.22 Calculation of Species Diversity mine lease area

S. No	Local name	Scientific name	No. of Species	Pi	In (Pi)	Pi x In (Pi)
Trees						
1	Karuvealan	*Prosopis juliflora*	4	0.50	-0.69	-0.35
2	Unjai maram	*Albizia amara*	9	0.13	-2.08	-0.26
3	Vetpalai maram	*Wrightia tinctoria*	3	0.38	-0.98	-0.37
Shrubs						
1	Avaram chadi	*Senna auriculata*	4	0.21	-1.56	-0.33
2	Earuku	*Calotropis gigantea*	3	0.16	-1.85	-0.29
3	Unichadi	*Landana camera*	5	0.26	-1.34	-0.35
4	Surai mullui	*Ziziphus oenopolia*	1	0.05	-2.94	-0.15
5	Sapathikalli	*Cereus pterogonus*	4	0.21	-1.56	-0.33
6	Karaimullu	*Canthium coromandelicum*	2	0.11	-2.25	-0.24
Herbs /climber						
11	Perandai	*Cissus quadrangularis*	3	0.06	-2.81	-0.17
12	Thathapondu	*Tridax procumbens*	8	0.16	-1.83	-0.29
13	Kolunji chadi	*Tephrosia purpurea*	7	0.14	-1.97	-0.28
14	Onnakodi	*Ipomoea staphylina*	9	0.18	-1.71	-0.31
15	Korai	*Cyperus rotundus*	10	0.20	-1.61	-0.32
16	Nerunji	*Tribulus terrestris*	7	0.14	-1.97	-0.28
17	Nayuruv	*Achyranthes aspera*	6	0.12	-2.12	-0.25

Table 3.23 Species Richness (Index) in mine lease area

Details	H	H max	Evenness	Species Richness
Tree	0.97	1.10	0.89	0.96
Shrubs	1.69	1.79	0.94	1.70
Herbs	1.90	1.95	0.98	1.53

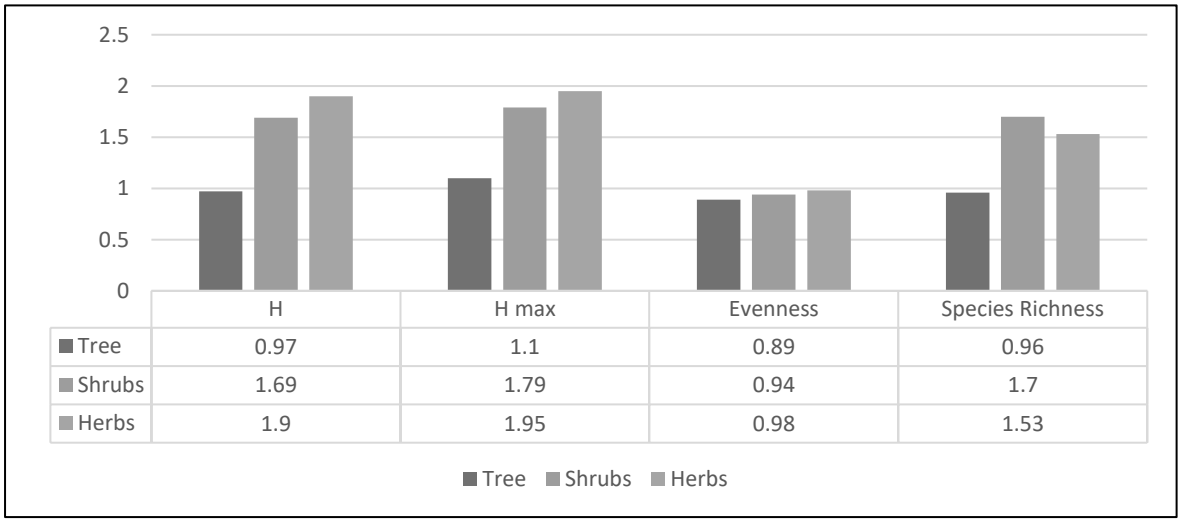


Figure 3.25 Species Richness (Index) in Mine Lease Area

Table 3.24 Flora in 300-meter Radius

S. No	Local Name	Scientific name	Family name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IVI	IUCN Conservation Status
Tree													
1	Nuna maram	*Morinda citrifolia*	Rubiaceae	5	3	5	1.0	60.0	1.7	10.6	8.3	19.0	Not Listed
2	Vembu	*Azadirachtaindica*	Meliaceae	6	4	5	1.2	80.0	1.5	12.8	11.1	23.9	Not Listed
3	Echamaram	*Phoenix dactylifera L*	Arecaceae	3	3	5	0.6	60.0	1.0	6.4	8.3	14.7	Not Listed
4	Velikathan maram	*Prosopis juliflora*	Fabaceae	2	2	5	0.4	40.0	1.0	4.3	5.6	9.8	Not Listed
5	Pongam oiltree	*Pongamia pin nata*	Fabaceae	3	2	5	0.6	40.0	1.5	6.4	5.6	11.9	Not Listed
6	Panai maram	*Borassus flabellifer*	Arecaceae	3	3	5	0.6	60.0	1.0	6.4	8.3	14.7	Not Listed
7	Unjai maram	*Albizia amara*	Fabaceae	5	4	5	1.0	80.0	1.3	10.6	11.1	21.7	Not Listed
8	Theannai maram	*Cocos nucifera*	Arecaceae	6	5	5	1.2	100.0	1.2	12.8	13.9	26.7	Not Listed
9	Manga maram	*Mangifera indica*	Anacardiaceae	9	5	5	1.8	100.0	1.8	19.1	13.9	33.0	Not Listed
10	Teak maram	*Tectona grandis*	Verbenaceae	3	3	5	0.6	60.0	1.0	6.4	8.3	14.7	Not Listed
11	Puliyamaram	*Tamarindus indica*	Legumes	2	2	5	0.4	40.0	1.0	4.3	5.6	9.8	Not Listed
Shrubs													
1	Unichedi	*Lantana camara*	Verbenaceae	12	7	10	1.2	70.0	1.7	22.6	18.9	41.6	Not Listed
2	Sundaika	*Solanum torvum*	Solanaceae	7	5	10	0.7	50.0	1.4	13.2	13.5	26.7	Not Listed
3	Erukku	*Calotropis gigantea*	apocynaceae	10	6	10	1.0	60.0	1.7	18.9	16.2	35.1	Not Listed
4	Avarai	*Senna auriculata*	Fabaceae	4	4	10	0.4	40.0	1.0	7.5	10.8	18.4	Not Listed
5	Sappathikalli	*Cereus pterogonus*	Cactus	9	7	10	0.9	70.0	1.3	17.0	18.9	35.9	Not Listed
6	Kattamanaku	*Jatropha gossypiifolia L*	Euphorbiaceae	8	5	10	0.8	50.0	1.6	15.1	13.5	28.6	Not Listed

7	Karunochi	*Vitex negundo*	Lamiaceae	3	3	10	0.3	30.0	1.0	5.7	8.1	13.8	Not Listed
Herbs, Climbers & Grass													
1	Thumbai	*Leucas aspera*	Lamiaceae	11	8	10	1.1	80.0	1.4	8.7	7.5	16.2	Not Listed
2	Kantang kathrikai	*Solanum virginianum*	Solanaceae	7	6	10	0.7	60.0	1.2	5.6	5.6	11.2	Not Listed
3	Arugampul	*Cynodon dactylon*	Poaceae	6	5	10	0.6	50.0	1.2	4.8	4.7	9.4	Not Listed
4	Poolai poondu	*Aerva lanata*	Amaranthaceae	7	7	10	0.7	70.0	1.0	5.6	6.5	12.1	Not Listed
5	Korai	*Cyperus rotundus*	Cyperaceae	12	8	10	1.2	80.0	1.5	9.5	7.5	17.0	Not Listed
6	Nerunji	*Tribulus terrestris*	Zygophyllales	8	6	10	0.8	60.0	1.3	6.3	5.6	12.0	Not Listed
7	Nayuruvi	*Achyranthes aspera*	Amaranthaceae	9	7	10	0.9	70.0	1.3	7.1	6.5	13.7	Not Listed
8	Thottalchinungi	*Mimosa pudica*	Mimosaceae	8	8	10	0.8	80.0	1.0	6.3	7.5	13.8	Not Listed
9	Mulli	*Solanum violaceum Ortega*	Solanaceae	5	4	10	0.5	40.0	1.3	4.0	3.7	7.7	Not Listed
10	Kombumul	*Acanthospermum hispidum*	Asteraceae	8	7	10	0.8	70.0	1.1	6.3	6.5	12.9	Not Listed
11	Ponnangani	*Alternanthera pungens*	Amaranthaceae	6	5	10	0.6	50.0	1.2	4.8	4.7	9.4	Not Listed
12	wild thulasi	*Hyptis suaveolens (L.)*	Lamiaceae	4	3	10	0.4	30.0	1.3	3.2	2.8	6.0	Not Listed
13	Gopuram Tangi	*Andrographis echioides*	Acanthaceae	7	6	10	0.7	60.0	1.2	5.6	5.6	11.2	Not Listed
14	Amman Paccharisi	*Euphorbia hirta*	Euphorbiaceae	2	2	10	0.2	20.0	1.0	1.6	1.9	3.5	Not Listed
15	Paca poondu	*Pavonia gallaensis*	Malvaceae	4	3	10	0.4	30.0	1.3	3.2	2.8	6.0	Not Listed
16	Perandai	*Cissus quadrangularis*	Vitaceae	5	5	10	0.5	50.0	1.0	4.0	4.7	8.6	Not Listed
17	Vishnukrandi	*Evolvulus alsinoides*	Convolvulaceae	7	7	10	0.7	70.0	1.0	5.6	6.5	12.1	Not Listed
18	Musumusukkai	*Mukia maderaspatana*	Cucurbitaceae	2	2	10	0.2	20.0	1.0	1.6	1.9	3.5	Not Listed
19	Sirupunaikkali	*Passiflora foetida*	Passifloraceae	3	3	10	0.3	30.0	1.0	2.4	2.8	5.2	Not Listed
20	Nagathali	*Opuntia dillenii*	Cactaceae	3	3	10	0.3	30.0	1.0	2.4	2.8	5.2	Not Listed
21	Agave	*Agave weberi*	Asparagaceae	2	2	10	0.2	20.0	1.0	1.6	1.9	3.5	Not Listed

Table 3.25 Calculation of Species Diversity in 300 m Radius

S. No	Common name	Scientific name	No. of Species	Pi	In (Pi)	Pi x In (Pi)
Trees						
1	Nuna maram	*Morinda citrifolia*	5	0.11	-2.24	-0.24
2	Vembu	*Azadirachtaindica*	6	0.13	-2.06	-0.26
3	Echamaram	*Phoenix dactylifera L*	3	0.06	-2.75	-0.18
4	Velikathan maram	*Prosopis juliflora*	2	0.04	-3.16	-0.13
5	Pongam oiltree	*Pongamia pin nata*	3	0.06	-2.75	-0.18
6	Panai maram	*Borassus flabellifer*	3	0.06	-2.75	-0.18
7	Unjai maram	*Albizia amara*	5	0.11	-2.24	-0.24
8	Theannai maram	*Cocos nucifera*	6	0.13	-2.06	-0.26
9	Manga maram	*Mangifera indica*	9	0.19	-1.65	-0.32
10	Teak maram	*Tectona grandis*	3	0.06	-2.75	-0.18
11	Puliyamaram	*Tamarindus indica*	2	0.04	-3.16	-0.13
H (Shannon Diversity Index) = 2.29						
Shrubs						
1	Unichedi	*Lantana camara*	12	0.23	-1.49	-0.34
2	Sundaika	*Solanum torvum*	7	0.13	-2.02	-0.27
3	Erukku	*Calotropis gigantea*	10	0.19	-1.67	-0.31
4	Avarai	*Senna auriculata*	4	0.08	-2.58	-0.20
5	Sappathikalli	*Cereus pterogonus*	9	0.17	-1.77	-0.30
6	Kattamanaku	*Jatropha gossypiifolia L*	8	0.15	-1.89	-0.29
7	Karunochi	*Vitex negundo*	3	0.06	-2.87	-0.16
H (Shannon Diversity Index) = 1.86						
HERBS						
1	Thumbai	*Leucas aspera*	11	0.09	-2.44	-0.21
2	Kantang kathrikai	*Solanum virginianum*	7	0.06	-2.89	-0.16
3	Arugampul	*Cynodon dactylon*	6	0.05	-3.04	-0.14
4	Poolai poondu	*Aerva lanata*	7	0.06	-2.89	-0.16
5	Korai	*Cyperus rotundus*	12	0.10	-2.35	-0.22
6	Nerunji	*Tribulus terrestris*	8	0.06	-2.76	-0.18
7	Nayuruv	*Achyranthes aspera*	9	0.07	-2.64	-0.19
8	Thottalchinungi	*Mimosa pudica*	8	0.06	-2.76	-0.18
9	Mulli	*Solanum violaceum Ortega*	5	0.04	-3.23	-0.13
10	Kombumul	*Acanthospermum hispidum*	8	0.06	-2.76	-0.18
11	Ponnangani	*Alternanthera pungens*	6	0.05	-3.04	-0.14
12	wild thulasi	*Hyptis suaveolens (L.)*	4	0.03	-3.45	-0.11
13	Gopuram Tangi	*Andrographis echioides*	7	0.06	-2.89	-0.16
14	Amman Paccharisi	*Euphorbia hirta*	2	0.02	-4.14	-0.07
15	Paca poondu	*Pavonia gallaensis*	4	0.03	-3.45	-0.11
16	Perandai	*Cissus quadrangularis*	5	0.04	-3.23	-0.13
17	Vishnukrandi	*Evolvulus alsinoides*	7	0.06	-2.89	-0.16
18	Musumusukkai	*Mukia maderaspatana*	2	0.02	-4.14	-0.07
19	Sirupunaikkali	*Passiflora foetida*	3	0.02	-3.74	-0.09
20	Nagathali	*Opuntia dillenii*	3	0.02	-3.74	-0.09
21	Agave	*Agave weberi*	2	0.02	-4.14	-0.07
H (Shannon Diversity Index) = 2.93						

Table 3.26 Species Richness (Index) in 300 m Radius

Details	H	H max	Evenness	Species Richness
Tree	2.29	2.40	0.96	2.60
Shrubs	1.86	1.95	0.96	1.51
Herbs	2.93	3.04	0.96	4.14

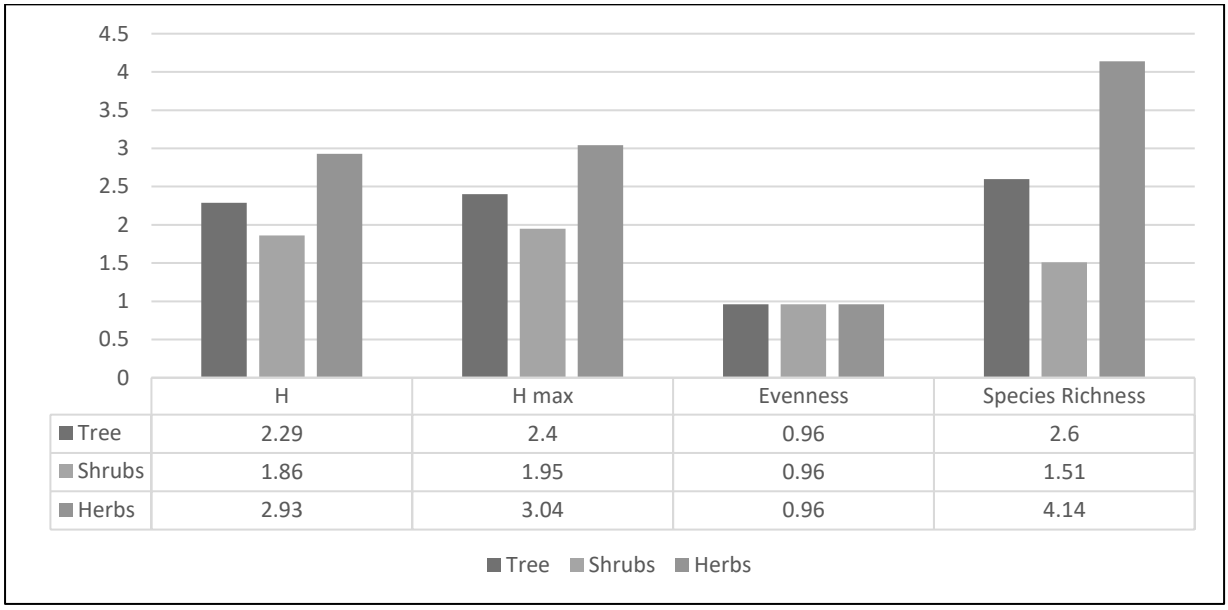


Figure 3.26 Species Richness paten in 300m Radius

Table 3.27 Flora in Buffer Zone

S. No	Local Name	Scientific name	Family name	IUCN Conservation Status
Trees				
1	Vembu	*Azadirachta indica*	Meliaceae	Not Listed
2	Pongam oiltree	*Pongamia pinnata*	Fabaceae	Not Listed
3	Karuvelam	*Acacia nilotica*	Mimosaceae	Not Listed
4	Thennai maram	*Cocos nucifera*	Arecaceae	Not Listed
5	Arasanmaram	*Ficus religiosa*	Moraceae	Not Listed
6	Puliyamaram	*Tamarindus indica*	Legumes	Not Listed
7	Punnai	*Calophyllu inophyllum*	Calophyllaceae	Not Listed
8	Athi	*Ficus recemosa*	Moraceae	Not Listed
9	Vazhaimaram	*Musa*	Musaceae	Not Listed
10	Kadukkai	*Terminalia chebula*	Combretaceae	Not Listed
11	Nettilinkam	*Polylathia longifolia*	Annonaceae	Not Listed
12	Amanakku	*Ricinus communis*	Euphorbiaceae	Not Listed

13	Perumungil	*Bambusa bambos*	Poaceae	Not Listed
14	Karungali	*Acacia sundra*	Legumes	Not Listed
15	Sapota	*Manilkara zapota*	Sapotaceae	Not Listed
16	Eucalyptus	*Eucalyptus globules*	Myrtaceae	Not Listed
17	Navalmaram	*Sygygium cumini*	Myrtaceae	Not Listed
18	Ezhumuchaipalam	*Citrus lemon*	Rutaceae	Not Listed
19	Alamaram	*Ficus benghalensis*	Moraceae	Not Listed
20	Panai maram	*Borassus flabellifer*	Arecaceae	Not Listed
21	Manga	*Mangifera indica*	Anacardiaceae	Not Listed
22	Thekku	*Tectona grandis*	Verbenaceae	Not Listed
23	Nelli	*Emblica officinalis*	Phyllanthaceae	Not Listed
24	Nettilinkam	*Polylathia longifolia*	Annonaceae	Not Listed
25	Karuvelam maram	*Vachellia nilotica*	Fabaceae	Not Listed
26	Palamaram	*Artocarpus heterophyllus*	Moraceae	Not Listed
27	Vadanarayani	*Delonix elata*	Fabaceae	Not Listed
28	Marudaani	*Lawsonia inermis*	Lythraceae	Not Listed
29	Manja kadambai	*Adina cordifolia*	Rubiaceae	Not Listed
30	Pappali maram	*Carica papaya L*	Caricaceae	Not Listed
31	Nochi	*Vitex negundo*	Verbenaceae	Not Listed
32	Vilvam	*Aegle marmelos*	Rutaceae	Not Listed
33	Nuna maram	*Morinda citrifolia*	Rubiaceae	Not Listed
34	Koyya	*Psidium guajava*	Myrtaceae	Not Listed
35	Seethapazham	*Annona reticulata*	Annonaceae	Not Listed
36	Velipparuthi	*Murraya koenigii*	Asclepiadaceae	Not Listed
37	Moonghil	*Bambusa bambo*	Poaceae	Not Listed
Shrubs				
1	Avarai	*Senna auriculata*	Fabaceae	Not Listed
2	Sundaika	*Solanum torvum*	Solanaceae	Not Listed
3	Arali	*Nerium indicum*	Apocynaceae	Not Listed
4	Idlipoo	*xoracoc cinea*	Rubiaceae	Not Listed
5	Neermulli	*Hydrophila auriculata*	Acanthaceae	Not Listed
6	Icham	*Phoenix pusilla*	Arecaceae	Not Listed
7	Chaturakalli	*Euphorbia antiquorum*	Euphorbiaceae	Not Listed
8	Kattamanakku	*Jatropha curcas*	Euphorbiaceae	Not Listed
9	Thuthi	*Abutilon indicum*	Meliaceae	Not Listed
10	Chemparuthi	*Hibiscu rosa-sinensis*	Malvaceae	Not Listed
11	Kundumani	*Abrus precatorius*	Fabaceae	Not Listed
12	Erukku	*Calotropis gigantea*	Apocynaceae	Not Listed
13	Thottalchinungi	*Mimosa pudica*	Mimosaceae	Not Listed
Herbs, Climber, Creeper, Grass & Cactus				

1	Nayuruvi	*Achyranthes aspera*	Amaranthaceae	Not Listed
2	Vetukaayapoondu	*Tridax procumbens*	Asteraceae	Not Listed
3	Kaattu piral	*Hibiscus hispidissimus*	Malvaceae	Not Listed
4	Kuppaimeni	*Acalypha indica*	Euphorbiaceae	Not Listed
5	Karisilanganni	*Eclipta prostata*	Asteraceae	Not Listed
6	Korai	*Cyperus rotundus*	Cyperaceae	Not Listed
7	Kumattikkirai	*Allmania nodiflora*	Amaranthaceae	Not Listed
8	Kunnakora	*Cyperus compressus*	Cyperaceae	Not Listed
9	Keelaneeli	*Phyllanthus niruri*	Phyllanthaceae	Not Listed
10	Kanamvazha	*Commelina benghalensis*	Commelinaceae	Not Listed
11	Thumbai	*Leucas aspera*	Lamiaceae	Not Listed
12	Parttiniyam	*Parthenium*	Asteraceae	Not Listed
13	Thoiya keerai	*Digeria muricata*	Amarantheceae	Not Listed
14	Pulliyari	*Oxalis corniculata*	Oxalidaceae	Not Listed
15	Mukurattai	*Boerhavia diffusa*	Nyctaginaceae	Not Listed
16	Kaduku	*Brassica juncea*	Brassaceae	Not Listed
17	Thulasi	*Ocimum tenuiflorum*	Lamiaceae	Not Listed
18	Arugampul	*Cynodon dactylon*	Poaceae	Not Listed
19	Manjal	*Curcuma longa*	Zingiberaceae	Not Listed
20	Manathakkali	*Solanumnigrum*	Solanaceae	Not Listed
21	Kanamvazha	*Commelina benghalensis*	Commelinaceae	Not Listed
22	Nai kadugu	*Celome viscosa*	Capparidaceae	Not Listed
23	Koraikkilangu	*Cyperus articulates*	Cyperaceae	Not Listed
24	Karisilanganni	*Eclipta prostata*	Asteraceae	Not Listed
25	Korai	*Cyperus rotundus*	Cyperaceae	Not Listed
26	Kunnakora	*Cyperus compressus*	Cyperaceae	Not Listed
27	Mukurattai	*Boerhavia diffusa*	Nyctaginaceae	Not Listed
28	Kovai	*Coccinia grandis*	Cucurbitaceae	Not Listed
29	Perandai	*Cissus quadrangularis*	Vitaceae	Not Listed
30	Mudakkotan	*Cardiospermum helicacabum*	Sapindaceae	Not Listed
31	Sangupoo	*Clitoriaternatia*	Fabaceae	Not Listed
32	Malli	*Jasminum augustifolium*	Oleaceae	Not Listed
33	Vallikeerai	*Ipomoea aquatica*	Convolvulaceae	Not Listed
34	Siru puladi	*Desmodium triflorum*	Fabaceae	Not Listed
35	Sithrapaalavi	*Euphorbia prostrata*	Euphorbiaceae	Not Listed
36	mookuthi poondu	*Wedelia trilobata*	Asteraceae	Not Listed
37	Pullu	*Eragrostis ferruginea*	Poaceae	Not Listed
38	Chevvarakupul	*Chloris barbata*	Amaranthaceae	Not Listed
39	Nagathali	*Opuntia dillenii*	Nagathali	Not Listed

Forest Vegetation

There Are No Biosphere Reserves or Wildlife Sanctuary or National Parks or Important Bird Areas (Ibas), Kariyanapalli II R.F. Located On 60m South, Veppanapalli Bit II - R.F 2.92km NE, Kumbalam I R.F 3.23km NW. The *Azadirachta Indica, Vachellia Leucophloea, Albizia Amara, Zizyphus Oenoplia, Pterolobium Hexapetalum, Lannea Coromandelica, Melia Azedarach, Mundulea Sericea, Pedalium Murex, Pergularia Daemia, Barleria Prionitis, Lantana Camara, Agave Weberi*. These Types of Plants Are Abundant in The Reserve Forest. From The Study, It Is Confirmed That the Area Under Study (Mine Lease Area and the 10 Km Buffer Zone) Is Not Ecologically Sensitive. The Reserve Forest Details Mention in Table 3.42

3.5.2 Fauna

The faunal survey was carried out for Mammals, Birds, Reptiles, Amphibians and Butterflies. There are no rare, endangered, threatened (RET) and endemic species present in Mine lease area.

Table 3.28 Methodology applied during survey of fauna

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

Fauna in Core Zone

A total of 26 varieties of species were observed in the Core zone (Table.3.28). Among them are 8 Insects, 5 Reptiles, 4 Mammals and 9 Avian. A total of 26 species belonging to 20 families were recorded from the core area. The study shows that number of species decreases towards the mining area. This might be due the lack of vegetation. None of these species in the core zone are threatened or endemic. The survey was conducted to identify species listed in IUCN Red List. According to the field data, any species are not of Schedule I and nine species are of schedule IV. There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna in core zone with the scientific name were mentioned in Table 3.29.

Fauna in Buffer Zone

A total of 50 species belonging to 36 families have been recorded from the buffer zone area (Table.3.30). Based on habitat classification the majority of species were Birds 15 (30%), followed by Insects 14 (28%), Reptiles 13 (26%), Mammals 5 (10%) and Amphibians 3 (6%). There are 7 Schedule II species and 27 species are under schedule IV according to Indian wild life Act 1972. A total fifteen species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable and endemic species were observed.

Table 3.29 Fauna in Core Zone

S. No	Common name/English Name	Family Name	Scientific Name	Schedule list wildlife protection act 1972	IUCN Red List data
Reptiles					
1	Garden lizard	Agamidae	*Calotes versicolor*	NE	NE
2	Common house gecko	Gekkonidae	*Hemidactylus frenatus*	NE	NE
3	Rat snake	Colubridae	*Ptyas mucosa*	Sch II (Part II)	LC
4	Common krait	Elapid snakes	*Bungarus caeruleus*	Schedule IV	LC
5	Fan-Throated Lizard	Agamidae	*Sitanaponticeriana*	NL	LC
Insects					
1	Plain Tiger	Nymphalidae	*Dananuschrysippus*	NL	NE
2	Tawny coster	Nymphalidae	*Danaus chrysippus*	Schedule IV	LC
3	Red-veined darter	Libellulidae	*Sympetrum fonscolombii*	NE	LC
4	Grasshopper	Acrididae	*Hieroglyphus sp*	NL	LC
5	Termite	Blattodea	*Hamitermes silvestri*	NE	LC
6	Blue tiger	Nymphalidae	*Tirumala limniace*	Schedule IV	LC
7	Striped tiger	Nymphalidae	*Danaus plexippus*	Schedule IV	LC
8	Ant	Formicidae	*Camponotus vicinus*	NL	NL
Mammals					
1	Indian Field Mouse	Muridae	*Mus booduga*	Schedule IV	LC
2	Asian Small Mongoose	Herpestidae	*Herpestes javanicus*	Schedule II	LC
3	Rat	Murids	Rattusrattus	Schedule IV	LC
4	Rat snake	Colubridae	*Ptyas mucosa*	Sch II (Part II)	LC
Avian					
1	Common myna	Sturnidae	*Acridotheres tristis*	NE	LC
2	Black drongo	Dicruridae	*Dicrurus macrocercus*	NE	LC
3	Koel	Cucalidae	*Eudynamys scolopaceus*	Schedule IV	LC
4	Common cuckoo	Cucalidae	*Cuculus canorus*	NE	LC

5	House crow	Corvidae	*Corvus splendens*	NE	LC
6	Crow Pheasant	Cucalidae	*Centropus sinensis*	Schedule IV	LC
7	Rose-ringed parakeet	Psittaculidae	*Psittacula krameri*	Schedule IV	LC
8	Asian green bee-eater	Meropidae	*Meropsorientalis*	NL	LC
9	Cattle egret	Ardeidae	*Bubulcus ibis*	NE	LC

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

Table 3.30 Fauna in Buffer Zone

S. No	Common name/ English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
Insects					
1	Honey bee	Apidae	*Apis cerana*	Schedule IV	LC
2	Blue tiger	Nymphalidae	*Tirumala limniace*	Schedule IV	LC
3	Common Indian crow	Nymphalidae	*Euploea core*	Schedule IV	LC
4	Tawny coster	Nymphalidae	*Danaus chrysippus*	Schedule IV	LC
5	Grasshopper	Acrididae	*Hieroglyphus sp*	NL	LC
6	Jewel beetle	Buprestidae	*Eurythyrea austriaca*	Schedule IV	NA
7	Red-veined darter	Libellulidae	*Sympetrum fonscolombii*	NL	LC
8	Ant	Formicidae	*Camponotus vicinus*	NL	NL
9	Praying mantis	Mantidae	*mantis religiosa*	NL	NL
10	Dragonfly	Gomphidae	*Ceratogomphus pictus*	Schedule IV	LC
11	Milkweed butterfly	Nymphalidae	*Danainae*	NL	LC
12	Striped tiger	Nymphalidae	*Danaus plexippus*	Schedule IV	LC
13	Lesser grass blue	Lycaenidae	*Zizina otis indica*	Schedule IV	LC
14	Common Tiger	Nymphalidae	*Danaus genutia*	Schedule IV	LC
Reptiles					
1	Garden lizard	Agamidae	*Calotes versicolor*	NL	LC
2	Chameleon	Chamaeleonidae	*Chameleon zeylanicus*	Schedule II	LC
3	Fan-Throated Lizard	Agamidae	*Sitanaponticeriana*	NL	LC
4	Common house gecko	Gekkonidae	*Hemidactylus frenatus*	NL	LC

5	Rat snake	Colubridae	*Ptyas mucosa*	Sch II (Part II)	LC
6	Olive keel back water snake	Natricidae	*Atretium schistosum*	Sch II (Part II)	LC
7	Whip Snake	Elapidae	*Dryphis nasutus*	Sch II (Part II)	LC
8	Common krait	Elapid snakes	*Bungarus caeruleus*	Schedule IV	LC
9	Indian wall lizard	Gekkonidae	*Hemidactylus flaviviridis*	Schedule IV	NL
10	Saw scaled viper	Elapidae	*Echis carinatus*	Sch II (Part II)	LC
11	Brahminy skink	Scincidae	*Eutropis carinata*	NL	LC
12	Russell's viper	Viperidae	*Vipera russseli*	Sch II (Part II)	LC
13	Common skink	Scincidae	*Mabuya carinatus*	NL	LC
Mammals					
1	Indian palm squirrel	Sciuridae	*Funambulus palmarum*	Schedule IV	LC
2	Indian Field Mouse	Muridae	*Mus booduga*	Schedule IV	LC
3	Indian hare	Leporidae	*Lepus nigricollis*	Schedule IV	LC
4	Asian Small Mongoose	Herpestidae	*Herpestes javanicus*	Schedule (Part II)	LC
5	Brown rat	Muridae	*Rattus norwegicus*	Schedule IV	LC
Aves					
1	Koel	Cucalidae	*Eudynamys*	Schedule IV	LC
2	Cattle egret	Ardeidae	*Bubulcus ibis*	NL	LC
3	Common myna	Sturnidae	*Acridotheres tristis*	NL	LC
4	House crow	Corvidae	*Corvussplendens*	NL	LC
5	Asian green bee-eater	Meropidae	*Meropsorientalis*	NL	LC
6	Red-vented Bulbul	Pycnonotidae	*Pycnonotuscafer*	Schedule IV	LC
7	Rose-ringed parkeet	Psittaculidae	*Psittacula krameri*	Schedule IV	LC
8	Shikra	Accipitridae	*Accipiter badius*	NL	LC
9	Common quail	Phasianidae	*Coturnix coturnix*	Schedule IV	LC
10	Black drongo	Dicruridae	*Dicrurus macrocercus*	Schedule IV	LC
11	Two-tailed Sparrow	Dicruridae	*Passer domesticus*	Schedule IV	LC

12	Grey Francolin	Phasianidae	*Francolinus pondicerianus*	Schedule IV	LC
13	Common Quail	Phasianidae	*Coturnix coturnix*	Schedule IV	LC
14	White-breasted waterhen	Rallidae	*Amaurornis phoenicurus*	NL	LC
15	Common Coot	Rallidae	*Fulica atra*	Schedule IV	LC
Amphibians					
1	Indian Burrowing frog	Dicroglossidae	*Sphaerotheca breviceps*	Schedule IV	LC
2	Pond Frog	Ranidae	*Rana hexadactyla*	Schedule IV	LC
3	Tiger Frog	Chordata	*Hoplobatrachus tigerinus (Rana tigerina)*	Schedule IV	LC

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

Aquatic Vegetation

The field survey for assessing the aquatic vegetation was also undertaken during the study period. Fish is commonly found in all types of natural water bodies and very common source of food in Easterner South India. The local fishermen were enquired and also the secondary resources were reviewed to collect information on the fishes found in the study area. Few common species are; *Catla (Catla catla), Channa striata, Oreochromis niloticus*.

Table 3.31 Aquatic Fauna and Flora

Sl. No	Common Name	Scientific name	Family Name	IUCN Red List of Threatened Species
Flora				
1	Water hyacinth	*Eichornia crassipes*	Pontederiaceae	NA
2	Blue waterlily	*Nymphaea nouchali*	Nymphaeaceae	LC
3	Cross Grass	*Carex cruciata*	Cyperaceae	NA
4	Scutch grass	*Cynodon dactylon*	Poaceae	LC
Fauna				
5	Thilopia	*Oreochromis niloticus*	Cichlidae	LC
6	Catla	*Catla catla*	Cyprinidae	LC
7	Koravi meen	*Channa striata*	Channidae	LC
8	Roghu	*Labeo rohita*	Cyprinidae	LC

*LC- Least Concern, NA-Not yet assessed

Phytoplankton's:

Microcystis, Nitzschia, Oscillatoria, Navicula and Pediastrum sps.

Zooplanktons:

These consist of microscopic organisms from groups Protozoa, Rotifers, Cladocera and Copepoda etc. Some common species of zooplanktons are; *Deflandre, Arcella vulgaris, Centropyxis spinosa Arcella discoides, Arcella hemispherica, Centropyxis aculeate, Trigonopyxis arcula, Brachionus calyciflorus, Lecane curvicornis, Brachionus angularis, Polyarthra vulgaris, Filinia longiseta.*

Food chain

The food chain in aquatic ecosystems often begins with the algae or phytoplankton producers, and then the zooplankton that feed on them. This type of food chain is found in nearby lakes and rivers with phytoplankton, zooplankton, fish Artiola gray and humans.

Ex: Phytoplankton→Zooplankton→small fish→large fish → Human

3.5.3 Agriculture & Horticulture in Krishnagiri district:

Major horticulture crops cultivated in this district are fruits crops like mango, banana, sapota aonla and guava, vegetables like brinjal, bhendi, capsicum, onion and chillies, spices like turmeric and pepper, and flower crops like rose, gerbera and carnations.

Major Agricultural Crops

Major horticulture crops cultivated in this district are vegetables crops like tomato, brinjal, chillies, onion and turmeric. Details of major field crops and Agricultural in 1km radius is given in Table. 3.32.

Table 3.32 Major Crops in 1km radius

S. No	Major crops	Scientific name	Families
1	Sorghum	*Sorghum bicolor*	Poaceae
2	Gingelly	*Sesamum indicum*	Pedaliaceae
3	Groundnut	*Arachis hypogaea*	Legumes
5	Millets	*Panicum miliaceum L*	Poaceae
6	Sesame	*Sesamum indicum*	Pedaliaceae
7	Cotton	*Gossypium herbaceum*	Malvaceae

Major Horticulture Crops

Horticulture includes cultivation of fruits, vegetables, nuts, seeds, herbs, sprouts, mushrooms, algae, flowers, seaweeds and non-food crops such as grass and ornamental trees

and plants. It also includes plant conservation, landscape restoration, landscape and garden design.

Horticulture

Major horticulture crops cultivated in Krishnagiri district are fruit crops like mango, banana, Sapota and guava, vegetables like tomato, brinjal, Veandai, chillies, onion and tapioca, spices like turmeric. Details of major field crops and horticulture cultivation in 1km radius is given in Table 3.33.

Table 3.33 Major Field Crops & Horticulture cultivation in 1km radius.

S. No	Common Name	Scientific Name	Family
Major Horticultural Crops			
1	Guava	*Psidium guajava*	Myrtaceae
2	Sapota	*Manilkara zapota*	Sapotaceae
3	Lemon	*Citrus × limon*	Rutaceae
4	Papaya	*Carica papaya*	Caricaceae
5	mango	*Mangifera indica*	Anacardiaceae
6	banana	*Musa × paradisiaca*	Musaceae
Vegetables			
7	Onion	*Allium cepa*	Amaryllidaceae
8	Tapioca	*Manihot esculenta*	Spurges
9	Brinjal	*Solanum melongena*	Nightshade
10	Tomato	*Solanum lycopersicum*	Nightshade
11	Bottle Gourd	*Lagenaria siceraria*	Cucurbits
12	Veandai kai	*Abelmoschus esculentus*	Mallows
13	Moringa	*Moringa oleifera*	Moringaceae

3.6 SOCIO ECONOMICS ENVIRONMENT

An essential part of environmental study is socio-economic environment incorporating various facts related to socio-economic conditions in the area, which deals with the total environment. Socio economic study includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature of aesthetic significance such as temples, historical monuments etc. at the baseline level. This would help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project. Socio-economic study of an area provides a good opportunity to assess the socio-economic condition and possibly makes a change in living and social standards of the particular area benefitted due to the project.

3.6.1 Objectives of the Study

The main objectives of the study are as follows:

- ❖ To know the current socio-economic condition in the region to cover the sub sectors education, health, sanitation, and water & food security.
- ❖ To recommend practical strategic interventions in the sector.
- ❖ To help in providing better living standards.
- ❖ To understand skill sets and plan for employment opportunities which shall be created.

3.6.2 Scope of Work

- ❖ To study the socio-economic environment of the area from the secondary sources
- ❖ Data collection & Analysis
- ❖ Prediction of project impact
- ❖ Mitigation Measures

3.6.3 Socio-Economic Status of Study area

The study area covers 30 villages in which the proposed project site is located, the summary of population facts for the village is exclusively provided in Table 3.34 and for other 8 villages in Tables 3.35 - 3.37.

Table 3.34 Kondappanayanapalli **Village Population Facts**

Kondappanayanapalli	
Number of Households	188
Population	794
Male Population	409
Female Population	385
Children Population	94
Sex-ratio	1058
Literacy	58.57%
Male Literacy	68.18%
Female Literacy	48.85%
Scheduled Tribes (ST) %	0
Scheduled Caste (SC) %	0
Total Workers	427
Main Worker	408
Marginal Worker	19

Table 3.35 Population and Literacy Data of Study Area

Village	No of Households	Total Population Person	Total Population Male	Total Population Female	Literates Population Person	Literates Population Male	Literates Population Female	Illiterate Persons	Illiterate Male	Illiterate Female
Mallasandiram	116	528	286	242	356	217	139	172	69	103
Tankadikuppam	207	1023	517	506	484	271	213	539	246	293
Devarakundani	300	1344	692	652	681	387	294	663	305	358
Edayarapalli	364	1564	790	774	744	428	316	820	362	458
Kathiripalli	147	576	293	283	326	209	117	250	84	166
Naduvanapalli	353	1508	764	744	739	428	311	769	336	433
Puram	74	316	158	158	145	87	58	171	71	100
Appinayakkankottai	154	719	368	351	391	242	149	328	126	202
Avalnatham	237	1021	500	521	464	266	198	557	234	323
Kondappanayanapalli	188	794	409	385	410	240	170	384	169	215
Verupasandiram	226	866	445	421	418	255	163	448	190	258
Dasiripalli	287	1207	627	580	696	408	288	511	219	292
Madepalli	251	1018	496	522	681	379	302	337	117	220
Thattatharai	817	3642	1884	1758	2097	1168	929	1545	716	829
Chinnakothur	76	387	186	201	229	132	97	158	54	104
Chennasandiram	676	2755	1413	1342	1584	957	627	1171	456	715
Beemandapalli	327	1418	706	712	794	442	352	624	264	360
Gunthapalli	141	536	266	270	316	185	131	220	81	139
Lakkabathalapalli	125	495	261	234	294	185	109	201	76	125
Marachandiram	1517	6939	3535	3404	3818	2220	1598	3121	1315	1806
Ponnappa Gownapalli	532	2727	1385	1342	1594	889	705	1133	496	637
Mallasandiram	116	528	286	242	356	217	139	172	69	103

Kalingavaram	148	640	330	310	311	180	131	329	150	179
Basthalapalli	221	969	485	484	491	301	190	478	184	294
Mudipinayanapalayam	173	850	434	416	278	159	119	572	275	297
Beerepalli	176	789	392	397	458	259	199	331	133	198
Mallanakothur	0	0	0	0	0	0	0	0	0	0
Errandapalli	335	1528	788	740	864	493	371	664	295	369
Balagondarayanadurgam	127	547	285	262	298	184	114	249	101	148
Bikkanapalli	209	981	489	492	539	288	251	442	201	241

Table 3.36 Details on Educational Facilities, Water, and Drainage & Health Facilities

Village	Private Primary School (Numbers)	Govt Vocational Training School/ITI (Numbers)	Primary Health Centre (Numbers)	Tap Water Untreated	River/Canal	Is the Area Covered under Total Sanitation Campaign (TSC)?	Telephone (landlines)	Public Bus Service	Gravel (kutcha) Roads	Commercial Bank	Agricultural Credit Societies	Self - Help Group (SHG)	Nutritional Centres-Anganwadi Centre	Community Centre with/without TV	Power Supply for Domestic Use
Mallasandiram	0	0	0	1	2	1	1	1	1	2	2	1	1	1	1
Tankadikuppam	1	0	1	1	2	1	1	1	1	1	1	1	1	1	1
Devarakundani	0	0	0	1	2	2	2	2	1	2	2	2	2	2	1
Edayarapalli	0	0	0	1	2	1	1	1	1	2	2	1	1	2	1
Kathiripalli	1	0	0	1	2	1	1	1	1	2	2	1	1	2	1
Naduvanapalli	0	0	2	1	1	2	1	1	1	2	2	1	1	2	1
Puram	3	0	1	1	2	2	1	1	1	1	2	1	1	1	1
Appinayakkankottai	0	0	0	1	2	1	1	1	1	2	2	1	1	1	1
Avalnatham	1	0	1	1	2	1	1	1	1	1	1	1	1	1	1

Kondappanayanapalli	0	0	0	1	2	2	2	2	1	2	2	2	2	2	1
Verupasandiram	0	0	0	1	2	1	1	1	1	2	2	1	1	2	1
Dasiripalli	1	0	0	1	2	1	1	1	1	2	2	1	1	2	1
Madepalli	1	0	0	1	2	1	1	1	1	2	2	1	1	2	1
Thattatharai	1	0	0	1	2	1	1	1	1	2	2	1	1	2	1
Chinnakothur	1	0	0	1	2	1	1	1	1	2	2	1	1	2	1
Chennasandiram	1	0	0	1	2	1	1	1	1	2	2	1	1	2	1
Beemandapalli	0	0	0	1	2	2	2	2	1	2	2	2	2	2	1
Gunthapalli	0	0	0	1	2	1	1	1	1	2	2	1	1	2	1
Lakkabathalapalli	1	0	0	1	2	1	1	1	1	1	2	2	2	2	1
Marachandiram	1	0	0	1	2	1	1	1	1	1	2	2	2	2	1
Ponnappa Gownapalli	1	0	0	1	2	1	1	1	1	1	2	2	2	2	1
Mallasandiram	1	0	0	1	2	1	1	1	1	2	2	1	1	2	1
Kalingavaram	0	0	2	1	1	2	1	1	1	2	2	1	1	2	1
Basthalapalli	1	0	1	1	2	1	1	1	1	1	1	1	1	1	1
Mudipinayanapalayam	1	0	1	1	2	1	1	1	1	1	1	1	1	1	1
Beerepalli	1	0	0	1	2	1	1	1	1	1	2	2	2	2	1
Mallanakothur	1	0	0	1	2	1	1	0	1	0	1	1	2	1	0
Errandapalli	1	0	0	1	2	1	1	1	1	2	2	1	1	2	1
Balagondarayanadurgam	0	0	2	1	1	2	1	1	1	2	2	1	1	2	1
Bikkanapalli	1	0	0	1	2	1	1	0	0	1	2	2	1	1	0

Table 3.37 Workers' Profile of Study Area

Village	Total Worker Population Person	Total Worker Population Male	Total Worker Population Female	Main Working Population Person	Main Working Population Male	Main Working Population Female	Main Cultivator Population Person	Main Agricultural Labourers Population Person	Main Other Workers Population Person	Non-Working Population Person
Mallasandiram	330	188	142	313	179	134	200	71	42	198
Tankadikuppam	624	314	310	221	116	105	12	171	38	399
Devarakundani	849	443	406	412	225	187	17	382	13	495
Edayarapalli	893	477	416	651	347	304	372	223	48	671
Kathiripalli	306	153	153	169	91	78	98	55	15	270
Naduvanapalli	764	406	358	145	84	61	31	72	42	744
Puram	141	99	42	77	57	20	8	6	62	175
Appinayakkankottai	274	208	66	264	204	60	44	154	64	445
Avalnatham	499	286	213	497	285	212	336	131	30	522
Kondappanayanapalli	427	231	196	408	218	190	115	267	23	367
Verupasandiram	533	283	250	522	280	242	37	466	9	333

Dasiripalli	718	403	315	698	396	302	63	602	31	489
Madepalli	382	257	125	235	161	74	38	16	176	636
Thattatharai	1915	1142	773	1544	941	603	363	891	267	1727
Chinnakothur	180	111	69	178	109	69	33	122	22	207
Chennasandiram	1382	863	519	1342	841	501	689	316	333	1373
Beemandapalli	838	448	390	777	414	363	367	335	70	580
Gunthapalli	217	165	52	215	163	52	125	50	40	319
Lakkabathalapalli	266	143	123	151	134	17	78	19	52	229
Marachandiram	3307	2046	1261	2624	1692	932	849	414	1062	3632
Ponnappa Gownapalli	1428	791	637	1388	766	622	240	230	552	1299
Mallasandiram	330	188	142	313	179	134	200	71	42	198
Kalingavaram	293	156	137	237	132	105	24	185	26	347
Basthalapalli	531	296	235	528	295	233	120	367	32	438
Mudipinayanapalayam	481	256	225	474	254	220	366	68	39	369
Beerepalli	287	242	45	245	220	25	68	20	148	502
Mallanakothur	0	0	0	0	0	0	0	0	0	0
Errandapalli	645	432	213	542	387	155	67	166	302	883
Balagondarayanadurgam	239	147	92	222	143	79	78	75	69	308
Bikkanapalli	489	300	189	476	293	183	183	74	218	492

3.6.4 Recommendation and Suggestion

- Awareness program should be conducted to make the population aware of education and to get a better livelihood.
- Vocational training programme should be organized to make the people self - employed, particularly for women and unemployed youth.
- On the basis of qualification and skills local community may be preferred. Long term and short-term employments should be generated.
- Health care centre and ambulance facility should be provided to the population to get easy access to medical facilities. Apart from that, as these areas are prone to various diseases a hospital with modern facilities should be opened on a priority basis in a central place to provide better health facilities to the villagers around the project.
- While developing an Action Plan, it is very important to identify the population who falls under the marginalized and vulnerable groups. So that special attention can be given to these groups with special provisions while making action plans.

3.6.5 Summary & Conclusion

The socio-economic study in the study area gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It is also found that a part of population is suffering from a lack of permanent job to run their day-to-day life. Their expectation is to earn some income for their sustainability on a long-term basis.

The proposed project will aim to provide preferential employment to the local people there by improving the employment opportunity in the area and in turn the social standards will improve.

3.7 TRAFFIC DENSITY

The traffic survey conducted based on the transportation route of material, the Rough Stone and gravel is proposed to be transported mainly through Village Road and Krishnagiri - Hosur(NH-44) as shown in Table 3.38 and in Figure 3.27. Traffic density measurements were made continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., Heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station. During each shift one person on either direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken. Direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken.

Table 3.38 Traffic Survey Locations

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Village Road	1.07 Km-E	Village Road
TS2	Krishnagiri - Hosur (NH-44)	7.20 Km-S	Krishnagiri - Hosur (NH-44)

Source: On-site monitoring by GTMS FAE & TM

Table 3.39 Existing Traffic Volume

Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	30	90	35	35	80	40	165
TS2	50	150	40	40	98	49	239

Source: On-site monitoring by GTMS FAE & TM

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

Table 3.40 Rough Stone Transportation Requirement

Transportation of Rough and Gravel per day		
Capacity of trucks	No. of Trips per day	Volume in PCU
15 tonnes	150	450

Source: Approved Mining Plan

Table 3.41 Summary of Traffic Volume

Route	Existing traffic volume in PCU	Incremental traffic due to the project	Total traffic volume	Hourly Capacity in PCU as per IRC – 1960guidelines
TS1	165	450	615	1200
TS2	239	450	689	1200

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

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

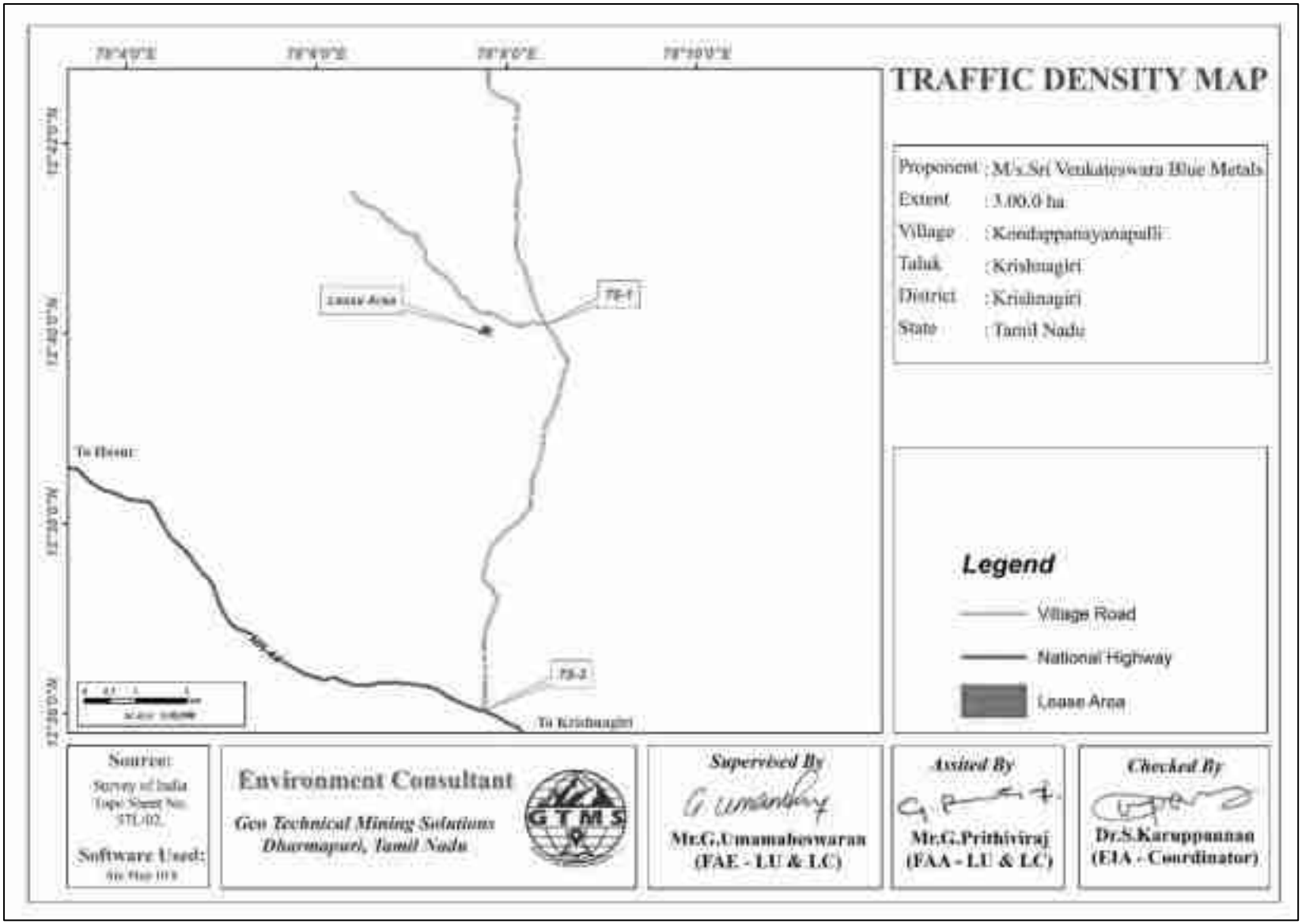


Figure 3.27 Traffic Density Map

3.8 SITE SPECIFIC FEATURES

There are no Wildlife Sanctuaries and National Park within 10 km radius. Therefore, there will be no need of acquisition/diversion of forest land. The details related to the environmentally sensitive areas around the proposed mine lease area i.e., 10 km radius and the nearby water bodies are given in the Table 3.42.

Table 3.42 Details of Environmentally Sensitive Ecological Features in the Study Area

S. No.	Sensitive Ecological Features	Name	Areal Distance in km
1	National Park / Wild life Sanctuaries	None	Nil within 10 km radius
		None	Nil within 10 km radius
2	Reserve Forest	Kariyanapalli II R.F	0.60m -South
		Veppanapalli Bit II - R.F	2.92km – NE
		Kumbalam I R.F	3.23km - NW
		Errandapalli R.F	4.01km – NW
		Veppanapalli Bit I	6.52km – NE
		Thekkalapalli R.F	7.12km -SW
		Naralapalli Extn	7.71km – East
		Theertham R.F	8.42km – N
		Naralapalli R.F	9.71km – East
		Gangamadugu R.F	10.19km – N
		Veppanapalli Extn R.F	10.14km – N
		Shoolagiri R.F	10.98km – SW
		Maharajagadai R.F	12.68km- East
		Kodattur R.F	14.59km – NE
		Settipalli R.F	14.67km -West
		Gollapally R.F	17.84km – NW
		Gullu R.F	18.25km – NE
		Chinnaradoddi R.F	18.26km -NE
		Midethepalli R.F	19.75km -NE
3	Lakes/Reservoirs/ Dams/Streams/Rivers	Margandaiya nadhi	1.8km E

4	Tiger Reserve/Elephant Reserve/ Biosphere Reserve	None	Nil within 10 km radius
5	Critically Polluted Areas	None	Nil within 10 km radius
6	Mangroves	None	Nil within 10 km radius
7	Mountains/Hills	None	Nil within 10 km radius
8	Centrally Protected Archaeological Sites	None	Nil within 10 km radius
9	Industries/ Thermal Power Plants	None	Nil within 10 km radius
10	Defence Installation	None	Nil within 10 km radius

Source: Survey of India Toposheet

CHAPTER IV

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 GENERAL

In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans sustainable resource extraction. This chapter discusses the anticipated impacts on soil, land, water, air, noise, biological, and socioeconomic environments.

4.1 LAND ENVIRONMENT

4.1.1 Anticipated Impact

- Permanent change on land use and land cover.
- Change in topography of the mine lease area.
- Problems to agricultural land and human habitations due to dust, and noise caused by movement of heavy vehicles
- Degradation of the aesthetic environment of the core zone due to quarrying
- Soil erosion and sediment deposition in the nearby agricultural fields during the rainy season
- Increase in agricultural productivity of land when mine water is discharged to the surrounding lands for irrigation

4.1.2 Common Mitigation Measures from Proposed Project

- 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
- At conceptual stage, the land use pattern of the quarry will be changed into Greenbelt area and temporary reservoir.
- In terms of aesthetics, natural vegetation surrounding the quarry will be retained (such as in a buffer area i.e., 7.5 m safety barrier and other safety provided) so as to help minimize dust emissions.
- Proper fencing will be carried out at the conceptual stage, Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.2 SOIL ENVIRONMENT

4.2.1 Anticipated Impact on Soil Environment

- Deterioration of soil quality in the surrounding area due to runoff from the project area

- ❖ Decrease in the agricultural productivity of the surrounding land due to soil quality degradation

4.2.2 Common Mitigation Measures from proposed project

- ❖ Construction of garland drains, settling pits, and check dams to prevent runoff and siltation
- ❖ Run-off diversion – Garland drains will be constructed around the project boundary to prevent surface flows from entering the quarry works areas and will be discharged into the settling tanks to reduce suspended sediment loads before runoff is discharged from the quarry site.
- ❖ Retain existing or re-plant the vegetation will be retained at the site wherever possible.
- ❖ Monitoring and maintenance – Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season.

4.3 WATER ENVIRONMENT

4.3.1 Anticipated Impact

- ❖ Surface and ground water resources may be contaminated due to pit water discharge, domestic sewage, discharge of oil and grease bearing waste water from washing of vehicles and machineries, and washouts from surface exposure or working areas
- ❖ As the proposed project acquires 3.5 KLD of water from water vendors, it will not extract water by developing abstraction structures in the lease area. Therefore, the project will not have impact on depletion of aquifer beneath the lease area.

4.3.2 Common Mitigation Measures for the Proposed Project

- ❖ Rain water from mine pit will be treated in settling tanks before being used for dust suppression and tree plantation purposes
- ❖ Domestic sewage from site office will be discharged in septic tank and then directed to soak pits
- ❖ Water from the tipper wash-down facility and machinery maintenance yard will be passed through interceptor traps/oil separators prior to its reuse
- ❖ The garland drainage will be connected to settling tank and sediments will be trapped in the settling tanks and only clear water will be discharged to the natural drainage
- ❖ Periodic (every 6 month once) analysis of ground water quality of quarry pit water and ground water of nearby villages will be conducted
- ❖ Artificial recharge structures will be established in suitable locations as part of the rainwater harvesting management program

4.4 AIR ENVIRONMENT

4.4.1 Anticipated Impact from proposed project

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

4.4.2 Emission Estimation

Emission resulting from different mining activities is estimated using relevant empirical formulae developed by Chaulya et al.,2001. The equations used for SPM, SO_2, and NO_X emission estimation have been given in Table 4.1.

Table 4.1 Empirical Formula for Emission Rate from Overall Mine

	Pollutant	Source Type	Empirical Equation	Parameters
Overall Mine	SPM	Area	E= [u0.4a0.2{9.7+ 0.01p+b/(4+0.3b)}]	u = Wind speed(m/s); p = Mineral production (Mt/yr); b = Overburden handling (Mm^3/yr); a = Lease area(km^2); E = Emission rate(g/s).
Overall Mine	SO_2	Area	E=a0.14{u/(1.83+0.93u)} [{p/(0.48+0.57p)} +{b/(14.37+1.15b)}]	u = Wind speed(m/s); p = Mineral production (Mt/yr); b = Overburden handling (Mm^3/yr); a = Lease area(km^2); E = Emission rate(g/s).
Overall Mine	NO_X	Area	E=a0.25{u/(4.3+32.5u)} [1.5p+{b/(0.06+0.08b)}]	u = Wind speed(m/s); p = Mineral production (Mt/yr); b= Overburden handling (Mm^3/yr); a = Lease area(km^2); E = Emission rate(g/s).

The emission rate thus calculated using the empirical formula is used as one of the inputs in the AERMOD modelling. It is important to note that PM_{10} emission rate is derived from the SPM estimation in the background that PM_{10} constitutes 52% of SPM emission. The $PM_{2.5}$, PM_{10}, SO_2 and NO_X emission results have been given in Table 4.2.

Table 4.2 Estimated Emission Rate

Activity	Pollutant	Calculated Value (g/s)	Lease Area in m^2	Calculated Value ($g/s/m^2$)
Overall Mine	$PM_{2.5}$	0.193010801	30000	6.43369E-06
Overall Mine	PM_{10}	1.286738673	30000	4.28913E-05
Overall Mine	SO_2	0.291564018	30000	9.7188E-06
Overall Mine	NO_X	0.016733931	30000	5.57798E-07

4.4.2.1 Modelling of Incremental Concentration

Anticipated incremental concentration and net increase in emissions due to quarrying activities within 500 m around the project area is predicted by open pit source modelling using AERMOD Software and the incremental values of the air pollutants were added to the base line data monitored at the proposed site to predict total GLC of the pollutants, as shown in Tables 4.3-4.6.

4.4.2.2 Model Results

The post project resultant concentrations of PM_{10}, $PM_{2.5}$, SO_2 & NO_X (GLC) is given in Tables 4.3-4.6.

Table 4.3 Incremental & Resultant GLC of $PM_{2.5}$

Station ID	Distance to core area (km)	Direction	PM 2.5 concentrations(µg/m³)			Comparison against air quality standard (60 µg/m³)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	--	--	19.1	8.86	27.96	Below standard	46.4	Not significant
AAQ2	0.57	NW	17.5	5	22.5		28.6	
AAQ3	3.89	NNE	18.0	0.5	18.5		2.8	
AAQ4	4.45	NE	17.5	0.5	18		2.9	
AAQ5	4.66	SE	16.0	0.5	16.5		3.1	
AAQ6	2.40	SSE	16.6	0	16.6		0.0	

Table 4.4 Incremental & Resultant GLC of PM_{10}

Station ID	Distance to core area (km)	Direction	PM_{10} concentrations($\mu g/m^3$)			Comparison against air quality standard (100 $\mu g/m^3$)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	--	--	44.8	14	58.8	Below standard	31.3	Not significant
AAQ2	0.57	NW	40.9	5	45.9		12.2	
AAQ3	3.89	NNE	39.3	0.5	39.8		1.3	
AAQ4	4.45	NE	38.8	0.5	39.3		1.3	
AAQ5	4.66	SE	39.0	0.5	39.5		1.3	
AAQ6	2.40	SSE	41.4	0.5	41.9		1.2	

Table 4.5 Incremental & Resultant GLC of SO_2

Station ID	Distance to core area (km)	Direction	SO_2 concentrations($\mu g/m^3$)			Comparison against air quality standard (80 $\mu g/m^3$)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	--	--	4.4	3.97	8.37	Below standard	90.2	Not significant
AAQ2	0.57	NW	4.1	1	5.1		24.4	
AAQ3	3.89	NNE	3.9	0.1	4		2.6	
AAQ4	4.45	NE	3.0	0.1	3.1		3.3	
AAQ5	4.66	ESE	3.8	0.1	3.9		2.6	
AAQ6	2.40	SSE	5.2	0	5.2		0.0	

Table 4.6 Incremental & Resultant GLC of NO_X

Station ID	Distance to core area (km)	Direction	NOx concentrations($\mu g/m^3$)			Comparison against air quality standard (80 $\mu g/m^3$)	Magnitude of change (%)	Significance
			Baseline	Predicted	Total			
AAQ1	--	--	13.7	5.18	18.88	Below standard	37.8	Not significant
AAQ2	0.57	NW	13.0	1	14		7.7	
AAQ3	3.89	NNE	12.1	0.5	12.6		4.1	
AAQ4	4.45	NE	11.4	0.5	11.9		4.4	
AAQ5	4.66	ESE	11.9	0	11.9		0.0	
AAQ6	2.40	SSE	16.0	0	16		0.0	

The values of cumulative concentration i.e., background + incremental concentration of pollutant in all the receptor locations are still within the prescribed NAAQ limits without effective mitigation measures. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be controlled further.

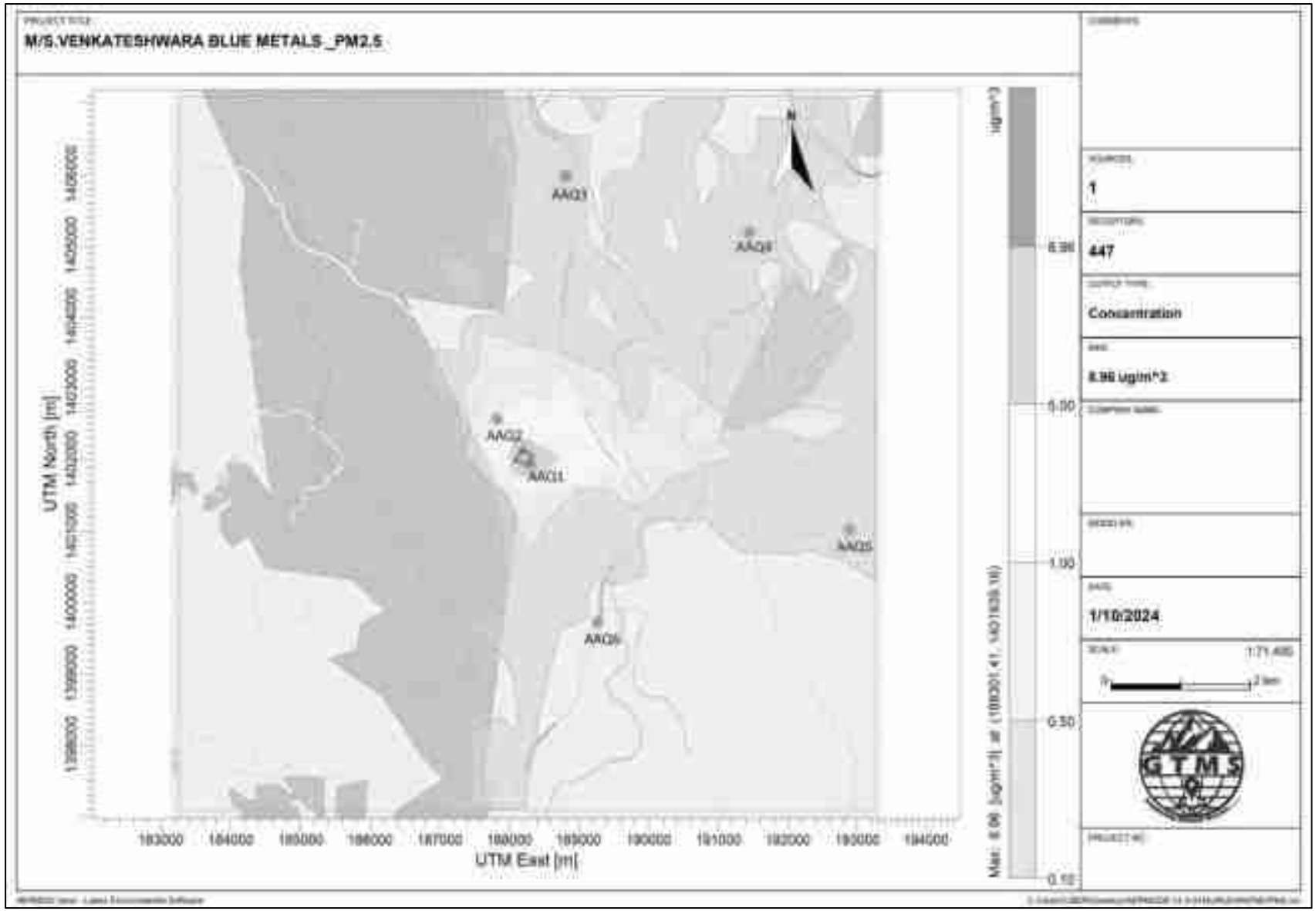


Figure 4.1 Predicted Incremental Concentration of $PM_{2.5}$

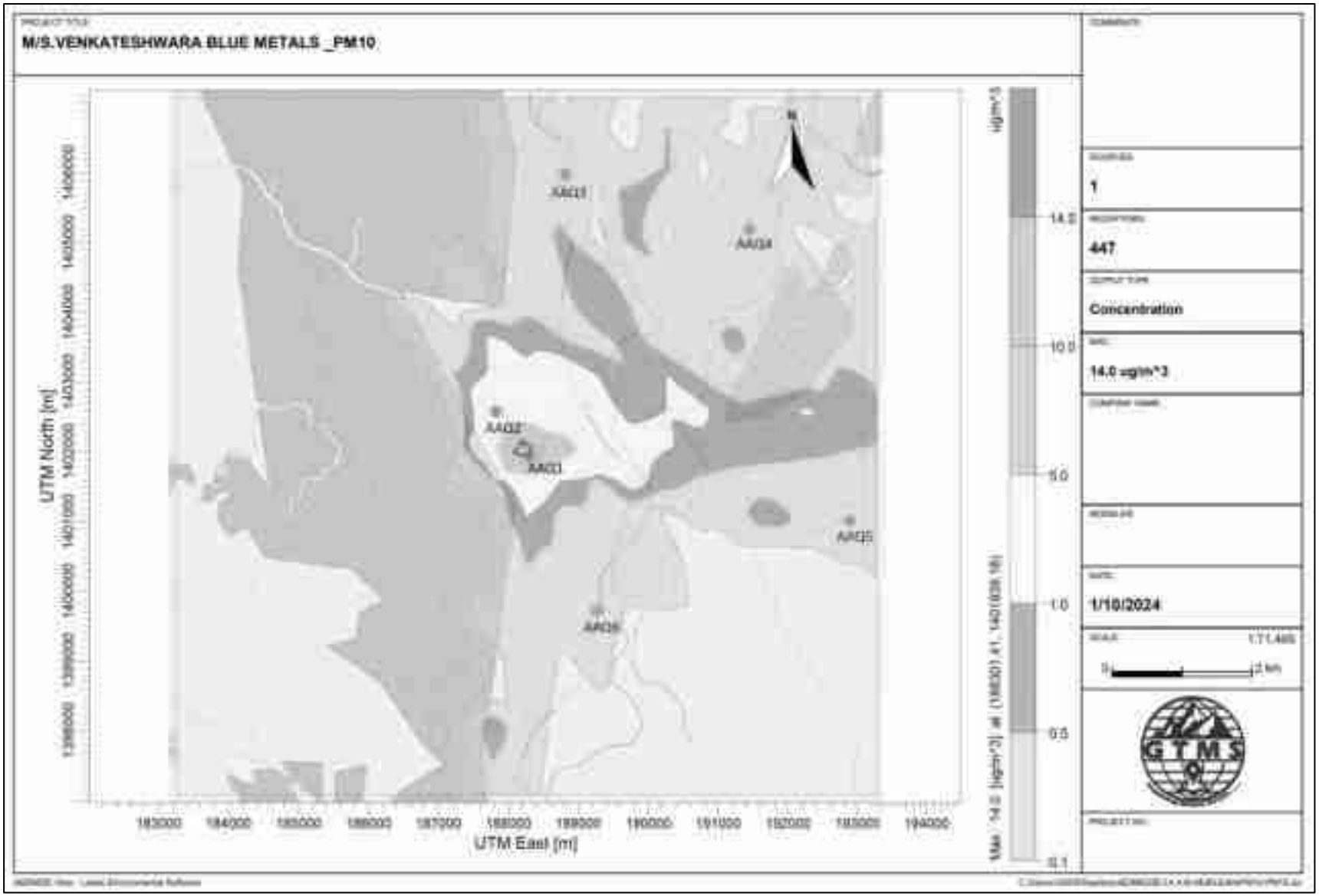


Figure 4.2 Predicted Incremental Concentration of PM_{10}

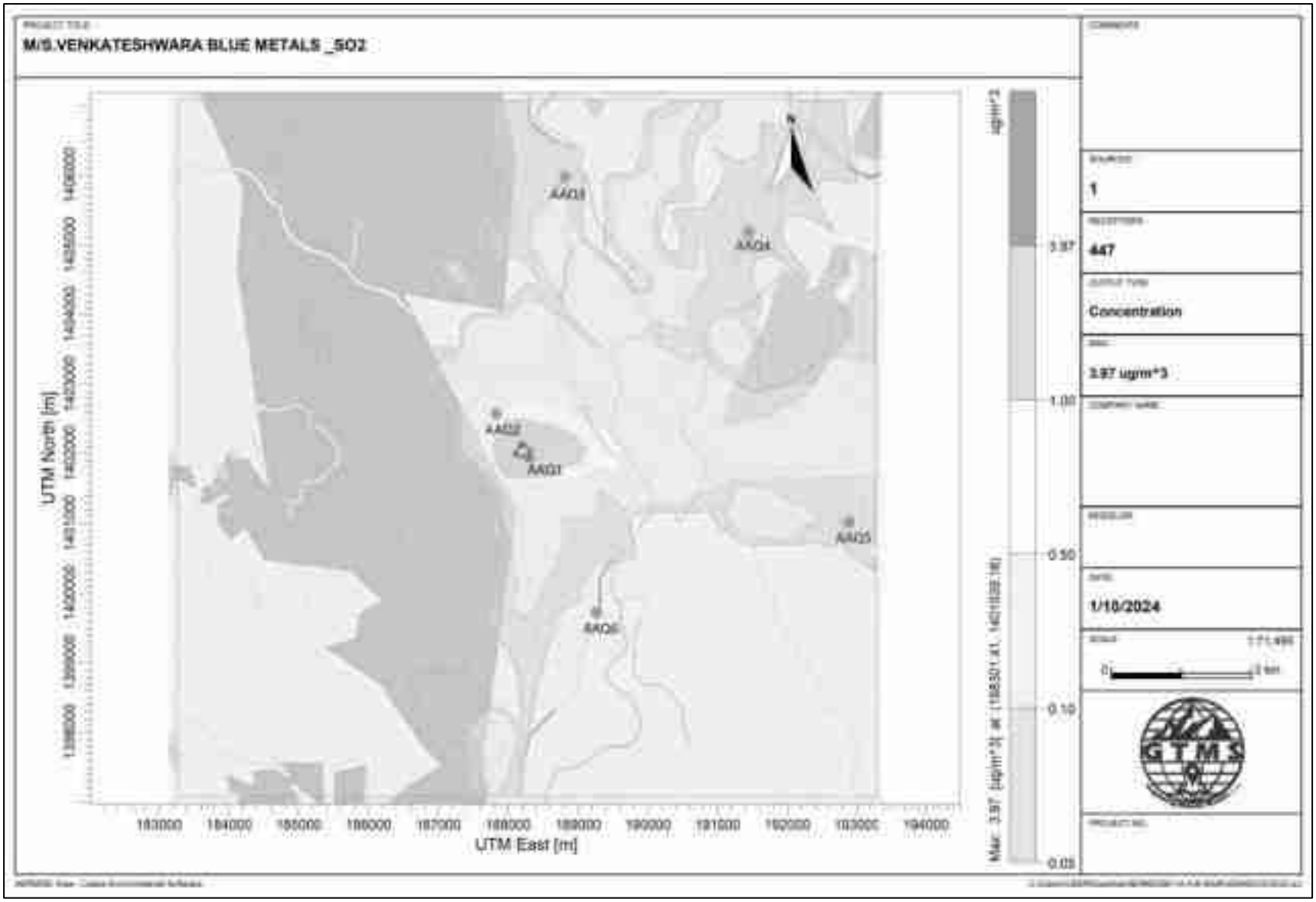


Figure 4.3 Predicted Incremental Concentration of SO_2

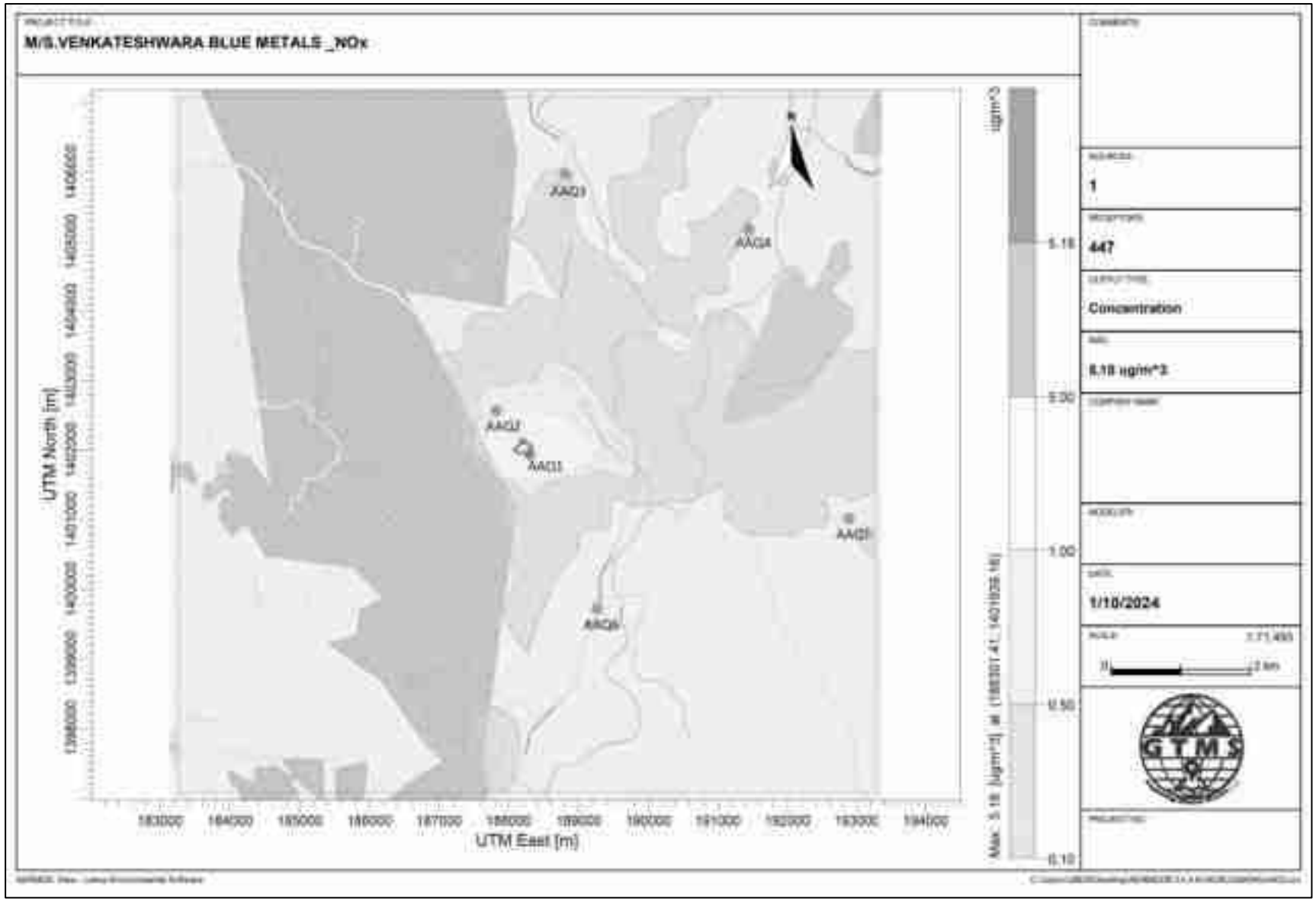


Figure 4.4 Predicted Incremental Concentration of NO_X

4.5 NOISE ENVIRONMENT

Noise modelling has been carried out to assess the impact on surrounding ambient noise levels. Basic phenomenon of the model is the geometric attenuation of sound. Noise at a point generates spherical waves which are propagated outwards from the source through the air at a speed of 1, 100 ft/sec with the first wave making an ever-increasing sphere with time. As the wave spreads the intensity of noise diminishes as the fixed amount of energy is spread over an increasing surface area of the sphere. The assumption of the model is based on point source relationship i.e., for every doubling of the distance the noise levels are decreased by 6 dB (A). For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using a mathematical model based on first principle.

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

Where, Lp_1 & Lp_2 are sound levels at points located at distances r_1 and r_2 from the source; $Ae_{1,2}$ is the excess attenuation due to environmental conditions. Combined effect of all sources can be determined at various locations by logarithmic addition.

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

4.5.1 Anticipated Impact

The attenuation due to several factors including ground reflection, atmosphere, wind speed, temperature, trees, and buildings as 35.5 dB (A), the barrier effect. 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, and attenuation factor. Source data has been computed taking into account of all the machinery and activities used in the mining process. Same has been listed in Table 4.7.

Table 4.7 Activity and Noise Level Produced by Machinery

S. No.	Machinery / activity	Impact on environment?	Noise produced in dB(A) at 50 ft from source*
1	Blasting	Yes	94
2	Jack hammer	Yes	88
3	Compressor	No	81
4	Excavator	No	85
5	Tipper	No	84
Total			**95.8**

The total noise to be produced by mining activity is calculated to be 95.8 dB (A). We have considered the total noise to be produced by mining activity to be 95.8 dB (A) for noise prediction modelling.

Table 4.8 Predicted Noise Incremental Values

Noise Monitoring Location	Distance From Project Site(m)	Baseline Noise Level (dBA)m During Day Time	Predicted Noise Level (dBA)	Total (dBA)
Core	100	46.7	43.96	48.55
Kondappanayanapalli	590	42.2	28.54	42.38
Kentarpalli	3910	44.8	12.12	44.80
Dasiripalli	4450	40.8	10.99	40.80
V.Madepalli	4670	41.2	10.57	41.20
Kuppachiparai	2430	49.6	16.25	49.60
NAAQ Standards	Industrial Day Time - 75 dB (A) & Night Time- 70 dB (A) Residential Day Time -55 dB (A) & Night Time- 45 dB (A)			

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. Therefore, no impact is anticipated on the noise environment due to the project.

4.5.2 Common Mitigation Measures

The following noise mitigation measures are proposed for control of noise:

- Usage of sharp drill bits while drilling which will help in reducing noise
- Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained
- The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise
- Silencers / mufflers will be installed in all machineries
- Greenbelt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise

- ❖ Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured though training and awareness
- ❖ Regular medical check–up and proper training to personnel to create awareness about adverse noise level effects

4.5.3 Ground Vibrations

The major source of ground vibration from the quarry is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kutcha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining lease area and may cause injury to persons or damage to the structures. The ground vibrations due to the blasting in the quarry are calculated using the empirical equation. The empirical equation for assessment of peak particle velocity (PPV) is given below:

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

Where,

V = peak particle velocity (mm/s), K = site and rock factor constant (500)

Q = maximum instantaneous charge (kg)

B = constant related to the rock and site (usually 1.6), R = distance from charge (m)

Table 4.9 Predicted PPV Values due to Blasting

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in mm/s	Fly rock distance in m	Air Blast	
					Pressure (kPa)	Sound Level (dB)
P1	86.90	590	0.65	19	0.33	144

Table 4.10 Predicted PPV Values due to Blasting at 100-500 m radius

Location ID	Maximum Charge in kgs	Radial Distance in m	PPV in mm/s	Fly rock distance in m	Air Blast	
					Pressure (kPa)	Sound Level (dB)
P1	86.90	100	11.22	19	2.79	163
		200	3.70		1.21	156
		300	1.93		0.75	151
		400	1.22		0.53	148
		500	0.85		0.40	146

The PPV results shows that the ground vibration is well below the permissible limits set by DGMS through circular 7,1997 for domestic houses near by the lease area at the dominant frequency of <8 Hz.

4.5.3.1 Common Mitigation Measures

- The blasting operations in the cluster quarries are carried out without deep hole drilling and blasting using delay detonators which reduce the ground vibrations
- Proper quantity of explosives, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting
- Adequate safe distance from blasting will be maintained as per DGMS guidelines
- Blasting shelter will be provided as per DGMS guidelines
- Blasting operations will be carried out only during day time
- The charge per delay will be minimized and preferably a greater number of delays will be used per blasts
- During blasting, other activities in the immediate vicinity will be temporarily stopped
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast
- A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed
- A set of shot firing rules will be drawn up and blasting shall commence outlining the detailed operating procedures that will be followed to ensure that shot firing operations on site take place without endangering the workforce or public
- Sufficient angular stemming material will be used to confine the explosive force and minimise environmental disturbance caused by venting / misfire
- The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used
- The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices.

4.6 ECOLOGY AND BIODIVERSITY

4.6.1 Impact on Ecology and Biodiversity

- During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly
- The Number of plants in the mining lease area is given in Chapter III Table 3.21 which vegetation in the lease area may be removed during mining.
- Carbon released from quarrying machineries and tippers during quarrying would be 10243 kg per day, 2765692 kg per year and 13828460 kg over five years, as provided in Table 4.11.

Table 4.11 Carbon Released During Five Years of Rough Stone and Gravel Production

	Per day	Per year	Per five years
Fuel consumption of excavator	726	195890	979450
Fuel consumption of compressor	86.8	23436	117180
Fuel consumption of tipper	3010	812649	4063243
Total fuel consumption in liters	3822	1031975	5159873
Co_2 emission in kg	10243	2765692	13828460

4.6.2 Mitigation Measures on Flora

- During conceptual stage, the top bench will be re-vegetated by planting local /native species and lower benches will be converted into rainwater harvesting structure following completion of mining activities, which will replace habitat resources for fauna species in this locality over a longer time.
- None of the plants in the lease area will be cut during operational phase of the mine. we recommend uprooting and planting of the 10 trees along the 7.5 m safety zone to prevent environmental pollution during quarrying. As the survival rate due to uprooting was only 30%, 100 seedlings will be procured at the rate of 10 seedlings per tree and planted in 7.5 m safety zone.
- Existing roads will be used; new roads will not be constructed to reduce impact on flora.
- To mitigate carbon emission due to mining activities, we recommend planting trees around the quarry to offset the carbon emission during quarrying. A tree can sequester 35964 kg of carbon per year. Therefore, we recommend 1500 planting large number of trees around the quarry and near school campuses, government wasteland, roadsides etc.
- As per the greenbelt development plan as recommended by SEAC (Table 4.13), about 1500 trees (Table 4.13) will be planted within three months from the beginning of mining. These trees, when grown up would sequester carbon of about 113739 kg of the total carbon, as provided in Table 4.12.

Table 4.12 CO_2 Sequestration

CO_2 sequestration in kg	133	35964	179820
Remaining CO_2 not sequestered in kg	10110	2729728	13648640
Trees required for environmental compensation	113739		
Area required for environmental compensation in hectares	227		

Table 4.13 Recommended Species for Greenbelt Development Plan

S. No	Botanical Name of the Plant	Family Name	Common Name	Category	Dust Capturing Efficiency Features
1	*Azadirachta indica*	Meliaceae	Neem, Vembu	Tree	Well distinct thick at both the layer Well distinct in Palisade & Spongy parenchyma. Spongy parenchyma is present at lower epidermis Many vascular bundles arranged almost parallel series
2	*Techtona grandis*	Lamiaceae	Teak	Tree	
3	*Polyalthia longifolia*	Annonaceae	Nettilingam	Tree	
4	*Albizia lebbeck*	Fabaceae	Vagai	Tree	
5	*Delonix regia*	Fabaceae	Cemmayir-konrai	Tree	
6	*Bauhinia racemose*	Fabaceae	Aathi	Tree	
7	*Cassia fistula*	Fabaceae	Sarakondrai	Tree	
8	*Aegle marmelos*	Rutaceae	Vilvam	Tree	
9	*Pongamia pinnata*	Fabaceae	Pungam	Tree	
10	*Thespesia populnea*	Malvaceae	Puvarasu	Tree	

Table 4.14 Greenbelt Development Plan

	No. of trees proposed for plantation	No. of trees expected to survive @ 80%	Area to be covered(m^2)
Plantation in the construction phase (3 months)	Number of plants inside the mine lease area		
	600	480	5400
	Number of plants outside the mine lease area		
	900	720	8100
Total	**1500**	**1200**	**13500**

Table 4.15 Budget for Greenbelt Development Plan

Activity	Plantation in the construction phase(3Months)	Cost	Capital Cost (Rs.)	Recuring Cost-per annum
Plantation inside the mine lease area (in safety margins)	600	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area	120000	18000

		and @ 30 per plant maintenance (recurring))"		
Plantation outside the area	900	Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	270000	27000
Total			**390000**	**45000**

4.6.3. Anticipated Impact on Fauna

- ❖ Direct impact is anticipated on fauna of core zone
- ❖ Insignificant impact is anticipated on fauna in the buffer area due to air emissions, noise, vibration, transportation, waste water discharges, and changes in land use

Mitigation Measures on Flora

- ❖ Fencing will be constructed around the proposed mine lease area to restrict the entry of stray animals
- ❖ The workers shall be trained not to harm any wildlife near the project site

4.6.4. Aquatic Biodiversity

Impact

- ❖ There is a small pond and lake within 1km around the quarry lease area and the dust generated during the quarrying may affect water bodies.
- ❖ Dust generated during quarrying can affect aquatic plants and animals in water bodies.

Mitigation Measures

- ❖ Planting trees around quarries prevents dust from escaping and prevents dust from spreading into water bodies. Aquatic plants and animals in water bodies are not affected.

4.6.5 Impact on agriculture and horticulture crops in 1km Radius

- ❖ Problems to agricultural and horticulture land due to dust caused by movement of heavy vehicles.
- ❖ Soil erosion and sediment deposition in the nearby water bodies due to earthworks during the rainy season.
- ❖ The fugitive dust released from the mining operations may cause effect on the agricultural and horticulture land who are directly exposed to the fugitive dust.
- ❖ Dust from the quarries is likely to affect reproductive systems in nearby agricultural and horticulture lands.
- ❖ Dust from quarries can affect plant growth and reduce vegetable yields.

4.6.6 Mitigation Measures on agriculture and horticulture crops.

- The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. In order to compensate the loss of vegetation cover, it is suggested to carry out afforestation program mainly inside and outside of the lease area in different phases.
- It is a granite quarry, no explosives are used, there is no possibility of vibration and dust, thus there is no possibility of damage to the adjacent agricultural land.
- Quarry approach roads are sprayed with water 3 times a day to control dust. Thus, the damage to the nearby farmlands is controlled.
- A green belt will be created in 7.5 safety zone around the quarry to contain the dust from the quarry and prevent the dust from spreading to the adjacent agricultural land.
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited to < 20 km/hr to avoid generation of dust.

4.7 SOCIO ECONOMIC ENVIRONMENT

4.7.1 Anticipated Impact from Proposed and Existing Projects

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

4.7.2 Common Mitigation Measures for Proposed Project

- Good maintenance practices will be adopted for all machinery and equipment, which will help to avert potential noise problems.
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines.
- Air pollution control measure will be taken to minimize the environmental impact within the core zone.
- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules.

- ❖ Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc.., from this project directly and indirectly.
- ❖ From above details, the quarry operations will have highly beneficial positive impact in the area

4.8 OCCUPATIONAL HEALTH AND SAFETY

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

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

4.8.1 Respiratory Hazards

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

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

4.8.2 Noise

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

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

4.8.3 Physical Hazards

The following measures are proposed for control of physical hazards

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

4.8.4 Occupational Health Survey

All the persons will undergo pre-employment and periodic medical examination. Employees will be monitored for occupational diseases by conducting the following tests: general physical tests, audiometric tests, full chest, X-ray, Lung function tests, spirometry tests, periodic medical examination – yearly, lung function test – yearly, those who are exposed to dust, and eye test

Essential medicines will be provided at the site. The medicines and other test facilities will be provided at free of cost. The first aid box will be made available at the mine for immediate treatment. First aid training will be imparted to the selected employees regularly. The lists of first aid trained members shall be displayed at strategic places.

4.9 Mine Waste Management

No waste is anticipated from any of the proposed quarries.

4.10 Mine Closure

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

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

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

4.10.1 Mine Closure Criteria

The criteria involved in mine closure are discussed below:

4.10.1.1 Physical Stability

All anthropogenic structures, which include mine workings, buildings, rest shelters etc., remaining after mine decommissioning should be physically stable. They should present no hazard

to public health and safety as a result of failure or physical deterioration and they should continue to perform the functions for which they were designed. The design periods and factors of safety proposed should take full account of extreme events such as floods, hurricane, winds or earthquakes, etc. and other natural perpetual forces like erosion, etc.,

4.10.1.2 Chemical Stability

The solid wastes on the mine site should be chemically stable. This means that the consequences of chemical changes or conditions leading to leaching of metals, salts or organic compounds should not endanger public health and safety nor result in the deterioration of environmental attributes. If the pollutant discharges likely to cause adverse impacts is predicted in advance, appropriate mitigation measures like settling of suspended solids or passive treatment to improve water quality as well as quantity, etc., could be planned. Monitoring should demonstrate that there is no adverse effect of pollutant concentrations exceeding the statutory limits for the water, soil and air qualities in the area around the closed mine.

4.10.1.3 Biological Stability

The stability of the surrounding environment is primarily dependent upon the physical and chemical characteristics of the site, whereas the biological stability of the mine site itself is closely related to rehabilitation and final land use. Nevertheless, biological stability can significantly influence physical or chemical stability by stabilizing soil cover, prevention of erosion/wash off, leaching, etc., A vegetation cover over the disturbed site is usually one of the main objectives of the rehabilitation programme, as vegetation cover is the best long-term method of stabilizing the site. When the major earthwork components of the rehabilitation programme have been completed, the process of establishing a stable vegetation community begins. For re-vegetation, management of soil nutrient levels is an important consideration. Additions of nutrients are useful under three situations.

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

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

CHAPTER V

ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 INTRODUCTION

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

5.1 FACTORS BEHIND THE SELECTION OF PROJECT SITE

The proposed project is site specific and has the following advantages:

- The mineral deposit occurs in a non-forest area.
- There is no habitation within the project area; hence no R & R issues exist.
- There is no river, stream, nallah and water bodies in the applied mine lease area.
- Availability of skilled, semi-skilled and unskilled workers in this region.
- All the basic amenities such as medical, firefighting, education, transportation, communication and infrastructural facilities are well connected and accessible.
- The mining operations will not intersect the ground water level. Hence, no impact on ground water environment.
- As the proposed project area falls in seismic zone II, there is no major history of landslides, earthquake, subsidence etc., recorded in the past history.

5.2 ANALYSIS OF ALTERNATIVE SITE

No alternatives are suggested as the mine site is mineral specific.

5.3 FACTORS BEHIND SELECTION OF PROPOSED TECHNOLOGY

Manual open cast mining method with secondary blasting will be applied to extract rough stone and in the area. The proposed mining lease areas have following advantages:

- As the mineral deposition is homogeneous and batholith formation, opencast method of working is preferred over underground method.
- The material will be loaded with the help of excavators into tractors/tippers and transported to the need by customers.
- Semi-skilled labours fit for quarrying operations are easily available around the nearby villages.

5.4 ANALYSIS OF ALTERNATIVE TECHNOLOGY

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

CHAPTER VI

ENVIRONMENTAL MONITORING PROGRAMME

6.0 GENERAL

The monitoring and evaluation of environmental parameters indicates potential changes occurring in the environment, which paves way for implementation of rectifying measures wherever required to maintain the status of the natural environment. Evaluation is also a very effective tool to judge the effectiveness or deficiency of the measures adopted and provides insight for future corrections. The main objective of environmental monitoring is to ensure that the obtained results in respect of environmental attributes and prevailing conditions during operation stage are in conformity with the prediction during the planning stage. In case of substantial deviation from the earlier prediction of results, this forms as base data to identify the cause and suggest remedial measures. Environmental monitoring is mandatory to meet compliance of statutory provisions under the Environment (Protection) Act, 1986, relevant conditions regarding monitoring covered under EC orders issued by the SEIAA-TN as well as the conditions set forth under the order issued by Tamil Nadu Pollution Control Board while granting CTE/CTO.

6.1 METHODOLOGY OF MONITORING MECHANISM

Implementation of EMP and periodic monitoring will be carried out by respective project proponents. A comprehensive monitoring mechanism has been devised for monitoring of impacts due to proposed project; Environmental protection measures like dust suppression, control of noise and blast vibrations, maintenance of machinery and vehicles, housekeeping in the mine premises, plantation, implementation of Environmental Management Plan and environmental clearance conditions will be monitored by the respective mine management. On the other hand, implementation of area level protection measures like green belt development, environmental quality monitoring etc., are taken up by a senior executive who reports to their Mine Management.

An Environment monitoring cell (EMC) will be constituted to monitor the implementation of EMP and other environmental protection measures in the proposed quarry. The responsibilities of this cell will be:

- Implementation of pollution control measures
- Monitoring programme implementation
- Post-plantation care
- To check the efficiency of pollution control measures taken
- Any other activity as may be related to environment

❖ Seeking expert's advice when needed.

The environmental monitoring cell will co-ordinate all monitoring programs at site and data thus generated will be regularly furnished to the State regulatory agencies as compliance status reports.

The sampling and analysis report of the monitored environmental attributes will be submitted to the Tamil Nadu Pollution Control Board (TNPCB) at a frequency of half-yearly and yearly by the proposed project proponent. The half-yearly reports are submitted to Ministry of Environment and Forest, Regional Office and SEIAA-TN as well.

The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board (CPCB)/Ministry of Environment, Forest and Climate Change (MoEF & CC). The Environmental Monitoring Cell will be formed for the proposed project. The structure of the cell will be as shown in Figure 6.1.

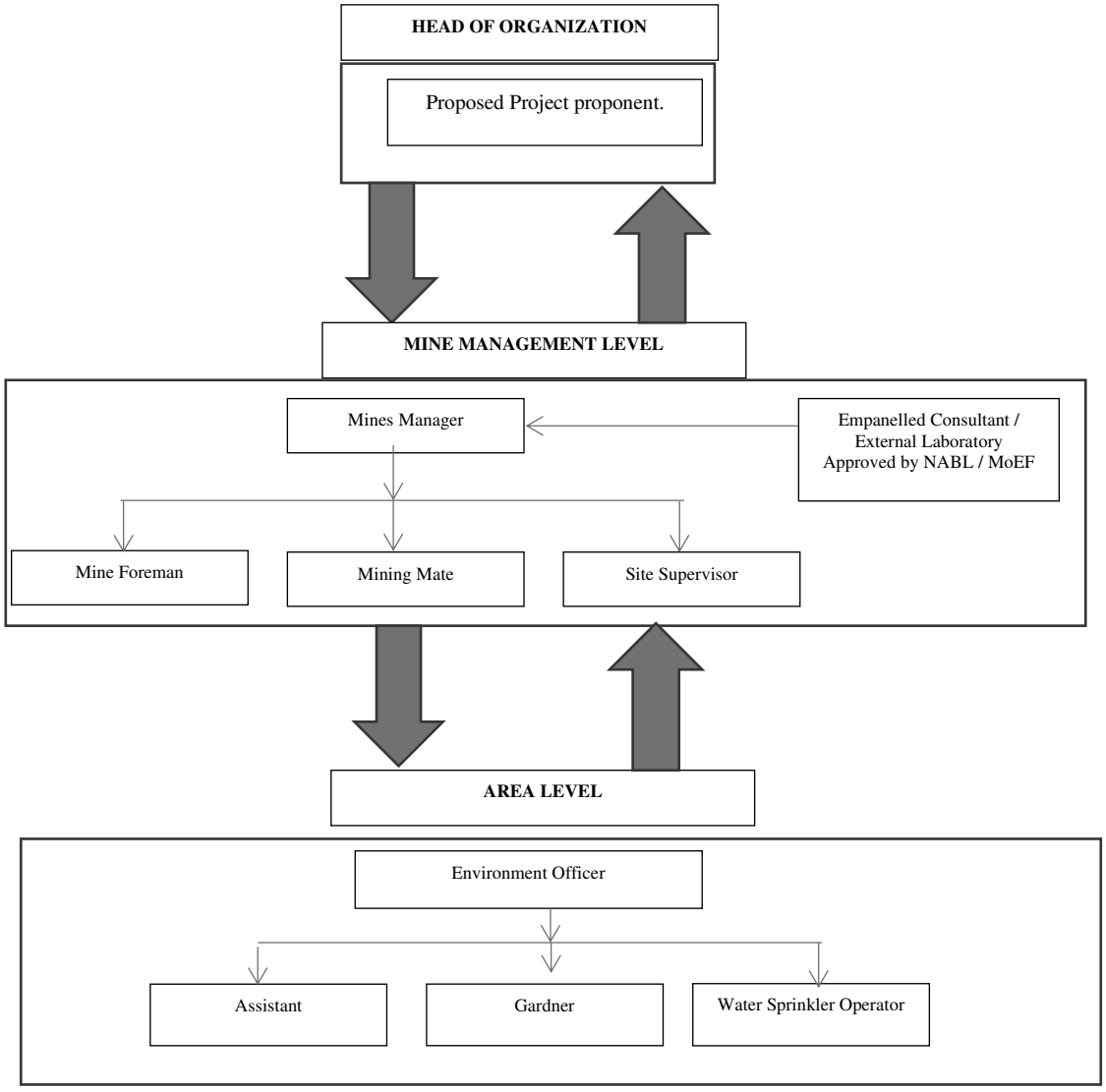


Figure 6.1 Proposed environmental monitoring chart

6.2 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

The mitigation measures proposed in chapter IV will be implemented so as to reduce the impact on the environment due to the operations of the proposed project. Implementation schedule of mitigation measures is given in Table 6.1.

Table 6.1 Implementation Schedule for Proposed Project

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

6.3 MONITORING SCHEDULE AND FREQUENCY

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

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

- ❖ Air quality
- ❖ Water and wastewater quality
- ❖ Noise levels

- ❖ Soil quality and
- ❖ Greenbelt development

The details of proposed monitoring schedule have been provided in Table 6.2.

Table 6.2 Proposed Monitoring Schedule Post EC for the Proposed Quarry

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, $PM_{2.5}$, PM_{10}, SO_2 and NO_x.
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in m BGL
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting operation	Peak particle velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and chemical characteristics
8	Greenbelt	Within the project area	Daily	Monthly	Maintenance

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

6.4 BUDGETARY PROVISION FOR ENVIRONMENT MONITORING PROGRAM

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

Table 6.3 Environment Monitoring Budget

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

Source: Field Data

6.5 REPORTING SCHEDULES OF MONITORED DATA

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

Periodical reports to be submitted to:

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

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

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

CHAPTER VII
ADDITIONAL STUDIES

7.0 GENERAL

Additional studies deal with:

- Public Consultation for Proposed Project
- Risk Assessment
- Disaster Management Plan
- Cumulative Impact Study

7.1 PUBLIC CONSULTATION FOR PROPOSED PROJECT

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

7.2 RISK ASSESSMENT FOR PROPOSED PROJECT

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

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

Table 7.1 Risk Assessment & Control Measures for Proposed Project

S. No.	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries.	Improper handling and unsafe working practice	✓ All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations. ✓ Workers will be sent to the Training in the nearby Group Vocational Training Centre Entry of unauthorized persons will be prohibited. ✓ Fire-fighting and first-aid provisions in the mine office complex and mining area. ✓ Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use. ✓ Working of quarry, as per approved plans and regularly updating the mine plans. ✓ Cleaning of mine faces on daily basis shall be daily done in order to avoid any overhang or undercut. ✓ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager. ✓ Maintenance and testing of all mining equipment as per manufacturer's guidelines.
2	Drilling	Improper and unsafe practices; Due to high pressure of compressed air, hoses may burst; Drill Rod may break;	✓ Safe operating procedure established for drilling (SOP) will be strictly followed. ✓ Only trained operators will be deployed. ✓ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places, ✓ Drilling shall not be carried on simultaneously on the benches at places directly one above the other. ✓ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. ✓ All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition. ✓ Operator shall regularly use all the personal protective equipment.

3	Transportation	Potential hazards and unsafe workings contributing to accident and injuries Overloading of material While reversal & overtaking of vehicle Operator of truck leaving his cabin when it is loaded.	✓ Before commencing work, drivers personally check the truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio-visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition. ✓ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. ✓ Concave mirrors should be kept at all corners ✓ All vehicles should be fitted with reverse horn with one spotter at every tipping point ✓ Loading according to the vehicle capacity ✓ Periodical maintenance of vehicles as per operator manual
4	Natural calamities	Unexpected happenings	✓ Escape Routes will be provided to prevent inundation of storm water ✓ Fire Extinguishers & Sand buckets
5	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	✓ Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m.

Source: Analysed and Proposed by FAE & EC

7.3 DISASTER MANAGEMENT PLAN FOR PROPOSED PROJECT

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

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

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

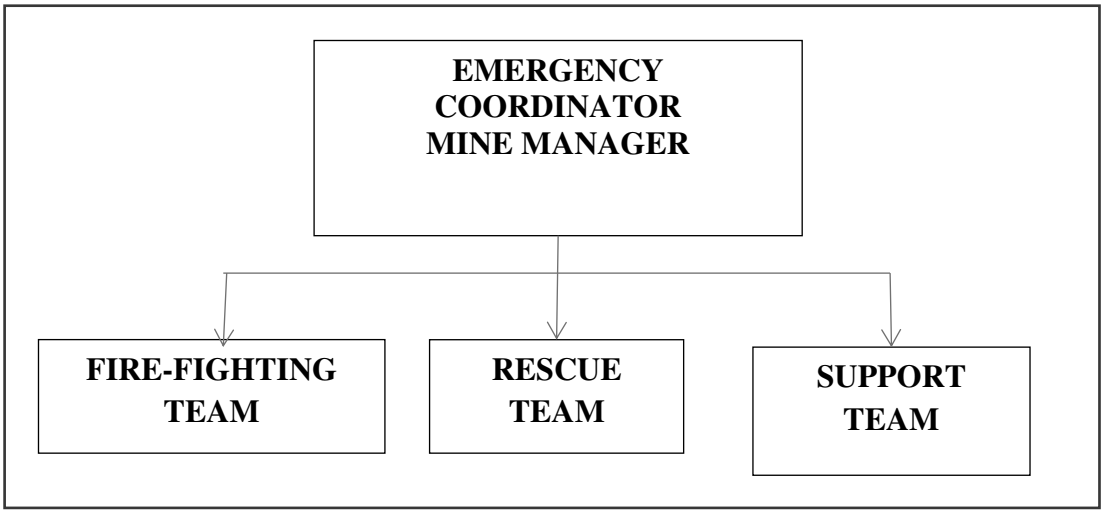


Figure 7.1 Disaster management team layout for proposed project

7.3.1 Emergency Control Procedure

The onset of emergency, will in all probability, commence with a major fire or explosion or collapse of wall along excavation and shall be detected by various safety devices and also by members of operational staff on duty. If located by a staff member on duty, he (as per site emergency procedure of which he is adequately briefed) will go to nearest alarm call point, break glass and trigger off the alarms. He will also try his best to inform about location and nature of accident to the emergency control room. In accordance with work emergency procedure the following key activities will immediately take place to interpret and take control of emergency.

- On site fire crew led by a fireman will arrive at the site of incident with fire foam tenders and necessary equipment.
- Emergency security controller will commence his role from main gate office
- Incident controller shall rush to the site of emergency and with the help of rescue team and will start handling the emergency.
- Site main controller will arrive at MECR with members of his advisory and communication team and will assume absolute control of the site.
- He will receive information continuously from incident controller and give decisions and directions to:
- Incident controller
- Mine control rooms
- Emergency security controller

7.4 CUMULATIVE IMPACT STUDY

The Cumulative Impact is mainly anticipated due to drilling & blasting and excavation and transportation activities in all the quarries within the cluster and major impact anticipated is on Air & Noise Environment and Ground Vibrations due to blasting. For this cumulative study, 2 proposed projects, known as P1, P2 are taken into consideration. The details of P1 have been given in Table 1.2 and the details of P2 is given in the Table 7.2.

Table 7.2 Salient Features of the Proposed Project P2

Name of the Quarry	M/s. Sri Venkateshwara Blue Metals	
Type of Land	Government Poramboke Land	
Extent	3.00.0 ha	
S.F. No	202/1 (Part-B)	
Toposheet No	57-L/02	
Highest Elevation	586 m AMSL	
Latitude	12°39'54.24"N to 12°39'59.98"N	
Longitude	78°07'40.49"E to 78°07'50.02"E	
Ultimate Pit Dimension	92m (14 AGL + 78m BGL)	
Geological Resources	Rough stone (m^3)	Top Soil (m^3)
	3244878	29232
Mineable Reserves	Rough stone (m^3)	Top Soil (m^3)
	1251803	24592
Proposed production for 5 years	Rough stone (m^3)	Top Soil (m^3)
	1133657	24592
Method of Mining	Open cast semi mechanized mining method	
Topography	Hill Terrain	
Machinery proposed	Jack hammer	6
	Excavator	1
	Compressor	1
	Tipper	3
Proposed Manpower Deployment	18	
Project Cost	Rs.82,30,000/-	
Proposed Water Requirement	3.5 KLD	

7.4.1 Air Environment

As the production of rough stone and gravel plays a vital role in affecting the air environment. The data on the cumulative production resulting from the 2 proposed project have been given in Tables 7.3 and 7.4.

Table 7.3 Cumulative Production Load of Rough Stone

Proposed Production Details				
Quarry	**5 Years in m^3**	**Per Year in m^3**	**Per Day in m^3**	**Number of Lorry Load Per Day**
P1	1218973	243795	902	150
P2	1133657	2267314	840	140
Grand Total	**2352630**	**2511109**	**1742**	**290**

The cumulative study shows that the overall production of rough stone from the quarry is 1742 m^3 per day with a capacity of 290 trips of rough stone per day.

7.4.1.1 Cumulative Impact of Air Pollutants

The results on the cumulative impact of the 2 proposed projects on air environment of the cluster have been provided in Table 7.4. The cumulative values resulting from the 2 projects for each pollutant do not exceed the permissible limits set by CPCB.

Table 7.4 Cumulative Impact Results from the 2 proposed projects

Pollutants	**Baseline Data ($\mu g/m^3$)**	**Incremental Values ($\mu g/m^3$)**		**Cumulative Value ($\mu g/m^3$)**
		P1	**P2**	
$PM_{2.5}$	17.7	8.96	8.33	34.99
PM_{10}	40.7	14	13.02	67.72
SO_2	4.1	3.97	3.69	11.76
NO_x	13.0	5.18	4.82	23

7.4.2 Noise Environment

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

Table.7.5 Cumulative Impact of Noise from 2 Proposed Quarries

Location ID	Distance (m)	Direction	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near P1	590	NW	42.2	28.54	42.38	**55**
Habitation Near P2	660	NW	42.2	27.57	42.35	
Cumulative Noise (dB (A))					45.38	

Source: Lab Monitoring Data

The cumulative analysis of noise due to 2 proposed projects shows that habitation will receive about 45.38dB (A) respectively. The cumulative results for all the villages in consideration do not exceed the limit set by CPCB for residential areas for day time.

Ground Vibrations

Cumulative results of ground vibrations due to mining activities in the all the 2 quarries have been shown in Table 7.6.

Table 7.6 Cumulative Effect of Ground Vibrations Resulting from 2 Proposed Quarries

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in mm/s
P1	86.90	590	0.65
P2	80.80	660	0.52
Total			**1.17**

Results from the above tables 7.8 indicate that the cumulative PPV value of each habitation is well below the peak particle velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997.

7.4.3 Socio Economic Environment

Socio Economic benefits of the proposed project were calculated and the results have been shown in Table 7.7 the project together will contribute Rs. 10,00,000/-towards CER fund.

Table 7.7 Socio Economic Benefits from 2 Mines

Location ID	Project Cost	CER Cost
P1	Rs. 89,30,000	Rs. 5,00,000
P2	Rs. 82,30,000	Rs. 5,00,000
Grand Total	**Rs.1,71,60,000**	**Rs. 10,00,000**

Table 7.8 Employment Benefits from 2 Mines

Location ID	Employment
P1	18
P2	18
Grand Total	**36**

A total of 36 people will get employment due to 2 proposed mines in cluster

7.4.4 Ecological Environment

Table 7.9 Greenbelt Development Benefits from Mine

Code	Number of Trees proposed	Area to be covered (m^2)	No. of Trees expected to be grown @ 80% survival rate	Species recommended
P1	1500	13500	1200	*Azadirachta indica, Albizia lebbeck, Delonix regia, Techtona grandis,* etc.,
P2	1500	13500	1200	
Total	**3000**	**27000**	**2400**	

Cumulative studies show that the proposed project will plant about 3000 native tree species like *Azadirachta indica*, *Albizia lebbeck*, *Delonix regia*, *Techtona grandis,* etc inside and outside the lease area. It is expected that 80 % of trees, i.e., 2400 trees will survive in this green belt development program.

7.5 PLASTIC WASTE MANAGEMENT PLAN FOR PROPOSED PROJECT

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

7.5.1 Objective

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

A detailed action plan to manage plastic waste has been provided in Table 7.10.

Table 7.10 Action Plan to Manage Plastic Waste

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

Source: Proposed by FAEs and EC

CHAPTER VIII
PROJECT BENEFITS

8.0 GENERAL

The proposed project at Kondappanayanapalli Village, aims to produce **1218973 m^3** of rough stone over a period of 5 years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits:

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

8.1 EMPLOYMENT POTENTIAL

It is proposed to provide employment to about 18 persons for carrying out mining operations and give preference to the local people in providing employment in this cluster. In addition, there will be an opportunity for indirect employment to the form of contractual jobs, business opportunities, and service facilities etc. Because of this, the economic status of the local people will improve.

8.2 SOCIO-ECONOMIC WELFARE MEASURES PROPOSED

The impact of mining activity in the area will be more positive on the socio-economic environment in the immediate project impact area. The employment opportunities both direct and indirect will contribute to enhanced money incomes to job seekers with minimal skill sets especially among the local communities.

8.3 IMPROVEMENT IN PHYSICAL INFRASTRUCTURE

The proposed quarry project is located in Kondappanayanapalli Village, Krishnagiri Taluk, Krishnagiri District and Tamil Nadu. The area has already well-established communications roads and other facilities. The following physical infrastructure facilities will further improve due to proposed project.

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

8.4 IMPROVEMENT IN SOCIAL INFRASTRUCTURE

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

8.5 OTHER TANGIBLE BENEFITS

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

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

8.6 CORPORATE SOCIAL RESPONSIBILITY

Individual project proponents will take responsibility to develop awareness among all levels of their staff about CSR activities and the integration of social processes with business processes. Those involved with the undertaking of CSR activities will be provided with adequate training and re-orientation.

Under this programme, the project proponents will take-up following programmes for social and economic development of villages within 5 km of the project site. For this purpose, separate budget will be provided every year. For finalization of these schemes, proponent will interact with LSG. The schemes will be selected from the following broad areas –

- Health Services
- Social Development
- Infrastructure Development
- Education & Sports
- Self-Employment
- CSR Cost Estimation

- ❖ CSR activities mainly contributing to education, health, training of women self-help groups and infrastructure etc., will be taken up in the Kondappanayanapalli Village. CSR budget is allocated.

8.7 CORPORATE ENVIRONMENT RESPONSIBILITY

Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III dated 01.05.2018. As per para 6 (II) of the office memorandum, being a green field project & capital investment is ≤ 100 crores, the proposed project shall contribute 2% of capital investment towards CER as per directions of EAC/SEAC. However, the SEAC has suggested to allocate CER fund on the basis of the extent of the project. Therefore, Rs. 5,00,000 is allocated for CER. The proposed utilization of the budget of CER activities is given in Table 8.1.

Table 8.1 CER Action Plan

S. No.	Activity	Budget (Rs.in Lakh)
1	The applicant Indents to involve in corporate environment responsibilities (CER) activities such as renovation of existing toilet, plantation within the school premises, donating environment related books to the nearby school library, etc.	Rs.5,00,000
	Total	**Rs.5,00,000**

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

8.8 SUMMARY OF PROJECT BENEFITS

The project would pay about **Rs.13,21,49,084** to the state government through various ways, as provided in Table 8.2.

Table 8.2 Project Benefits to the State Government

Particulars	Budget for Rough Stone (Rs.)
CER	5,00,000
Seigniorage @ Rs.90/m^3 of rough stone	10,97,07,570
District Mineral Foundation Tax @ 10% of Seigniorage	1,09,70,757
Green Tax @ 10% of Seigniorage	1,09,70,757
Total	**13,21,49,084**

CHAPTER IX

ENVIRONMENTAL COST BENEFIT ANALYSIS

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

CHAPTER X

ENVIRONMENTAL MANAGEMENT PLAN

10.0 GENERAL

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of environmental management plan will ensure to keep all the environmental parameters of the project in respect of ambient air quality, water quality, socio economic improvement standards. Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

10.1 ENVIRONMENTAL POLICY

The project proponent is committed to conduct all its operations and activities in an environmentally responsible manner and to continually improve environmental performance. The Proponent M/s. Sri Venkateshwara Blue Metals will:

- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities.
- Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities.
- Allocate necessary resources to ensure the implementation of the environmental policy.
- Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts.
- Implement monitoring programs to provide early warning of any deficiency or unanticipated performance in environmental safeguards.
- Conduct periodic reviews to verify environmental performance and to continuously strive towards improvement.

10.1.1 Description of the Administration and Technical Setup

The environment monitoring cell discussed under chapter VI will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through mine management level of each proposed quarry. The said team will be responsible for:

- Monitoring of the water/ waste water quality, air quality and solid waste generated.
- Analysis of the water and air samples collected through external laboratory.

- ❖ Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.
- ❖ Co-ordination of the environment related activities within the project as well as with outside agencies.
- ❖ Collection of health statistics of the workers and population of the surrounding villages.
- ❖ Green belt development.
- ❖ Monitoring the progress of implementation of the environmental monitoring program.
- ❖ Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10.2 Budgetary Provision for Environmental Management

Adequate budgetary provision has been made by the company for execution of Environmental Management Plan. The Table 10.1 gives overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures.

Table 10.1 EMP Budget for Proposed Project

Attribute	Mitigation measures	Provision for Implementation	Capital Cost	Recurring Cost/annum
			(Rs.)	(Rs.)
Air Environment	Compaction, gradation and drainage on both sides	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare and yearly maintenance @ Rs. 10,000/- per hectare	30000	30000
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed sprinkler installation and new water tanker cost for capital; and water sprinkling (thrice a day) cost for recurring	800000	50000
	Air quality will be regularly monitored as per norms within ML area & ambient area	Yearly compliance as per CPCB norms	0	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000

	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance	150000	15000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin to avoid escape of fines to the atmosphere	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per tipper/dumper deployed	15000	0
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes	0	3750
	Regular sweeping and maintenance of roads for at least about 200 m from quarry entrance	Provision for 2 labours @ Rs.10,000/labour (Contractual) / hectare	0	60000
	Installing wheel wash system near exit gate of quarry	Installation + Maintenance + Supervision	50000	20000
Total Air Environment			**1045000**	**248750**
Noise Environment	Source of noise will be transportation vehicles, and HEMM. For this, proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done.	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles	Provision made in Operating Cost	0	0

	carry a fitness certificate.			
	Safety tools and implementations that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 tons of blasted material	0	3413124
Total Noise Environment			**50000**	**3415124**
Water Environment	Water Management	Provision for garland drain @ Rs. 10,000/- per hectare with maintenance of Rs. 5,000/- per annum (4.82.7 ha X 10000)	30000	15000
Total Water Environment			**30000**	**15000**
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency (capital cost, recurring cost for collection /disposal).	25000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine	Provision made in Operating Cost	0	0

	lease on the land of owner itself			
Total Waste Management			**30000**	**22000**
Implementation of EC, Mining Plan & DGMS Condition	Size 6’ X 5’ with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed display board at the quarry entrance as permanent structure	10000	1000
Total Implementation of EC, Mining Plan			**10000**	**1000**
Occupational Health and Safety	Workers will be provided with Personal Protective Equipment	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee)	72000	18000
	Health checkup for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	18000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	12000
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum (4.82.7 hectare)	600000	30000
	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	150000	30000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000

	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1st Class / 2nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
Total Occupational Health and Safety			**862000**	**895000**
Development of Green Belt	Green belt development - 500 trees per hectare (200 Inside Lease Area & 300 Outside Lease Area)	Site clearance, preparation of land, digging of pits /trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring))"	120000	18000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	270000	27000
Total Development of Green Belt			**390000**	**45000**
Mine Closure	Closure includes 10% of the amount allotted for Greenbelt development, wire fencing, and garland drainage (Rule 27 in MCDR 2017 for Cat B mines will pay 2 lakhs per hectare or minimum amount of financial assurance of 5 lakhs)		0	102000
	G.O.(Ms)No.23, Dated: 28.09.2021	Section IVA of TNMMCR 1959 (@10% of Seigniorage Fee) (Seigniorage Fee for Roughstone = Rs.90)	10970757	0
Total Seigniorage Fee			**10970757**	**0**
TOTAL			**13387757**	**4641874 (Excl. Mine Closure)**

Table 10.2 Estimation of Overall EMP Budget after Adjusting 5% Annual Inflation

Ist Year	IInd Year	IIIrd Year	IVth Year	Vth Year (including Mine Closure Cost)	Total Recurring Cost	Total EMP Cost
4641874	4873968	5117667	5373550	5744227	25751286	39139043

In order to implement the environmental protection measures, an amount of **Rs.13387757** as capital cost and recurring cost as **Rs.4641874** as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the overall EMP cost for 5 years will be **Rs.39139043** as shown in Table 10.2.

10.3 CONCLUSION

Various aspects of mining activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review. Senior Management responsible for the project will conduct a review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

CHAPTER XI
SUMMARY AND CONCLUSION

11.1 INTRODUCTION

As the proposed rough stone mining project (P1) falls within the quarry cluster of 500 m radius with the total extent of 6.00.0 ha, it requires submission of EIA report for grant of Environmental Clearance (EC) after conducting public hearing. The proposed project falling in S.F.No.202/1 (Part-A) over the extent of 3.00.0 ha is situated in the cluster falling in Kondappanayanapalli Village, Krishnagiri Taluk, Krishnagiri District and Tamil Nadu. The quarries involved in the calculation of cluster extent are three proposed quarries, one existing quarries, and the one expired quarry.

11.2 PROJECT DESCRIPTION

The proposed project area is located between Latitudes from 12°39'58.32"N to 12°40'05.09"N and Longitudes from 78°07'42.23"E to 78°07'50.93"E in Kondappanayanapalli Village, Krishnagiri Taluk, Krishnagiri District and Tamil Nadu. According to the approved mining plan, about 1218973 m^3 of rough stone will be mined up to the ultimate depth of 92 m (8 AGL + 84m BGL) in the five years. The quarrying operation is proposed to be carried out by opencast semi mechanized mining method involving drilling, blasting, and formation of benches of the prescribed dimensions.

11.3 DESCRIPTION OF THE ENVIRONMENT

Baseline data were collected to evaluate the existing environmental condition in the core and buffer areas during October to December, 2023 as per CPCB guidelines. The data were collected by both the FAEs and NABL accredited and MoEF notified Excellence Laboratory for the environmental attributes including soil, water, noise, air and by FAEs for ecology and biodiversity, traffic, and socio-economy.

11.3.1 Land Environment

Land use pattern of the area of 5 km radius was studied using Sentinel II imagery. LULC types and their extent are given in Table 1.

Table.1 LULC Statistics of the Study Area

S. No.	Classification	Area (ha)	Area (%)
1	Crop land	1452.25	18.98
2	Dense Forest	451.66	5.90
3	Fallow land	345.75	4.52
4	Land with or without scrub	4309.69	56.33
5	Mining / Industrial wastelands	10.96	0.14
6	Plantations	973.05	12.72
7	Settlement	19.26	0.25
8	Water bodies	87.54	1.14
Total		**7650.16**	**100.0**

Source: Sentinel II Satellite Imagery

11.3.2 Soil Environment

The soil samples in the study area show loamy textures varying between silty clay loam, sandy loam and Clay Loam. pH of the soil varies from 6.8 to 7.9 indicating slightly acidic and alkaline nature. Electrical conductivity of the soil varies from 225 to 263 µs/cm. Bulk density ranges between 1.15 and 1.65 g/cm^3. Potassium ranges between 15.34 and 32.8 mg kg^{-1}. Calcium ranges between 118 and 167 mg kg^{-1}. Organic Matter ranges between 1.25 and 1.63 %. Chlorides ranges between 136 and 149 mg kg^{-1} soil.

11.3.3 Water Environment

Markanda River, Kondapanayanapalli Lake and Dasiripalli lake are the three prominent surface water resources present in the study area. The proposed project area is located 1.20 km NE of the lake Markanda River, 0.04 km E of the Kondapanayanapalli Lake and 4.07 km NE Dasiripalli lake as shown in Table 3.5 and Figure 3.4. Totally, three surface water samples, known as SW1, SW2 and SW3 were collected from the river and lakes to assess the baseline water quality. Four groundwater samples, known as BW1, BW2, BW3 and OW1 were collected from bore wells and open well were analysed for physico-chemical conditions and bacteriological contents in order to assess baseline quality of ground water. Result for surface water sample in the Table 3.6 indicate that the physical, chemical and biological parameters are within permissible limits in comparison with standards of IS10500:2012.

Data regarding depth to groundwater levels are essential to infer the direction of groundwater movement within the study area. Knowledge of groundwater flow direction is must in choosing location for background groundwater quality monitoring well and in

locating recharge and discharge areas. Therefore, data regarding groundwater elevations were collected from 9 open wells and 9 bore wells at various locations within 2 km radius around the proposed project sites for the period from March through May 2023 (Pre-Monsoon Season) and from October through December, 2023 (Post Monsoon Season). According to the data, average depths to the static water table in open wells range from 21.80 to 24.57 m BGL in pre monsoon and 17.92-18.90 m BGL in post monsoon.

11.3.4 Air Environment

As per the monitoring data, $PM_{2.5}$ ranges from 16.6 µg/m^3 to 18.4 µg/m^3, PM_{10} from 38.8 µg/m^3 to 43.1µg/m^3, SO_2 from 3.4 µg/m^3 to 4.9 µg/m^3, NO_X from 10.9µg/m^3 to 15.7g/m^3. The concentration levels of the pollutants fall within the acceptable limits of NAAQS prescribed by CPCB.

Air quality Index (AQI)

The AQI shows that the air quality of the study area falls within good category 41causing minimal impact to human health.

11.3.5 Noise Environment

Noise level in core zone was 46.7 dB (A) Leq during day time and 38.8dB(A) Leq during night time. Noise levels recorded in buffer zone during day time varied from 40.8 to 49.6dB (A) Leq and during night time from 35.4 to 40.80dB (A) Leq. Thus, the noise level for industrial and residential area meets the requirements of CPCB

11.3.6 Biological Environment

The study found that there is no endemic, endangered migratory fauna found in the area. This area is not also a migratory path of any faunal species. Hence, this small mining operation over short period of time will not have any significant impact on the surrounding flora and fauna.

Flora in mine lease area (core zone)

Taxonomically 17 species belonging to 13 families have been recorded from the core mining lease area. Based on habitat classification of the enumerated plants the majority of species were 3 Tree followed by Herbs & Climbers & Grass 8, Shrubs 6. Details of flora with the scientific name were mentioned in Table.3.21-3.23.

Flora in 300 m radius buffer zone

Taxonomically 39 species belonging to 25 families have been recorded from the 300 m radius buffer zone. Based on habitat classification of the enumerated plants the majority of species were seven Tree 11 followed by Herbs & Climbers & Grass 21, Shrubs 7. Details of flora with the scientific name and species richness index were mentioned in Table.3.24-3.25.

Flora in 10 km radius buffer zone

Similar type of environment also in buffer area but with more flora diversity compare than core zone area, because of nearby agriculture land was found to be dominate in all the directions. Majority of the flat landscape around project unit is occupied by agriculture fields. It contains a total of 89 species belonging to 43 families have been recorded from the buffer zone. The floral (89) varieties among them Trees 37 (42%) Shrubs 13 (14%) and Herbs & Climbers & Creeper & Cactus 39 (44%). Details of flora with the scientific name were mentioned in Table.3.26

Fauna in Core Zone

A total of 26 varieties of species were observed in the Core zone (Table.3.28). Among them are 8 Insects, 5 Reptiles, 4 Mammals and 9 Avian. A total of 26 species belonging to 20 families were recorded from the core area. The study shows that number of species decreases towards the mining area. This might be due the lack of vegetation. None of these species in the core zone are threatened or endemic. The survey was conducted to identify species listed in IUCN Red List. According to the field data, any species are not of Schedule I and nine species are of schedule IV. There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna in core zone with the scientific name were mentioned in Table 3.29.

11.3.7 Socio Economic Environment

The proposed project will provide direct and indirect employment and improve the infrastructural facilities in that area, thus leading to the improvement of people's standard of living.

11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

11.4.1 Land Environment

Anticipated Impact

- Change in land use and land cover and topography of the mine lease area
- Problems to human habitations due to dust and noise caused by movement of heavy vehicles
- Soil erosion and sediment deposition in the nearby water bodies during the rainy season
- Siltation of water course due to wash off from the exposed working area
- Deterioration of soil quality in the surrounding area due to runoff from the project area
- Decrease in the agricultural productivity of the surrounding land due to soil quality degradation

Mitigation Measures

- Construction of garland drains, settling pits, and check dams to prevent runoff and siltation
- Runoff water will be discharged into the settling tanks to reduce suspended sediment loads before runoff is discharged from the quarry site
- The vegetation will be retained at the site wherever possible
- Weekly monitoring and daily maintenance of erosion control systems so that they perform as specified specially during rainy season

11.4.2 Water Environment

Anticipated Impact

- Surface and ground water resources may be contaminated due to pit water discharge, domestic sewage, discharge of oil and grease bearing waste water from washing of vehicles and machineries, and washouts from surface exposure or working areas
- As the proposed project acquires 4.0 KLD of water from water vendors, it will not extract water by developing abstraction structures in the lease area. Therefore, the project will not have impact on depletion of aquifer beneath the lease area.

Mitigation Measures

- Rain water from mine pit will be treated in settling tanks before being used for dust suppression and tree plantation purposes
- Domestic sewage from site office will be discharged in septic tank and then directed to soak pits
- Water from the tipper wash-down facility and machinery maintenance yard will be passed through interceptor traps/oil separators prior to its reuse
- The garland drainage will be connected to settling tank and sediments will be trapped in the settling tanks and only clear water will be discharged to the natural drainage
- Periodic (every 6 month once) analysis of ground water quality of quarry pit water and ground water of nearby villages will be conducted
- Artificial recharge structures will be established in suitable locations as part of the rainwater harvesting management program.

11.4.3 AIR ENVIRONMENT

Anticipated Impact

Anticipated increase of the air pollutants due to quarrying activities have been predicted using AERMOD software. The values of cumulative concentration i.e., background

+ incremental concentration of pollutant in all the receptor locations are still within the prescribed NAAQ limits without effective mitigation measures. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be controlled further

Mitigation Measures

- 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
- Controlled blasting will be carried out using suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone
- Blasting will be restricted to a particular time of the day i.e., at the time of lunch hours
- Before loading of material water will be sprayed on blasted material
- Dust mask will be provided to the workers and their use will be strictly monitored
- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited to < 20 km/hr to avoid generation of dust
- The un-metaled haul roads will be compacted weekly before being put into use
- It will be ensured that all transportation vehicles carry a valid PUC certificate
- Haul roads and service roads will be graded to clear accumulation of loose materials
- Planting of trees all along main mine haul roads and around the project site will be practiced to prevent the generation of dust
- Dust mask will be provided to the workers and their use will be strictly monitored

11.4.4 Noise Environment

Anticipated Impact

Total noise level in all the sampling areas is well below the CPCB standards for industrial and residential areas. The peak particle velocity produced by the charge of 86.90kg is well below that of 0.3 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997.

Mitigation Measures

- The blasting operations in the cluster quarries will use shallow holes and delay detonators to reduce the ground vibrations

- Proper quantity of explosives, suitable stemming materials and appropriate delay system will be used during 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
- 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
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices.

11.4.5 Biological Environment

Impact on Ecology and Biodiversity

- During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly
- The Number of plants in the mining lease area is given in chapter 3 table 3.21 which vegetation in the lease area may be removed during mining.
- Carbon released from quarrying machineries and tippers during quarrying would be 10243 kg per day, 2765692 kg per year and 13828460 kg over five years.

Mitigation Measures on Flora

- During conceptual stage, the top bench will be re-vegetated by planting local /native species and lower benches will be converted into rainwater harvesting structure

following completion of mining activities, which will replace habitat resources for fauna species in this locality over a longer time.

- None of the plants in the lease area will be cut during operational phase of the mine. we recommend uprooting and planting of the 10 trees along the 7.5 m safety zone to prevent environmental pollution during quarrying. As the survival rate due to uprooting was only 30%, 100 seedlings will be procured at the rate of 10 seedlings per tree and planted in 7.5 m safety zone.
- Existing roads will be used; new roads will not be constructed to reduce impact on flora.
- To mitigate carbon emission due to mining activities, we recommend planting trees around the quarry to offset the carbon emission during quarrying. A tree can sequester 35964 kg of carbon per year. Therefore, we recommend 1500 planting large number of trees around the quarry and near school campuses, government wasteland, roadsides etc.
- As per the greenbelt development plan as recommended by SEAC (Table 4.12), about 1500 trees (Table 4.13) will be planted within three months from the beginning of mining. These trees, when grown up would sequester carbon of about 113739 kg of the total carbon.

Anticipated Impact on Fauna

- Direct impact is anticipated on fauna of core zone
- Insignificant impact is anticipated on fauna in the buffer area due to air emissions, noise, vibration, transportation, waste water discharges, and changes in land use

Mitigation Measures on Flora

- Fencing will be constructed around the proposed mine lease area to restrict the entry of stray animals
- The workers shall be trained not to harm any wildlife near the project site

11.4.6 Socio Economic Environment

An essential part of environmental study is socio-economic environment incorporating various facts related to socio-economic conditions in the area, which deals with the total environment. Socio economic study includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature of aesthetic significance such as temples, historical monuments etc. at the baseline level. This would help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project. Socio-economic study of an area

provides a good opportunity to assess the socio -economic condition and possibly makes a change in living and social standards of the particular area benefitted due to the project.

11.4.7 Occupational Health

- All the persons will undergo pre-employment and periodic medical examination
- Employees will be monitored for occupational diseases by conducting medical tests: General physical tests, Audiometric tests, Full chest, X-ray, Lung function tests, Spiro metric tests, Periodic medical examination – yearly, Lung function test – yearly, those who are exposed to dust and 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.

11.5 Environment Monitoring Program

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, $PM_{2.5}$, PM_{10}, SO_2 and NO_x.
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in m BGL
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting operation	Peak particle velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and chemical characteristics
8	Greenbelt	Within the project area	Daily	Monthly	Maintenance

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

11.6 ADDITIONAL STUDIES

11.6.1 Risk Assessment

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. The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad for proposed project.

11.6.2 Disaster Management Plan

The objective of the disaster management plan is to make use of the combined resources of the mine and the outside services to:

- Rescue and treat 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.

11.6.3 Cumulative Impact Study

The results on the cumulative impact of the four proposed projects on air environment of the cluster do not exceed the permissible limits set by CPCB for air pollutants.

- The cumulative results of noise for the habitation in consideration do not exceed the limit set by CPCB for residential areas for day time
- PPV resulting from two proposed project is well below the permissible limit of Peak Particle Velocity of 5 mm/s
- The proposed two projects will allocate Rs. 10,00,000/- towards CER as recommended by SEAC
- The proposed two projects will directly provide jobs to 36 local people, in addition to indirect jobs
- The proposed two projects will plant 3000 about trees in and around the lease area
- The proposed two projects will add 870 PCU per day to the nearby roads.

11.7 Project Benefits

Various benefits are envisaged due to the proposed mine and benefits anticipated from the proposed project to the locality, neighbourhood, region and nation as a whole are:

- Direct employment to 18 local people
- Creation of community assets (infrastructure) like school buildings, village roads/ linked roads, dispensary & health Centre, community Centre, market place etc.,
- Strengthening of existing community facilities through the Community Development Program
- Skill development & capacity building like vocational training.
- Rs. 5,00,000 will be allocated for CER

11.8 ENVIRONMENT MANAGEMENT PLAN

In order to implement the environmental protection measures, an amount of **Rs.13387757** as capital cost and recurring cost as **Rs.4641874** as recurring cost/annum is proposed considering present market price considering present market scenario for the proposed project. After the adjustment of 5% inflation per year, the overall EMP cost for 5 years will be **Rs.39139043**.

CHAPTER XII

DISCLOSURES OF CONSULTANT

The Project Proponent, **M/s. Sri Venkateshwara Blue Metals** has engaged **Geo Technical Mining Solutions**, a NABET accredited consultancy for carrying out the EIA study as per the ToR issued.

Address of the consultancy:

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

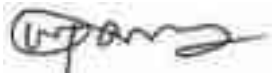
The accredited experts and associated members who were engaged in this EIA study are given below:

S.No.	Name of the expert	In house/ Empanelled	Sector	Functional Area	Category
Approved Functional Area Experts & EC					
1	Dr. S. Karuppannan	EIA Coordinator (EC) In-house	1(a)(i)	Mining	B
2	Dr. M. Vijayprabhu	In-house FAE	1(a)(i)	HG, LU, GEO	B
3	Dr. J. Rajarajeswari	In-house, FAE	1(a)(i)	EB, SC	B
4	Dr. G. Prabakaran	In-house, FAE	1(a)(i)	SE	B
5	Dr. R. Arunbalaji	In-house, FAE	1(a)(i)	AP, AQ, NV	B
6	J.N. Manikandan	Empanelled FAE	1(a)(i)	RH, SHW, AP	B
7	Dr. S. Malar	In-house, FAE	1(a)(i)	WP	B
8	G. Umamaheswaran	In-house, FAE	1(a)(i)	HG, LU, GEO	B
9	P. Venkatesh	In-house, FAE	1(a)(i)	AP	B
10	Dr. D.Kalaimurugan	In-house, FAE	1(a)(i)	SC	B
11	A.Kottaimanmathan	Empanelled FAE	1(a)(i)	LU	B
Approved Functional Area Associates					
12	G. Prithiviraj	FAA	1(a)(i)	LU, HG	B
13	C. Kumaresan	FAA	1(a)(i)	NV	B
14	P. Vellaiyan	FAA	1(a)(i)	HG, GEO	B
16	P. Dhatchayini	FAA	1(a)(i)	AQ	B
17	V. Malavika	FAA	1(a)(i)	NV, SHW	B
Abbreviations					

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

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA & EMP

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

Signature : 

Date :

Name : **Dr. S. Karuppannan**

Designation : EIA Coordinator

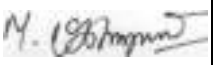
Name of the EIA Consultant Organization : Geo Technical Mining Solutions

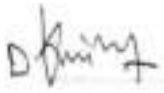
Period of Involvement : Till date

We, the FAEs and FAAs hereby declare that information furnished in this EIA/EMP report for **M/s.Sri Venkateshwara Blue Metals** rough stone quarry project with the extent of 3.00.0 ha situated in the cluster with the extent of 6.00.0 ha in Kondappanayanapalli Village, Krishnagiri Taluk, Krishnagiri District and Tamil Nadu is true and correct to the best of our knowledge.

List of Functional Area Experts Engaged in this Project

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

2	WP	o Suggesting water treatment systems, drainage facilities o Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures.	Dr.S. Malar	
3	HG	o Interpretation of ground water table and predict impact and propose mitigation measures. o Analysis and description of aquifer Characteristics	G. Uma Maheswaran	
4	GEO	o Field Survey for assessing the regional and local geology of the area. o Preparation of mineral and geological maps. o Geology and Geo morphological analysis/description and Stratigraphy/Lithology.	Dr.M. Vijay Prabhu	
5	SE	o Revision in secondary data as per Census of India, 2011. o Impact Assessment & Preventive Management Plan o Corporate Environment Responsibility.	Dr. G. Prabhakaran	
6	EB	o Collection of Baseline data of Flora and Fauna. o Identification of species labelled as Rare, Endangered and threatened as per IUCN list. o Impact of the project on flora and fauna. o Suggesting species for greenbelt development.	Dr.J. Rajarajeshwari	
7	RH	o Identification of hazards and hazardous substances o Risks and consequences analysis o Vulnerability assessment	J.N. Manikandan	

		○ Preparation of Emergency Preparedness Plan ○ Management plan for safety.		
8	LU	○ Construction of Land use Map ○ Impact of project on surrounding land use ○ Suggesting post closure sustainable land use and mitigative measures.	A.Kottaimanmathan	
9	NV	○ Identify impacts due to noise and vibrations ○ Suggesting appropriate mitigation measures for EMP.	Dr.R. Arun Balaji	
10	AQ	○ Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. ○ Recommending mitigations measures for EMP	Dr.R. Arun Balaji	
11	SC	○ Assessing the impact on soil environment and proposed mitigation measures for soil conservation	Dr. D.Kalaimurugan	
12	SHW	○ Identify source of generation of non-hazardous solid waste and hazardous waste. ○ Suggesting measures for minimization of generation of waste and how it can be reused or recycled.	J.N. Manikandan	

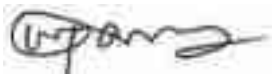
List of Functional Area Associate Engaged in this Project

S.No.	Name	Functional Area	Involvement	Signature
1	G. Prithiviraj	LU, HG	○ Site visit with FAE ○ Provide inputs & Assisting FAE for LU and HG	
2	C. Kumaresan	NV	○ Assistance to FAE in both primary and secondary data collection	

			○ Assistance in noise prediction modelling	
3	P. Vellaiyan	HG & GEO	○ Field visits along with FAE ○ Assistance to FAE in both primary and secondary data collection	
4	P. Dhatchayini	AQ	○ Site visit with FAE ○ Assistance to FAE in collection of both primary and secondary data	
5	V. Malavika	NV, SHW	○ Site visit along with FAE ○ Assistance in report preparation	

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, **Dr. S. KARUPPANNAN,** Managing Partner, **Geo Technical Mining Solutions**, hereby, confirm that the above-mentioned functional area experts and team members prepared the EIA/EMP report for **M/s. Sri Venkateshwara Blue Metals** rough stone quarry project with the extent of 3.00.0 ha situated in the cluster with the extent of 6.00.0 ha in Kondappanayanapalli Village, Krishnagiri Taluk, Krishnagiri District and Tamil Nadu is true and correct to the best of our knowledge.

Signature	:	
Date	:	
Name	:	**Dr. S. Karuppannan**
Designation	:	Managing Partner
Name of the EIA Consultant Organization	:	Geo Technical Mining Solutions
NABET Certificate No & Issue Date	:	NABET/EIA/2124/SA 0184
Validity	:	Till Apr 2024

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.10368/SEAC/1(a)ToR- 1612 /2023 Dated: 06.11.2023.

To

M/s. Sri Venkateshwara Blue Metals,
Prop: A.M. Murugan,
S/o. Mannathan,
No. 4/4,109A, Mutthampatty Post,
Metur Taluk,
Salem District – 636 503.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Proposed Rough stone quarry lease over an extent of 3.00.0 Ha at S.F.Nos. 202/1 (PART- A) of Kondappanayanapalli Village, Krishnagiri Taluk, Krishnagiri District, Tamil Nadu by M/s. Sri Venkateshwara Blue Metals - under project category – "B1" and Schedule S.No.1(a) "Mining of Minerals Projects" – **ToR issued along with Public Hearing** - preparation of EIA report – Regarding.

Ref: 1. Online proposal No.SIA/TN/MIN/442329/2023, Dated: 29.08.2023.
2. Your application submitted for Terms of Reference dated: 31.08.2023.
3. Minutes of the 416th SEAC meeting held on 13.10.2023.
4. Minutes of the 670th SEIAA meeting held on 06.11.2023.

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

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SEIAA-TN

The proponent, M/s. Sri Venkateshwara Blue Metals has submitted an application for Terms of Reference (ToR) on 31.08.2023, for the Proposed Rough stone quarry lease over an extent of 3.00.0 Ha at S.F.Nos. 202/1 (PART- A) of Kondappanayanapalli Village, Krishnagiri Taluk, Krishnagiri District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

The proposal was placed for appraisal in this 416th SEAC meeting held on 13.10.2023. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

The SEAC noted the following:

1. The project proponent, M/s. Sri Venkateshwara Blue Metals has applied for Terms of Reference for the Proposed Rough stone quarry lease over an extent of 3.00.0 Ha at S.F.Nos. 202/1 (PART- A) of Kondappanayanapalli Village, Krishnagiri Taluk, Krishnagiri District, Tamil Nadu.
2. The project/activity is covered under Schedule 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. Obtained EC From DEIAA File No. Lr No 03/DEIAA-KGI/ EC No.70/2018, Dated 27.8.2018.

Now, the proposal was placed in the 416th SEAC meeting held on 13.10.2023. Based on the presentation made by the proponent SEAC recommended grant of **Terms of Reference (TOR) with Public Hearing,** subject to the following TORs, as per the **Annexure I** of this minute, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

1. The proponent 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.
2. The proponent shall discuss in detail regarding the drainage pattern and discuss about the mitigation measures in the EIA report.
3. The proponent shall obtain the details regarding the validity of the lease period from the AD (Mines) while submitting the EIA report.

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SEIAA-TN

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

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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.
    - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.

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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 & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.

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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 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.

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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.
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.

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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	*Aegle marmelos*	Vilvam	வில்வம்
2	*Adenanthera pavonina*	Manjadi	மஞ்சாடி மஞ்சள்கடுக்காய்
3	*Albizia lebbeck*	Vaagai	வாகை
4	*Albizia amara*	Usil	உசில்
5	*Bauhinia purpurea*	Mandharai	மந்தாரை
6	*Bauhinia racemosa*	Aathi	ஆத்தி
7	*Bauhinia tomentosa*	Iruvathi	இருவாத்தி
8	*Buchanania axillaris*	Kattuma	காட்டுமா
9.	*Borassus flabellifer*	Panai	பனை
10	*Butea monosperma*	Murukkamaram	முருக்கமரம்
11	*Bobax ceiba*	Ilavu, Sevvilavu	இலவு
12	*Calophyllum inophyllum*	Punnai	புன்னை
13	*Cassia fistula*	Sarakondrai	சரக்கொன்றை
14	*Cassia roxburghii*	Sengondrai	செங்கொன்றை
15	*Chloroxylon swietenia*	Purasamaram	புரசமரம்
16	*Cochlospermum religiosum*	Kongu, Manjalllavu	கோங்கு மஞ்சள் இலவு
17	*Cordia dichotoma*	Naruvili	நருவிலி
18	*Crateva adansonii*	Mavalingam	மாவலிங்கம்
19	*Dillenia indica*	Uva, Uzha	உவா
20	*Dillenia pentagyna*	SiruUva, Siruzha	சிறு உவா
21	*Diospyro sebenum*	Karungali	கருங்காலி
22	*Diospyro schlerocylon*	Vagarai	வகரை
23	*Ficus amplissima*	Kalltchi	கல் இச்சி
24	*Hibiscus tiliaceus*	Aatrupoovarasu	ஆற்றுபூவரசு
25	*Hardwickia binata*	Aacha	ஆச்சா
26	*Holoptelea integrifolia*	Aavili	ஆவி மரம் ஆவிலி
27	*Lannea coromandelica*	Odhiam	ஓதியம்
28	*Lagerstroemia speciosa*	Poo Maruthu	பூ மருது
29	*Leptanthus tetraphylla*	Nerkottaimaram	நெல் கொட்டை மரம்
30	*Limonia acidissima*	Vila maram	விளா மரம்
31	*Litsea glutinas*	Pisinpattai	பிசின் பட்டை
32	*Madhuca longifolia*	Illuppai	இலுப்பை
33	*Mamkara hexandra*	UlakkaiPaalai	உலக்கை பாலை
34	*Mimusops elengi*	Magizhamaram	மகிழமரம்
35	*Mitragyna parvifolia*	Kadambu	கடம்பு
36	*Morinda pubescens*	Nuna	நுனா
37	*Morinda citrifolia*	Veliu Nuna	வெள்ளை நுனா
38	*Phoenix sylvestre*	Eachai	ஈச்சை
39	*Pongamia pinnat*	Pungam	புங்கம்

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40	*Premna mollissima*	Murasu	[illegible]
41	*Premna serratifolia*	Narumoorau	[illegible]
42	*Premna tomentosa*	Malaipoovarasu	[illegible]
43	*Prosopis cineras*	Vanni maram	[illegible]
44	*Pterocarpus marsupium*	Vengai	[illegible]
45	*Pterospermum canescens*	Vennangu, Tada	[illegible]
46	*Pterospermum xylocarpum*	Polavu	[illegible]
47	*Putranjiva roxburghi*	Karupala	[illegible]
48	*Salvadora persica*	Ugaa Maram	[illegible]
49	*Sapindus emarginatus*	Manipungan, Soapnuts	[illegible]
50	*Saraca asoca*	Asoca	[illegible]
51	*Streblus asper*	Puay maram	[illegible]
52	*Strychnos nuxvomic*	Yetti	[illegible]
53	*Strychnos potatorum*	Therthang Kottai	[illegible]
54	*Syzygium cumini*	Naval	[illegible]
55	*Terminalia bellerc*	Thandri	[illegible]
56	*Terminalia arjuna*	Ven marudhu	[illegible]
57	*Toona ciliata*	Santhana vembu	[illegible]
58	*Thespesia populnea*	Puvarasu	[illegible]
59	*Wattakaka volubilis*	valluru	[illegible]
60	*Wrightia tinctoria*	Veppalai	[illegible]
61	*Pithecellobium dulce*	Kodukkapuli	[illegible]

Discussion by SEIAA and the Remarks:-

The subject was placed in the 670th Authority meeting held on 06.11.2023. The authority noted that the subject was appraised in 416th SEAC meeting held on 13.10.2023.

Based on the presentation and documents furnished by the project proponent, SEAC after detailed deliberations, decided to **recommend the proposal for the grant of Terms of Reference (ToR).**

After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the following conditions and the conditions mentioned in 'Annexure B' of this minute:.

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.

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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.

    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.

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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.

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.

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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.

Mine Closure Plan

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

EMP

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

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Risk Assessment

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

Disaster Management Plan

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

Others

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

A. STANDARD TERMS OF REFERENCE

1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery

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

5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.

6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.

7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.

8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.

9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.

10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if 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,

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confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.

15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.

16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves (existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.

18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

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

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also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.

20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should

be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

22) One season (non-monsoon) [i.e. March-May (Summer Season), October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling 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.

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24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.

25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.

27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.

30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.

31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

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

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action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.

34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.

35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.

40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.

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:-

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a) Executive Summary of the EIA/EMP Report

b) All documents to be properly referenced with index and continuous page numbering.

c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.

d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.

e) Where the documents provided are in a language other than English, an English translation should be provided.

f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.

g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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).

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

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

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

a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
b. All documents may be properly referenced with index, page numbers and continuous page numbering.
c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-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

MEMBER SECRETARY
SEIAA-TN

(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.

MEMBER SECRETARY
SEIAA-TN

Copy to:

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

From
Dr. S.Vediappan, M.Sc.,Ph.d.,
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

To
Thiru.A.M.Murugan,
S/o.Mannathan,
No.4/4 - 109 A, Muthampatti Post,
Tholasampatti Via, Panapuram,
Mettur Taluk, Salem District

Roc.No.170/2018/Mines Dated:23.05.2023

Sir,

Sub: Mines and Minerals – Rough stone - Krishnagiri District - Krishnagiri Taluk - Kondappanayanapalli - Government land S.F.No. 202/1 (Part - A) over an extent of 3.00.0 Hects – Tender Cum Auction conducted – Thiru. A.M.Murugan declared as highest tenderer - Approved Mining Plan and Environmental Clearance obtained lease granted in favour of Thiru. A.M.Murugan – Other quarry situated in 500 mtrs radial distance - requested – Details furnished - reg.

Ref:
1. The District Collector, Krishnagiri Proc.Rc.No.170/2018 /Mines dated: 09.03.2018.
2. Mining Plan approved by the Deputy Director of Geology and Mining, Krishnagiri in Rc.no.170/2018/Mines dated: 28.05.2018.
3. Thiru. A.M.Murugan, letter dated: 23.05.2023.

****

Kind attention is invited to the references cited above.

2) Thiru. A.M.Murugan, Krishnagiri has been granted Rough Stone quarrying lease over an extent of 3.00.0 hects of Government land 202/1 (Part - A) of Kondappanayanapalli Village, Krishnagiri Taluk, Krishnagiri District for a period of 10 years vide The District Collector, Krishnagiri Proc. Rc.No. 170/2018 /Mines dated: 28.12.2022, under the provisions of Rule 8 of Tamil Nadu Minor Mineral Concession Rule 1959. The lease deed was executed on 28.12.2022 and the lease period is valid upto 26.08.2028.

3) The Mining plan for Rough Stone in Kondappanayanapalli Village, Krishnagiri Taluk was approved by the Deputy Director of Geology and Mining, Krishnagiri vide letter Rc.No. 170/2018/Mines dated: 28.05.2018.

4) In this connection, the lessee Thiru. A.M.Murugan, has requested vide letter dated: 23.05.2023 to issue the details of other quarries situated within 500 mts radial distance from the subject quarry is furnished as follows.

I. Details of Existing quarries.

Sl No	Name of the lessee	ROC .NO. dated	Village & Taluk	S.F No.	Extent in Hect	Lease period.
1.	Thiru.A.M.Murugan, S/o.Mannathan, No.4/4 - 109 A, Muthampatti Post, Tholasampatti Via, Panapuram, Mettur Taluk, Salem District.	Rc.No:170/2018 /Mines dated: 09.03.2018	Kondappan ayanapalli Village, Krishnagiri Taluk	202/1 (Part - A)	3.00.0	28.12.2022 to 26.08.2028 (Instant Proposal)

II. Details of abandoned/Old quarries.

Sl. No.	Name of the lessee	ROC .NO. dated	Village & Taluk	S.F No.	Extent in Hect	Lease period.
1	---------- Nil ----------					

III. Details of other Proposed/applied quarries

Sl. No.	Name of the lessee	ROC.NO. dated	Village & Taluk	S.F No.	Extent in Hect	Lease period.
1.	Thiru.A.M.Murugan, S/o.Mannathan, No.4/4 - 109 A, Muthampatti Post, Tholasampatti Via, Panapuram, Mettur Taluk, Salem District.	Rc.No.171/2018 /Mines dated: 09.03.2018	Kondappanayana palli Village, Krishnagiri Taluk	202/1 (Part - B)	3.00.0	Tender cum Auction Mining Plan Approved Lease not yet granted

Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

Copy to :-

The Chairman, Tamil Nadu State Environment Impact Assessment Authority,
3rd Floor, Panakal Maligai,
No. 1 Jeenes Road, Saidapet, Chennai -15.

MINING PLAN

FOR

GRANT OF ROUGH STONE QUARRY LEASE IN GOVERNMENT PORAMBOKE LAND

TOTAL LEASE GRANTED PERIOD 10 YEARS

PROPOSED PERIOD OF MINING 5 YEARS

(Prepared Under Rule 19 (1) Tamil Nadu Minor Mineral Concession Rules, 1959 & As Per Amendment Under Rule 41 & 42)

LOCATION OF THE APPLIED AREA

EXTENT : 3.00.0Ha.
S. F. No : 202/1 (PART-A)
VILLAGE : KONDAPPANAYANAPALLI.
TALUK : KRISHNAGIRI.
DISTRICT : KRISHNAGIRI.
STATE : TAMIL NADU.

APPLICANT

M/s. SRI VENKATESHWARA BLUE METALS,
PROP: A.M.MURUGAN,
S/o. MANNATHAN,
No.4/4, 109,
MUTTHAMPATTY POST,
METTUR TALUK,
SALEM DISTRICT.

PREPARED BY:

S.DHANASEKAR, M.Sc.,
RQP/MAS/225/2011/A
83, KULLAPPAN STREET,
OPP.INDIAN BANK LINE,
OMALUR TALUK – 636 455,
SALEM DISTRICT.
Email: geodhana@yahoo.co.in
CELL: 98946-28970 & 73733-74702.

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3

M/s. SRI VENKATESHWARA BLUE METALS,
PROP: A.M.MURUGAN,
S/o. MANNATHAN,
No.4/4, 109,
MUTTHAMPATTY POST,
METTUR TALUK,
SALEM DISTRICT.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan in respect of **Rough Stone** quarry over an extent of **3.00.0Hectares** of Government **Poramboke Land** in **S.F.No. 202/1 (PART-A)** of **KONDAPPANAYANAPALLI Village, KRISHNAGIRI TALUK, And KRISHNAGIRI District**, Tamil Nadu State has been prepared by Shri. **S. Dhanasekar**, M.Sc.,Regn.No. **RQP/MAS/225/2011/A.**

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

S.DHANASEKAR, M.Sc.,
RQP/MAS/225/2011/A
8/3, Kullappan Street,
Opposite Indian bank Line,
Omlur Taluk – 636 455
Salem District.
E-Mail: gnodhana@yahoo.co.in
Cell: 98946-28970

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

For Signature of the Applicant
M/s. SRI VENKATESHWARA BLUE METALS,

PROP: A.M.MURUGAN.

Place: SALEM

Date:

4

28 MAY 2018

M/s. SRI VENKATESHWARA BLUE METALS,
PROP: A.M.MURUGAN,
S/o. MANNATHAN,
No.4/4, 109,
MUTTHAMPATTY POST,
METTUR TALUK,
SALEM DISTRICT.

DECLARATION

The Mining Plan in respect of **Rough Stone** quarry over an extent of **3.00.0 Hectares** of **Government Poramboke Land** in **S.F.No. 202/1 (PART-A)** of **KONDAPPANAYANAPALLI Village, KRISHNAGIRI TALUK, And KRISHNAGIRI** District, and Tamil Nadu State has been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

For Signature of the Applicant
M/s. SRI VENKATESHWARA BLUE METALS,

PROP: A.M.MURUGAN,

Place: SALEM

Date:

5

Service Tax No : ALIPD6733ISD001

Prop : S. DHANASEKAR, M.Sc.(Geo),M.M.L.A.
Geologist / Recognized Qualified person.

KRK MEMORIAL MINING SERVICES

5/30-B, Aarvai Nagar, Pankumar Mines Road, Jagir Ammapalayam, Salem - 636302.
E-mail : krkmemorialminingservices@gmail.com

CERTIFICATE

This is to certify that, the provisions of Minor Minerals Conservation and Development Rules, 2010 (MMCDR) have been observed in The Mining Plan in respect of **Rough Stone** quarry over an extent of **3.00.0Hectares** of **Government Poramboke Land** in **S.F.No. 202/1 (PART-A)** of **KONDAPPANAYANAPALLI Village, KRISHNAGIRI Taluk, KRISHNAGIRI District,** Tamil Nadu State obtained by **M/s. SRI VENKATESHWARA BLUE METALS, PROP: A.M.MURUGAN** for Fresh quarry lease.

Wherever specific permission / exemptions / relaxations or approvals are required, the applicant will approach the concerned authorities of State and Central Governments for granting such permissions etc.

Certified

Signature of Recognized Qualified Person.
S.DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

Place: SALEM

Date:

Service Tax No : ALIPD6733 1SD001

Prop : S. DHANASEKAR, M.Sc., M.Phil., M.M.E.,
Geologist / Recognized Qualified Person

KRK MEMORIAL MINING SERVICES

5/30-B, Anna Nagar, Pankumar Mines Road, Jagir Ammapalayam, Salem - 636302.
E-mail : krkmemorialminingservices@gmail.com

CERTIFICATE

Certified that, in preparation of Mining Plan in respect of **Rough Stone** quarry over an extent of **3.00.0Hectares** of **Government Poramboke Land** in **S.F.No. 202/1 (PART-A)** of **KONDAPPANAYANAPALLI Village, KRISHNAGIRI Taluk, and KRISHNAGIRI District**, Tamil Nadu State for **M/s. SRI VENKATESHWARA BLUE METALS, PROP: A.M.MURUGAN** covers all the provisions of Mines Act, Rules, and Regulations etc made there under and whenever specific permission are required, the applicant will approach the Director General of Mines Safety, Chennai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Certified

Signature of Recognized Qualified Person
S.DHANASEKAR, M.Sc. (Geo)
RQP/MAS/225/2011/A

Place: SALEM

Date:

28 MAY 2018

MINING PLAN FOR MINOR MINERALS

ROUGH STONE QUARRY

TOTAL LEASE GRANTED PERIOD 10 YEARS

PRPOSED PERIOD OF MINING 5 YEARS

Over an extent of 3.00.0Hectares of Government Poramboke Land in S.F.No. 202/1 (PART-A) in KONDAPPANAYANAPALLI Village, KRISHNAGIRI Taluk, KRISHNAGIRI District, Tamil Nadu State.

(Minor Mineral Conservation and Development Rules, 2010 & as per the amendments under 19 (1) Tamil Nadu Minor Mineral Concession Rules, 1959)

1.0 INTRODUCTION AND EXECUTIVE SUMMARY:

1. **M/S. SRI VENKATESHWARA BLUE METALS, PROP: A.M.MURUGAN** S/o. MANNATHAN, Residing at No.4/4, 109, MUTTHAMPATTY POST, METTUR TALUK, and SALEM DISTRICT has applied for the grant of quarry lease Under Tender/Auction to quarry **Rough Stone** over an extent of **3.00.0Hectares** of **Government Poramboke Land** in **S.F.No.202/1 (PART-A)** of **KONDAPPANAYANAPALLI Village, KRISHNAGIRI TALUK, KRISHNAGIRI District** of Tamil Nadu State for a period of TEN Years.

2. The Applicant has been the Successful bidder Highest Bidder Amount Rs 63, 00,000/- in a Tender cum public action conducted by the Government of Tamil Nadu and Rough Stone quarry lease had been granted to **M/S. SRI VENKATESHWARA BLUE METALS, PROP: A.M.MURUGAN** in Government Poramboke Land in **S.F.No. 202/1 (PART-A)** of **KONDAPPANAYANAPALLI Village, KRISHNAGIRI Taluk, and KRISHNAGIRI District** of Tamil Nadu State for a period of TEN Years Vide Proceeding No. **Rc. No. 170/2018/MINES dated: 09.03.2018.**

3. The District Collector, **KRISHNAGIRI** in his letter **Rc. No. 170/2018/MINES dated: 09.03.2018.** Has directed the applicant to produce approved Mining Plan and Environmental Clearance certificate from the District Level Environmental Impact Assessment Authority (DEIAA) for the grant of quarry lease for the applied quarry area.

4. Accordingly, Mining Plan is prepared under Rule 19 (1) Tamil Nadu Minor Mineral Concession Rules, 1959 & As per Amendment under Rule 41 & 42 by incorporating the conditions imposed in the precise area communication letter and by incorporating all the details proposed in the letter No. DEIAA-TN/Minor Minerals / 2017 dated 13.06.2017 of District Level Environmental Impact Assessment Authority.

5. In the above circumstances **M/S. SRI VENKATESHWARA BLUE METALS, PROP: A.M.MURUGAN** is been by preparing the Mining Plan for approval for Fresh Rough Stone Quarry. And subsequent submission of Form-I and pre Feasibility report to obtain environmental clearance from the DEIAA of Tamil Nadu, Krishnagiri.

S. DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

6. This Mining Plan is prepared for the fresh Rough Stone Quarry for a period of FIVE Years.

7. In order to ensure compliance of the order of the Honourable Supreme Court dated 27.02.2012 in 12.12.2011 in Special Leave Petition SLP(c) No 19628-19629/2009, it has been ordered that all mining projects of minor minerals including their renewal irrespective of sizes of the lease shall hereafter require prior environmental clearance. Mining project within the lease area upto less than 25 ha including projects or minor mineral with lease area less then 5Hs would be treated as category B as defined in the EIA notification 2006 and will be considered by the state DEIAA notified by MoEF as prescribed procedure prescribed under EIA notification 2006.

8. This Mining Plan is prepared by considering the TNMMCR 1959, and as per the EIA Notification 2006 and it ere subsequent amendments and judgments.

9. The lease period Geological Reserves **3384633M³** and Mineable Reserves is estimated as **1292851M³** and recoverable reserves is estimated as **1292851M³** of **Rough Stone** after leaving necessary safety distance from the lease boundary as indicated in the Lease Granted Proceedings and relevant mining laws in force.

10. Production Schedule is proposed an average production of **1218973M³** of **Rough Stone** for Five Years.

11. Production Schedule is proposed an average production of **243795M³ of Rough Stone.** Per year.

12. Environmental parameters,

    i) There is no interstate boundary around 10Kms radius.

    ii) There is no wild life animal sanctuary within 10Kms radius form the project site area under the Wildlife (Protection) Act, 1972. Therefore the project seeks clearance only from State Level Environmental Impact Assessment Authority (SEIAA), under B2 Category.

13. Environmental measures to be adopted shall be,

    i) Dust Control at source while drilling and Proposed Control Blasting.

    ii) Dust suppression at loading point and transport haul roads,

    iii) Noise Control in Proposed Control Blasting, control of fly rock missiles and vibration by doing peak particle velocity with in standard as prescribed by the DGMS and MoEF.

    iv) Unnecessary land degradation should be avoided or damaged land should be reclaimed or rehabilitated.

    v) Avoid uneven rat hole mining and follow scientific and systematic mining by safe bench system of open cast mining.

    vi) Mining near major fracture zones if any should be avoided to control ground water fluctuation in the adjacent agricultural lands.

    vii) Emission test of vehicles should be in stack to maintain minimum emission level of flue gases.

viii) Noise level should not exceed 80db and the vehicles should use only permitted Air Horn while on road near residential areas.

ix) Safety zones as prescribed by the Department of Geology and Mining from adjacent infrastructures should be strictly adhering to.

x) And any other conditions as stipulated by the concerned authorities should be followed to protect the environment.

2.0 EXECUTIVE SUMMARY:

a.	Name of the Village	:	KONDAPPANAYANAPALLI
b.	Name of the Panchayat / Union	:	KONDAPPANAYANAPALLI / KRISHNAGIRI
c.	The proposed total Minable Reserves	:	1292851M³ (Total Depth of 120m) Top Soil 1m + Rough stone 119m) Ground surface above 8m and Ground surface below 112m.
d.	The proposed quantity of reserves (level of production) for Five Years to be mined is (Recoverable reserves)	:	1218973M³ (Total Depth of 92m) Top Soil 1m + Rough stone 91m) Ground surface above 8m and Ground surface below 84m.
e.	Total extent of the area	:	3.00.0Ha
f.	Proposed Period of mining	:	Five Years
g.	Proposed Depth of mining	:	Total depth - 92m. Top Soil 1m + Rough stone 91m) Ground surface above 8m and Ground surface below 84m.
h.	Existing Pit Dimension		Nil
i.	Average production per year	:	243795M³
j.	Method of mining / level of mechanization	:	Opencast, Semi-mechanized Mining with a bench height of 7m and bench width of 5m is proposed.
k.	Types of Machineries used in the quarry	:	i) Compressor with jack hammer ii) Excavator of 0.90Cbm bucket Capacity
l.	Cost of the Project a. Fixed Cost b. Operational Cost c. EMP Cost		 Rs.65,60,000/- Rs. 20,00,000/- Rs. 3,70,000/-
m.	The area applied for lease is bounded by four corners and the coordinates are	:	Toposheet No. 57 – L/02
	Latitude	:	12° 39' 58.32"N To 12° 40' 05.09"N
	Longitude	:	78° 07' 42.23"E To 78° 07' 50.93"E
	North East	:	12° 40' 02.44"N - 78° 07' 50.93"E
	South East	:	12° 39' 58.34"N - 78° 07' 50.02"E
	North West	:	12° 40' 05.11"N - 78° 07' 46.34"E
	South West	:	12° 40' 00.00"N - 78° 07' 42.23"E

28 MAY 2018

3.0 GENERAL INFORMATION

3.1	a.	Name of the Applicant	:	M/S. SRI VENKATESHWARA BLUE METALS PROP: A.M.MURUGAN
	b.	Address of the Applicant with phone No and e-mail id if any	:	S/o. MANNATHAN, No.4/4, 109, MUTTHAMPATTY POST, METTUR TALUK, SALEM DISTRICT.
	c.	Status of the Applicant	:	Individual
3.2	a.	Mineral Which the Applicant intends to mine	:	Rough Stone
	b.	Precise area communication letter No. Lease granted Order	:	Rc. No. 170/2018/MINES dated: 09.03.2018.
	c.	Period of permission	:	10 Years
	d.	Name and Address of the RQP preparing Mining Plan	:	S.Dhanasekar, M.Sc., RQP/MAS/225/2011/A 8/3, Kollappan Street, Opposite Indian bank Line, Omalur Taluk -636455, Salem District. Email: gnodhana@yahoo.co.in
	e.	RQP Regn. No.	:	RQP/MAS/225/2011/A Valid up to 12.01.2021.

4.0 LOCATION: Details Area:

STATE	DISTRICT	PANCHAT / UNION	TALUK	VILLAGE	S.F.NO	EXTENT IN HECTARES
Tamilnadu	Krishnagiri	Kondappanayanapalli / krishnagiri	Krishnagiri	Kondappanayanapalli	202/1 PART-A	3.00.0Ha
TOTAL =						3.00.0Ha

b.	Classification of the Area (Ryotwari / poramboke / others)	:	It is a Government Poramboke land, which is not fit for vegetation/cultivation.
c.	Ownership / Occupancy of the Existing Lease area (Surface rights)	:	It is a Government Poramboke land. The applicant had been given precise area for the proposed grant of Rough Stone Quarry Lease.
d.	Toposheet No. with Latitude and Longitude	: : :	Toposheet No. 57 – L/02 12° 39' 58.52"N To 12° 40' 05.09"N 78° 07' 42.23"E To 78° 07' 50.93"E
e.	Existence of Public Road / Railway line if any nearby the area and approximate distance	:	APPINAYAKKANKOTTAI – AVALNATHAM Via = 0.25Km VERUPASANDIRAM - GOLLAPALLI = 8.0 Km GOLLAPALLI - KRISHNAGIRI = 13.5 Kms Quarry site is located in Western side at a distance of 1.5 km from VERUPASANDIRAM Village.

PART - A

5.0 GEOLOGY AND MINERAL RESERVES:

5.1	a.	Topography	:	1. The area for proposed quarry lease is Hilly Terrain with gentle elevation 8m above Surface ground level and slopes towards North Eastern side covered with Rough Stone which does not sustain any type of vegetation. 2. No major river is found nearby the fresh area. 3. Water table is noticed at a depth of 105m from below the surface in the adjacent open wells of the area. 4. Temperature of the area is reported to be 18°C to a maximum of 38°C during summer. 5. Rainfall of this area is about 800mm to 900 mm during the monsoons in a year.
	b.	Infrastructures nearby the Existing Lease area.		
		1. Post Office	:	VERUPASANDIRAM – 2.0 kms
		2. Police Station	:	SHOOLAGIRI – 13.5kms
		3. G.H	:	SHOOLAGIRI – 13.0kms
		4. Fire service	:	MARACHANDRAM – 4.0 kms
		5. Railway Station	:	HOSUR – 33.0kms
		6. School	:	VERUPASANDIRAM – 2.0 kms
		7. Airport	:	BANGALORE – 74.0Kms
		8. Seaport	:	CHENNAI – 245.0 kms
	c.	Regional Geology	:	**KRISHNAGIRI** District is underlined by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the District are Archaean rocks like Gneisses, Granites, Charnockite basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite. The generalized stratigraphic succession of the geological formations met within this District is as follows.
	d.	Geology of the Lease Area		1. The area is mainly composed of Archaean crystalline metamorphic complex. 2. The rock type noticed in the area for lease is **Granite Gneiss** which contains mostly Quartz and Feldspar with some ferromagnesian minerals. 3. The Granite Gneiss is part of peninsular Gneisses, a high grade metamorphic rock.

	Age	Rock Formation
1.	Recent to Sub recent	Soil, Alluvium
2.	Archaean	Granites, basic granulites, Peninsular Gneiss, Calc Gneiss and Charnockites

4. The general trend of formation is N-20° W – S 10° E and dip towards NE-70°.

The general geological succession of the area is as under.

	Age	Rock Formation
1.	Recent to Sub recent	Soil, Alluvium
2.	Archaean	Charnockites
3.	Archaean	Peninsular Gneiss, and Calc Gneiss

5.2 Details of Exploration already carried out if any

1. Since the **Rough Stone** is seen from the Surface itself, and no needed to exploration.
2. However, the area was personally examined by the Geologist who prepared the Mining Plan.

5.3 a. Already excavated in pit dimensions: NIL

b. Geological Reserves:

Top Soil:

The Thickness of Top soil in this area is **1.0m** and the total volume of topsoil will be **29862m³**. The Geological reserve is estimated as **3384633m³** respectively, at the rate of 100% recovery upto a depth of wise. The Geological reserve of Rough stone and Top soil is calculated upto a depth of **120m** (1m top soil + 119m Rough Stone). Ground surface above **8m** and Ground surface below **112m**.

GEOLOGICAL RESERVES

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in (Cu.m.)	Recoverable Reserve in Cu.m (100%)	Topsoil
XY-AB	I	189	158	1			29862
	II	83	69	7	40089	40089	
	III	189	158	7	209034	209034	
	IV	189	158	7	209034	209034	
	V	189	158	7	209034	209034	
	VI	189	158	7	209034	209034	
	VII	189	158	7	209034	209034	
	VIII	189	158	7	209034	209034	
	IX	189	158	7	209034	209034	
	X	189	158	7	209034	209034	
	XI	189	158	7	209034	209034	
	XII	189	158	7	209034	209034	
	XIII	189	158	7	209034	209034	
	XIV	189	158	7	209034	209034	
	XV	189	158	7	209034	209034	
	XVI	189	158	7	209034	209034	
	XVII	189	158	7	209034	209034	
	XVIII	189	158	7	209034	209034	
Total=					3384633	3384633	29862

d. Recoverable Reserves:

Top soil: The Thickness of Top soil in this area is **1.0m** and the Total Volume of Topsoil will be **25628m³**. The mineable reserves and the recoverable reserves are 1292851m³ and 1292851m³ respectively, at the rate of 100% recovery upto a depth of wise. **Total Depth 120m** (1m top soil + 119m Rough Stone). Ground surface above **5m** and Ground surface below **112m**

MINEABLE RESERVES

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in (Cu.m.)	Recoverable Reserve in Cu.m (100%)	Topsoil
XY-AB	I	172	149	1			25628
	II	73	69	7	35259	35259	
	III	167	148	7	173012	173012	
	IV	157	143	7	157157	157157	
	V	147	138	7	142002	142002	
	VI	137	133	7	127547	127547	
	VII	127	128	7	113792	113792	
	VIII	117	123	7	100737	100737	
	IX	107	118	7	88382	88382	
	X	97	113	7	76727	76727	
	XI	87	108	7	65772	65772	
	XII	77	103	7	55517	55517	
	XIII	67	98	7	45962	45962	
	XIV	57	93	7	37107	37107	
	XV	47	88	7	28952	28952	
	XVI	37	83	7	21497	21497	
	XVII	27	78	7	14742	14742	
	XVIII	17	73	7	8687	8687	
Total=					**1292851**	**1292851**	**25628**

6.0 MINING:

6.1	Method of Mining	:	1. Opencast method of semi mechanized mining will be adopted to extract Rough Stone of required size. 2. Machineries like Tractor mounted compressor attached with Jack hammers is proposed to drilling and Proposed Control Blasting. Excavators are proposed for quarrying of Rough Stone and Tippers / Lorries are proposed for the transportation of Rough Stone to the destination.
6.2	Mode of Working	:	It is a semi mechanized quarrying operation using shot hole drilling with the help of compressor and jack hammers, smooth Proposed Control Blasting, block lifting using cranes and waste and are removal using Hydraulic excavator and loaded directly to the tippers and transported to the crushing plants into required size in the crushing plants from75mm jelly to10mm chip
6.3	Proposed bench height & Width	:	Bench height = 7mts. Bench width = 5mts

6.4	Details of Overburden / Mineral Production proposed for Five year:	:	Top Soil/ Overburden production details follows: The Thickness of topsoil noticed in this area is 1.0m and the total volume of topsoil will be 25628m³.

Year wise Reserves Calculations :

Rough stone production details as follows:

The average proposed rate of production of Rough Stone is about 1218973m³ for Five years. The average proposed rate of production of Rough Stone is about 243795m³ per year. At the rate of 100% recovery upto a 92m depth (1m Top soil + 91m Rough Stone). Proposed Production of five Years. Ground surface above 8m and Ground surface below 84m.

YEARWISE RESERVES

Section	Year	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in (Cu.m.)	Recoverable Reserve in Cu.m (100%)	Topsoil
XY-AB	I-YEAR	I	172	149	1			25628
		II	73	69	7	35259	35259	
		III	167	148	7	173012	173012	
	II-YEAR	IV	157	143	7	157157	157157	
		V	147	138	7	142002	142002	
	III-YEAR	VI	137	133	7	127547	127547	
		VII	127	128	7	113792	113792	
	IV-YEAR	VIII	117	123	7	100737	100737	
		IX	107	118	7	88382	88382	
		X	97	113	7	76727	76727	
	V-YEAR	XI	87	108	7	65772	65772	
		XII	77	103	7	55517	55517	
		XIII	67	98	7	45962	45962	
		XIV	57	93	7	37107	37107	
Total=						**1218973**	**1218973**	**25628**

6.5	a.	Mining	:	Drilling of shot holes will be carried out using compressor and jack hammer. Depth of holes shall be 1 to 2m bench height and spacing shall be 0.75m and burden shall be 0.60m from the preface.

Details of drilling equipments are given below.

Type	Nos	Dia of hole	Size / Capacity	Make	Motive power	H.P
Jack Hammer	6	25.5 mm	Hand held	Atlas copco 2Nos	Diesel	60

	b.	Loading	:	Loading of waste and rough stone shall be carried out by Excavator into 10 tonne capacity tippers from the working place periodically. Details of loading equipment are given as under.

Type	Nos	Bucket Capacity (MT)	Make	Motive power	H.P.
Hydraulic excavator	1	1.2 M³	L&T or Ex200	Diesel	130

	c.	Transportation	:	Transport of raw and waste shall be done By Tipper of 10 tonnes capacity.

Type	Nos	Size / Capacity	Make	Motive Power	H.P.
Tipper	3	10 M.T	Ashok Leyland	Diesel	180

6.6		Disposal of Overburden	:	The top soil of the lease area is 25628m³. Topsoil formation will be removed and Dumping to All Side of the 7.5m & 10.0m boundary barrier of the lease area, this will be done only after obtaining permission and paying necessary seignior age fees to the Government.

Proposed Dump Dimensions:
Top Soil-7124 Sqm X 3.60m(H) = 25628m³

6.7		Brief Note on Conceptual Mining Plan for the entire lease period	:	Conceptual Mining Plan is prepared with an object of Five year of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc.,

Average Ultimate Pit dimension in given as Under,

ULTIMATE PIT DIMENSION			
Bench	Length in (m)	Width in (m)	Depth in (m)
I	172	149	1
II	73	69	7
III	167	148	7
IV	157	143	7
V	147	138	7
VI	137	133	7
VII	127	128	7
VIII	117	123	7
IX	107	118	7
X	97	113	7
XI	87	108	7
XII	77	103	7
XIII	67	98	7
XIV	57	93	7

Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc.

Afforestation has been proposed on the boundary barrier by planting trees. All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water Analysis studies will be carried out every year as per the MOEF norms.

Energy:

Electricity for mines and lights only at nights (working is restricted on day time only between 9Am to 5Pm). Diesel (HSD) will be used for quarrying machines around 979449.4 liters of HSD will be used for the entire project life. Diesel will be brought from nearby diesel pumps. No power is required for the project. Lightings on the night will be taken from nearby electric poles after obtaining permission from concerned authorities.

<u>For Top soil:</u>

Per hour excavator will consume = 10 liters / hour

Per hour excavator will excavate = 60m^3 of Top soil

For 25628m^3 = 25628/60

= 427.1 hours

Diesel consumption 620.6 working hours = 427.1 x 10 Liters

Total diesel consumption = 4271 liters of HSD will be utilized for Top soil

<u>For Rough stone:</u>

Per hour excavator will consume = 16 liters / hour

Per hour excavator will excavate = 20m^3 of rough stone

For 1218973m^3 = 1218973/20

= 60948.65 hours

Diesel consume 60948.65 working hours = 60948.65 hours x 16 liters

Total diesel consumption = 975178.4 liters of HSD will be utilized for Rough stone

Total diesel consumption is around = 979449.4 liters of HSD for the entire period of life

7.0 BLASTING

7.1	Proposed Control Blasting Pattern	:	The massive formation shall be broken into pieces of portable size by drilling and Proposed Control Blasting using jack hammers and shot hole Blasting. Powder factor of explosives for breaking such hard rock shall be in the order of 6 to 7 tonnes per K.g of explosives.

Proposed Control Blasting parameters are as follows.

Diameter of the hole	:	32-36 mm
Spacing	:	60 Cms
Depth	:	1 m 1.5m
Charge / Hole	:	D.Cord with water or 70 gms of gun powder or Gelatine
Pattern of hole	:	Zig Zag
Inclination of hole	:	70° from the horizontal.
Quantity of rock broken	:	0.45 MT x 2.6 = 1.17 MT
Proposed Control Blasting effeciency @ 90%	:	1.17 x 90% = 1.05MT / hole
Charge per hole	:	140 gms of 25mm dia cartridge
Quantity of rock broken per day	:	812.64 M^3

7.2	Types of Explosives	:	Following explosives are recommended for efficient Proposed Control Blasting with safe practice.

S. No	Description	Class / Division	Type	Size
1.	Slurry	Class - 3	Nitro Compound	25 x 200
2.	Nitrate Mixture	Class – 2	ANFO (Ammonium nitrate with 12% diesel)	Prepared at the site.
3.	Detonators	Class - 3	Ordinary and elec (OD & ED)	6.5 x 32
4.	Safety fuse	Class - 6	8km sump fuse coils of 10mts each	

The Applicant will approach the District Collector for grant of explosives license as the quantity of daily consumption is very low, i.e., less than 5Kgs.

7.3	Measures proposed to minimize ground vibration due to Proposed Control Blasting	:	The following steps shall be adopted to control ground vibration due to Proposed Control Blasting. 1. The minimum recommended delay time of 8ms was introduced to minimize ground vibration to avoid constructive interference of blast vibration waves and hence its impact or amplitude. 2. In case of electronic detonators, which are inherently much more accurate delays (+/- 0.2 milliseconds delay) to minimizes the ground vibration. 3. Use of Ammonium nitrate fuel oil mixture for shot holes may be avoided because which cause for high fly of rocks in view critical diameter problem. Only high strength explosives like slurry will be used in the form of cartridge. 4. Charge per hole should exceed the powder factor designed for each hole based on the quantum of Proposed Control Blasting, strength of rocks, fracture pattern etc.

7.4	Storage of Explosives and safety measures to be taken while Proposed Control Blasting.	:	1. The Applicant is advised to store the explosives as per the Indian Explosives Act, 1958. 2. The explosives to be used in mines being a small quantity, the District collector may be approached to issue the stocks not exceeding 5kgs at time or any other quantity permitted by the concerned authorities in a portable magazine of 3 & B types. 3. The Applicant is advised to engage an authorized explosive agency to carry out Proposed Control Blasting. 4. The Proposed Control Blasting time at a day is proposed to be 5 PM to 6 PM. 5. First Aid Box will be keeping ready at all the time. 6. Necessary precautionary announcement will be carried out before the Proposed Control Blasting operation.

8.0 MINE DRAINAGE:

8.1	Depth of Water table	:	The ground water table is reported as 105m below ground level in nearby wells of this area. (Mining depth taken as **8m** from above ground Surface level and **84m** from below ground Surface level (Total depth- **92m**) (**1m** Top soil + **91m** Rough stone). Now, the present quarry shall be proposed above the water table. Hence, quarrying may not affect the ground water.
8.2	Arrangement and Places where the mine water is finally proposed to be discharged	:	The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300 lpm and it shall be pumped about periodically by a stand by diesel powered Centrifugal pump motivated with 7.5 H.P. Motor. The quality of water is potable and it is not contaminated with any hazardous things.

28 MAY 2018

9.0 OTHER PERMANENT STRUCTURES:

9.1	Habitations / Village	:	There are no villages within a radius of 500m. The nearest habitations with the population is given as under:

Direction	Village	Distance in Kms	Population
North	APPINAYAKKANKOTTI	1.9Kms	220
East	VERUPASANDIRAM	1.4Kms	300
South	CHENNASANDIRAM	1.4kms	300
West	AVALNATHAM	2.0Kms	240

9.2	Power lines (HT/LT)	:	There is no power lines located within the safety distance prescribed under Tamil Nadu Minor Minerals Concession Rules, 1959.
9.3	Water bodies (River, Pond, Lake, Odai, Channel etc)	:	There is NO kulam/kanmoi are located within a radius of 500m.
9.4	Archeological / Historical Monuments	:	There are no Archeological / Historical Monuments within a radius of 500m.
9.5	Road (NH, SH, Village Road etc)	:	APPINAYAKKANKOTTAI – AVALNATHAM Via = 0.25Km VERUPASANDIRAM - GOLLAPALLI = 8.0 Km GOLLAPALLI - KRISHNAGIRI = 13.5 Km Quarry site is located in Western side at a distance of 1.5 km from Verupasandiram.
9.6	Places of Worship	:	There are no Places of Worship within a radius of 500m
9.7	Reserved Forest / Forest / Social Forest / Wild Life Sanctuary etc.,	:	There are no Reserved Forest / Forest / Social Forest / Wild Life Sanctuary etc within a radius of 500m.
9.8	Any Interstate Border, Protected areas under the Wild Life (Protection) Act, 1972, Critically Polluted Areas as Identified by Central Pollution Control Board and Notified Eco sensitive areas	:	There are No Inter State border within a radius of 10 kms. North Coovery Wild life Sanctuary located within the distance of about 23.58 Kms Form Existing lease area. Wildlife Boundary GPS (12° 31' 53.91"N - 77° 57' 37.72"E) Quarry Boundary GPS (12° 40' 00.00"N - 78° 07' 42.23"E)
9.9	Any Other Structures	:	Nil

10.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES:

10.1		Employment Potential (Management & Supervisory personal)	:	1. As per Mines safety under the provisions of MTHRU, 1961 under the Mines Act, 1952, whenever the workers are employed more than 10, it is preferred to have a qualified Mining Mate to keep all the production workers directly under his control and supervision. 2. The following man power is proposed for quarrying Rough Stone during the One Year and Nine Months period to achieve the proposed production and to comply the provisions of the Government norms.

1.	Skilled	Operator	2 No.
		Mechanic	1 No.
		Blaster/Mat	1 No.
2.	Semi – skilled	Driver	2 Nos
3.	Unskilled	Mazdoor / Labours	5 Nos
		Cleaners	3Nos
		Office Boy	1No
4.	Management & Supervisory staff		3No.
	Total =		18Nos

10.2		Welfare Measures		
	a.	Drinking Water	:	Drinking water at the rate of 2Ltrs per person shall be provided as per the Mines Rules, 1960. It is proposed to make a borehole for providing uninterrupted supply of drinking water and other utilities.
	b	Sanitary facilities	:	Semi permanent latrines & urinals shall be maintained at convenient places for use of labours as per the provisions of Rule (33) of the Mines Rules, 1960 separately for males and females. Washing facilities shall also be arranged as per rule (36) of the Mines Rules, 1960.
	c	First Aid Facility	:	Being a small mine First Aid station as per provisions under Rule (44) of the Mines Rules 1960 will be provided with facilities as per the third schedule as prescribed. Qualified First Aid personnel should be appointed or nominated to attend emergency first aid treatment.
	d.	Labour Health	:	As per Mines Rule, Periodic medical examination has to be arranged for occupational health once in a year in addition to attending medical treatment of occupational injuries under the Rule 45 (A), 1960.

	c.	Precautionary safety measures to the Laborers	:	Safety provisions like helmet, Goggles, safety shoes, Dust mask, Ear muffs etc have to be provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being Semi mechanized operation. Necessary training will be conducted once in a year to all the employees with the help of qualified and experienced officers to train about the safe and system at quarrying operation.

PART – B

11.0 ENVIRONMENTAL MANAGEMENT PLAN:

11.1	Existing Land Use Pattern	:	The existing land use pattern is given as under.

SL. NO.	LAND USE	PRESENT AREA (HECT)	AREA IN USE DURING THE QUARRYING PERIOD (HECT)
1.	Quarrying Pit	Nil	2.51.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	Nil	0.02.0
4.	Green Belt	Nil	0.30.4
5.	Unutilized	3.00.0	0.15.6
	Total =	3.00.0Ha	3.00.0Ha

11.	Water Regime	:	The ground water table is reported as 105m below ground level in nearby wells of this area. (Mining depth taken as 8m from above ground Surface level and 84m from below ground Surface level (Total depth- 92m) (1m Top soil + 91m Rough stone). Now, the present quarry shall be proposed above the water table. Hence, quarrying may not affect the ground water.
11.3	Flora and Fauna	:	Except acacia bushes, no other valuable trees are noticed in the fresh Lease area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.
11.4	Climatic conditions	:	Generally sub tropical climatic condition prevails throughout the year and this District receives rain both in South west and North east monsoon. The average rainfall is about 800mm to 900mm and the temperature ranges from 18°C during winter and to a maximum of 38°C during the summer.

11.5	Human Settlement	:	The nearest habitations with the population is given as under

Direction	Village	Distance & Vegetation in Kms	Population
North	APPINAYAKKANKOTTI	1.9Kms	2500
East	VERUPASANDIRAM	1.4Kms	300
South	CHENNASANDIRAM	1.4kms	300
West	AVALNATHAM	2.0Kms	240

11.6	Plan for Air, Dust Suppression	:	Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc.., will be suppressed by periodical wetting of land by water spraying. For the sampling of air, high volume air sampler (Model VFC-PM10) was used (10 meter above and 5 meter away from road) and the particulates were collected on what man GFA glass fiber filters dried in a hot air oven at 105°C for 1hr and weighed. The average flow rate was about 1.1 cubic meters.
11.7	Plan for Noise Control	:	Quarrying of Rough Stone will be carried out by drilling and Proposed Control Blasting by using low power explosives, and hence, noise will be very Minimum. However, periodical noise level monitoring will be carried out to check the noise level in and around the quarry site. In order to assess the extent of noise pollution due to vehicular traffic different zones viz., Silence zone, Residential Zone, Commercial zone, Traffic signals and Industrial zones were identified in urban and suburban areas of Krishnagiri . Adequate Number of observations Were made in all the selected sites by using the sound level meter (I.T Lutron SL-4001).
11.8	Environmental Impact Assessment Statement Describing Impact on mining on the next five years	:	Factors to be considered for EIA are, 1. Dust generation, 2. Land degradation 3. Stabilization and vegetation of dumps 4. Adverse effect on water regime 5. Socio economic benefits arising out of Mining. 6. Noise and Vibration.
	a. Dust	:	Dust is expected to be generated from drilling, hauling roads, place of excavation etc and it will be suppressed by periodical wetting of lands.
	b. Land degradation	:	Land degradation is by means of cutting the trees and removal of fertile soil does not arise. Proposed usage of land for the next five years hall be less than **3.00.0Ha** Afforestation will be started during the first year of mining operation itself.

	c. Stabilization and vegetation of dumps	:	The topsoil will be spread over the non active dumps along the slope and edges to plant tree saplings to form vegetal cover over the dumps. Such vegetal cover will prevent erosion of dumps during rainy seasons.
	d. Socio economic benefits arising out of mining	:	1. To provide Employment opportunities of the nearby villagers. 2. For the cultural development of the nearby villagers.
	e. Noise and vibration	:	Since, no deep hole Proposed Control Blasting is proposed with small dia explosives are used for breaking the hard rock and boulders, the noise and vibrations will be very Minimum and are within the permissible limits.
11.9	Proposal for Waste Management	:	The top soil of the lease area is **25628m³**. Topsoil formation will be removed and Dumping to All Side of the **7.5m & 10.0m** boundary barrier of the lease area, this will be done only after obtaining permission and paying necessary seignior age fees to the Government. There is no wastes are generated during the mining period. **Proposed Dump Dimensions:** Top Soil-7124 Sqm X 3.60m(H) = 25628m³
11.10	Proposal of Reclamation of Land affected during mining activities and at the end of mining.	:	The present mining is proposed to an average depth of **8m** from above ground Surface level and **84m** from below ground Surface level. (Total depth- **92m**). The mined out area will be fenced on top of open cast working with 8/ fencing. Low lying areas with water logging shall be used for fish culture. No immediate proposals for closure of pit as the rough stone persist still at deeper level.
11.11	Program for Afforestation	:	Trees like tamarind, casuarinas etc will be planted along the lease boundary and avenues as well as over non active dumps at a rate 40 trees per annum with an interval of 5m. The rate of survival expected to be 80% in this area.
11.12	Proposed Financial Estimate / Budget for (EMP) Environment Management **Fixed Asset Cost:**	:	
	1. Land Cost	:	Rs.63,00,000/-(Leased Tender Amount for Government Puramboke Land)
	2. Labour Shed		Rs. 60,000/-
	3. Sanitary Facility	:	Rs. 50,000/-
	4. Fencing cost	:	Rs. 1,50,000/-
	Total=	:	Rs.65,60,000/-

	Operational Cost: **Machinery cost**	:	**Rs.20,00,000/-**
	EMP Cost: 1. Drinking water facility 2. Safety kids 3. Water sprinkling 4. Afforestation 5. Water quality test 6. Air quality test 7. Noise/vibration test 8. Cost towards charity Total=	: : : : : : : : :	 Rs. 1,10,000/- Rs. 55,000/- Rs. 55,000/- Rs. 25,000/- Rs. 30,000/- Rs. 25,000/- Rs. 25,000/- Rs. 25,000/- **Rs. 3,70,000/-**
	Total Project Cost	:	**Rs.89,30,000/-**

12.0 MINE CLOSURE PLAN:

12.1	Steps proposed for phased restoration, reclamation of already mined out area.	:	The present mining is proposed to an average depth of **8m** from above ground Surface level **84m** from below ground Surface level (Total depth- **92m**). The mined out area will be fenced on top of open cast working with SI fencing to arrest the entry of cattle's and public in to the quarry site.
12.2	Measures to be under taken on mine closure as per Act & Rules	:	Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by using Barbed wire fencing. Green belt development at the rate of 40 trees per year will be proposed.
12.3	Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area	:	It is a Fresh Rough stone quarry with a minable depth **92m** only. **8m** from above ground Surface level **84m** from below ground Surface level. And hence, no need of mitigation and restoration / reclamation of the applied lease area.

13.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

(i) Permission will be obtained from the Director of Mines Safety for the extracting the Rough Stone from the Boundary barriers and for slopes.

(ii) Care and precautionary measures will be taken for the safety of workers as per Rules and Act.

(iii) The Applicant will endeavor every attempt to quarry the Rough Stone economically without any wastage and to improve the environment and ecology.

(iv) The District Collector, KRISHNAGIRI in his letter Rc. No. 170/2018/MINES dated: 09.03.2018. Has directed the applicant to produce approved Mining Plan and Environmental Clearance certificate from the District Level Environmental Impact Assessment Authority (DEIAA) for the grant of quarry lease for the applied quarry area.

(v) Accordingly, Mining Plan is prepared under Rule 19 (1) Tamil Nadu Minor Mineral Concession Rules, 1959 & As per Amendment under Rule 41 & 42 by incorporating the conditions imposed in the precise area communication letter and by incorporating all the details proposed in the letter No. DEIAA-TN/Minor Minerals / 2017 dated 13.06.2017 of District Level Environmental Impact Assessment Authority.

(vi) In the above circumstances **M/s. SRI VENKATESHWARA BLUE METALS, PROP: A.M.MURUGAN** is here by preparing the Mining Plan for approval for fresh Rough Stone Quarry. And subsequent submission of Form-I and pre Feasibility report to obtain environmental clearance from the DEIAA of Tamil Nadu, Krishnagiri.

(vii) This Mining Plan is prepared for the fresh Rough Stone Quarry for a period of Five Years.

(viii) The average proposed production of Rough stone for Five Years is ***218973***m^3 and average production per year is ***243795***m^3.

This Mining Plan is approved based on guidelines / instruction issued and in ... of the particulars ... Rc. No. 170/2018 Dated 28.5.2018 of the ... Deputy Director ... Concession ... and Mineral Conservation and Development Rule 2010.

O/C

Deputy Director, Geology and Mining, Krishnagiri.

S.DHANASEKAR, M.Sc.
RQP/MAS/225/2011/A

28-5-18

28/5/18

Rc. No. 170/18 Dt: 28.5.2018

நக.எண்.170/2018/கனிமம்

மாவட்ட ஆட்சியர் அலுவலகம்
(புவியியல் மற்றும் சுரங்கத்துறை)
கிருஷ்ணகிரி மாவட்டம்,
கிருஷ்ணகிரி.
நாள் .02.2018

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - சாதாரண கற்கள் கிருஷ்ணகிரி மாவட்டம் மற்றும் வட்டம் - கொண்டப்பநாயனப்பள்ளி கிராமம் அரசு புல எண் 202/1(பகுதி-ஏ) ல் 3.00.0 ஹெக்டேர் பரப்பளவில் அரசு நிலத்தில் அமைந்துள்ள சாதாரண கற்குவாரிக்கு டெண்டருடன் இணைந்த ஏல முறையில் குத்தகை வழங்க டெண்டர்/பொது ஏலம் நடத்தப்பட்டது - பொது ஏலத்தில் அதிக தொகை கோரிய திரு.எ.எம்.முருகன் த/பெ மன்நாதன், கதவு எண்.4/4-109ஏ முத்தாம்பட்டி அஞ்சல், தொளசம்பட்டி வழி, பனமரம்-636 503, மேட்டூர் வட்டம், சேலம் மாவட்டம் என்பவருக்கு சாதாரண கற்குவாரி குத்தகை வழங்குதல் தொடர்பாக ஒப்புகூரிக்கப்பட்ட கரங்கத்திட்டம், தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் தடையின்மைச் சான்று மற்றும் தமிழ்நாடு மாசு கட்டுப்பாட்டு வாரிய இசைவு ஆகியவற்றை பெற்று வழங்க கோருதல் - தொடர்பாக.

பார்வை:
1. கிருஷ்ணகிரி மாவட்ட அரசிதழ் சிறப்பு வெளியீடு எண்.01நாள்: 19.01.2018.
2. 03.02.2018 அன்று தினமணி நாளிதழில் வெளியிடப்பட்ட பத்திரிக்கை செய்தி.
3. திரு.எ.எம்.முருகன் த/பெ மன்நாதன், கதவு எண்.4/4-109ஏ முத்தாம்பட்டி அஞ்சல், தொளசம்பட்டி வழி, பனமரம்-636 503, மேட்டூர் வட்டம், சேலம் மாவட்டம் என்பவரது டெண்டர் விண்ணப்பம் நாள்: 06.02.2018.

கிருஷ்ணகிரி மாவட்டம் மற்றும் வட்டம், கொண்டப்பநாயனப்பள்ளி கிராமம் அரசு புல எண் 202/1 (பகுதி-ஏ) ல் 3.00.0 ஹெக்டேர் பரப்பளவில் அமைந்துள்ள சாதாரண கற்குவாரிக்கு ஐந்து ஆண்டுகளுக்கு குவாரி குத்தகை வழங்குவது தொடர்பாக 07.02.2018 அன்று நடைபெற்ற பொது ஏலத்தில் திரு.எ.எம்.முருகன் த/பெ மன்நாதன், கதவு எண்.4/4-109ஏ முத்தாம்பட்டி அஞ்சல், தொளசம்பட்டி வழி, பனமரம்-636 503, மேட்டூர் வட்டம், சேலம் மாவட்டம் என்பவர் அரசு நிர்ணயம் செய்த குறைத்தட்ச குத்தகை தொகையை விட அதிக தொகையான ரூ.53,00,000/- (ரூபாய் அறுபத்தி மூன்று லட்சம் மட்டும்)ஐ பொது ஏலத்தில் கோரியதால் அவருக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் வதி 8(6)(b)-ன்படி அவருக்கு கீழ்க்கண்ட நிபந்தனைகளுடன் குவாரி குத்தகை வழங்க உத்தேசிக்கப்பட்டுள்ளது.

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நிபந்தனைகள்:

03. சங்கத்தின் செயல்பாட்டு எல்லை சங்கவிதிகளில் (Bye-law) வரையறை செய்யப்பட்டு இருக்க வேண்டும். இந்த விதியின்கீழ் விண்ணப்பிக்கும் போது மேற்படி சங்கத்தின் செயல்பாட்டிற்கென வரையறை செய்யப்பட்டுள்ள பகுதிக்குள் அமைந்துள்ள குவாரிகளுக்கு மட்டுமே விண்ணப்பித்தல் வேண்டும். சங்கத்தின் துணைவிதியின் நகல் இணைக்கப்பட வேண்டும்.

04. சங்கங்களில் உள்ள அனைத்து உறுப்பினர்களும் கல்குவாரிகளில் குறைந்த பட்சம் இரு ஆண்டுகள் வேலை செய்த முன் அனுபவம் பெற்றிருக்க வேண்டும். இதற்கான சான்றினை மாவட்ட ஆட்சியரிடமிருந்து பெற்று இணைக்க வேண்டும்.

05. இத்துடன் இணைக்கப்பட்ட விண்ணப்ப படிவம் VI-B வரிசை எண் 9,10ல் கூறப்பட்டுள்ளபடி வருமான வரி மற்றும் சரக்கு வரி நிலுவையில்லா சான்று அல்லது ரூ 20.00 (ரூபாய் இருபது மட்டும்) மதிப்புள்ள முத்திரைத்தாளில் ஆணை உறுதி வாக்குமூலம் நோட்டரி வழக்குரைஞர் முன்னிலையில் கையொப்பம் பெற்று விண்ணப்பப்படிவத்துடன் இணைக்கப்பட வேண்டும்.

06. ஒவ்வொரு சாதாரண கல்குவாரிக்கும் திரும்ப வழங்க இயலாத விண்ணப்ப கட்டணமாக ரூ 500/- (ரூபாய் ஐநூறு மட்டும்) மாவட்ட கருவூலத்தில் செலுத்தி அசல் செலுத்துச் சீட்டை விண்ணப்பப்படிவத்துடன் இணைக்க வேண்டும்.

07. கல்குவாரிகளுக்கான குவாரிக் குத்தகை உரிய சங்கங்களின் (அல்லது) குழுவின் பெயரிலேயே வழங்கப்படும். தனி நபர் பெயரில் வழங்கப்பட மாட்டாது.

08. மாவட்ட ஆட்சியரை தலைவராக கொண்டும், மாவட்ட ஊராட்சி மன்றத் தலைவர் மற்றும் குவாரி அமைந்துள்ள ஊராட்சி ஒன்றியத் தலைவரை உறுப்பினராகக் கொண்டும், ஊரக வளர்ச்சித் துறையின் கூடுதல் ஆட்சியர் பதவிக்கு இணையான அலுவலர் மற்றும் புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநர் அலுவலர் சார்ந்த உறுப்பினராக கொண்டு அமைந்துள்ள சிறப்பு குழுவின் முன்னிலையில் மனுக்கள் பரிசீலிக்கப்பட்டு 60 நாட்களுக்குள் இறுதி ஆணை பிறப்பிக்கப்படும்.

09. இவ்விதியின் கீழ் வழங்கப்படும் குவாரியின் குத்தகை காலம் 05 (ஐந்து) ஆண்டுகளாகும். குறிப்பிட்ட தேவையும், பொது நலன் கருதியும் கனிமத்தின் அளவைப் பொறுத்தும் குவாரி குத்தகை காலத்தை ஐந்து ஆண்டுகளுக்கு குறைவாக நிர்ணயம் செய்ய மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு. தமிழ்நாடு சிறு கனிமச் சலுகை விதிகளின் விதி 8 (10-A) ன்படி வழங்கப்படும் இந்த குவாரிக் குத்தகையை புதுப்பிக்க இயலாது.

10. ஒரே குவாரிக்கு குத்தகை கோரி பல உதவிக் குழுவும் மற்றும் விடுவிக்கப்பட்ட கொத்தடிமைகளால் துவக்கப்பட்ட தொழிலாளர் கூட்டுறவுச் சங்கமும் மனு செய்திருந்தால் முன்னுரிமை அடிப்படையில் விடுவிக்கப்பட்ட கொத்தடிமை தொழிலாளர் கூட்டுறவு சங்கத்திற்கு குவாரிக் குத்தகை அளிக்கப்படும்.

11. குவாரி அமைந்துள்ள பஞ்சாயத்து யூனியன் எல்லைக்குள் ஏற்கனவே பொது ஏலம் அல்லது டெண்டர் வாயிலாக குத்தகை விடப்பட்டிருந்தால் பெறப்பட்ட குத்தகை தொகையின் சராசரி அடிப்படையிலோ அல்லது அவ்வாறு பஞ்சாயத்து யூனியன் எல்லைக்குள் குவாரி ஏதும் டெண்டருடன் இணைந்த ஏலம் மூலம் குத்தகைக்கு விடப்படவில்லையெனில் மாவட்டம் முழுவதும் ஏலம் விடப்பட்டுள்ள குவாரிகளின் குத்தகை தொகையின் அடிப்படையில் மாவட்ட ஆட்சியர் குத்தகை காலம் முழுமையாகவுள்ள ஒட்டு மொத்த குத்தகைத் தொகையை நிர்ணயம் செய்வார். அத்தொகையில் 50 % தள்ளுபடி செய்யப்பட்டு மீதி தொகை தற்போது குவாரிக்கான குத்தகைத் தொகையாக நிர்ணயிக்கப்படும். இக்குத்தகைத்தொகையை முதல் ஆண்டின் நான்கு தவணைகளாக செலுத்தப்பட வேண்டும். ஒவ்வொரு தவணைத் தொகையும் உரிய காலாண்டு காலம் ஆரம்பிக்கும் தேதிக்கு 15 நாட்களுக்கு முன்னரே செலுத்தப்பட வேண்டும். அவ்வாறு தொகையை செலுத்தத் தவறினால் அச்சங்கத்திற்கு/குழுவிற்கு வழங்கப்பட்ட குவாரிக் குத்தகை மாவட்ட ஆட்சியரால் ரத்து செய்யப்படுவதுடன் குழு/ சங்கத்தினர் எதிர்காலத்தில் முன்னுரிமை முறையில் குவாரி குத்தகை பெறும் தகுதியை இழந்தவராவர். அச்சூழ்நிலையில் அவர்கள் மேற்கொண்டு குத்தகை கோரி மனுச் செய்திருந்தால் அம்மனு உடனடியாக தள்ளுபடி செய்யப்படும்.

12. மாண்புமிகு இந்திய உச்சநீதிமன்றம் வழக்கு எண் ஐ.ஏ. 12-13/2012 சிறப்பு அனுமதி மனு (சி) எண்.19628 - 19629/2009 மற்றும் இதன்மீது 27.02.2012 அன்று வழங்கியுள்ள ஆணைகளின்படியும், இந்திய அரசு சுற்றுச் சூழல் மற்றும் வனத்துறை குறிப்பாணை எண். எல்.11011/47/2011 - IA. II(M) நாள் 18.05.2012ன்படியும், 1959-ஆம் வருடத்தைய தமிழ்நாடு சிறுகனிமச் சலுகை திருத்தம் செய்யப்பட்டு சேர்க்கப்பட்ட விதிகள் 41 மற்றும் 42-ல் கண்டுள்ளவாறு அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் தமிழ்நாடு மாநில/ஒன்றிய/மாவட்ட சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று பெற்று சமர்ப்பித்த பின்பு மட்டுமே குவாரி குத்தகை வழங்க முடியும்.

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13. [illegible] குவாரி குத்தகை உரிமம் பெற தகுதியுள்ள குழு/சங்கம் [illegible] அவர்களுக்கு முதல் ஐந்தாண்டு குத்தகை தொகை மற்றும் அதற்கான 2 [illegible] உரிய காலத்திற்குள் செலுத்துமாறு அறிவிக்கை அனுப்பப்படுவதுடன் [illegible] அவர்களுக்கு குவாரி குத்தகை வழங்கப்பட உள்ள குவாரியின் புல எண் பரப்பளவு ஆகிய விவரங்கள் [illegible] அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் தமிழ்நாடு மாநில/சுற்றுச்சூழல் மாவட்ட [illegible] ஆணையத்தின் தடையின்மை சான்று ஆகியவற்றை உரிய காலத்திற்குள் சமர்ப்பிக்குமாறு தெரிவிக்கலாகும்.

14. மேற்கண்ட அறிவிக்கை பெற்றுக்கொண்ட குழு/சங்கத்தினர் சுரங்கத்திட்டத்தை அங்கீகாரம் பெற தகுதி வாய்ந்த நபர் (RQP) மூலம் அரசு தெரிவித்துள்ள விதிகள் மற்றும் வழிகாட்டுதல்களின் படி தயாரித்து அறிவிக்கை பெறப்பட்ட நாளிலிருந்து மூன்று மாத காலத்திற்குள் [illegible] புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநரிடம் அங்கீகாரம் பெற சமர்ப்பிக்க வேண்டும்.

15. மேற்கண்ட குழு/சங்கத்தினர் [illegible] புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநரால் அங்கீகாரம் வழங்கப்பட்ட சுரங்கத்திட்டத்தை தமிழ்நாடு மாநில/ [illegible] மாவட்ட சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் முன்பு சமர்ப்பித்து தடையின்மை சான்று [illegible] மற்றும் தமிழ்நாடு மாசுகட்டுப்பாட்டு வாரிய [illegible] இசைவு ஆணையினை பெற்று சமர்ப்பிக்க வேண்டும்.

16. அ) குவாரி குத்தகை [illegible] ஆணை [illegible] முன்பு மேற்கண்ட குழு/சங்கத்தினர் மாவட்ட வன அலுவலர் [illegible] அனுமதி பெற்று சமர்ப்பிக்க வேண்டும்.

ஆ) இரு மாநில எல்லையிலிருந்து ஐந்து கிலோமீட்டர் தொலைவிற்குள்ளும் வனவிலங்கு சரணாலயத்திலிருந்து பத்து கிலோமீட்டர் தொலைவிற்குள்ளும் அமைந்துள்ள குவாரிகளுக்கு மத்திய [illegible] ஆணையத்தின் முன் அனுமதி பெற்று சமர்ப்பிக்க வேண்டும்.

17. காவேரி வடக்கு வனவுயிரின சரணாலயத்திலிருந்து பத்து கிலோமீட்டர் தொலைவிற்குள் அமைந்துள்ள குவாரிகளுக்கு தேசிய வனஉயிரின நிலைக்குழுவிடமிருந்து (Standing Committee of National Board of Wildlife) தடையின்மை சான்று பெற்று சமர்ப்பிக்க வேண்டும்.

18. அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் முதல் ஐந்து ஆண்டு காலத்திற்கு மட்டுமே செல்லத்தக்கதாகும்.

19. மேற்கண்ட ஆவணங்களை சமர்ப்பித்தபின்பு தகுதிவாய்ந்த குழு/சங்கத்தினருக்கு குவாரி குத்தகை வழங்கி மாவட்ட ஆட்சியரால் ஆணையிடப்படும்.

20. அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று ஆகியவற்றை குறிப்பிட்ட காலக்கெடுவிற்குள் சமர்ப்பிக்க தவறினால் மாவட்ட ஆட்சியர் அவர்களால் சம்பந்தப்பட்ட [illegible] மாவட்ட ஆட்சியர் முன்பு விளக்கமளிக்க [illegible] வாய்ப்பளித்து விசாரணை நடத்தப்பட்டு ஏற்கனவே வழங்கப்பட்ட [illegible] ரத்து செய்யப்படும்.

21. குவாரி குத்தகை ஆணை வழங்கப்பட்ட பின்பு நிர்ணயிக்கப்பட்ட குத்தகை தொகையில் 10 சதவீதம் அல்லது ரூ 5000/- (ரூபாய் ஐந்தாயிரம் மட்டும்) இவற்றில் எது அதிகமோ அது காப்புத் தொகையாக செலுத்தப்பட வேண்டும் மற்றும் குவாரி குத்தகை வழங்கப்பட்ட பரப்பிற்கான பரப்புவரி செலுத்த வேண்டும் மற்றும் குறிப்பிட்டுள்ள கால கெடுவிற்குள் உரிய முத்திரைத்தாளில் குத்தகை ஒப்பந்தப்பத்திரம் தயார் செய்து மாவட்ட ஆட்சியர் அவர்களுடன் குத்தகை ஒப்பந்தம் நிறைவேற்றி சம்பந்தப்பட்ட சார் பதிவாளர் அலுவலகத்தில் குத்தகைதாரர் தனது செலவில் பதிவு செய்து மீள சமர்ப்பிக்க வேண்டும்.

22. மாவட்ட ஆட்சியர் அவர்களுடன் ஒப்பந்தப்பத்திரம் நிறைவேற்றிய பின்னரே சம்பந்தப்பட்ட குழு/சங்கத்தினர் குவாரிப்பணி செய்ய அனுமதிக்கப்படுவர்.

23. அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டத்தில் தெரிவித்துள்ளவாறு மட்டுமே குவாரிப்பணிகள் மேற்கொள்ளப்படவேண்டும் [illegible] குவாரிப்பணிகளை மேற்கொள்வது கண்டறியப்பட்டால் குவாரிப்பணியை நிறுத்தி வைப்பதற்கு மாவட்ட ஆட்சியரால் நடவடிக்கை எடுக்கப்படும்.

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24. குத்தகை உரிமம் பெற்ற குழுக்கள்/ சங்கங்கள் குவாரிக்காக நிர்ணயிக்கப் [illegible] தொகை [illegible] குத்தகை உரிமம் வழங்கப்பட்ட குவாரியில் இருந்து எடுத்துச் செல்லப்படும் அனைத்து வகையான [illegible] 1959 ஆம் ஆண்டு சிறு கனிமச்சலுகை விதிகள் இணைப்பு - II இல் உள்ளவாறு சீனியரேஜ் கட்டணம் [illegible] எடுத்துச் செல்ல [illegible] மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநர் அலுவலகத்தில் [illegible] சீட்டுகள் பெற்று குவாரியிலிருந்து கனிமங்களை ஏற்றிச் செல்லும் ஒவ்வொரு வாகனத்திற்கும் முறையாக பூர்த்தி செய்து கொடுக்க வேண்டும். குத்தகை அனுமதி வழங்கப்பட்ட நிலத்திலிருந்து வெட்டி எடுக்கப்படும், வெளியேற்றும் மற்றும் இருப்புள்ள கனிமங்களுக்கும் கற்களுக்கும் முறையான கணக்குகளை கணக்கேட்டில் பதிவேட்டில் முறையாக பராமரித்தல் வேண்டும். அவ்வாறு சம்பந்தப்பட்ட அலுவலர்கள் தணிக்கைக்கு ஆஜர்படுத்த கோரினால் தவறாது சமர்ப்பிக்க வேண்டும்.

25. குவாரிகளுக்கு அருகில் உள்ள அங்கீகரிக்கப்பட்ட குடியிருப்புகளுக்கு 300 மீட்டரும் தேசிய நெடுஞ்சாலைகள், ரயில்பாதைகள், மின்கம்பங்கள் ஆகியவற்றிற்கு 50 மீட்டரும் பஞ்சாயத்து சாலைகளுக்கு 10 மீட்டரும் பாதுகாப்பு இடைவெளிவிட்டு மீதமுள்ள இடத்திற்குள் மட்டுமே குவாரிப் பணி செய்யவேண்டும். பொது மக்கள் உபயோகிக்கும் இடம், குடியிருப்புகள், பட்டா நிலங்கள் அல்லது பொதுச் சொத்துகளுக்கு ஏதேனும் சேதம் ஏற்படின் அதற்கு குத்தகைதாரரே முழுப்பொறுப்பு ஏற்க வேண்டும்.

26. மேற்படி கல் குவாரிகளில் சாதாரண கட்டு கற்கள், ஜல்லிகள், ஜல்லிக்கற்கள் ஆகியவற்றை மட்டும் குவாரி செய்ய வேண்டும். வெளிநாட்டிற்கு ஏற்றுமதி செய்வதற்கும் மெருகேற்ற பயன்படும் வகையிலும் உள்ள பெரிய அளவிலான கற்களை எக்காரணத்தை முன்னிட்டும் உற்பத்தி செய்யக்கூடாது.

27. குத்தகைக்கு விடப்படும் கல் குவாரிகளுக்கு அரசு நிலங்களில் பாதை இல்லாத பட்சத்தில் குத்தகை எடுப்பவரே தமது சொந்த பொறுப்பில் பாதை ஏற்படுத்திக் கொள்ள வேண்டும்.

28. வழங்கப்பட்ட குத்தகை உரிமத்தினை பொது மக்கள் மற்றும் அரசு துறை மூலம் கடுமையான ஆட்சேபம் இருப்பின் பொது நன்மையை கருதி மாவட்ட ஆட்சியர் குத்தகையை ரத்துச் செய்ய நேரிட்டால் அதனால் ஏற்படும் இழப்பிற்கு [illegible] குத்தகைதாரருக்கு எவ்வித உரிமையும் இல்லை.

29. குவாரிக் குத்தகையை வேறுயாருக்கும் மாற்றவோ உள்குத்தகைக்கு விடவோ கூடாது. அப்படி ஏதாவது செய்திருப்பது தெரியவந்தால் மேற்படி குத்தகை ரத்துச் செய்யப்படுவதுடன் குத்தகைதாரர் செலுத்திய தொகையும் அரசுக்கு ஆதாயம் செய்யப்படும்.

30. சிறு கனிமத்திற்கு உரிய அனுப்புகை சீட்டை குத்தகை வழங்கப்பட்ட குவாரியிலிருந்துதான் வாகனங்களுக்கு கொடுத்து அனுப்ப வேண்டும். அனுப்புகை சீட்டை வேறு இடங்களிலிருந்தோ அல்லது வேறு குவாரிகளிலிருந்தோ கொடுத்து அனுப்பினால் குத்தகை உரிமம் ரத்துச் செய்யப்பட்டு அனைத்து தொகைகளும் அரசுக்கு ஆதாயம் செய்யப்படும்.

31. முத்திரை பெறப்படாத அனுப்புகை சீட்டுடன் கொண்டு செல்லப்படும் சிறுகனிமங்கள் முறையற்ற வகையில் எடுத்ததாக கருதப்பட்டு உரிய சட்டத்தின்படி உரிய அலுவலர்களால் கைப்பற்றப்பட்டு அபராதம் விதிக்கப்படும்.

32. அனுப்புகை சீட்டில் உள்ள கலங்கள் பூர்த்தி செய்யப்படாமலோ அல்லது தவறாக எழுதப்பட்டு வாகனங்களுக்கு கொடுக்கப்பட்டிருந்தாலோ சிறுகனிமம் கொண்டு செல்லும் வாகன உரிமையாளருக்கு அபராதம் விதித்து வசூல் செய்யப்படும். குவாரிகுத்தகையை ரத்து செய்ய நடவடிக்கை மேற்கொள்ளப்படும்.

33. குத்தகை நிபந்தனை மீறப்பட்டால் குத்தகையை ரத்துச் செய்யவோ செய்யப்பட்ட தவறுகளுக்கு குத்தகைதாரருக்கு தண்டனை விதிக்கவோ கிரிமினல் வழக்கு தொடரவோ மாவட்ட ஆட்சியருக்கு முழு அதிகாரம் உண்டு. குத்தகை ரத்துச் செய்யப்பட்டால் காப்புத் தொகை உட்பட அனைத்து தொகைகளும் அரசுக்கு ஆதாயம் செய்யப்படும். மாவட்ட ஆட்சியர் எக்காரணத்தினாலாவது குவாரி குத்தகையை ரத்துச் செய்யும் பட்சத்தில் அதனால் ஏற்படும் எவ்வித நட்டங்களுக்கும் அரசு பொறுப்பல்ல. குத்தகை எடுத்தவர் எந்த காரணத்தை முன்னிட்டும் தனக்கு இழப்பு ஏற்பட்டால் நஷ்டஈடு கேட்கக்கூடாது.

34. குவாரிகளின் எல்லைகள் பற்றி பிரச்சனைகள் ஏற்பட்டால் மாவட்ட ஆட்சியரின் தீர்ப்பே இறுதியானது.

35. அக்குவாரி குத்தகை உரிமம் வழங்கப்பட்ட பின்னர் அக்குவாரியின் ஏதாவது ஒரு பகுதி வரலாற்று முக்கியத்துவம் வாய்ந்த பழங்காலத்து கல்வெட்டுக்கள், சிற்ப வடிவமைப்புகள் போன்றவைகள் காணப்பட்டால் அது குறித்து அரசுக்கு தகவல் தரவேண்டும். மேலும் அப்பகுதியில் கற்கள் உடைப்பது நிறுத்தப்பட்டு அப்புராதன சின்னங்கள் பாதுகாக்கப்பட வேண்டும்.

36. குத்தகைதாரர் குத்தகை வழங்கப்பட்ட குவாரி புலத்தில் குவாரியின் பெயர், குத்தகைதாரர் பெயர், குத்தகை வழங்கப்பட்ட மாவட்ட ஆட்சியர் செயல்முறை எண், குத்தகை தொகை மற்றும் குத்தகை காலம் [illegible] குறிப்பிட்டு தகவல் பலகையை இவ்வறிவிக்கையின் இணைக்கப்பட்ட இணைப்பு 4ல் கண்ட படிவத்தில் [illegible] குத்தகை காலம் முழுவதும் நல்ல முறையில் பராமரிக்க வேண்டும்.

37. குத்தகைதாரர் குவாரியின் எல்லைகளை தெளிவாக தெரியும்படி வரையறுக்கப்பட்ட கல் கற்கள் அடையாளமிட்டு [illegible] குவாரி செய்ய வேண்டும். எல்லைகற்களை குத்தகை காலம் முழுவதும் தனது சொந்த செலவில் நன்கு பராமரிக்க வேண்டும்.

38. அரசு, ஆணையர் புவியியல் மற்றும் சுரங்கத்துறை மற்றும் மாவட்ட ஆட்சியரால் இது தொடர்பாக ஏற்படுத்தப்பட்டுள்ள மற்றும் அவ்வப்போது ஏற்படுத்தப்படும் சட்ட திட்டங்களுக்கும் திருத்தங்களுக்கும் குத்தகைதாரர் கட்டுப்பட்டு நடக்க வேண்டும்.

39. இக்குவாரி குத்தகை தொடர்பான நடவடிக்கைகள் அனைத்தும் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 இல் உள்ள அனைத்து விதிகளுக்கும் 1957 ஆம் ஆண்டு சுரங்கங்கள் மற்றும் கனிமங்கள் (முறைப்படுத்துதல் மற்றும் மேம்படுத்துதல்) சட்டம் மற்றும் தமிழ்நாடு அரசு அவ்வப்போது பிறப்பிக்கும் சட்டம் மற்றும் விதி முறைகளுக்கும் கட்டுப்பட்டதாகும்.

40. 1961ம் ஆண்டின் [illegible], 1936 ஆம் ஆண்டின் சம்பளம் வழங்குதல் சட்டம், 1884 ஆம் ஆண்டின் இந்திய வெடிபொருட்கள் சட்டம், 1884 ஆம் ஆண்டு [illegible] ஆகிய [illegible] குத்தகைதாரர் [illegible] வேண்டும்.

41. குத்தகை கோரும் விண்ணப்பத்தினை பரிசீலித்து ஏற்றுக்கொள்ளவோ, நிராகரிக்கவோ மாவட்ட ஆட்சியருக்கு முழு அதிகாரம் உள்ளது. குத்தகை உரிமம் வழங்குதல் தொடர்பாக மாவட்ட ஆட்சியரின் முடிவே இறுதியானதாகும்.

42. [illegible] அறிவிப்பு செய்யப்படாத குவாரிகளுக்கான மனு, முறையாக பூர்த்தி செய்யப்படாத மனு மற்றும் தேவையான இணைப்புகளுடன் பெறப்படாத மனு ஆகியவை நிராகரிக்கப்படும்.

43. குழந்தை தொழிலாளர்களைக் கொண்டு குவாரி பணியில் ஈடுபடுத்தக்கூடாது.

44. குத்தகைதாரர் வருமான வரி நிரந்தர கணக்கு எண் பெற்று குவாரிக்கு செலுத்தப்படும் குத்தகை தொகைக்கும், சீனியரேஜ் தொகைக்கும் 2.00 சதவீதம் வருமான வரி செலுத்த வேண்டும்.

45. இந்த அறிவிப்பில் கண்டுள்ள எந்த குவாரியையும் அறிவிப்பிலிருந்து நீக்க மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.

46. குத்தகை ஒப்பந்த பத்திரத்தில் உள்ள நிபந்தனைகளை மாற்றவோ, அல்லது புதிய நிபந்தனைகளை சேர்க்கவோ மாவட்ட ஆட்சியருக்கு முழு அதிகாரம் உண்டு.

47. இந்த அறிவிப்பு பிரசுரிக்கப்பட்ட பின்னரோ, குத்தகை உறுதி ஆணை பிறப்பிப்பதற்கு முன்னரோ அல்லது பின்னரோ நிபந்தனைகளை மாற்றவோ, ரத்து செய்யவோ மற்றும் பட்டியலில் கண்டுள்ள எந்த குவாரிக்கான குத்தகை உரிமம் கோரும் விண்ணப்பத்தை எக்காரணமின்றி ரத்து செய்யவோ மாவட்ட ஆட்சியருக்கு முழு அதிகாரம் உண்டு. அதற்கு விண்ணப்பதாரர் நஷ்ட ஈடு கோர உரிமை இல்லை.

48. இவ்விதியின் கீழ் வழங்கப்படும் குத்தகை உரிமங்கள் புதுப்பிக்கப்படமாட்டாது, மற்றும் எக்காரணத்தைக் கொண்டும் கால நீட்டிப்பு வழங்கப்படமாட்டாது.

49. குத்தகை காலம் முடிந்தவுடன் அல்லது உரிமம் ரத்து செய்யப்படின் குத்தகை இடத்தை குத்தகைதாரர் மறு தினமே சம்பந்தப்பட்ட வட்டாட்சியரிடம் ஒப்படைத்து அதற்கான ஒப்புகைச்சீட்டினை பெற்றுக் கொள்ள வேண்டும். இதனை மீறுபவர்கள் மீது தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் விதி 36 (அ)வின் படி உரிய தண்டனைக்குள்ளாவார்கள்.

50. குத்தகைதாரர் இவ்வறிவிக்கையின் இணைப்பு (2)ல் கண்டுள்ள படிவத்தில் கண்டுள்ளபடி குவாரியில் பதிவேடுகளை பராமரிக்க வேண்டும்.

51. குத்தகைதாரர் ஒவ்வொரு மாதமும் குவாரி செய்த கனிமத்திற்குரிய கணக்குகளை பிரதி மாதம் 5ஆம் தேதிக்குள் துணை இயக்குநர் புவியியல் மற்றும் சுரங்கத்துறை கிருஷ்ணகிரி அவர்களுக்கு இவ்வறிவிக்கையின் இணைப்பு 3ல் கண்டுள்ள படிவத்தில் தாக்கல் செய்ய வேண்டும்.

52. குத்தகை காலத்திலோ அதற்கும் பின்னரோ கிரயம் தவறி குத்தகையை பயன்படுத்துவதில் ஏற்படும் சகல நஷ்டங்களுக்கும் குத்தகைதாரர் பொறுப்பு ஏற்க வேண்டும். இதற்காக விதிக்கப்படும் அபராதமும் செலுத்த வேண்டும்.

53. குவாரி குத்தகை வழங்கப்பட்ட பகுதியில் குழு/சங்க உறுப்பினர்கள் மட்டுமே குவாரிப்பணி செய்ய வேண்டும்.

54. குவாரியில் வேலை செய்யும் தொழிலாளர்கள் மற்றும் இதர நபர்களுக்கு விபத்து ஏற்படின் அதற்கான முழு பொறுப்பையும் குத்தகைதாரரே ஏற்க வேண்டும். இதற்கு எவ்வகையிலும் அரசு பொறுப்பாகாது.

55. குத்தகை நிபந்தனைகள் மீறப்பட்டால் குத்தகையை ரத்து செய்யவோ, செலுத்த வேண்டிய தொகையினை வசூலிக்கவோ விதியின் வழக்குகள் தொடரவோ மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.

56. குவாரிகளில் நவம்பர், டிசம்பர், ஜனவரி மற்றும் பிப்ரவரி மாதங்களில் மாலை ஆறு மணிக்கு மேல் காலை ஆறு மணி வரை பாறைகளை வெடி வைத்து தகர்க்க கூடாது.

57. குவாரிகளில் இருந்து நவம்பர், டிசம்பர், ஜனவரி மற்றும் பிப்ரவரி மாதங்களில் மாலை ஆறு மணிக்கு மேல் காலை ஆறு மணி வரை உடைகற்களை வெளியில் எடுத்துச் செல்லக் கூடாது.

58. குவாரி தொடர்பான அனைத்து பணிகளும் காலை 6.00 மணி முதல் மாலை 6.00 மணி வரை நிறுத்தப்பட வேண்டும்.

59. குவாரி குத்தகை வழங்கப்படும் பகுதியை சுற்றி குறைந்த பட்சம் 100 மரக்கன்றுகளாவது நடவுசெய்து பாதுகாத்து பராமரித்து பசுமை வளையம் அமைக்கப்பட வேண்டும்.

60. ஆழ்துளை கிணறு அமைக்கும் வாகனம் கொண்டு துளைகள் அமைத்து வெடிவைக்க கூடாது.

61. அங்கீகரிக்கப்பட்ட சுரங்க திட்டத்தின்படி குவாரி பணி செய்யப்பட வேண்டும். குத்தகை காலத்தில் அங்கீகரிக்கப்பட்ட சுரங்க திட்டத்தில் குறிப்பிட்ட அளவை விட அதிகமான கனிமத்தை குவாரி செய்ய வேண்டியிருப்பின் திருத்தப்பட்ட சுரங்க திட்டம் சமர்பித்து அங்கீகாரம் பெற்று அதற்கான சுற்றுச் சூழல் தடையின்மை சான்று சமர்பித்த பின்பே அதனை செய்ய வேண்டும்.

62. குவாரி ஆரம்பித்தது தொடர்பான அறிவிப்பை (Notice of Opening) இந்திய அரசு பெங்களூரு மண்டல சுரங்க பாதுகாப்பு துறை இயக்குநர் அவர்களுக்கு சமர்பிக்க வேண்டும்.

63. குவாரியில் அங்கீகாரம் பெற்ற மைன்ஸ் மேனேஜர்/ மைன்ஸ் மேட்/ பிளாஸ்டர் ஆகியோர்களை பணியமர்த்திய பின்பே குவாரிப் பணியை தொடங்க வேண்டும்.

64. குவாரிப் பகுதியில் மைன்ஸ் மேட் கண்காணிப்பிலேயே வெடிவைத்து வெடிக்கும் பணியை செய்ய வேண்டும்.

65. குவாரிப் பகுதியில் விபத்து ஏதும் ஏற்பட்டால் அதனை உடனடியாக இந்திய அரசு பெங்களூரு மண்டல சுரங்க பாதுகாப்பு துறை இயக்குநர் அவர்களுக்கும் கிருஷ்ணகிரி மாவட்ட ஆட்சியர் அவர்களுக்கும் தெரிவிக்க வேண்டும். குவாரிப் பகுதியில் ஏற்படும் விபத்துக்கு குவாரி குத்தகை தாரரே முழு பொறுப்பாவார்.

66. கீழ்கண்ட அட்டவணையில் குறிப்பிட்டுள்ள கற்குவாரிகளுக்கான குத்தகை காலம், குத்தகை ஒப்பந்தப்பத்திரம் நிறைவேற்றப்பட்ட நாளிலிருந்து 5 ஆண்டுகள் ஆகும். ஆனால் சரியான காரணங்களின் அடிப்படையில் குத்தகைக் காலத்தை குறைக்கவும் நிர்ணயிக்க மாவட்ட ஆட்சியருக்கு அதிகாரமுண்டு.

அட்டவணை -1

சாதாரண கற்குவாரி பட்டியல்.

(I) கிருஷ்ணகிரி வருவாய் கோட்டம்.

கிருஷ்ணகிரி வட்டம்

வ.எண்	கிராமம்	புல எண்	மொத்த பரப்பு	குவாரி குத்தகை வழங்கும் பரப்பு	வகைப்பாடு
(1)	(2)	(3)	(4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	(6)
1	கல்லுக்குறுக்கி	701(பகுதி-1)	83.60.5	2.00.0	மலை
2	கல்லுக்குறுக்கி	701(பகுதி-2)	83.60.5	2.00.0	மலை
3	கல்லுக்குறுக்கி	701(பகுதி-3)	83.60.5	2.00.0	மலை

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(1)	(2)	(3)	(4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	(6)
4	கல்லுக்குறுக்கி	396/1 (பகுதி-3)	13.62.0	1.00.0	கல்லாங்குத்து
5	கல்லுக்குறுக்கி	255(பகுதி)	2.48.0	1.00.0	[illegible]
6	கரியசாகரம் தம்மிட்டி	56(பகுதி)	4.51.5	2.70.0	கல்வெட்டுக் குழி
7	கிருஷ்ணகிரி டவுன்	வார்டு-பி பிளாக்-5/1(பகுதி-1)	49.67.0	2.50.0	மேய் மலை புறம்போக்கு
8	கிருஷ்ணகிரி டவுன்	வார்டு-பி பிளாக்-5/1(பகுதி-2)	49.67.0	2.50.0	மேய் மலை புறம்போக்கு
9	கொண்டப்பநாயனப்பள்ளி	63(பகுதி)	1.90.0	1.50.0	கல்வெட்டு குழி
10	கொண்டப்பநாயனப்பள்ளி	202/1(பகுதி-ஏ)	15.61.5	3.00.0	தீ.த பாறை
11	கொண்டப்பநாயனப்பள்ளி	202/1(பகுதி-பி)	15.61.5	3.00.0	தீ.த பாறை
		பர்கூர் வட்டம்			
12	சிகரலப்பள்ளி	366(பகுதி-1)	10.05.5	2.00.0	பாறை
13	சிகரலப்பள்ளி	366(பகுதி-2)	10.05.5	2.00.0	மலை
14	பர்கூர்	63(பகுதி-பி)	10.78.5	4.40.0	கல்லாங் குத்து
15	[illegible]	54 (பகுதி)	16.45.0	2.00.0	பாறை
16	[illegible]	271(பகுதி)	3.55.0	3.00.0	[illegible]
17	மல்லப்பாடி	652(பகுதி)	12.60.5	3.00.0	அரசு புறம்போக்கு
		ஓசூர் வருவாய் கோட்டம்			
		ஓசூர் வட்டம்			
18	கோபனப்பள்ளி	327/3	1.33.5	1.33.5	மேடு கல்
19	அச்செட்டிப்பள்ளி	881 884 885	1.26.5 2.22.0 0.81.0	1.26.5 2.22.0 0.81.0	தீ.த, கல்லாங்குத்து
			4.29.5	4.29.5	
20	அச்செட்டிப்பள்ளி	886 (பகுதி)	8.85.0	3.00.0	தீ.த.
21	அச்செட்டிப்பள்ளி	888 (பகுதி) 889 890 (பகுதி) 891(பகுதி)	0.67.5 1.71.0 1.37.0 2.12.5	0.33.55 1.71.0 1.04.5 1.00.0	தீ.த, கல்லாங்குத்து
			5.88.0	4.09.0	
22	பஞ்சாட்சிபுரம்	603/1 (பகுதி-A)	21.20.5	2.50.0	தீ.த
23	பஞ்சாட்சிபுரம்	603/1(பகுதி - B)	21.20.5	2.50.0	தீ.த

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(1)	(2)	(3)	(4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	(6)
24	அச்செட்டிப்பள்ளி	1060/1 A	2.17.5	2.17.5	[illegible]
25	நரிகானாபுரம்	40 (பகுதி)	2.24.0	1.80.0	தீ.எ.த.பாறை
26	கெலவரப்பள்ளி	327/1 (பகுதி)	24.31.5	2.62.0	தீ.எ.த
27	ஆலூர்	809(பகுதி-3)	11.25.0	1.46.0	தீ.எ.த
28	ஆலூர்	588(பகுதி)	17.42.5	3.35.0	அரசுபுறம்போக்கு முந்திரிக்காடு
		சூளகிரி வட்டம்			
29	பன்னப்பள்ளி	75/6(பகுதி)	2.52.0	1.85.0	தீ.எ.த.பாறை
30	மீனந்தொட்டி	103/4	1.81.5	1.81.5	தீ.எ.த.பாறை
31	மீனந்தொட்டி	106/3	0.85.0	0.85.0	தீ.எ.த.பாறை
32	வெங்கடாபுரம்	66(பகுதி-5)	60.65.0	4.20.0	தீ.எ.த. காடு
33	மருதாண்டப்பள்ளி	109 (பகுதி-1)	7.52.0	2.00.0	தீ.எ.த. காடு
34	மருதாண்டப்பள்ளி	109 (பகுதி-2)	7.52.0	1.20.0	தீ.எ.த. காடு
35	[illegible]	88/1 பகுதி-2	12.75.0	3.50.0	தீ.எ.த. பாறை
36	காமன்தொட்டி	616/3(பகுதி)	7.65.5	2.77.0	தீ.எ.த.
37	காமன்தொட்டி	754 &760 (பகுதி-1)	36.46.5	1.80.0	தீ.எ.த.மலை
38	காமன்தொட்டி	754 &760 (பகுதி-2)	36.46.5	2.10.0	தீ.எ.த.மலை
39	காமன்தொட்டி	754 &760 (பகுதி-3)	36.46.5	3.66.0	தீ.எ.த.மலை
40	காமன்தொட்டி	754 &760 (பகுதி-4)	36.46.5	3.50.0	தீ.எ.த.மலை
41	காமன்தொட்டி	754 &760 (பகுதி-5)	36.46.5	4.30.0	தீ.எ.த.மலை
42	காமன்தொட்டி	1151,1155, 1212 to,1219, 1222,1225, 1226/A (பகுதி-1)	14.68.5	2.70.0	தீ.எ.த
43	காமன்தொட்டி	1151,1155, 1212 to,1219, 1222,1225, 1226/A (பகுதி-2)	14.68.5	2.87.0	தீ.எ.த
44	காமன்தொட்டி	1151,1155, 1212 to,1219, 1222,1225, 1226/A (பகுதி-3)	14.68.5	2.82.0	தீ.எ.த
45	காமன்தொட்டி	1151,1155, 1212 to,1219, 1222,1225, 1226/A (பகுதி-4)	14.68.5	2.23.0	தீ.எ.த

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(1)	(2)	(3)	(4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	
46	காமன்தொட்டி	1151,1156, 1212 to 1218, 1222,1225, 1226/A (பகுதி-5)	14.68.5	1.27.0	தீ.ஏ.த
47	தோரிப்பள்ளி	144(பகுதி)	3.41.5	2.30.0	தீ.ஏ.த. பாறை
48	தோரிப்பள்ளி	152/2(பகுதி)	4.23.0	2.00.0	தீ.ஏ.த. பாறை
49	தப்புகானப்பள்ளி	637 (பகுதி-1)	25.27.0	4.00.0	தீ.ஏ.த.காடு
50	தப்புகானப்பள்ளி	637 (பகுதி-2)	25.27.0	4.50.0	தீ.ஏ.த.காடு
51	தப்புகானப்பள்ளி	637 (பகுதி-3)	25.27.0	4.50.0	தீ.ஏ.த.காடு
52	செவிடப்பள்ளி	242/4(பகுதி)	1.87.5	1.00.0	தீ.ஏ.த.காடு
53	பஸ்தலப்பள்ளி	130 (பகுதி)	18.80.0	4.86.0	தீ.ஏ.த.காடு
54	தப்புகானப்பள்ளி	314(பகுதி-3)	36.84.0	4.94.32	தீ.ஏ.த.காடு
55	வெங்கடேசபுரம்	294(பகுதி-1)	18.36.5	3.00.0	தீ.ஏ.த.காடு
56	வெங்கடேசபுரம்	294(பகுதி-2)	18.36.5	3.75.0	தீ.ஏ.த.காடு
57	வெங்கடேசபுரம்	198(பகுதி-1)	9.70.0	2.00.0	தீ.ஏ.த.காடு
58	வெங்கடேசபுரம்	196(பகுதி-2)	9.70.0	3.25.0	தீ.ஏ.த.காடு
59	வெங்கடேசபுரம்	136(பகுதி-3)	69.36.0	4.10.0	தீ.ஏ.த.காடு
60	வெங்கடேசபுரம்	136(பகுதி-12)	69.36.0	2.70.0	தீ.ஏ.த.காடு
		தேன்கனிக்கோட்டை வட்டம்			
61	[illegible]	96 (பகுதி) 97(பகுதி)	2.13.5 1.04.5	0.82.0 0.28.0	தீ.ஏ.த கல்லாங்குத்து
			3.18.0	1.10.0	
62	மதகொண்டப்பள்ளி	265 (பகுதி-1)	8.73.0	2.50.0	தீ.ஏ.த கல்லாங்குத்து
63	மதகொண்டப்பள்ளி	265 (பகுதி-2)	8.73.0	2.50.0	தீ.ஏ.த கல்லாங்குத்து
64	மதகொண்டப்பள்ளி	265 (பகுதி-3)	8.73.0	1.60.0	தீ.ஏ.த கல்லாங்குத்து
65	மதகொண்டப்பள்ளி	265 (பகுதி-4)	8.73.0	1.46.0	தீ.ஏ.த கல்லாங்குத்து
66	அதுகொண்டப்பள்ளி	360 (பகுதி)	0.62.5	0.62.5	தீ.ஏ.த
67	நாகமங்கலம்	829 (பகுதி)	188.50.0	4.00.0	தீ.ஏ.த கல்லாங்குத்து
68	கோட்டூர்	144	2.00.5	2.00.5	தீ.ஏ.த கல்லாங்குத்து
69	தட்டகரை	733 (பகுதி-2)	61.77.0	3.00.0	மந்தை புறம்போக்கு

கிருஷ்ணகிரி,
20-12-2017.

சி. கதிரவன்,
மாவட்ட ஆட்சியர்,
கிருஷ்ணகிரி மாவட்டம்.

தமிழ்நாடு எழுதுபொருள் மற்றும் அச்சுத்துறை இயக்குநரால் சேலம் அரசுக் கிளை அச்சகத்தில் அச்சிடப்பட்டு மாவட்ட ஆட்சியரால் வெளியிடப்பட்டது.

இணைப்பு – I

இணைப்பு – VI B

(தமிழ்நாடு சிறுவகைக் கனிமச்சலுகை விதிகள் 1959–ன் விதி 8 (10-A) ஐக் காணவும்)

அரசு புறம்போக்கு நிலங்களில் உள்ள சாதாரண கற்குவாரிகளை, விடுவிக்கப்பட்ட கொத்தடிமைத் தொழிலாளர்களால் அமைக்கப்பட்ட சங்கம் / (SGSY) பொன்விழா கிராம சுய உதவிக்குழுக்கள் ஆகியவற்றுக்கு குத்தகை உரிமம் வழங்கக் கோரும் மனு.

(மூன்று மற்றும் இரண்டு நகல்களில் இணைப்புகளுடன் கொடுக்க வேண்டும்)

நாள்   –2018

அனுப்புநர்

பெறுநர்

மாவட்ட ஆட்சியர்,
கிருஷ்ணகிரி மாவட்டம்,
கிருஷ்ணகிரி.

ஐயா,

நான் / நாங்கள் 1959 ஆம் வருட தமிழ்நாடு சிறுகனிமச் சலுகை விதி 8–ன் உட்பிரிவு 10 ஏ–ன்படி எங்கள் சுய உதவிக்குழுவிற்கு / விடுவிக்கப்பட்ட கொத்தடிமை தொழிலாளர் சங்கத்திற்கு சாதாரண கற்கள் வெட்டி எடுக்க கல் குவாரி குத்தகை உரிமம் வேண்டி கிருஷ்ணகிரி மாவட்ட அரசிதழில் வெளியான ________ நாளிட்ட அறிவிக்கை எண் ______ ன்படி விண்ணப்பத்தினை சமர்ப்பிக்கின்றோம்.

மனு தொடர்பான விவரங்கள் கீழே கொடுக்கப்பட்டுள்ளன.

1. (SGSY) பொன்விழா கிராம சுய வேலை வாய்ப்பு திட்டக்குழு / விடுவிக்கப்பட்ட கொத்தடிமை சங்கத்தின் சரியான முழுமையான பெயரும் முகவரியும் :

2. (அ) குழு மற்றும் சங்கங்கள் தமிழ்நாடு கூட்டுறவு சட்டம் 1983 (தமிழ்நாடு சட்டம் 30/1983) அல்லது தமிழ்நாடு சங்கங்களின் பதிவு சட்டம் 1975 (தமிழ்நாடு சட்டம் 27/1975) ஆகியவைகளின்கீழ் பதிவு செய்யப்பட்ட விவரம் மற்றும் சான்றிதழ் இணைக்கப்பட வேண்டும் :

   (ஆ) குழு / சங்க உறுப்பினர் பெயர் மற்றும் முகவரி பட்டியல் (உறுப்பினர் பற்றிய விவரம்) மற்றும் உறுப்பினர் எண் விவரம் இணைக்கப்பட வேண்டும் :

   (இ) குழு / சங்கம் செயல்பட அனுமதிக்கப்பட்டுள்ள பஞ்சாயத்து விவரம் :

3. மனு கட்டணம் செலுத்திய விவரம் (செலான் எண் மற்றும் நாள்)

4. (அ) கல் குவாரி செய்ய விரும்பும் கிராமத்தின் பெயர்

5. கல் குவாரி செய்ய தேவைப்படும் குத்தகை கால அளவு :

6. கல் குவாரி செய்ய விண்ணப்பிக்கும் மொத்த பரப்பு

7. குத்தகைக்கு கோரும் புலங்களின் விவரம்

மாவட்டம்	வட்டம்	கிராமம்	பகுப்பு எண்	புல எண்	பரப்பளவு (ஹெக்டேர்)
(1)	(2)	(3)	(4)	(5)	(6)

8. மனுதாரர் குழு / சங்கத்திற்கு தமிழ்நாட்டில் ஏற்கனவே குவாரி குத்தகை இருந்தால் அதன் விவரம்

9. குழு / சங்கத்திற்கான வருமானவரி நிலுவையின்மை சான்று இணைக்கப்பட்டுள்ளதா, இல்லையெனில் கீழ்க்கண்டவற்றுக்கான உறுதி மொழி ஆவணம் இணைக்கப்பட்டுள்ளதா.

(அ) நடப்பு ஆண்டு வரை வருமானவரி விவரப்பட்டியல் அத்துறைக்கு கொடுக்கப்பட்டுள்ளதா (அல்லது) :

(ஆ) இறுதியாக கணக்கிடப்பட்ட வருமான வரி செலுத்தப்பட்டுள்ளதா (அல்லது) :

(இ) 1961 ஆம் வருமானவரி சட்டப்படி வரி செலுத்தப்பட்டுள்ளதா (அல்லது) :

10. (அ) மனுதாரர் குழு / சங்கத்தின் உறுப்பினர் அனைவரும் கனிமவரி நிலுவை இல்லை என்பதற்கான சான்று பெற்றுள்ளனரா, ஆம் எனில் நகல் இணைக்கவும் :

(ஆ) இந்த மனு கொடுக்கப்படும் நாளில் உறுப்பினர்களுக்கு குத்தகை இல்லை எனில் அதற்கான உறுதிமொழி தனித்தனியாக கொடுக்கப்பட்டு இணைக்கப்பட்டுள்ளதா. :

138C/12 (8) வி.செ. 2—4.

28 MAY 2018

இப்படிக்கு,

தங்கள் உண்மையுள்ள,

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இணைப்பு-2

குவாரியில் பராமரிக்கப்பட வேண்டிய பதிவேடு படிவம்

28 MAY 2010

நாள்	[illegible]	[illegible]	மொத்தம்	[illegible]	மீதி இருப்பு	வாகனத்தின் [illegible] அல்லது [illegible]	[illegible] எண்	[illegible]	[illegible]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

இணைப்பு-3

திங்கள் தோறும் குவாரியில் இருந்து எடுக்கப்பட வேண்டிய கனிமங்கள் குறித்து அனுப்பப்பட வேண்டிய கணக்குப் படிவம்

1. குத்தகைதாரரின் பெயர் மற்றும் முகவரி
2. குவாரி அமைந்துள்ள இடம்
   - கிராமம்
   - புல எண்
   - பரப்பளவு
3. மாவட்ட ஆட்சியரின் ஆணை எண் மற்றும் நாள்
4. குத்தகை காலம்
5. குவாரியில் வேலை செய்யும் ஆட்களின் எண்ணம்
   - ஆண்கள்
   - பெண்கள்
6. குத்தகைத் தொகை செலுத்திய விவரம்
7. நடப்புத் திங்களில் எடுக்கப்பட்ட கனிமத்தின் அளவு
8. வெளியே அனுப்பப்பட்ட கனிமத்தின் அளவு
9. மீதி இருப்பில் உள்ள கனிமத்தின் அளவு

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S.DHANASEKAR, M.Sc.,(Geol)
RQP/MAS/225/2011/A

தமிழ்நாடு வனத்துறை

அனுப்புநர்

[illegible] பி.எஸ்சி., இ.வ.ப.,
மாவட்ட வன அலுவலர்,
[illegible] பண்ணை அருகில்,
[illegible], ஓசூர் – 635 110.
தொலைபேசி எண். 04344-262259.

பெறுநர்

மாவட்ட ஆட்சித் தலைவர்,
கிருஷ்ணகிரி மாவட்டம்,
கிருஷ்ணகிரி.

ந.க.எண். 6213/2017-எல் நாள். 5.01.2018
(ஸ்ரீ ஹேவிளம்பி வருடம் மார்கழி , திருவள்ளுவர் ஆண்டு 2048)

அம்மா,

பொருள் : கனிமங்களும் குவாரிகளும் – சிறுகனிமம் – சாதாரண கற்கள் – கிருஷ்ணகிரி மாவட்டத்தில் உள்ள அரசு புறம்போக்கு நிலங்களில் உள்ள சாதாரண கற்கள் வெட்டியெடுக்க டெண்டருடன் இணைந்த ஏலமுறையில் குவாரி குத்தகை வழங்குதல் வனத்துறை சார்பாகபரிந்துரைசெய்ய கோரியது– வனத்துறை நோக்கிலான கருத்து தெரிவித்தல்– தொடர்பாக.

பார்வை : மாவட்ட ஆட்சித் தலைவர், கிருஷ்ணகிரி மாவட்டம் ந.க.எண்.72/2017(கனிமம்) நாள்.28.12.2017.

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பார்வையில் கண்ட கிருஷ்ணகிரி மாவட்ட ஆட்சித் தலைவர் அவர்களது கடிதத்தில், கிருஷ்ணகிரி மாவட்டத்தில் உள்ள அரசு புறம்போக்கு நிலங்களில் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலம் மூலம் குத்தகைக்கு வழங்க, வனத்துறை நோக்கிலான கருத்து மற்றும் வனத்துறையின் தடையின்மை சான்று வழங்க வேண்டி தெரிவிக்கப்பட்டுள்ளது.

கிருஷ்ணகிரி மாவட்டத்தில் அரசு புறம்போக்கு நிலங்களில் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலத்தில் குத்தகைக்கு விட்டு அதன்மூலம் அரசுக்கு வருவாய் ஈட்ட வனத்துறையின் இசைவினை வழங்கிட கிருஷ்ணகிரி மாவட்ட ஆட்சித் தலைவர் கேட்டுக்கொண்டதற்கிணங்க, அதனடிப்படையில் ஓசூர் வனச்சரக அலுவலர் மற்றும் பணியாளர்களுடன் குவாரிப் பகுதிகளை தணிக்கை செய்யப்பட்டது. கீழ்கண்ட பட்டியலில் கண்ட உத்தேச கற்குவாரிகளுக்கு கீழ்க்கண்ட நிபந்தனைகளுடன் வனத்துறை நோக்கிலான கருத்து தெரிவிக்கப்படுகிறது.

i) சாதாரண கற்குவாரி குத்தகை வழங்குவதற்கு ஒப்பந்தம் செய்வதற்கு முன்பு ஒவ்வொரு குவாரிப் பகுதிக்கும் வனத்துறையின் நிபந்தனையுடன் கூடிய அனுமதி பெற்றபின் குவாரிப் பணி செய்ய பணி ஆணை (Work order) வழங்கப்பட வேண்டும்.

ii) மேற்படி சாதாரண கற்குவாரி குத்தகை கோரும் புலங்கள் காவேரி வடக்கு வன உயிரின சரணாலயத்திற்கான Eco Sensitive Zone எல்லை நிர்ணயம் செய்ய பிறப்பிக்கப்படும் ஆணை எதிர்நோக்கியுள்ள சூழலில், காவேரி வடக்கு வன உயிரின சரணாலய எல்லையிலிருந்து 10 கி.மீ-க்குள் அமைந்திருப்பின் தேசிய வன உயிரின வாரியத்தின் முன் அனுமதி (National Board for Wildlife) பெறப்பட வேண்டும்.

iii) உத்தேச குவாரி செய்யும் புலங்கள் சென்னமத்திரம் காப்புக்காட்டிற்கு அருகில் அமைந்துள்ளதால் வருவாய் வாரிய நிலை ஆணை தொகுப்பு 1, பிரிவு 3, உட்பிரிவு 38 (III) "Standing Orders of the Board of Revenue- Volume-I Section III. Sub- Section 38 (III)-ன் படி இதர பயன்பாட்டிற்கு உட்படுத்த நடவடிக்கை மேற்கொள்ளப்படும் போது குறைந்தபட்சம் 60மீ (3 Chain) காப்புக்காட்டின் எல்லையிலிருந்து இடைவெளி விடப்பட வேண்டும். எனினும் இப்பகுதியின் அருகில் [illegible] வகைகள் காணப்படுவதால் இக்காப்பு நிலத்தின் எல்லையிலிருந்து 100 மீ தொலைவிற்கு இடைவெளிவிட்டு தடுப்பு சுவர் அமைக்கப்பட வேண்டும்.

iv) வருவாய்த்துறை ஆவணங்களில் "காடு" என வகைப்படுத்தப்பட்ட புலங்களில் கற்குவாரிப் பணி செய்ய அனுமதிக்கக் கூடாது.

v) உத்தேச கற்குவாரி செய்யும் புலங்கள் தமிழ்நாடு வனச்சட்டம் 1882-ன் பிரிவு 4 மற்றும் 16-ன் கீழ் காப்பு நிலம் / காப்புக்காடு என அறிவிக்கை செய்யப்பட்ட புலங்களாக இருக்கக்கூடாது.

vi) உத்தேச கற்குவாரி செய்யும் புலங்கள் தமிழ்நாடு வனச்சட்டம் 1882-ன் பிரிவு 26-ன் கீழ் அறிவிக்கை செய்யப்பட்ட புலங்களாக இருக்கக்கூடாது.

vii) அரசாணை (நிலை) எண்.79 தொழில் (எம்எம்.1) துறை நாள்.06.04.2015-ல் வழங்கப்பட்டுள்ள நிபந்தனைகளை மாவட்ட நிர்வாகம் / கனிம வளத்துறை கடைபிடிப்பதை கவனத்தில் கொள்ளப்பட வேண்டும்.

viii) குவாரி குத்தகை கோரும் பகுதியிலிருந்து 300 மீட்டர் தூரம் வரை எதொரு குடியிருப்பு பகுதிகள் இருக்கக் கூடாது என்பதை மாவட்ட நிர்வாகம் உறுதி செய்ய வேண்டும்.

28 MAY 2019

[illegible] கற்கள் வெட்டி எடுக்க பரிந்துரை செய்யப்பட்ட குவாரி பகுதிகளின் விவரம்.

[illegible] Taluk

	Village	S.F. No.	Total Extent in ha	Extent proposed for quarry lease in ha	Classification	Virgin or Old quarry	GPS Coordinates Latitude/ Longitude
1	Kondappanayanapalli	2021/1 (Part)A	15.61.0	3.00.0	UAW. Parai	Virgin	12°40'00.0"N 78°07'42.23"E
2	Kondappanayanapalli	2021/1(Part)B	15.61.0	3.00.0	UAW. Parai	Virgin	12°39'56.43"N 78°07'40.49"E

தங்கள் அன்புள்ள,

ஒம்/-தீபக் எஸ். பில்கி,
மாவட்ட வன அலுவலர்,
ஒசூர் வனக்கோட்டம்

/உ.த.உ.ப/

கண்காணிப்பாளர். 3/1/19

ANNEXURE

அனுப்புதல்
திரு.கன்னியப்பன்,
வட்டாட்சியர்,

பெறுதல்
மாவட்ட ஆட்சியர்,
கிருஷ்ணகிரி.

ந.க.எண். 1168/2017/ நாள் - -2017

அய்யா,

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - சாதாரண கற்கள் - கிருஷ்ணகிரி மாவட்டம் - கிருஷ்ணகிரி வட்டம் - கொண்டப்பநாயனப்பள்ளி கிராமம் - அரசு புல எண் 202/1 (Part-A)ல் 3.00.0 ஹெக்டேர் பரப்பளவில் உண்டருடன் இணைந்த ஏல முறையில் சாதாரண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை வழங்க முன் மொழியுகள் கோரப்பட்டது - அறுப்புதல் தொடர்பாக.

பார்வை: கிருஷ்ணகிரி மாவட்ட ஆட்சியரின் கடிதம் ந.க.எண் 72/2017/கனிமம் நாள் 04.03.2017.

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பார்வையில் கண்ட கடிதத்திற்கு தங்களது கவனத்தை ஈர்க்க விழைகிறேன்.

கிருஷ்ணகிரி மாவட்டம் கிருஷ்ணகிரி வட்டம், கொண்டப்பநாயனப்பள்ளி கிராமம் - அரசு புல எண் 202/1 (Part-A)ல் 3.00.0 ஹெக்டேர் பரப்பளவில் உண்டருடன் இணைந்த ஏல முறையில் சாதாரண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை வழங்குவது தொடர்பாக பார்வையில் கண்ட கடிதத்தில் கோரப்பட்ட அறிக்கையினை கீழ்கண்டவாறு தெரிவித்தும் கொள்கிறேன்.

கிருஷ்ணகிரி வட்டம், [illegible] கிராமம், அரசு புல எண் 202/1ல் 15.61.5 ஹெக்டேர் பரப்பளவு பாறை என கொண்டப்பநாயனப்பள்ளி கிராம கணக்குகளில் நாக்கலாகியுள்ளது. மேற்கண்ட புலஎண்ணின் பகுதியில் (Part A) 3.00.0 ஹெக்டேர் பரப்பளவில் சாதாரண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை வழங்க புல வரைபடத்தில் வரையறுக்கப்பட்டுள்ள பகுதியில் இருந்து 300 மீட்டர் சுற்றளவில் குடியிருப்புகள்/ கிராம நத்தம்/அங்கீகரிக்கப்பட்ட வீட்டு மனை பிரிவுகள் ஏதுமில்லை. 50 மீட்டர் சுற்று வட்டத்திற்குள் பாதுகாப்பு சின்னங்கள், கோயில், மசூதி, தேவாலயம் போன்ற வழிபாட்டிடங்கள்,) தொல்பொருள் துறையினரால் பாதுகாக்கப்பட்ட தொல்லியியல் சின்னங்கள், தொழு மயானம், மின்/தொலைபேசி கம்பி பாதைகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் ஏரி, குளம், குட்டை, ஓடை போன்ற நீராதார அமைப்புகள் ஏதுமில்லை. புலத்தணிக்கையின் போது தொழு மக்களிடமிருந்து ஆட்சேபனை ஏதும் வரப்பெறவில்லை. மேற்கண்ட புலத்திற்கு பாதை வசதி உள்ளது. மேற்கண்ட புலத்தில் ஓடை/சுக்கை/ரங்கல் உடைக்க ஏற்ற சாதாரண வகை பாறைகள் காணப்படுகிறது. மேற்கண்ட புலத்தில் ஆக்கிரமிப்புகள் ஏதுமில்லை. மேற்கண்ட புலம் இதுவரை கற்கள் உடைக்கப்படாமல் உள்ளது.

மேற்கண்ட புலத்தின் நான்கு எல்லைகள் கீழ்கண்டவாறு உள்ளது

புல எண்	பரப்பளவு	வடக்கு	கிழக்கு	தெற்கு	மேற்கு
202/1 (Part-A)	3.00.0	202/1 (Part)	202/1 பகுதி 235	202/1 (Part-B	202/1 பகுதி

மேற்கண்ட அரசு புறம்போக்கு நிலத்தில் சாதாரண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்க ஆட்சேபனை ஏதுமில்லையெனவும், உண்டருடன் இணைந்த ஏல முறையில் குவாரி குத்தகை வழங்கலாம் என கல்லுருப்பிக்கி கிராம நிர்வாக அலுவலர் வாக்குமூலத்தில் தெரிவித்துள்ளார்.

அனுமதியின்றி சாதாரண கற்கள் வெட்டியெடுப்பதை தடை செய்வதற்கு, அரசுக்கு கூடுதல் வருவாய் ஈட்டும் வகையிலும் மேற்கண்ட புலத்தில் கனிம விதிகளில் வரையறுக்கப்பட்ட நிபந்தனைகளுக்குட்பட்டு சாதாரண கற்குவாரி குத்தகை வழங்க பரிந்துரை செய்கிறேன்.

கிராம நிர்வாக அலுவலர் வாக்குமூலம், புல வரைபடம், சுட்டு புல வரைபடம் மற்றும் விண்ணப்பதாரரின் நகல்களை இத்துடன் இணைத்துள்ளேன்.

இணைப்பு: மேற்கண்டவாறு

வட்டாட்சியர்
கிருஷ்ணகிரி

S.DHANASEKAR, M.Sc.(Geo)
RQP/MAS/225/2011/A

புலத்தணிக்கை அறிக்கை

கிருஷ்ணகிரி மாவட்டம், கிருஷ்ணகிரி வட்டம், கொண்டப்பநாயனப்பள்ளி கிராமம், அரசு புல எண்202/1 (Part-A)ல் 1.00.0 ஹெக்டேர் பரப்பளவில் டெண்டருடன் இணைந்த ஏல முறையில் சாதாரண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை வழங்குவது தொடர்பாக _____ துணை புலத்தணிக்கை மற்றும் விசாரணை செய்து அறிக்கையை கீழ்கண்டவாறு தெரிவித்துக்கொள்கிறேன்.

கிருஷ்ணகிரி வட்டம், கொண்டப்பநாயனப்பள்ளி கிராமம், அரசு எண்202/1 ல் 15.61.5 ஹெக்டேர் பரப்பளவு பாறை என கொண்டப்பநாயனப்பள்ளி கிராம வரைக்குறையில் குறிக்கலாகியுள்ளது. மேற்கண் புலஎண்ணின் பகுதி A யில் 3.00.0 ஹெக்டேர் பரப்பளவில் சாதாரண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை வழங்க புல வரைபடத்தில் வரையறுக்கப்பட்டுள்ள பகுதியில் இருந்து 300 மீட்டர் சுற்றளவில் குடியிருப்புகள்/ கிராம நத்தம்/குறிக்கப்பட்ட வீட்டு மனை பிரிவுகள் ஏதுமில்லை. 50 மீட்டர் சுற்று வட்டத்திற்குள் புராதன சின்னங்கள், கோயில், மருதி, தேவாலயம் போன்ற வழிபாட்டிடங்கள், தொல்பொருள் துறையினரால் பாதுகாக்கப்பட்ட தொல்லியியல் சின்னங்கள், பொது பயனம், மின்/தொலைபேசி கம்பி பாதைகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் ஏரி, குளம், குட்டை, ஓடை போன்ற நீராதார அமைப்புகள் ஏதுமில்லை. புலத்தணிக்கையின் போது பொது மக்களிடமிருந்து ஆட்சேபனை ஏதும் வரப்பெறவில்லை. மேற்கண்ட புலத்திற்கு பாதை வசதி உள்ளது. மேற்கண்ட புலத்தில் ஓஎல்ஐ/சக்கை/ரப்கல் உடைக்க ஏற்ற சாதாரண வகை பாறைகள் காணப்படுகிறது. மேற்கண்ட புலத்தில் ஆக்கிரமிப்புகள் ஏதுமில்லை. மேற்கண்ட புலம் இதுவரை கற்கள் உடைக்கப்படாமல் உள்ளது.

மேற்கண்ட புலத்தின் நான்கு எல்லைகள் கீழ்கண்டவாறு உள்ளது

புல எண்	பரப்பளவு	வடக்கு	கிழக்கு	தெற்கு	மேற்கு
202/1 (Part-A)	3.00.0	202/1 (Part)	202/1 பகுதி 235	202/1 (Part-B	202/1 பகுதி

மேற்கண்ட அரசு புறம்போக்கு நிலத்தில் சாதாரண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்க ஆட்சேபனை ஏதுமில்லையெனவும், டெண்டருடன் இணைந்த ஏல முறையில் குவாரி குத்தகை வழங்கலாம் என கொண்டப்பநாயனப்பள்ளி கிராம நிர்வாக அலுவலர் வாக்குமூலத்தில் தெரிவித்துள்ளார் . அனுமதியின்றி சாதாரண கற்கள் வெட்டியெடுப்பதை தடை செய்யவும், அரசுக்கு கூடுதல் வருவாய் ஈட்டும் வகையிலும் மேற்கண்ட புலத்தில் கனிம விதிகளில் வரையறுக்கப்பட்ட நிபந்தனைகளுடன் சாதாரண கற்குவாரி குத்தகை வழங்க பரிந்துரை செய்கிறேன்.

வட்டாட்சியர்
கிருஷ்ணகிரி

ANNEXURE

28 MAY 2018

கிருஷ்ணகிரி மாவட்டம் -கிருஷ்ணகிரி வட்டம், கொண்டப்பநாயனபள்ளி கிராமம் கிராம நிர்வாக அலுவலர் கொடுத்த வாக்குமூலம்.

ஐயா,

நான் கொண்டப்பநாயனபள்ளி கிராம நிர்வாக அலுவலராக பணிபுரிந்து வருகிறேன். கிருஷ்ணகிரி மாவட்டம் கிருஷ்ணகிரி வட்டம், கல்லுகுறிக்கி கிராமம், அரசு புல எண் 202/1ல் 15.61.5 ஹெக்டேர் பரப்பளவு பாறை என கொண்டப்பநாயனபள்ளி கிராம கணக்குகளில் தாக்கலாகியுள்ளது. மேற்கண்ட புலஎண்ணின் பகுதி A வில் 3.00.0- ஹெக்டேர் பரப்பளவில் சாதாரண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை வழங்க புல வரைபடத்தில் வரையறுக்கப்பட்டுள்ள பகுதியில் இருந்து 300 மீட்டர் சுற்றளவில் குடியிருப்புகள்/ கிராம நத்தம்/அங்கீகரிக்கப்பட்ட வீட்டு மனை பிரிவுகள் ஏதுமில்லை. 50 மீட்டர் சுற்று வட்டத்திற்குள் புராதன சின்னங்கள், கோவில், மசூதி, தேவாலயம் போன்ற வழிபாட்டிடங்கள், தொல்பொருள் துறையினரால் பாதுகாக்கப்பட்ட தொல்லியல் சின்னங்கள், பொது மயானம், மின்/தொலைபேசி கம்பி பாதைகள் ஏதுமில்லை. 50 மீட்டர் சுற்றளவில் ஏரி, குளம், குட்டை, ஓடை போன்ற நீராதார அமைப்புகள் ஏதுமில்லை. பொது மக்களிடமிருந்து ஆட்சேபணை ஏதும் வரப்பெறவில்லை. மேற்கண்ட புலத்திற்கு பாதை வசதி உள்ளது. மேற்கண்ட புலத்தில் ஜல்லி/சக்கை/கற்கள் உடைக்க ஏற்ற சாதாரண வகை பாறைகள் காணப்படுகிறது. மேற்கண்ட புலத்தில் ஆக்கிரமிப்புகள் ஏதுமில்லை. மேற்கண்ட புலம் இதுவரை கற்கள் உடைக்கப்படாமல் உள்ளது.

மேற்கண்ட புலத்தின் நான்கு எல்லைகள் கீழ்கண்டவாறு உள்ளது

புல எண்	பரப்பளவு	வடக்கு	கிழக்கு	தெற்கு	மேற்கு
202/1 (Part-A)	3.00.0	202/1 (Part)	202/1 பகுதி 235	202/1 (Part-B	202/1 பகுதி

அனுமதியின்றி சாதாரண கற்கள் வெட்டியெடுப்பதை தடை செய்யவும், அரசுக்கு கூடுதல் வருவாய் ஈட்டும் வகையிலும் மேற்கண்ட புலத்தில் கனிம விதிகளில் வரையறுக்கப்பட்ட நிபந்தனைகளுடன் சாதாரண கற்குவாரி குத்தகை வழங்கலாம் எனத்தெரிவித்துக்கொள்கிறேன். கிராம கணக்கு நகல்களை இத்துடன் இணைத்து சமர்ப்பித்துள்ளேன்

//படித்து பார்த்தேன் சரிதான்//

//என் முன்பாக//

வட்டாட்சியர்
கிருஷ்ணகிரி

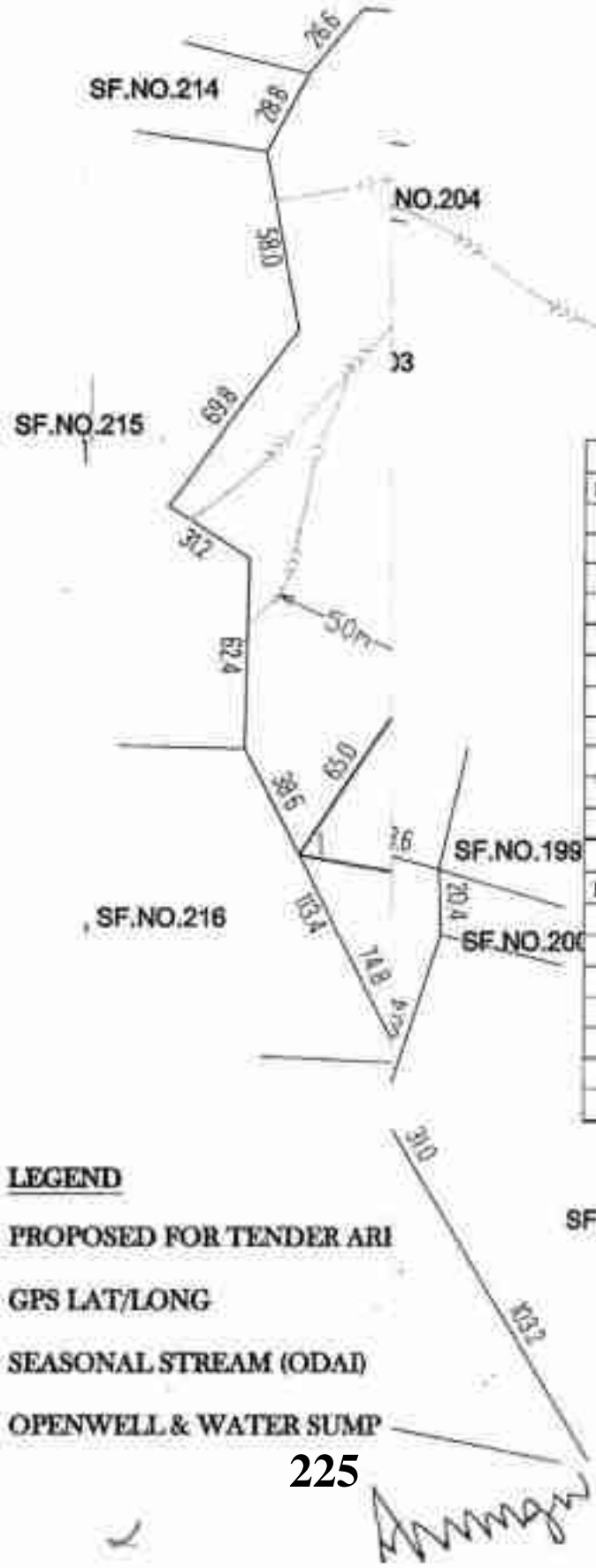
S.DHANASEKAR, M.Sc.(Geo)
RQP/MAS/225/2011/A

KRISHNAGIRI DISTRICT
KRISHNAGIRI TALUK SF
KONDAPPANAYANAPALLI VILLA
S.F.NO:202/1
EXTENT=15.61.5 Hects

NORTH

28 MA 2018

SCALE 1 :2000



SF.No.202/1 (PART - A)		
LABEL	LATITUDE	LONGITUDE
1	12° 40'00.00"N	78° 07' 42.23"E
2	12° 40'00.62"N	78° 07' 42.42"E
3	12° 40'02.18"N	78° 07' 44.20"E
4	12° 40'05.11"N	78° 07' 46.34"E
5	12° 40'02.44"N	78° 07' 50.93"E
6	12° 40'01.62"N	78° 07' 50.61"E
7	12° 40'00.85"N	78° 07' 49.40"E
8	12° 40'00.25"N	78° 07' 50.26"E
9	12° 39' 59.80"N	78° 07' 49.60"E
10	12° 39' 59.52"N	78° 07' 50.11"E
11	12° 39' 58.34"N	78° 07' 50.02"E

SF.No.202/1 (PART - B)		
LABEL	LATITUDE	LONGITUDE
1	12° 39' 56.43"N	78° 07' 40.49"E
2	12° 39' 58.19"N	78° 07' 41.68"E
3	12° 40'00.00"N	78° 07' 42.23"E
4	12° 39' 58.34"N	78° 07' 50.02"E
5	12° 39' 55.33"N	78° 07' 49.81"E
6	12° 39' 54.26"N	78° 07' 49.57"E
7	12° 39' 55.64"N	78° 07' 45.36"E

LEGEND

PROPOSED FOR TENDER ARI

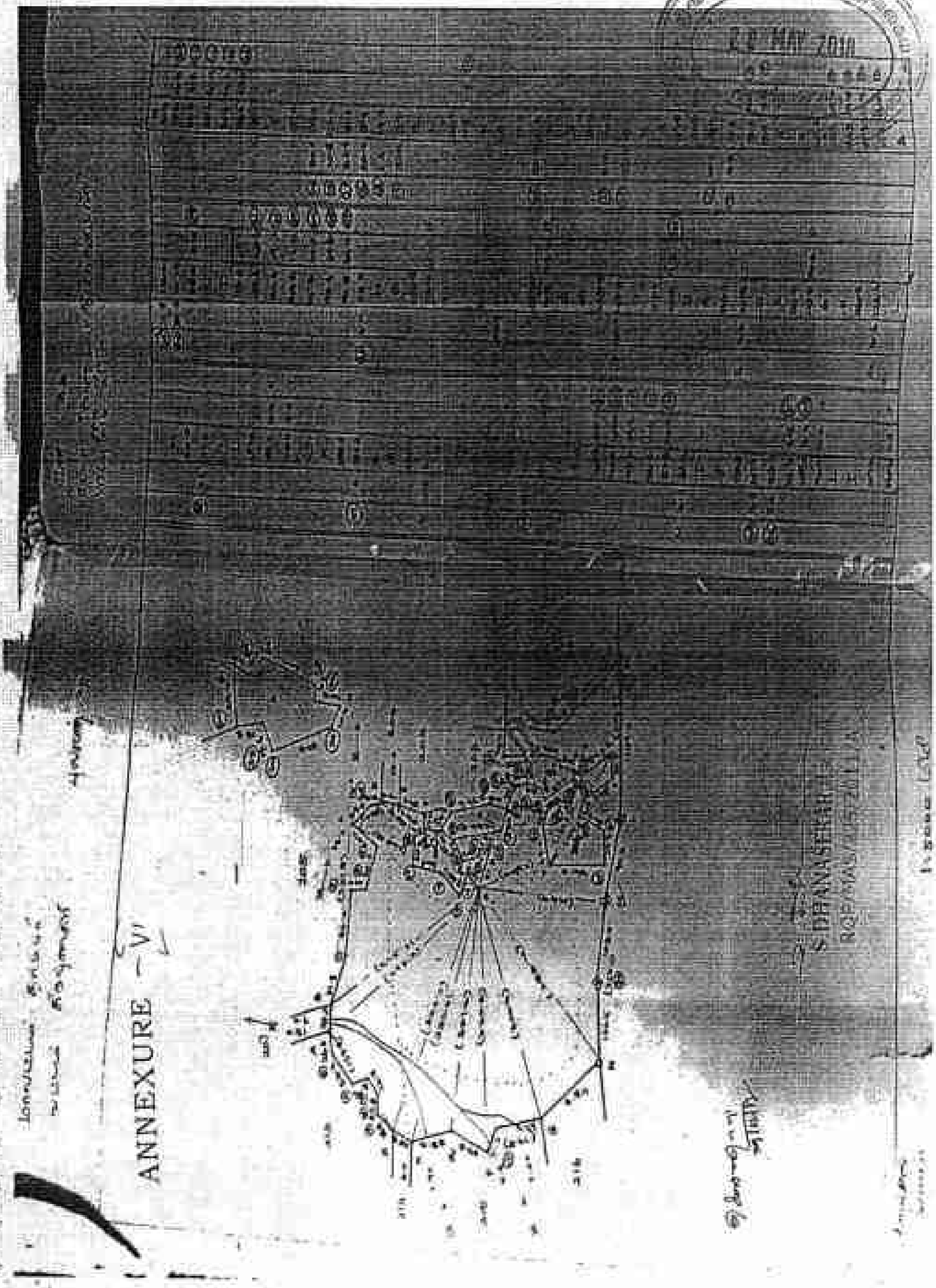
GPS LAT/LONG

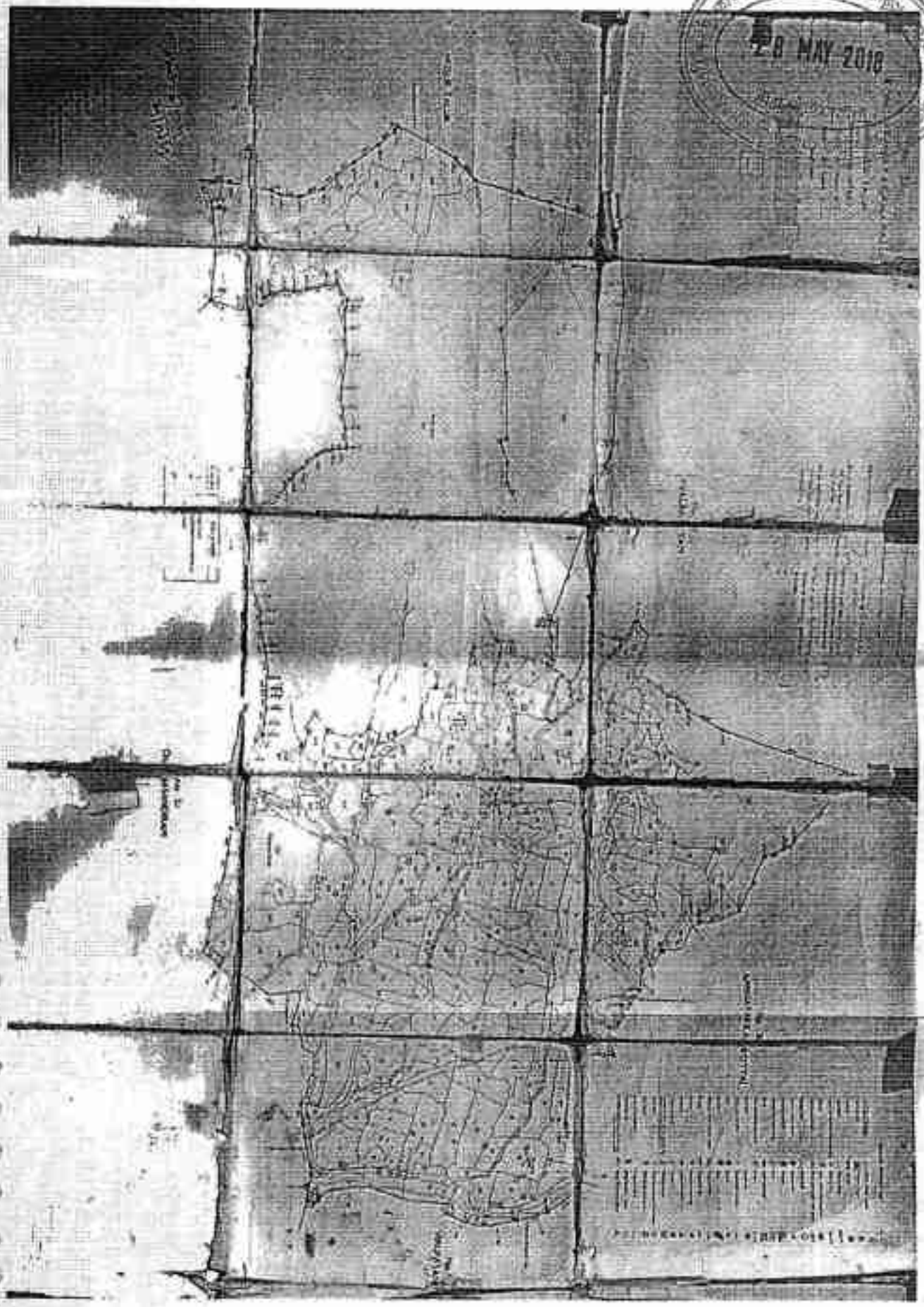
SEASONAL STREAM (ODAI)

OPENWELL & WATER SUMP

REMARKS

All dimensions are in meters


ANNEXURE — VI



ANNEXURE - VII

54 கி. எண். 33 கொண்டப்பராயபக்கி.

1	2	3	4	5	6	7	8	9	10	11	12
							ரு. பை.	ஹெ. ஏர்ஸ்	ரு. பை.		
199	8	199-8	ர	பு	...	8-3	5	2 15	0 43-5	0 94	92 பெ. செல்லப்பன்.	
								4 78-5	10 28		
200	...	200	அ	புற	...	...	...	...	0 22-5	...	......	தனி.
201	1	201-1	ர	பு	...	8-3	5	2 15	0 14-5	0 31	106 த. துரைசாமி.	
	2A	-2ஏ	ர	பு	...	8-3	5	2 15	0 10-5	0 23	89 மு. கெஜ்ராயன்.	
	2B	-2பி	ர	பு	...	8-3	5	2 15	0 12-0	0 26	331 பெ. தங்கப்பன் (1), பெருமாள் (2).	
	2C	-2சி	ர	பு	...	8-3	5	2 15	0 22-5	0 48	89 மு. கெஜ்ராயன்.	
	3A	-3ஏ	ர	பு	...	8-3	5	2 15	0 09-0	0 19	95 பெ. தம்பட்டியப்பன்.	
	3B	-3பி	ர	பு	...	8-3	5	2 15	0 08-0	0 18	332 பெ. தங்கப்பன் (1), துரைசாமி (2).	
	4	-4	ர	பு	...	8-3	5	2 15	0 32-0	0 69	106 த. துரைசாமி.	
	5A	-5ஏ	ர	பு	...	8-3	5	2 15	0 14-5	0 31	247 வெ. லட்சுமி.	
	5B	-5பி	ர	பு	...	8-3	5	2 15	0 17-5	0 38	159 பெ. பெருமாள்.	
									1 40-5	3 03		
202	1	202-1	அ	[illegible]	...	...	...	...	15 61-5	...	......	பாறை.
	2	-2	அ	புற	...	...	...	...	0 36-0	...	......	கிணறு குட்டை.
	3	-3	ர	பு	...	8-3	5	2 15	0 24-0	0 51	262 வெ. வெங்கிட்டப்பன்.	
									16 21-5	0 51		
203	1	203-1	ர	பு	...	8-3	5	2 15	0 28-5	0 63	396 (246) வெ. லட்சுமி அம்மாள்.	
	2	-2	ர	பு	...	8-3	5	2 15	0 24-0	0 51	419 வெ. கோவிந்தன்.	
	3	-3	ர	பு	...	8-3	5	2 15	0 16-0	0 34	9 வெ. ஆனந்தன்.	
	4	-4	ர	பு	...	8-3	5	2 15	0 30-5	0 66	162 மு. பெருமாள்.	
	5A	-5ஏ	ர	பு	...	8-3	5	2 15	0 16-0	0 35	93 பெ. வெ. சேரன்.	
	5B	-5பி	ர	பு	...	8-3	5	2 15	0 09-0	0 19	245 பெ. லட்சுமியம்மாள்.	

S.DHANASEKAR

ANNEXURE

1

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON TO PREPARE MINING PLANS

(Under Rule 22 C of Mineral Concession Rules 1960)

Shri S. DHANASEKAR resident of Old No.6, New No.8/3, Kulleppan Street, Opp. Indian Bank Line, Omalur (P.O), Salem – 636 455, son of Shri R. SUNDARAM having given satisfactory evidence of his qualifications and experience is hereby granted recognition under Rule 22C of the Mineral Concession Rules, 1960 as a Qualified Person to prepare Mining Plans.

His registration number is **RQP/MAS/225/2011/A**

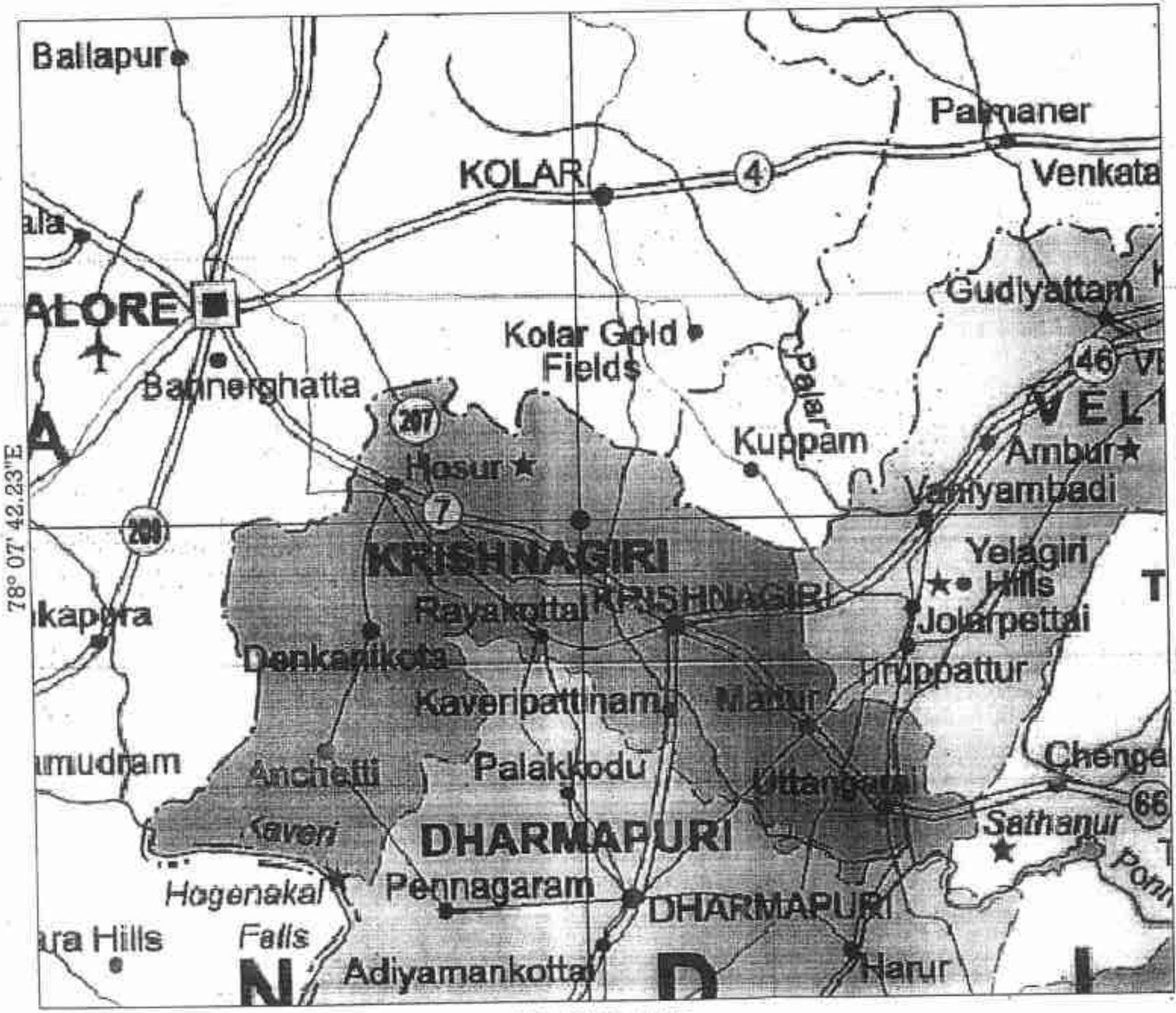
recognition is valid for a period of ten years ending 12.01.2021.

Regional Controller of Mines
Indian Bureau of Mines
Chennai Region

Place : Chennai
Date : 13.01.2011

S.DHANASEKAR, M.Sc.,(Geol)
RQP/MAS/225/2011/A

12° 39' 58.32"N



78° 07' 42.23"E

78° 07' 50.93"E

12° 40' 05.09"N

Date of Survey: 29.03.2018

PLATE NO-I

APPLICANT:

M/s.SRI VENKATESHWARA BLUE METALS,
Prop.A.M.MURUGAN,
S/o.MANNATHAN,
No.4/4, 109 MUTHAMPATTI POST,
METTUR TALUK, SALEM DISTRICT.

LOCATION:

S.F.NO : 202/1(Part-A),
EXTENT : 3.00.0 Ha.
VILLAGE : KONDAPANAYANAPALLI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

INDEX

MINE LEASE AREA :

TOPO SHEET NO. : 57 L/02

LATITUDE : 12° 39' 58.32"N to 12° 40' 05.09"N

LONGITUDE : 78° 07' 42.23"E to 78° 07' 50.93"E

LOCATION PLAN

NOT TO SCALE

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

ROUTE MAP

PLATE NO-IA

S.DHANASEKARAN
RECOGNIZED QUALIFIED PERSON
RQP/MAS/223/2011/A

NOV. 2018

PLATE NO-IB

RECEIVED
28 MAY 2018

APPLICANT

M/s.SRI VENKATESHWARA BLUE METALS,
Prop.A.M.MURUGAN,
S/o.MANNATHAN,
No.4/4, 109 MUTHAMPATTI EDAT
METTUR TALUK, SALEM DISTRICT.

LOCATION:

S.F.NO : 202/1(Part-A),
EXTENT : 3.00.0 Ha,
VILLAGE : KONDAPANAYANAPALLI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

INDEX

MINE LEASE AREA :
5 KM RADIUS :

TOPO SHEET NO : 57 L/02

LATITUDE : 12° 39' 58.32"N to 12° 40' 05.09"N

LONGITUDE : 78° 07' 42.23"E to 78° 07' 50.93"E

CONVENTIONAL SYMBOLS

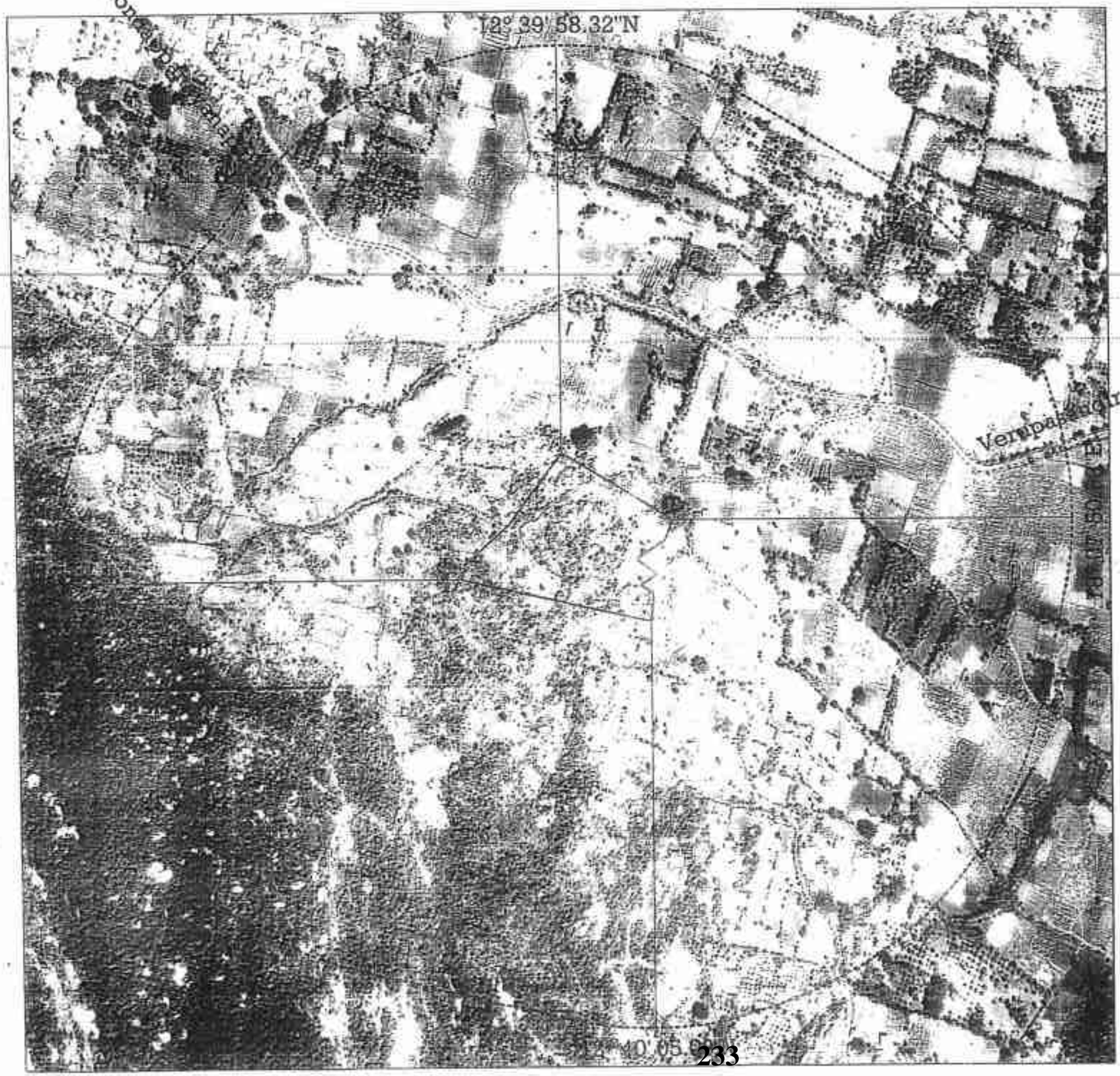
TOPO SHEET KEY MAP
SCALE:1:50,000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
ROP.MA5/225/2011/A

12° 39' 58.32" N
12° 40' 05.09"N
78° 07' 42.23"E
78° 07' 50.93"E
5km RADIUS
N



N

28 MAY 2018

PLATE NO-IC

Date of Survey:
29.03.2018

APPLICANT:

M/s SRI VENKATESHWARA BLUE METALS,
Prop.A.M.MURUGAN,
S/o.MANNATHAN,
No.4/4, 109 MUTHAMPATTI POST,
METTUR TALUK, SALEM DISTRICT.

LOCATION:

S.F.NO : 202/1(Part-A),
EXTENT : 3.00.0 Ha.
VILLAGE : KONDAPANAYANAPALLI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI

INDEX

MINE LEASE AREA

VILLAGE ROAD

APPROACH ROAD

500m RADIUS

TOPO SHEET NO. : 57 I/02

LATITUDE : 12° 39' 58.32"N to 12° 40' 05.09"N

LONGITUDE : 78° 07' 42.23"E to 78° 07' 50.93"E

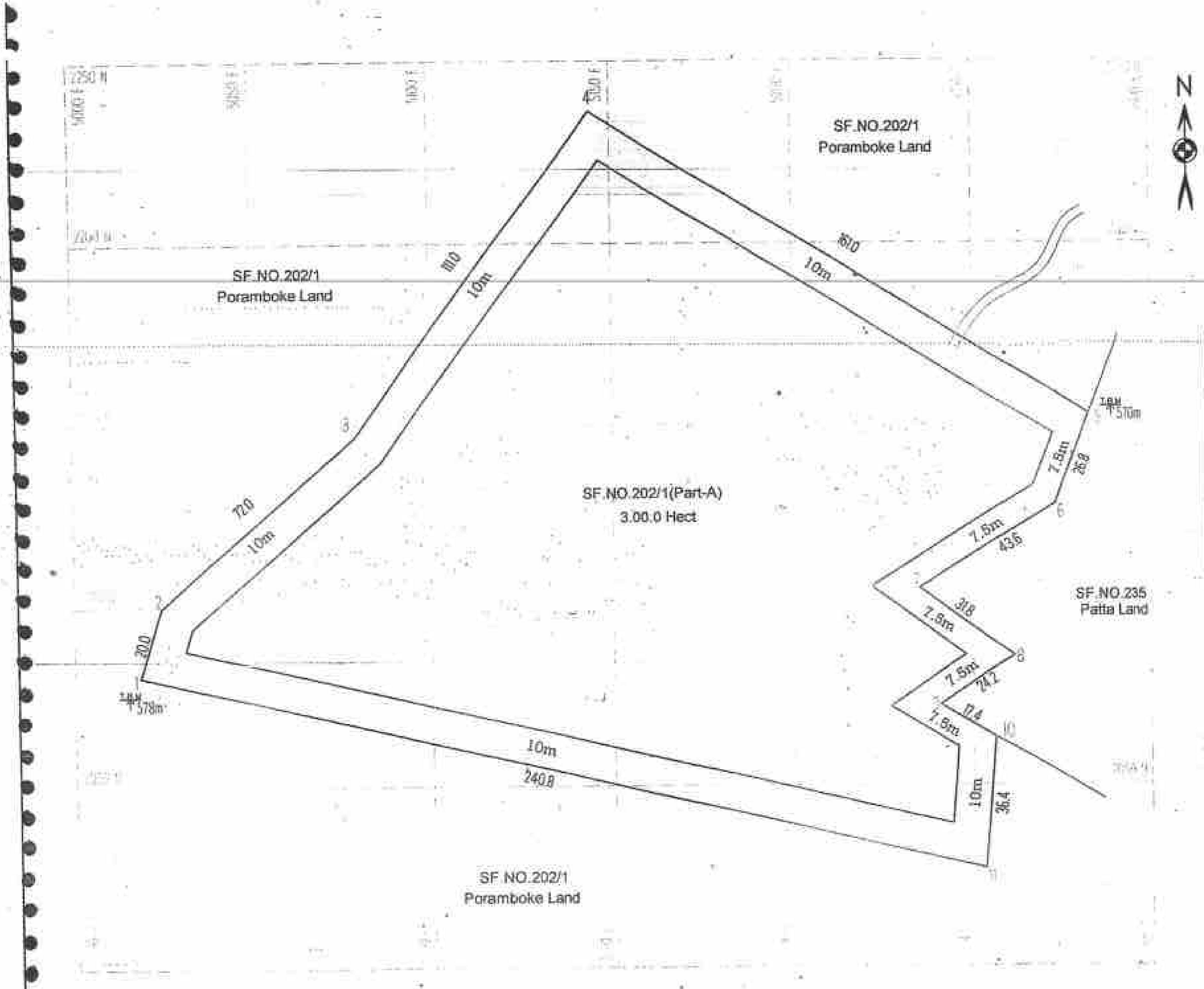
SATELLITE IMAGINARY MAP

SCALE - 1000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MA/225/2011/A



SF.No.202/1 (PART - A)		
LABEL	LATITUDE	LONGITUDE
1	12° 40'00.00"N	78° 07' 42.23"E
2	12° 40'00.62"N	[illegible]
3	12° 40'02.18"N	[illegible]
4	12° 40'05.11"N	78° 07' 46.34"E
5	12° 40'02.44"N	78° 07' 50.93"E
6	12° 40'01.62"N	78° 07' 50.61"E
7	12° 40'00.85"N	78° 07' 49.40"E
8	12° 40'00.25"N	78° 07' 50.26"E
9	12° 39' 59.80"N	78° 07' 49.60"E
10	12° 39' 59.52"N	78° 07' 50.11"E
11	12° 39' 58.34"N	78° 07' 50.02"E

Date of Survey:23.4.2018

PLATE NO-II

APPLICANT:

M/s.SRI VENKATESHWARA BLUE METALS,
Prop.A.M.MURUGAN,
S/o.MANNATHAN,
No.4/4, 109 MUTHAMPATTI POST,
METTUR TALUK, SALEM DISTRICT.

LOCATION:

S.F.NO : 202/1(Part-A),
EXTENT : 3.00.0 Ha.
VILLAGE : KONDAPANAYANAPALLI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

INDEX

MINE LEASE BOUNDARY
7.5 m & 10m SAFETY DISTANCE
TEMPORARY BENCH MARK
APPROACH ROAD

Prepared By:
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME [illegible]
TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/[illegible]

SF.NO.202/1
Poramboke Land

SF.NO.202/1
Poramboke Land

SF.NO.235
Patta Land

SF.NO.202/1
Poramboke Land

Date of Survey:23.4.2018

PLATE NO-III

APPLICANT:

M/s.SRI VENKATESHWARA BLUE METALS,
Prop:A.M.MURUGAN,
S/o.MANNATHAN,
No.4/4, 109 MUTHAMPATTI POST,
METTUR TALUK, SALEM DISTRICT.

LOCATION:

S.F.NO : 202/1(Part-A),
EXTENT : 3.00.0 Ha.
VILLAGE : KONDAPANAYANAPALLI
TALUK : KRISHNAGIRI.
DISTRICT : KRISHNAGIRI.

INDEX

- MINE LEASE BOUNDARY
- 7.5 m &10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- STRIKE & DIP
- OUTCROP
- ROUGH STONE
- SHRUB
- TOP SOIL
- TOPOGRAPHICAL CONTOUR

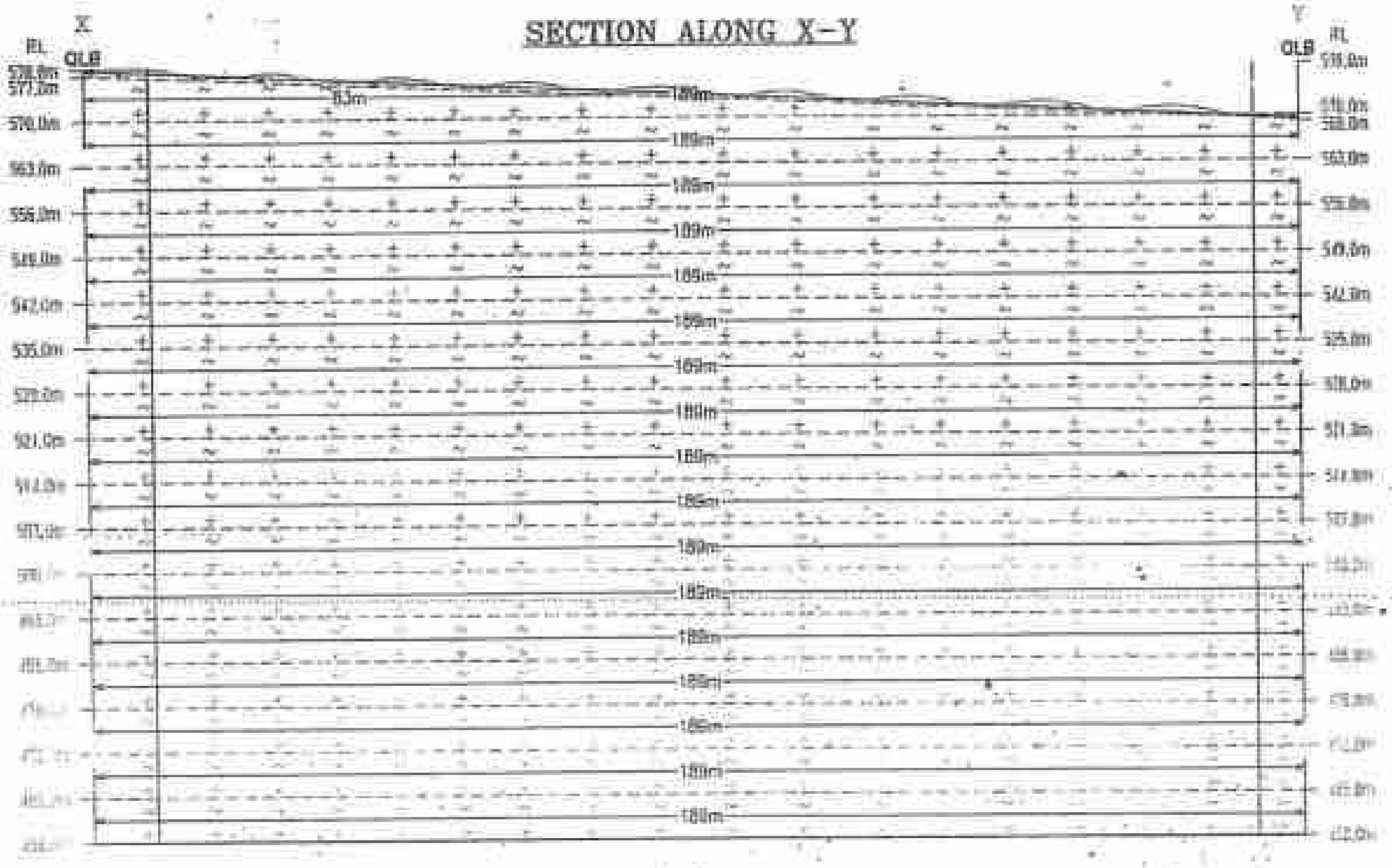
SURFACE AND GEOLOGY PLAN

SCALE 1:1000

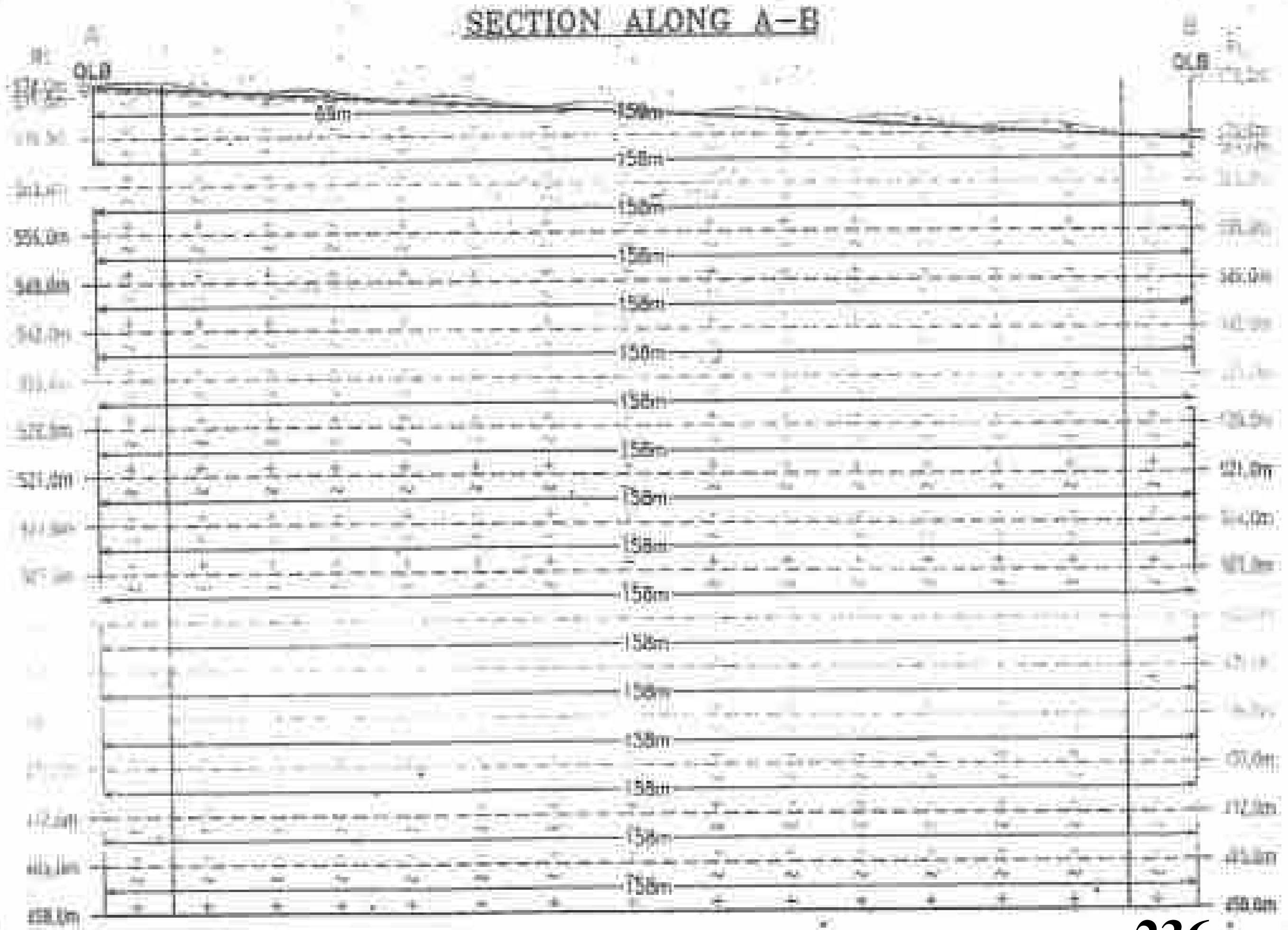
Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

SECTION ALONG X-Y



SECTION ALONG A-B



GEOLOGICAL RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in (Cu.m.)	Recoverable Reserve in Cu.m (100%)	[illegible]
XY-AB	I	189	158	1			29862
	II	83	69	7	40089	40089	
	III	189	158	7	209034	209034	
	IV	189	158	7	209034	209034	
	V	189	158	7	209034	209034	
	VI	189	158	7	209034	209034	
	VII	189	158	7	209034	209034	
	VIII	189	158	7	209034	209034	
	IX	189	158	7	209034	209034	
	X	189	158	7	209034	209034	
	XI	189	158	7	209034	209034	
	XII	189	158	7	209034	209034	
	XIII	189	158	7	209034	209034	
	XIV	189	158	7	209034	209034	
	XV	189	158	7	209034	209034	
	XVI	189	158	7	209034	209034	
	XVII	189	158	7	209034	209034	
	XVIII	189	158	7	209034	209034	
Total					3384633	3384633	29862

26 MAY 2018

TOTAL DEPTH = 120m

SURFACE GROUND LEVEL ABOVE - 8m
SURFACE GROUND LEVEL BELOW - 112m

Date of Survey:23.4.2018
PLATE NO-III-A

APPLICANT:

M/s.SRI VENKATESHWARA BLUE METALS,
Prop.A.M.MURUGAN,
S/o.MANNATHAN,
No.4/4, 109 MUTHAMPATTI POST,
METTUR TALUK, SALEM DISTRICT.

LOCATION:

S.F.NO : 202/1(Part-A),
EXTENT : 3.00.0 Ha,
VILLAGE : KONDAPANAYANAPALLI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

INDEX

MINE LEASE BOUNDARY
7.5 m &10m SAFETY DISTANCE
ROUGH STONE
TOP SOIL

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR.M.Sc.
RECOGNIZED QUALIFIED PERSON

I - Year Proposed area to be Quarried

II - Year Proposed area to be Quarried

III - Year Proposed area to be Quarried

IV - Year Proposed area to be Quarried

V - Year Proposed area to be Quarried

I - Year Proposed area to be Planted

II - Year Proposed area to be Planted

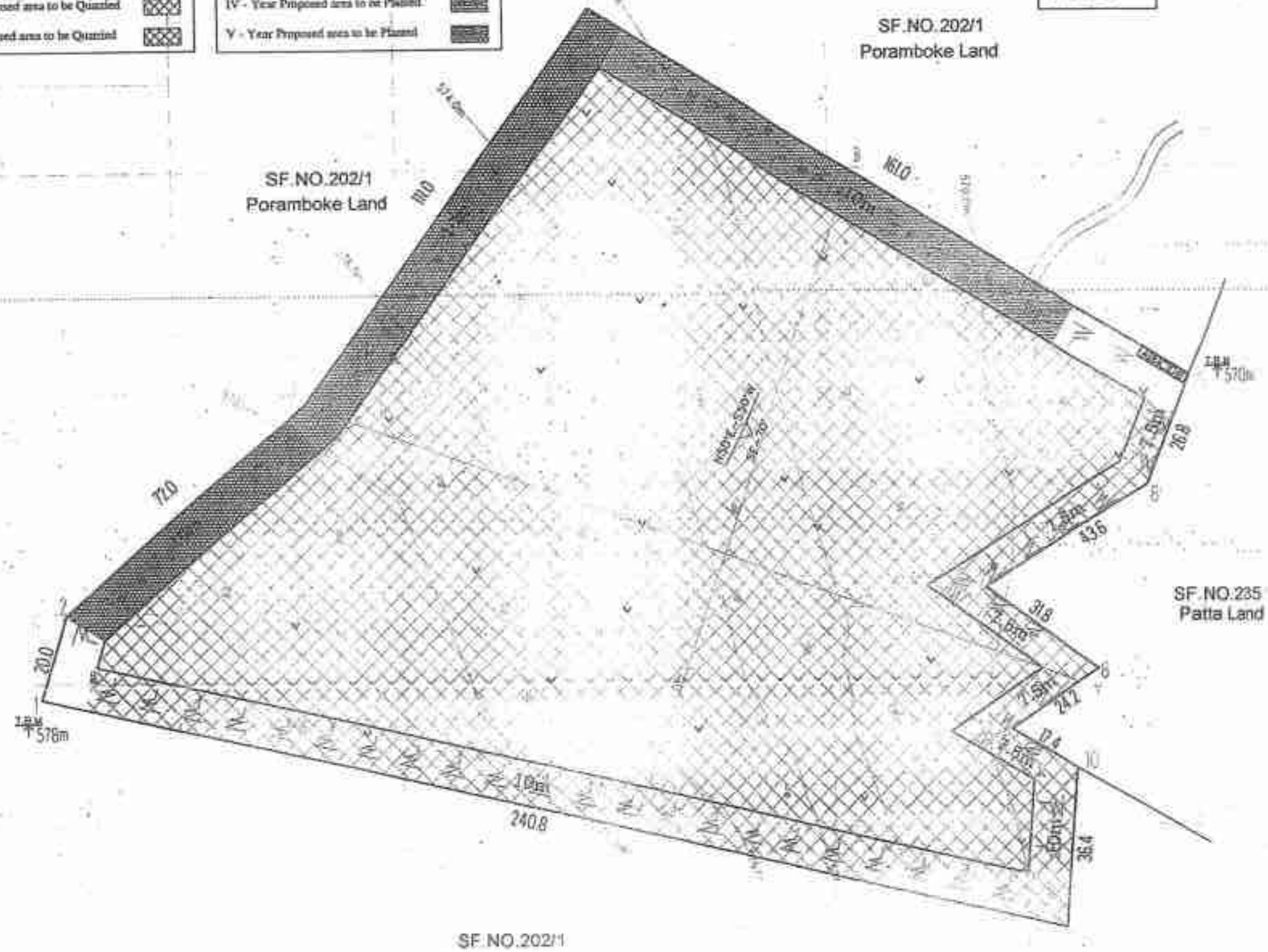
III - Year Proposed area to be Planted

IV - Year Proposed area to be Planted

V - Year Proposed area to be Planted

A - OFFICE
B - STORE
C - FIRST AID
D - REST ROOM
E - TOILET

N



TOP SOIL DUMP DETAILS

Top Soil Dump =25628Cbm (7124 Sqm X3.60m(H)

28 MAY 2018

Date of Survey: 23.5.2018

PLATE NO-IV

APPLICANT:

M/s.SRI VENKATESHWARA BLUE METALS,
Prop.A.M.MURUGAN,
S/o.MANNATHAN,
No.4/4, 109 MUTHAMPATTI POST,
METTUR TALUK, SALEM DISTRICT.

LOCATION:

S.F.NO : 202/1 (Part-A),
EXTENT : 3.00.0 Ha,
VILLAGE : KONDAPANAYANAPALLI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

INDEX

MINE LEASE BOUNDARY

7.5 m &10m SAFETY DISTANCE

TEMPORARY BENCH MARK

APPROACH ROAD

STRIKE & DIP

OUTCROP

ROUGH STONE

SHRUB

TOP SOIL

TOPOGRAPHICAL CONTOUR

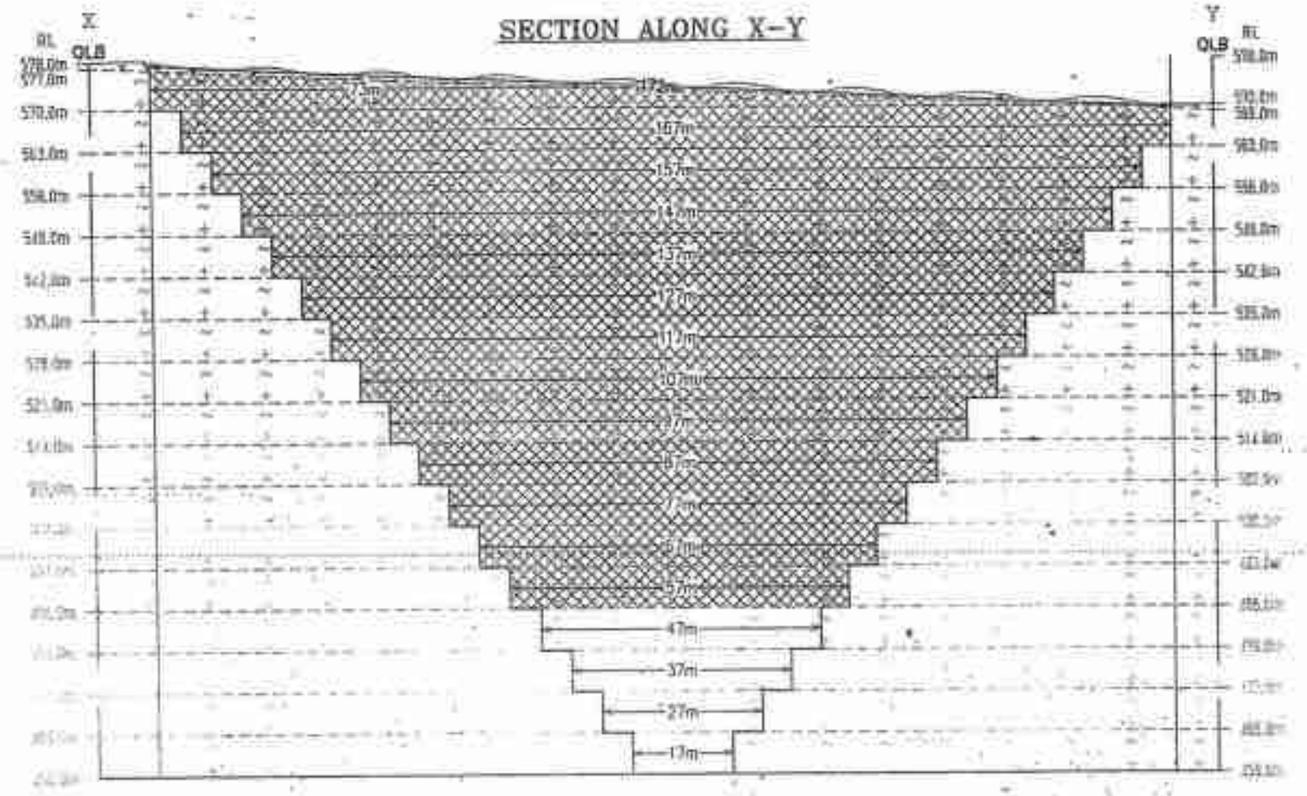
DUMP

Prepared By:

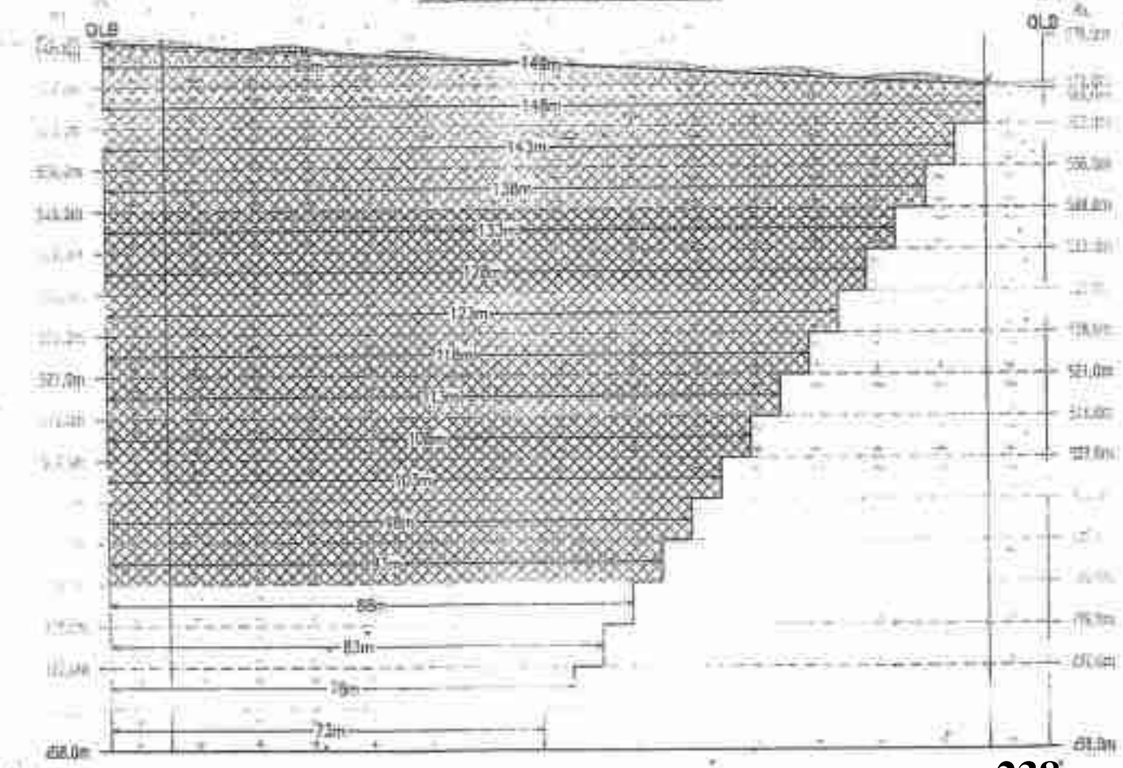
I DO HEREBY CERTIFY THAT THE PLAN HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc
RECOGNIZED QUALIFIED PERSON

SECTION ALONG X-Y



SECTION ALONG A-B



YEARWISE RESERVES (Part-B 3.00.0Ha)

Section	Year	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in (Cu.m.)	Recoverable in Cu.m. (100%)	
XY-AB	I-YEAR	I	172	149	1			
		II	73	69	7	35259	35259	
		III	167	148	7	173012	173012	
	II-YEAR	IV	157	143	7	157157	157157	
		V	147	138	7	142002	142002	
	III-YEAR	VI	137	133	7	127547	127547	
		VII	127	128	7	113792	113792	
	IV-YEAR	VIII	117	123	7	100737	100737	
		IX	107	118	7	88382	88382	
		X	97	113	7	76727	76727	
	V-YEAR	XI	87	108	7	65772	65772	
		XII	77	103	7	55517	55517	
		XIII	67	98	7	45962	45962	
		XIV	57	93	7	37107	37107	
Total=						1218973	1218973	25628

YEARWISE TOTAL DEPTH = 92m

SURFACE GROUND LEVEL ABOVE - 12m
SURFACE GROUND LEVEL BELOW - 80m

I - Year Proposed area to be Quarried
II - Year Proposed area to be Quarried
III - Year Proposed area to be Quarried
IV - Year Proposed area to be Quarried
V - Year Proposed area to be Quarried

Date of Survey:23.4.2018

PLATE NO-IV-A

APPLICANT:

M/s.SRI VENKATESHWARA BLUE METALS,
Prop.A.M.MURUGAN,
S/o.MANNATHAN,
No.4/4, 109 MUTHAMPATTI POST,
METTUR TALUK, SALEM DISTRICT.

LOCATION:

S.F.NO : 202/1(Part-A),
EXTENT : 3.00.0 Ha.
VILLAGE : KONDAPANAYANAPALLI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

INDEX

MINE LEASE BOUNDARY

7.5 m & 10m SAFETY DISTANCE

ROUGH STONE

TOP SOIL

Prepared By:

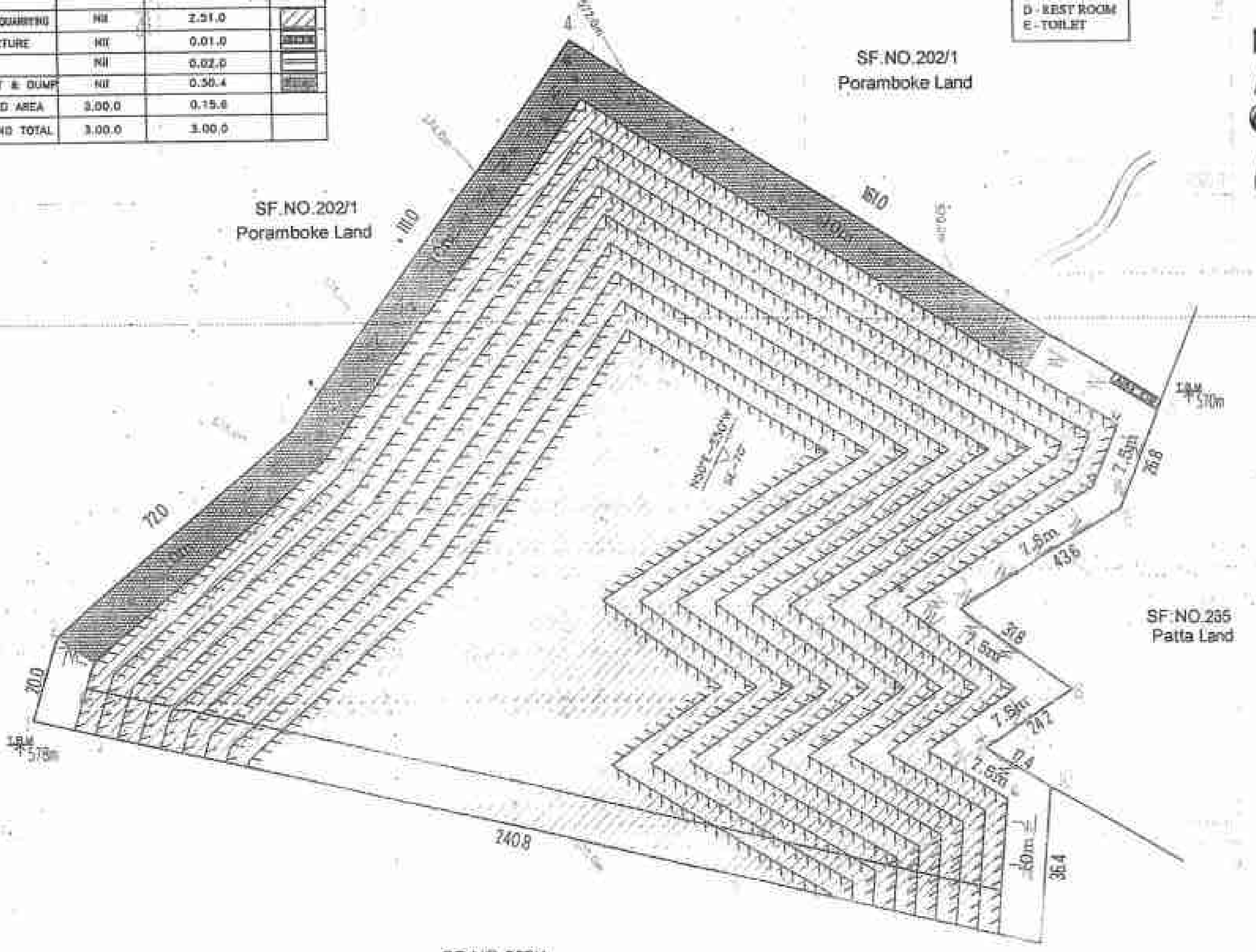
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON

MINE LAYOUT LAND USE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA IN USE DURING THE QUARRYING PERIOD (Ha)	COLOR CODE
AREA UNDER QUARRYING	Nil	2.51.0	
INFRASTRUCTURE	Nil	0.01.0	
ROADS	Nil	0.02.0	
GREEN BELT & DUMP	Nil	0.30.4	
UN-UTILIZED AREA	3.00.0	0.15.6	
GRAND TOTAL	3.00.0	3.00.0	

A - OFFICE
B - STORE
C - FIRST AID
D - REST ROOM
E - TOILET



28 MAY 2018

Date of Survey: 23.3.2018

PLATE NO-V

APPLICANT:

M/s.SRI VENKATESHWARA BLUE METALS,
Prop.A.M.MURUGAN,
S/o.MANNATHAN,
No.4/4, 109 MUTHAMPATTI POST,
METTUR TALUK, SALEM DISTRICT.

LOCATION:

S.F.NO : 202/1(Part-A),
EXTENT : 3.00.0 Ha,
VILLAGE : KONDAPANAYANAPALLI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

INDEX

MINE LEASE BOUNDARY
7.5 m & 10m SAFETY DISTANCE
TEMPORARY BENCH MARK
APPROACH ROAD
STRIKE & DIP
OUTCROP
ROUGH STONE
SHRUB
TOP SOIL
TOPOGRAPHICAL CONTOUR
QUARRY PIT
DUMP

MINE LAYOUT PLAN AND LAND USE PATTERN

Prepared By:
I DO HEREBY CERTIFY THAT THIS PLAN HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKARAN
RECOGNIZED QUALIFIED PERSON

TOP SOIL DUMP DETAILS

Top Soil Dump =25628Cbm (7124 Sqm X3.60m(H))

I - Year Proposed area to be Planted
II - Year Proposed area to be Planted
III - Year Proposed area to be Planted
IV - Year Proposed area to be Planted
V - Year Proposed area to be Planted

A - OFFICE
B - STORE
C - FIRST AID
D - REST ROOM
E - TOILET

N

28 MAY 2018

SF.NO.202/1
Poramboke Land

SF.NO.202/1
Poramboke Land

SF.NO.235
Patta Land

SF.NO.202/1
Poramboke Land

Date of Survey: 29.4.2018

PLATE NO-VI

APPLICANT:

M/s.SRI VENKATESHWARA BLUE METALS,
Prop.A.M.MURUGAN,
S/o.MANNATHAN,
No.4/4, 109 MUTHAMPATTI POST,
METTUR TALUK, SALEM DISTRICT.

LOCATION:

S.F.NO : 202/1(Part-A),
EXTENT : 3.00.0 Ha.
VILLAGE : KONDAPANAYANAPALLI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

INDEX

- MINE LEASE BOUNDARY
- 7.5 m & 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- STRIKE & DIP
- OUTCROP
- ROUGH STONE
- SHRUB
- TOP SOIL
- TOPOGRAPHICAL CONTOUR
- QUARRY PIT
- DUMP

TOP SOIL DUMP DETAILS

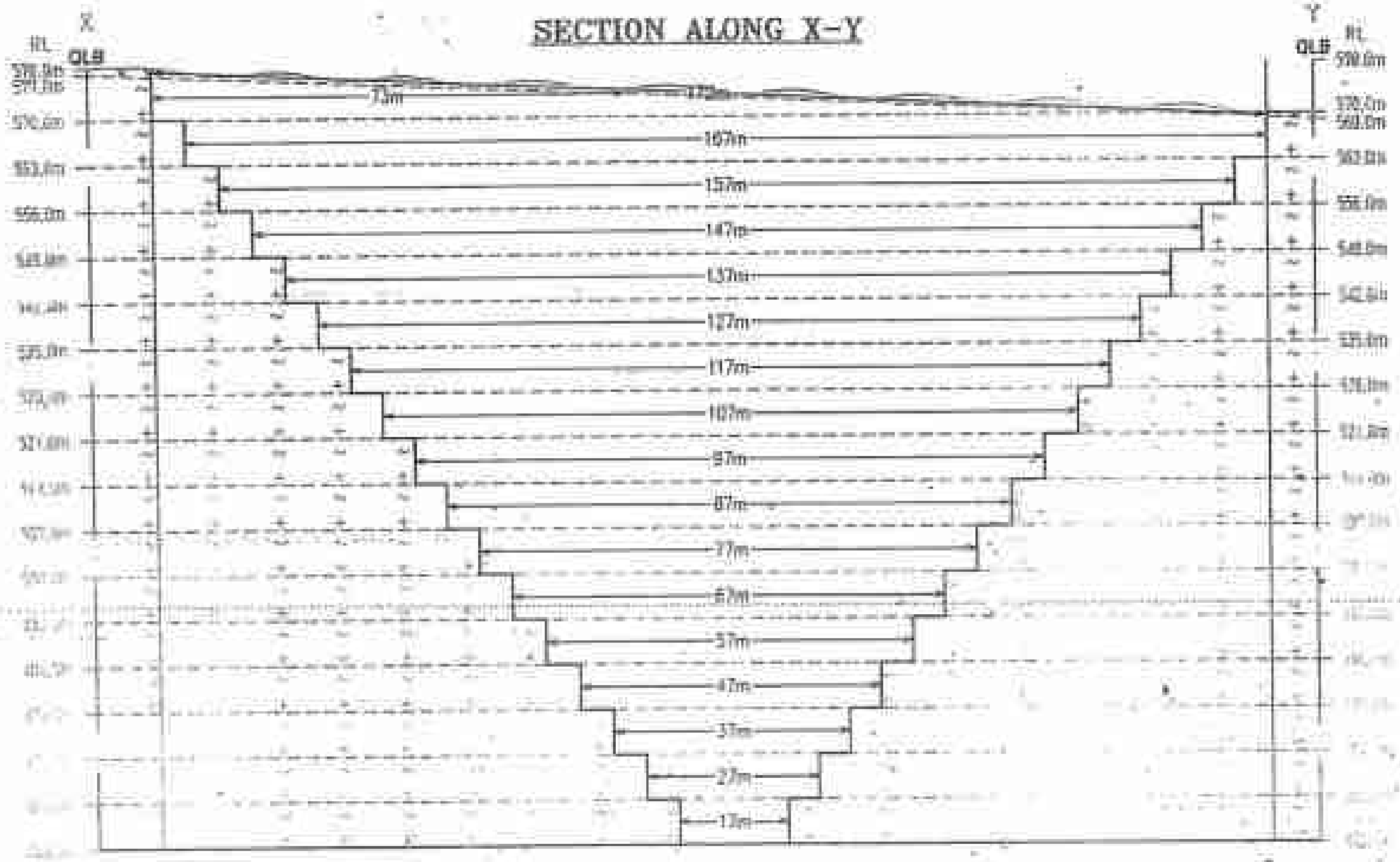
Top Soil Dump =25628Cbm (7124 Sqm X3.60m(H)

Prepared By:

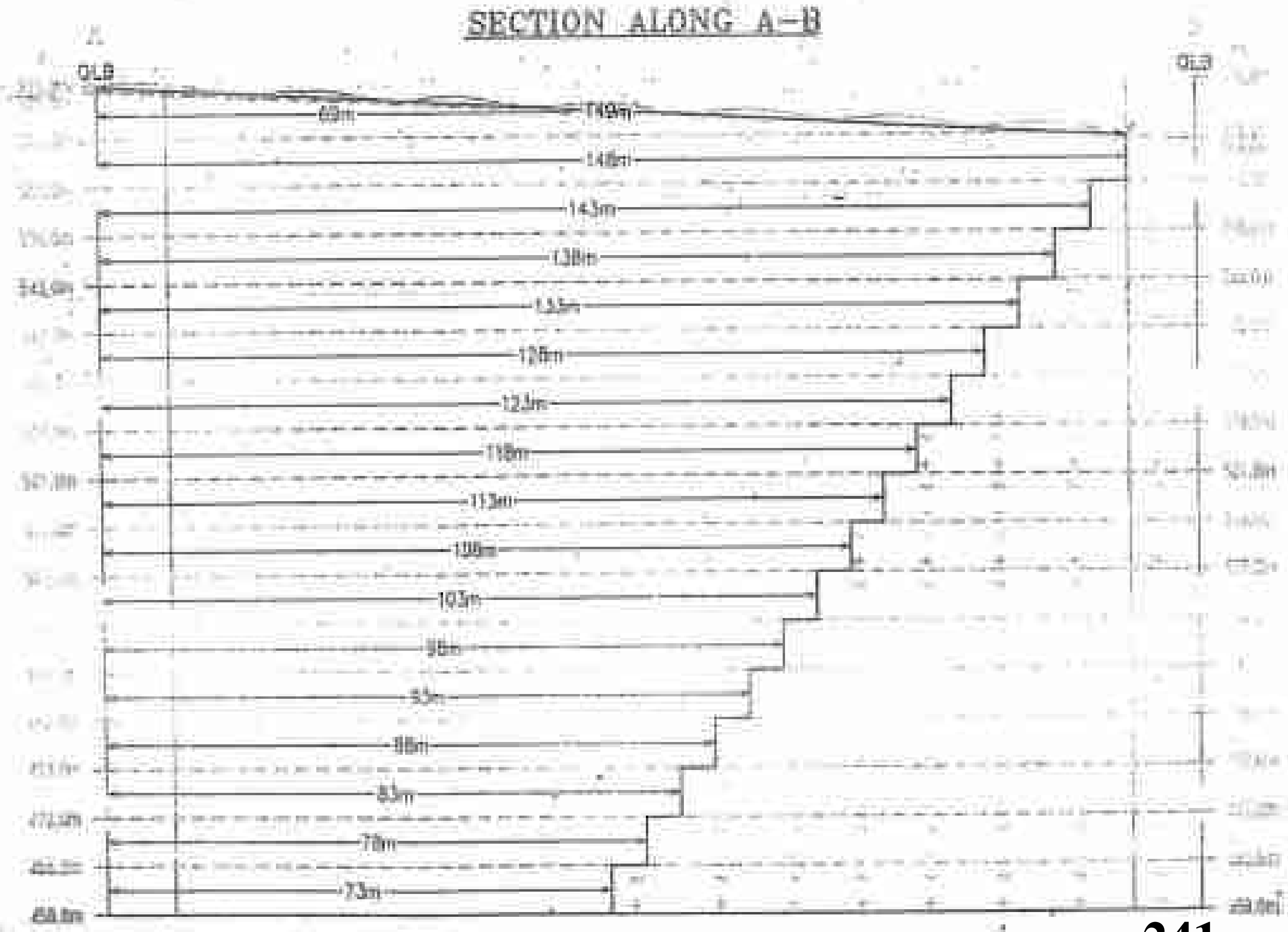
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
(QP/MAS/225/2011)

SECTION ALONG X-Y



SECTION ALONG A-B



[illegible]

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in (Cu.m)	Recoverable Reserve in Cu.m (100%)	Topsoil
XY-AB	I	172	149	1	[illegible]		25628
	II	73	69	7	35259		
	III	167	148	7	173012	173012	
	IV	157	143	7	157157	157157	
	V	147	138	7	142002	[illegible]	
	VI	137	133	7	127547	127547	
	VII	127	128	7	113792	113792	
	VIII	117	123	7	100737	100737	
	IX	107	118	7	88382	88382	
	X	97	113	7	76727	76727	
	XI	87	108	7	65772	65772	
	XII	77	103	7	55517	55517	
	XIII	67	98	7	45962	45962	
	XIV	57	93	7	37107	37107	
	XV	47	88	7	28952	28952	
	XVI	37	83	7	21497	21497	
	XVII	27	78	7	14742	14742	
	XVIII	17	73	7	8687	8687	
Totals					1292881	1292881	25628

28 MAY 2018

TOTAL DEPTH = 120m

SURFACE GROUND LEVEL ABOVE - 8m
SURFACE GROUND LEVEL BELOW - 112m

Date of Survey:23.4.2018

PLATE NO-VI-A

APPLICANT:

M/s.SRI VENKATESHWARA BLUE METALS,
Prop.A.M.MURUGAN,
S/o.MANNATHAN,
No.4/4, 109 MUTHAMPATTI POST,
METTUR TALUK, SALEM DISTRICT.

LOCATION:

S.F.NO : 202/1(Part-A),
EXTENT : 3.00.0 Ha,
VILLAGE : KONDAPANAYANAPALLI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

INDEX

MINE LEASE BOUNDARY
7.5 m & 10m SAFETY DISTANCE
ROUGH STONE
TOP SOIL

Prepared By:

I DO HEREBY CERTIFY THAT ... HAS BEEN CHECKED ... TO THE BEST OF MY KNOWLEDGE

S.DHANASEKARAN,M.Sc.
RECOGNIZED QUALIFIED PERSON

Kondappanayanapalli

12° 39' 58.32"N

OCTOBER TO DECEMBER

N

Verupasandiram

78° 07' 42.23"E

78° 07' 50.93"E

JULY TO SEPTEMBER

12° 40' 05.09"N

28 MAY 2010
Date of Survey:

PLATE NO-VII

APPLICANT:

M/s.SRI VENKATESHWARA BLUE METALS,
Prop.A.M.MURUGAN,
S/o.MANNATHAN,
No.4/4, 109.MUTHAMPATTI POST,
METTUR TALUK, SALEM DISTRICT.

LOCATION:

S.F.NO : 202/1(Part-A),
EXTENT : 3.00.0 Ha.
VILLAGE : KONDAPANAYANAPALLI,
TALUK : KRISHNAGIRI,
DISTRICT : KRISHNAGIRI.

500M RADIUS :
MINE LEASE AREA :

TOPO SHEET NO. : 57 L/02

LATITUDE : 12° 39' 58.32"N to 12° 40' 05.09"N

LONGITUDE : 78° 07' 42.23"E to 78° 07' 50.93"E

INDEX

- VILLAGE ROAD
- APPROACH ROAD
- SHED
- TREES
- AGRICULTURAL LAND
- BARREN LAND
- WATER SUMP
- SEASONAL ODAI

ENVIRONMENTAL PLAN

SCALE:- 1:5000

LAND USE PATTERN	PERCENTAGES
QUARRY AREA	02%
ROAD	10%
TREES	13%
AGRICULTURAL LAND	18%
BARREN LAND	50%
STREAM (ODAI)	05%

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

From
Thiru L. Suresh, M.Sc.,
Deputy Director,
Geology and Mining,
Collectorate, Krishnagiri.

To
Thiru. A.M.Murugan
S/o.Mannathan,
No.4/4-109A, Muthampatti post, ,
Tholasampatti Via, Panapuram,
Mettur Taluk,Salem District.

Roc.170/2018/Mines dated 29.05.2018

Sir,

Sub: Mines and Minerals – Krishnagiri District – Krishnagiri Taluk – Kondappanayanapalli - Government Land in S.F.No.202/1(part-A) - Over an extent of 3.00.0 Hectares – Precise area given for the proposed grant of Quarry lease for Rough Stone for a period of 10 years from the date of execution of lease deed to Thiru.A.M.Murugan S/o.Mannathan – Draft Mining Plan submitted - Mining Plan approved - reg.

Ref: 1. The Krishnagiri District Gazette (Extraordinary) No.01 dated 19.01.2018.
2. The District Collector Krishnagiri Memorandum in Rc.No.170/2018/Mines dated 09.03.2018.
3. Thiru.A.M.Murugan S/o.Mannathan , No.4/4-109A, Muthampatti post, Tholasampatti Via, Panapuram, Mettur Taluk, Salem District letter dated 2-5-18

-oOo-

Thiru.A.M.Murugan S/o.Mannathan , No.4/4-109A, Muthampatti post, , Tholasampatti Via, Panapuram, Mettur Taluk, Salem District had been given precise area over an extent of 3.00.0 hectares in Government Poramboke land in S.F.No.202/1(part-A) of Kondappanayanapalli village, Krishnagiri Taluk, Krishnagiri District for a period of **Ten years** from the date of execution of lease deed under Tender Cum Auction System under the provisions of Tamil Nadu Minor Mineral Concession Rules, 1959 and he had been directed to submit the approved mining plan and Environmental Clearance from the State Level Environmental Impact Assessment Authority Tamilnadu vide reference 2nd cited.

2. In the reference 3rd cited Thiru.A.M.Murugan S/o.Mannathan has submitted draft Mining Plan for approval for the proposed rough stone quarry lease over an extent of 3.00.0 hectares in Government Poramboke land in S.F.No.202/1(part-A) of Kondappanayanapalli village, Krishnagiri Taluk, Krishnagiri District for a period **Ten years** from the date of execution of lease deed.

3. The Mining Plan submitted by Thiru.A.M.Murugan S/o.Mannathan has been scrutinized as per the guide lines/ Instructions issued by the Commissioner of Geology and Mining, Chennai-32 in Rc.No.3868/LC/2012 dated 19.11.2012. The mining plan is prepared in accordance with the guide lines/ instructions issued and tallies with the field conditions.

4. Hence as per the guide lines/ instructions issued by the Commissioner of Geology and Mining, Chennai, the said mining plan is hereby approved subject to the following conditions.

i) That the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

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

iii) That the mining plan is approved without prejudice to any other order or directions from any court of competent jurisdiction.

iv) The applicant has incorporated all the conditions and details given in the District Collector, Krishnagiri Memorandum in Roc.No.170/2018/Mines dated 09.03.2018 and the conditions should be adhered without any omission during quarrying.

v) The applicant should get prior clearance from the State level Environment Impact Assessment Authority, Chennai -15 and should submit it to the District Collector, Krishnagiri.

5. The details of other quarries situated within a radial distance of 500 mts. from the lease granted area is

Sl. No	Name of the lessee	Village	S.F.No.	Extent in hects.	Collector's proceedings & date	Lease period
1	Thiru.A.M.Murugan, S/o.Mannadiyan, 4/4, 109 Muthampatti Post, Mettur Taluk, Salem District.	Krishnagiri Taluk, Kondappanayanapalli	202/1 (Part-B)	3.00.0	Rc.171/2018/Mines dated 09.03.2018	Instant Proposal
2	Thiru.A.M.Murugan S/o.Mannathan	Kondappa nayanapalli Krishnagiri Taluk	S.F.No.202/1 (part-A)	3.00.0	—	Precise area given
			Total	6.00.0		

Deputy Director,
Geology and Mining,
Krishnagiri.

Copy submitted to: 1. The Chairman, State Level Environment Impact Assessment Authority, 3rd Panagal maligai, No.1 Jeenes Road, Saidapet, Chennai -15.

2. The Commissioner of Geology and Mining, Guindy, Chennai -32.

சான்று

சேலம் மாவட்டம், மேட்டூர் வட்டம், பானாபுரம், முத்தாம்பட்டி கிராமத்தில் வசிக்கும் A.M.முருகன் என்பவருக்கு கிருஷ்ணகிரி மாவட்டம் மேற்படி வட்டம் கொண்டப்பநாயனப்பள்ளி கிராமம் புல என் 202 (பகுதி A) இவை கரடு புறம்போக்கு காடு நிலமாகும். மேற்கண்ட புல எண்ணில் 3.00.0 ஹெக்டேர் பரப்பில் கல்குவாரி தொழில் செய்ய உள்ளார். விண்ணப்பித்த புல என்னை சுற்றி சுமார் 300 மீட்டர் சுற்று அளவில் அங்கீகரிக்கபட்ட விட்டுமனைகள், கிராமநத்தம், நீர்நிலை புறம்போக்கு, புராதன சின்னங்கள், பள்ளி, கல்லூரிகள், மயானம், கோவில்கள், தேவாலயம், மசூதி, மின் வழித்தடம் ஏதும் இல்லை என்று சான்று அளிக்கப்படுகிறது.

28-05-2013
Village Administrative Officer
44, CHENNASANDIRAM
Krishnagiri-Tk. & Dt.

QUALITY COUNCIL OF INDIA

National Accreditation Board for Education and Training

Certificate of Accreditation

Geo Technical Mining Solutions

1/213B, Natesan Complex, Dharmapuri Salem Main Road, Oddapatti, Collectorate post office, Dharmapuri, Tamil Nadu-636705

The organization is accredited as ***Category-A*** *under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals including opencast/ underground mining	1	1 (a) (i)	B

Note: Nomes of approved EIA Coordinators and Functional Area Experts are mentioned in SAAC minutes dated September 13, 2022 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/23/2641 dated January 19, 2023. The accreditation needs to be renewed before the expiry date by Geo Technical Mining Solutions following due process of assessment.

Sr. Director, NABET
Dated: January 19, 2023

Certificate No.
NABET/EIA/2124/SA 0184

Valid up to
Dec 31, 2023

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website

- 9 JAN 2018

தமிழ்நாடு வனத்துறை

அனுப்புதல்
ச. தீபக் எஸ். பில்சி, இ.வ.ப.,
மாவட்ட வன அலுவலர்,
ஓசூர் கால்நடை பண்ணை அஞ்சல்,
மத்திகிரி, ஓசூர் – 635 110.
தொலைபேசி எண். 04344–262259.

பெறுதல்
மாவட்ட ஆட்சித் தலைவர்,
கிருஷ்ணகிரி மாவட்டம்,
கிருஷ்ணகிரி.

ந.க.எண். 6213/2017–எல் நாள். 5 .01.2018
(ஸ்ரீஹேவிளம்பி வருடம், மார்கழி , திருவள்ளுவர் ஆண்டு 2048)

அய்யா,

பொருள் : கனிமங்களும் குவாரிகளும் – சிறுகனிமம் – சாதாரண கற்கள் – கிருஷ்ணகிரி மாவட்டத்தில் உள்ள அரசு புறம்போக்கு நிலங்களில் உள்ள சாதாரண கற்கள் வெட்டியெடுக்க டெண்டருடன் இணைந்த ஏலமுறையில் குவாரி குத்தகை வழங்குதல் வனத்துறை சார்பாகபரிந்துரைசெய்ய கோரியது– வனத்துறை நோக்கிலான கருத்து தெரிவித்தல்– தொடர்பாக.

பார்வை : மாவட்ட ஆட்சித் தலைவர், கிருஷ்ணகிரி மாவட்டம் ந.க.எண்.72/2017(கனிமம்) நாள்.28.12.2017.

*****

பார்வையில் கண்ட கிருஷ்ணகிரி மாவட்ட ஆட்சித் தலைவர் அவர்களது கடிதத்தில், கிருஷ்ணகிரி மாவட்டத்தில் உள்ள அரசு புறம்போக்கு நிலங்களில் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலம் மூலம் குத்தகைக்கு வழங்க, வனத்துறை நோக்கிலான கருத்து மற்றும் வனத்துறையின் தடையின்மை சான்று வழங்க வேண்டி தெரிவிக்கப்பட்டுள்ளது.

கிருஷ்ணகிரி மாவட்டத்தில் அரசு புறம்போக்கு நிலங்களில் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலத்தில் குத்தகைக்கு விட்டு அதன்மூலம் அரசுக்கு வருவாய் ஈட்டிட வனத்துறையின் இசைவினை வழங்கிட கிருஷ்ணகிரி மாவட்ட ஆட்சித் தலைவர் கேட்டுக்கொண்டதற்கிணங்க, அதனடிப்படையில் ஓசூர் வனச்சரக அலுவலர் மற்றும் பணியாளர்களுடன் குவாரிப் பகுதிகளை தணிக்கை செய்யப்பட்டது. கீழ்கண்ட பட்டியலில் கண்ட உத்தேச கற்குவாரிகளுக்கு கீழ்க்கண்ட நிபந்தனைகளுடன் வனத்துறை நோக்கிலான கருத்து தெரிவிக்கப்படுகிறது.

i) சாதாரண கற்குவாரி குத்தகை வழங்குவதற்கு ஒப்பந்தம் செய்வதற்கு (Lease deed
முன்பு ஒவ்வொரு குவாரிப் பகுதிக்கும் வனத்துறையின் நிபந்தனைபடன் முன் அ
பெற்றபின் குவாரிப் பணி செய்ய பணி ஆணை (Work order) வழங்கப்பட வேண்டும்.

ii) மேற்படி சாதாரண கற்குவாரி குத்தகை கோரும் புலங்கள் காவேரி வடக்கு வன உயிரின சரணாலயத்திற்கான Eco Sensitive Zone எல்லை நிர்ணயம் செய்ய பரிந்துரைக்கப்பட்டு ஆணை எதிர்நோக்கியுள்ள சூழலில், காவேரி வடக்கு வன உயிரின சரணாலய எல்லையிலிருந்து 10 கிமீ-க்குள் அமைந்திருப்பின் தேசிய வன உயிரின வாரியத்தின் முன் அனுமதி (National Board for Wildlife) பெறப்பட வேண்டும்.

iii) உத்தேச குவாரி செய்யும் புலங்கள் சென்னசந்திரம் காட்டுக்காட்டிற்கு அருகில் அமைந்துள்ளதால் வருவாய் வாரிய நிலை ஆணை தொகுப்பு 1, பிரிவு 3, உட்பிரிவு 38 (III) "Standing Orders of the Board of Revenue- Volume-I Section III, Sub- Section 38 (III)-ன் படி இதர பயன்பாட்டிற்கு உட்படுத்த நடவடிக்கை மேற்கொள்ளப்படும் போது குறைந்த பட்சம் 60மீ (3 Chain) காப்புக்காட்டின் எல்லையிலிருந்து இடைவெளி விடப்பட வேண்டும். எனினும் இப்பகுதியின் அருகில் பலவகை தாவர வகைகள் காணப்படுவதால் இக்காப்பு நிலத்தின் எல்லையிலிருந்து 100 மீ தொலைவிற்கு இடைவெளிவிட்டு தடுப்புச் சுவர் அமைக்கப்பட வேண்டும்.

iv) வருவாய்த்துறை ஆவணங்களில் "காடு" என வகைப்படுத்தப்பட்ட புலங்களில் கற்குவாரிப் பணி செய்ய அனுமதிக்கக் கூடாது.

v) உத்தேச கற்குவாரி செய்யும் புலங்கள் தமிழ்நாடு வனச்சட்டம் 1882-ன் பிரிவு 4 மற்றும் 16-ன் கீழ் காப்பு நிலம் / காப்புக்காடு என அறிவிக்கை செய்யப்பட்ட புலங்களாக இருக்கக்கூடாது.

vi) உத்தேச கற்குவாரி செய்யும் புலங்கள் தமிழ்நாடு வனச்சட்டம் 1882-ன் பிரிவு 26-ன் கீழ் அறிவிக்கை செய்யப்பட்ட புலங்களாக இருக்கக்கூடாது.

vii) அரசாணை (நிலை) எண்.79 தொழில் (கனிமம் 1) துறை நாள்.06.04.2015-ல் வழங்கப்பட்டுள்ள நிபந்தனைகளை மாவட்ட நிர்வாகம் / கனிம வளத்துறை கடைபிடிப்பதை வனத்தில் கொண்டுவரப்பட வேண்டும்.

viii) குவாரி குத்தகை கோரும் பகுதியிலிருந்து 300 மீட்டர் தூரம் வரை யாதொரு குடியிருப்பு பகுதிகள் இருக்கக் கூடாது என்பதை மாவட்ட நிர்வாகம் உறுதி செய்ய வேண்டும்.

... கற்கள் வெட்டி எடுக்க பரிந்துரை செய்யப்பட்ட குவாரிப் பகுதிகளின் பட்டியல்.

... Taluk

Sl. No.	Village	S.F. No.	Total Extent in ha	Extent proposed for quarry lease in ha	Classification	Virgin or Old quarry	GPS Coordinates Latitude/ Longitude
1	Koudappanayanapalli	202/1 (Part)A	15.61.0	3.00.0	UAW. Parai	Virgin	12°40'00.0"N 78°07'42.23"E
2	Koudappanayanapalli	202/1(Part)B	15.61.0	3.00.0	UAW. Parai	Virgin	12°39'56.43"N 78°07'40.49"E

தங்கள் அன்புள்ள,

ஒம்/- தீபக் எஸ். பில்கி,
மாவட்ட வன அலுவலர்,
ஒசூர் வனக்கோட்டம்.

/உ.ந.உ.ப/

கண்காணிப்பாளர். 3/1/18

3/1/18