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

” B1” CATEGORY – MINOR MINERAL – CLUSTER – NON-FOREST LAND-GOVT.LAND

M/s. A.V.S. Tech Building Solutions India Pvt Ltd. Rough Stone Quarry

At

Thorapalli Agraharam Village of Hosur Taluk, Krishnagiri District, Tamil Nadu State

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

CLUSTER EXTENT - 6.97.5 Ha

Name of Proponent and address	Project Location
M/s. A.V.S. Tech Building Solutions India Pvt Ltd., S.Srinivasan (managing Director) No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	S.F.No. 662 (P), 2.20.0 Ha, Thorapalli Agraharam Village of Hosur Taluk, Krishnagiri District.

ToR obtained project

1. Lr No.SEIAA-TN/F.No.8711/SEAC/ToR- 1049/2022 Dated: 31.01.2022-P1

Environmental Consultant

GEO EXPLORATION AND MINING SOLUTIONS



Old No. 260-B, New No. 17,
Advaitha Ashram Road, Alagapuram,
Salem – 636 004, Tamil Nadu, India



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

Certificate No : NABET/EIA/2225/RA 0276

Phone: 0427-2431989,

Email: ifthiahmed@gmail.com, geothagam@gmail.com

Web: www.gemssalem.com



ENVIRONMENTAL LAB

KGS ENVIRO LABORATORY PVT LTD

**No.16, F1, Bharathi Flats, Bharathiar Street, Cholambedu Main Road,
Thirumullaivoyal, Chennai – 600 062.**

Baseline Monitoring Season – Mar 2022 to May 2022

JULY 2023

For the easy representation the Proposed quarry and Existing quarry are designated as below –

PROPOSED QUARRY					
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	G.O. No & Date	Status
P1	M/s. A.V.S. Tech Building Solutions India Pvt Ltd., S.Srinivasan (managing Director) No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	662 (P) Thorapalli Agraharam Village of Hosur Taluk	2.20.0	Roc.217/2019/Mines dated: 13.06.2019	Lr No.SEIAA- TN/F.No.8711/SEAC/ToR- 1049/2022 Dated: 31.01.2022
Total Extent			2.20.0		
EXISTING QUARRY					
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha		Lease Period
E1	M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,	663/1A(P),1B1 (P), 1B2 (P) etc	4.77.5	Roc.680/2016/Mines dated: 05.12.2019	05.12.2019-04.12.2024
ABANDONED/EXPIRED QURRIES					
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha		Lease Period
NIL					
TOTAL CLUSTER EXTENT			6.97.5		

Note: -

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

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

TERMS OF REFERENCE (ToR) COMPLIANCE

M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,

“ToR Obtained vide Lr No. SEIAA-TN/F.No.8711/SEAC/ToR- 1049/2022 Dated: 31.01.2022”

SPECIFIC CONDITIONS		
1	Restricting the depth of mining to 41m ultimate depth and quantity of 277385 cu.m of Rough Stone for five years with a bench height of 5m as per the approved mining plan considering the hydrogeological regime of the surrounding area as well as to ensure sustainable and safemining.	Noted and agreed
2	<p>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</p> <p>a) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?</p> <p>b) Quantity of minerals mined out</p> <p>c) Highest production achieved in any one year</p> <p>d) Detail of approved depth of mining</p> <p>e) Actual depth of the mining achieved earlier</p> <p>f) Name of the person already mined in that leases area</p> <p>g) If EC and CTO already obtained' the copy of the same shall be submitted</p> <p>h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.</p>	<ul style="list-style-type: none"> ➤ It is an Existing quarry ➤ Existing Pit Dimensions is 160m(L) * 60m(W) * 19.5m(D)
3	A detailed study of the lithology of the mining lease area shall be furnished.	Noted and agreed
4	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	Noted and agreed
5	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 1km (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	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3.

	documentation are this regard may be provided.	
6	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & Flora/fauna including traffic/vehicular movement study.	Baseline Data were collected for One Season (Summer) Mar to May2022 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
7	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil, health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Cumulative impact study due to mining operations is explained in chapter – 7
8	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity.	Noted and agreed
9	A tree survey study shall be carried out (nos., name of the species, age, diameter etc..) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	Details of the trees in the buffer zone given in Chapter No.3.
10	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	Mine closure plan is detailed in Chapter:4.
11	All the queries raised during public hearing by the local habitants need to be addressed and the protective measures or management plan may be revised accordingly and to be submitted to SEIAA"/SEAC with regard to the office Memorandum of MoEF& CC accordingly.	Noted, will be furnished
12	The recommendation for the issue of "Terms of Reference" is subjected to the outcome of the Hon'ble NGT, Principal Bench, Now Delhi in O.A No.186 of 2016 (M.A.No.350/2016) and O.A. No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No. 758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A. No. 843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No. 981/2016, M.A.No.982/20 1 6 & M.A.No.38 4/2017).	Noted and Agreed
13	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	Species are proposed to plant in the safety barrier as mentioned in the ToR appendix. Proposed species are given in the Chapter No 4

	plant species should be planted as given in the appendix in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of Small medium/tall trees alternating with shrubs should be planted in a mixed manner.	
14	The project proponent shall furnish the details of the existing/proposed Green belt area earmarked with GPS coordinates and list of trees that are proposed to be planted surrounding the mining area atleast to a width of 3m along with a copy of photos/documents, and the same shall be included in the EIA Report.	The details of the existing/proposed Green belt area Detailed chapter- 3 Biological environment
ADDITIONAL CONDITIONS		
1	As per the recommendation of SEAC and as accepted by the proponent, restricting the depth of mining to 41m quantity of 277385 cu.m of Rough stone for five years with a bench height of 5m as per the approved mining plan considering the hydrogeological regime of the surrounding area as well as to ensure sustainable and safe mining.	VAO certificate is Obtained
2	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	Noted and agreed
3	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Details of carbon emission and mitigation activities are given in the Chapter No.4
4	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.	Discussed in Chapter: 3.
5	Action should be specifically suggested for sustainable restoration of ecosystem for flow of goods and services.	The Eco System of the area will be retained during the mining operation by the way of planting trees in the boundary barrier and unutilized areas. After completion of mining operation, the quarried-out pit will be facilitated to collect the rainwater to pit act as temporary reservoir.

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 (Cluster Condition).
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The applied land for quarrying is a Government Land. Document is enclosed along with Approved Mining Plan as Annexure Volume 1.
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	Noted & agreed.
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Map showing – Project area is superimposed on Satellite imagery is enclosed in Figure No. 2.1 Project area boundary coordinates superimposed on Toposheet – Figure No. 1.3 Surface Features around the project area covering 10km radius – Figure No. 2.2 Geology map of the project area covering 10km radius - Figure No. 2.7. Geomorphology Map of the Study Area covering 10 km radius – Figure No. 2.8.
5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Map showing – Geology map of the project area covering 10km radius - Figure No. 2.7. Geomorphology Map of the Study Area covering 10 km radius – Figure No. 2.8.
6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The applied area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.
7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so,	The proponent has framed their Environmental Policy and the same is discussed in the Chapter No 10.

	<p>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.</p>	
8	<p>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.</p>	<p>It is an opencast quarrying operation proposed to operate in Mechanized method. The Rough Stone quarry formation is a hard, compact and homogeneous body.</p> <p>The height and width of the bench will be maintained as 5m with 90⁰ bench angles.</p> <p>Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate.</p> <p>Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.</p>
9	<p>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.</p>	<p>Noted & agreed.</p> <p>The study area considered for this study is 10 km radius and all data contained in the EIA report such as waste generation etc., is for the Life of the Mine / lease period.</p>
10	<p>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.</p>	<p>Land use and land cover of the study area is discussed in Chapter No. 3.</p> <p>Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3.</p>
11	<p>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</p>	<p>Not Applicable.</p> <p>There is no waste anticipated during this quarry operation. The entire quarried out Rough Stone quarry will be transported to the needy customers.</p> <p>No Dumps is proposed outside the lease area.</p>

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.	Not Applicable. There is no Forest Land involved in the proposed project area. The proposed project area is a Government Poramboke Land.. Approved Mining Plan is enclosed as Annexure Volume 1.
13	Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not Applicable. The proposed project area does not involve any Forest Land.
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. The project doesn't attract Recognition of Forest Rights Act, 2006.
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	No Reserve Forest within the Study Area.
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	Not Applicable. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 KM of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished	Not Applicable. There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
18	A detailed biological study of the study area [core zone and buffer zone (10 KM radius of the periphery of the mine lease)] shall be carried out.	Detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] was carried out and discussed under

	<p>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.</p>	<p>Chapter No. 3.</p> <p>There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.</p>
19	<p>Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.</p>	<p>Not Applicable.</p> <p>Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range'.</p>
20	<p>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).</p>	<p>Not Applicable.</p> <p>The project doesn't attract The C. R. Z. Notification, 2018.</p>
21	<p>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.</p>	<p>Not Applicable.</p> <p>There are no approved habitations within a radius of 300 meters.</p> <p>Therefore, R&R Plan / Compensation details for the Project Affected People (PAP) is not anticipated and Not Applicable for this project.</p>

22	<p>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</p> <p>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.</p>	<p>Baseline Data were collected for One Season (Summer) Mar– May 2022 as per CPCB Notification and MoEF & CC Guidelines.</p> <p>Details in Chapter No. 3.</p>
23	<p>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.</p>	<p>Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD view 9.6.1 Model.</p> <p>Details in Chapter No. 4.</p>
24	<p>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.</p>	<p>Total Water Requirement: 3.0 KLD -P1</p> <p>Discussed under Chapter 2, Table No 2.15.</p>
25	<p>Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.</p>	<p>Not Applicable.</p> <p>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.</p> <p>Drinking water will be sourced from the approved water vendors.</p>
26	<p>Description of water conservation measures proposed to be adopted in the Project should be</p>	<p>Part of the working pit will be allowed to collect rain water during the spell of rain will be used for greenbelt</p>

	given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	development and dust suppression. The Mine Closure Plan is 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 are discussed in Chapter 4.
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	Not Applicable. The ground water table inferred 70-65m below ground level. The ultimate depth of quarry is 51m agl. This proposal of 35 m below ground level will not intersect the ground water table, which is inferred from the hydro-geological carried out at the project site. Discussed under Chapter 3.
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 is no stream, seasonal or other water bodies passing within the project area. Therefore, no modification/ 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.	Highest elevation of the project area is 812m AMSL-P1 Ultimate depth of the mine is 51m (16m Agl+35m Bgl) Water level of the area is 70-65m BGL-P1
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	Greenbelt Development Plan is discussed under Chapter 4, Page No.123.

	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 in Chapter 2.
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 the Chapter No.2 Page No.32.
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.	Discussed under Chapter 2. Mine Closure Plan is a part of Approved Mining Plan enclosed as Annexure Volume – 1.
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health Impacts of the project and preventive measures are detailed under Chapter 4.
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	No Public Health Implications anticipated due to this project. Details of CER and CSR are discussed under Chapter 8.
37	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 on the Study Area is anticipated and this project shall benefit the Socio-Economic Environment by ways of employment for 32 people directly and 20 people indirectly.

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.	Detailed Environment Management Plan for the project to mitigate the anticipated impacts described under Chapter 4 is discussed under Chapter 10.
39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	The outcome of public hearing will be updated in the final EIA/AMP report.
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No litigation is pending in any court against this project.
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Project Cost is Rs.1,61,43,000/--P1 CER Cost is Rs 5,00,000/- -P1
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Details in Chapter 7.
43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Details in Chapter 8.
44	Besides the above, the below mentioned general points are also to be followed: -	
a	Executive Summary of the EIA/EMP Report	Enclosed as separate booklet.
b	All documents to be properly referenced with index and continuous page numbering.	All the documents are properly referenced with index and continuous page numbering.
c	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	List of Tables and source of the data collected are 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	Baseline monitoring reports are enclosed with This report in Chapter 3. Original Baseline monitoring reports will be submitted in the final EIA report during appraisal.
e	Where the documents provided are in a language other than English, an English translation should be provided.	Not Applicable.

f	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Will be enclosed along with Final EIA /EMP Report.
g	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA. II(I) Dated: 4th August, 2009, which are available on the website of this Ministry, should be followed.	Noted & agreed. Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) Dated: 4th August, 2009 are followed.
h	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	Noted & agreed.
i	As per the circular no. J-11011/618/2010-IA. II(I) Dated: 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	Not Applicable.
j	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Surface Plan – Figure No. 2.2. Geological Plan – Figure No 2.9. Working Plan – Figure No 2.9. Closure Plan – Figure No.2.10.

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CHAPTER – 1: INTRODUCTION

1.0 Preamble

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

Rough Stone quarry are the major requirements for construction industry. This EIA report is prepared by considering Cumulative load of all proposed & existing quarries of Thorapalli Agraharam Rough Stone Quarry Cluster Quarries consisting of one Proposed quarry with total extent of Cluster of 6.97.5 Ha in Thorapalli Agraharam Village of Hosur Taluk, Krishnagiri District, Tamil Nadu State cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016.

This EIA Report is prepared in compliance with ToR obtained for the below proposals in Table 1.1 and the Baseline Monitoring study has been carried out during the period of Mar2022 -May 2022

TABLE 1.1: ToR OBTAINED PROJECTS

CODE	Name of the proponent	Extent (Ha)	Terms of Reference (ToR)
P1	M/s. A.V.S. Tech Building Solutions India Pvt Ltd.	2.20.0	LrNo.SEIAA-TN/F.No.8711/SEAC/ToR-1049/2022 Dated: 31.01.2022
	Total	2.20.0	

Source: ToR Letter's of the respective project proponent

1.1 Purpose of the report

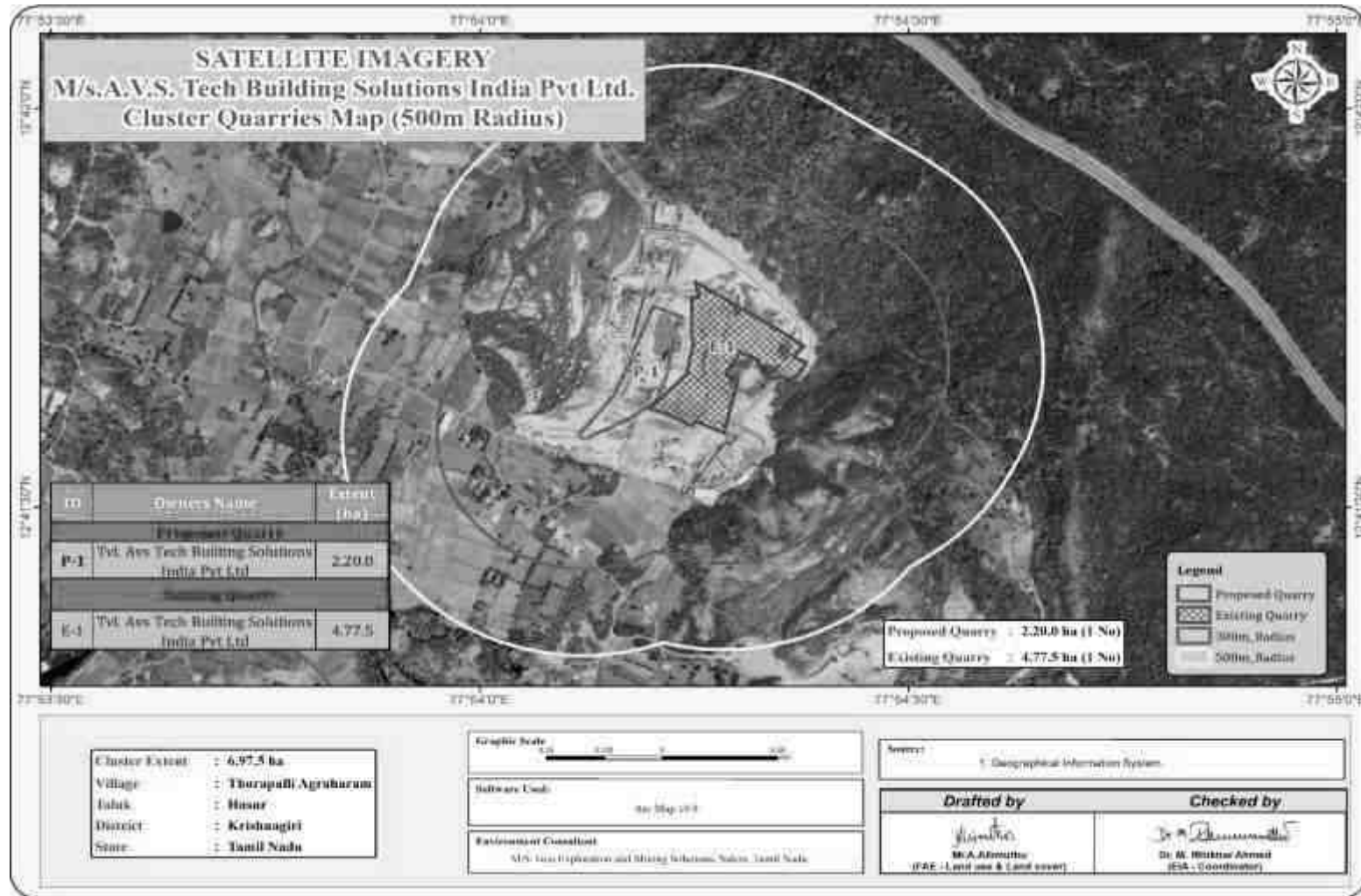
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 3977 (E) of 14th August 2018, Mining Projects are classified under two categories i.e. A (> 100 Ha) and B (\leq 100 Ha), and Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation in Appendix – XI.

Now, as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B1 and appraised by SEAC/ SEIAA as well as for cluster situation.

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

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

FIG.1.1 SATELLITE IMAGERY CLUSTER QUARRIES



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

Note: As per above notification S.O.2269(E) dated: 01.07.2016 in para (b) in Appendix XI, - (i)(6) A cluster shall be formed when the distance between the peripheries of one lease is less than 500 meters from the periphery of other lease in a homogeneous mineral area which shall be applicable to the mine lease or quarry licenses granted on and after 9th September, 2013

1.2 Identification of Project and Project Proponent

1.2.1 Identification of Project

The project areas in the cluster are Government Poramboke Land., no forest land is involved

TABLE 1.2: PROPOSED PROJECTS IN THE CLUSTER

Description	P1
Name of the Project	M/s. A.V.S. Tech Building Solutions India Pvt Ltd., Rough Stone Quarry
S.F. No.	662 (P),
Extent	2.20.0 Ha
Village ,Taluk	Thorapalli Agraharam Village, Hosur Taluk.
District	Krishnagiri District

Source: Approved Mining Plan

1.2.2 Identification of Project Proponent

TABLE 1.3: DETAILS OF PROJECT PROPONENT

PROPOSAL – P1	
Name of the Company	M/s. A.V.S. Tech Building Solutions India Pvt Ltd., S.Srinivasan (managing Director)
Address	No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.
Mobile	+91 88259 41719
Status	Company
Lease Period	5 Years

Source: Approved Mining Plan of the respective projects

1.3 Brief description of the project

1.3.1 Nature and size of the Project

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

TABLE 1.4: SALIENT FEATURES OF THE PROPOSED PROJECT

SALIENT FEATURES OF PROPOSAL “P1”		
Name of the Mine	M/s. A.V.S. Tech Building Solutions India Pvt Ltd, Rough Stone Quarry Project	
Land Type	It is a Government Land.	
S.F. Nos	662 (P)	
Extent	2.20.0 Ha	
Previous quarry operation details	It is an Existing quarry	
Geological Reserves	Rough Stone	TopSoil
	8,66,891m ³	14,467m ³
Mineable Reserves	Rough Stone	TopSoil
	3,04,455m ³	7,344 m ³
Proposed production for Five years	Rough Stone	TopSoil
	3,04,455m ³	7,344 m ³
Mining Plan Period / Lease Period	5 Years	
Depth of mining	51m (16m Agl+35m Bgl)	

Existing Pit Dimension	160m(L) x 60m (W) x19.5m(D)	
Ultimate Pit Dimension	Pit I 186m(L) x 62m (W) 51m(D) (16m Agl +35m Bgl) Pit II 156m(L) x 40m (W)	
Toposheet No	57 H/14	
Latitude	12°41'35.04"N to 12°41'45.02"N	
Longitude	77°54'06.94"E to 77°54'14.16"E	
Highest elevation	The lease applied area is exhibits an undulated topography. The area has gentle sloping towards Southern side. The altitude of the area is 812m (max) above Mean Sea level.	
Ground water level	The Ground water is about 70m - 65m depth from ground level.	
Water requirement & source	Total water requirement for 3.0KLD from water vendors & nearby Bore well.	
Machinery proposed	Jack Hammer	8
	Compressor	2
	Excavator with Bucket and Rock Breaker	2
	Tippers	3
Blasting	Usage of Slurry Explosive with MSD detonators	
Manpower Deployment	32 Nos	
Total Project Cost	Operational Cost	Rs.1,61,43,000/-
	EMP Cost	Rs. 3,80,000/-
	Total	Rs.1,65,23,000/-
CER Cost	Rs.5,00,000/-	
Habitation	700m-NW	

Source: Approved Mining Plan of the respective proposals

1.3.2 Location of the project

- The area is located in **S.F.No. 662 (P)** of Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District.
- The entire quarry lease area falls in the Government Poramboke Land land, the lease applied area is exhibits **an undulated topography**.
- The Altitude of the area is **812m (max)** above MSL.
- The area is mentioned in GSI Topo sheet No. **57 - H/14**
- The Latitude between of **12°41'35.04"N to 12°41'45.02"N**
- The Longitude between of **77°54'06.94"E to 77°54'14.16"E** on WGS 1984datum.

FIG1.1A KEY MAP SHOWING THE LOCATION OF THE PROJECT SITE

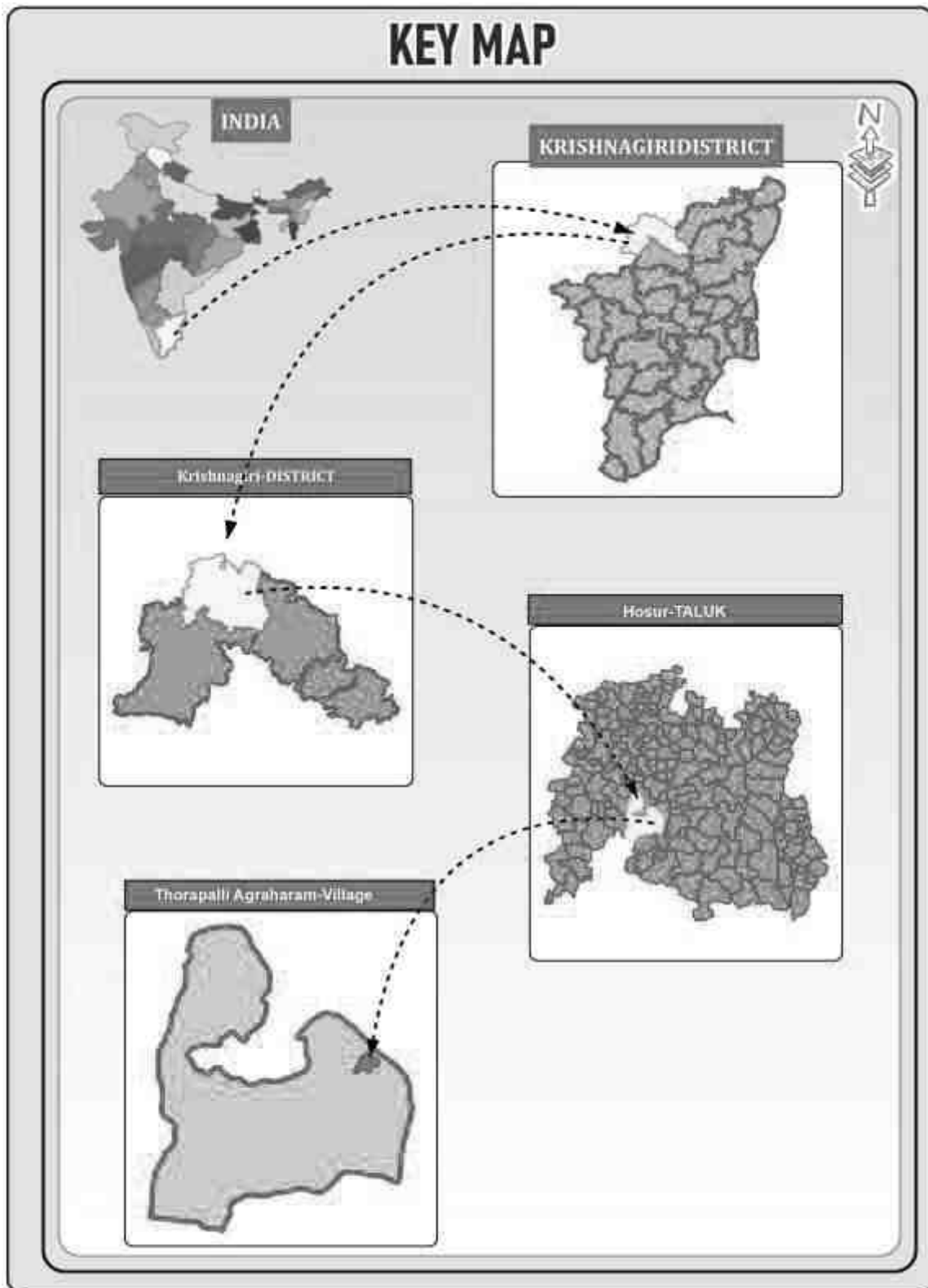


FIGURE 1.2: TOPOSHEET SHOWING LOCATION OF THE PROJECT SITE AROUND 10 KM RADIUS

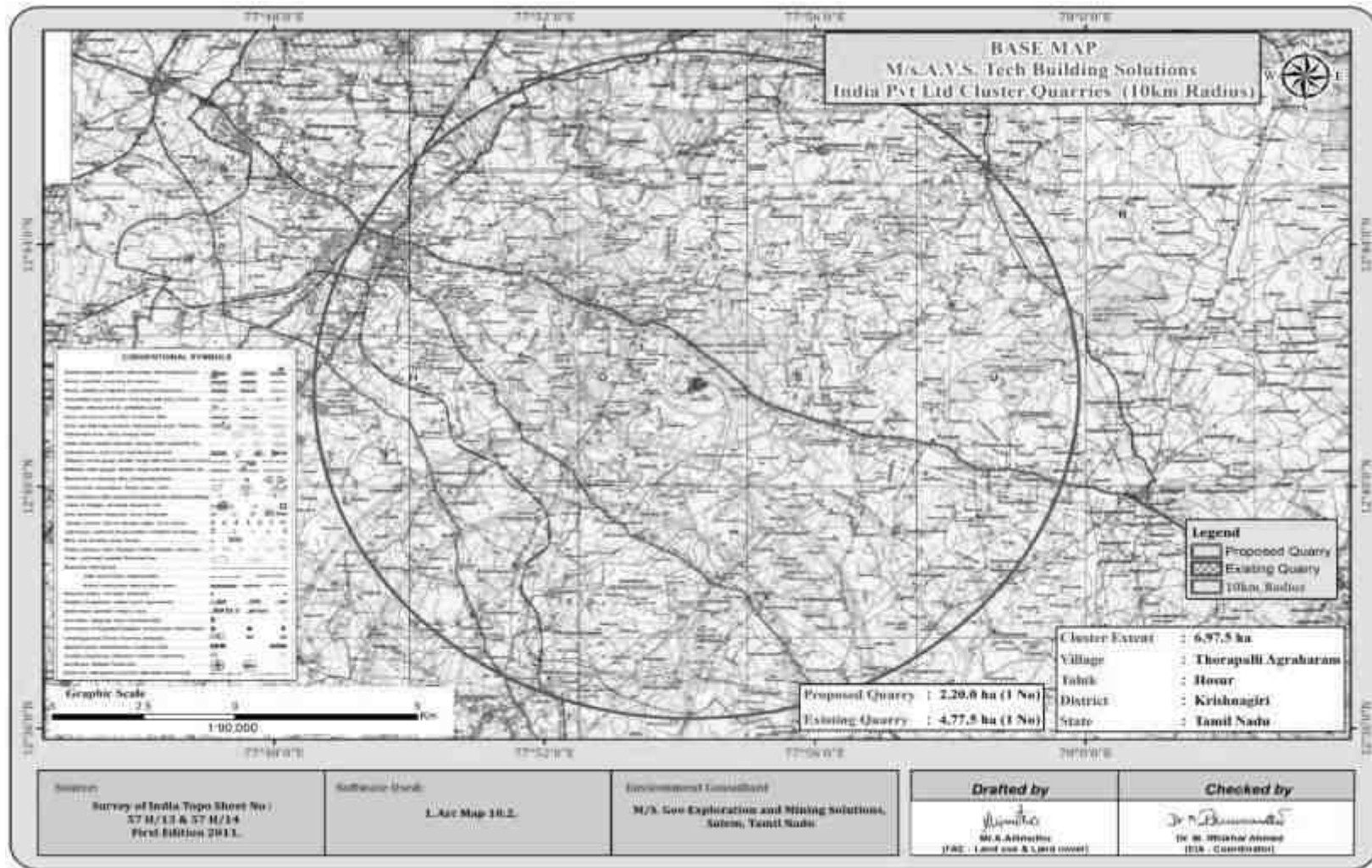
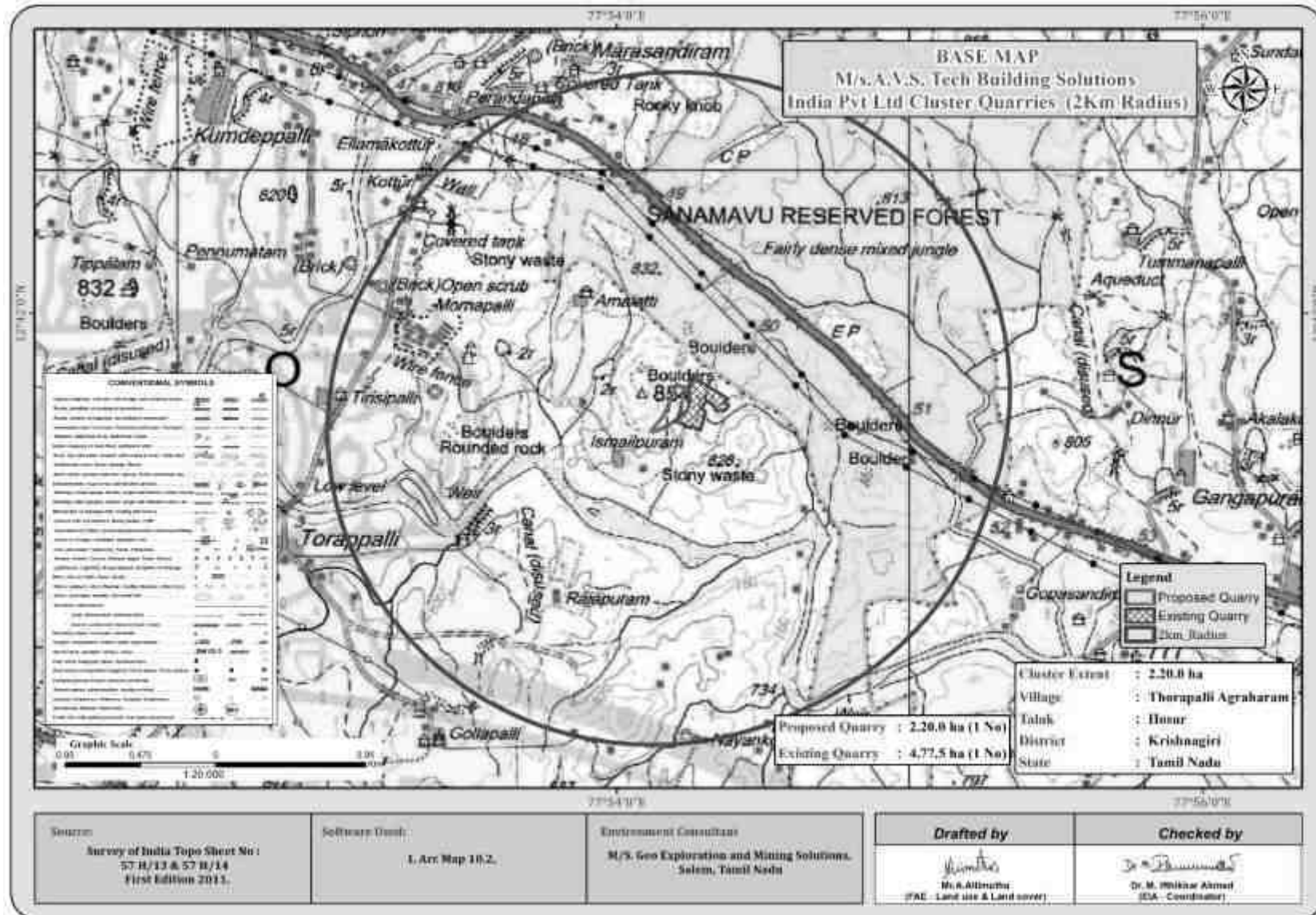


FIGURE 1.3: TOPOSHEET SHOWING LOCATION OF THE PROJECT SITE AROUND 2 KM RADIUS



1.4 Environmental Clearance

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

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

SCREENING –

Project – P1

- The proponent applied for Rough Stone quarry Lease Dated: 21.02.2019.
- Precise Area Communication was issued by the District Collector, Krishnagiri vide Rc.No.217/2019/Mines, Dated: 13.06.2019.for a period of 5 years Preparation of mining plan.
- The mining plan was approved by the Deputy Director, Department of Geology and Mining, Krishnagiri District vide Rc.No.217/2019/Mines, Dated: 24.06.2019.
- Proponent applied for ToR for Environmental Clearance vides online Proposal No. **SIA/TN/MIN/64324/2021, Dated:30.06.2021.**

SCOPING

Project – P1

- The proposal was placed in 237th SEAC meeting held on 08.10.2021 and the committee recommended for issue of ToR.
- The proposal was considered in 481th SEIAA meeting held on 24.01.2022 and 25.01.2022 issued ToR vide **Lr No. SEIAA-TN/F.No.8711/SEAC/ToR- 1049/2022 Dated: 31.01.2022**

Public Consultation

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

Appraisal –

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

- Guidance Manual of Environmental Impact Assessment for Mining of Minerals, Ministry of Environment and Forests, 2010
- EIA Notification, 14th September, 2006
- **Lr No. SEIAA-TN/F.No.8711/SEAC/ToR- 1049/2022 Dated: 31.01.2022- P1**

Approved Mining Plan of the Rough Stone quarry projects

1.5 Post Environment Clearance Monitoring

The Project Proponents in the Cluster will submit a half-yearly compliance report in respect of stipulated Environmental Clearance terms and conditions to MoEF & CC Regional Office & SEIAA after grant of EC on 1st June and 1st December of every year.

1.6 Generic Structure of EIA Document

The overall contents of the EIA report follow the list of contents prescribed in the EIA Notification 2006 and the “Environmental Impact Assessment Guidance Manual for Mining of Minerals” published by MoEF & CC. A brief description of each Chapter is presented in Table No. 1.5.

TABLE 1.5 – STRUCTURE OF THE EIA REPORT

S. No	Chapters	Title	Particulars
1	Chapter 1	Introduction	Presents, an Introduction along with Scope and Objective of this EIA/EMP Studies
2	Chapter 2	Project Description	Presents the Technical Details of the Project
3	Chapter 3	Description of Environment	Presents the Baseline Status for various Environmental Parameters in the Study Area for One Season (3 Months)
4	Chapter 4	Anticipated Environmental Impacts and Mitigation Measures	Presents the Identification, Prediction and Evaluation of overall Environmental Impacts due to the Proposed Projects Activities. Also presents Proposed Mitigation Measures.
5	Chapter 5	Analysis of Alternatives (Technology & Site)	Presents Analysis of alternatives with respect to site
6	Chapter 6	Environment Monitoring Programme	Present details of post project environment monitoring
7	Chapter 7	Additional Studies	Presents Public Consultation, Risk Assessment and Disaster Management Plan
8	Chapter 8	Project Benefits	Presents project benefits as: Improvements in the Physical Infrastructure, Social Infrastructure Employment Potential –Skilled; Semi-Skilled and Unskilled etc.,
9	Chapter 9	Cost Benefit Analysis	Environmental Cost Benefit Analysis has not been recommended at Scoping Stage – thus no analysis carried out separately in this EIA/EMP Report.
10	Chapter 10	Environmental Management Plan	Description of the administrative aspects to ensure the Mitigation Measures are implemented and their effectiveness monitored, after approval of the project.
11	Chapter 11	Summary & Conclusion	Summary of the EIA Report
12	Chapter 12	Disclosure of Consultants Engaged	Disclosure of the Consultants

1.7 Scope of the Study

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the

emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the summer season (**Mar 2022 – May 2022**) for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project.

TABLE 1.6 – ENVIRONMENT ATTRIBUTES

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂	24 hourly samples twice a week for three months at 8 locations
2	Meteorology	Wind speed and direction, temperature, relative humidity and rainfall	Near project site continuous for three months with hourly recording and from secondary sources of IMD station, Krishnagiri
3	Water quality	Physical, Chemical and Bacteriological parameters	Grab samples were collected at 4 ground water and 2 surface water locations once during study period.
4	Ecology	Existing terrestrial and aquatic flora and fauna within 10 km radius circle.	Limited primary survey and secondary data was collected from the Forest department.
5	Noise levels	Noise levels in dB(A)	At 8 locations data monitored once for 24 hours during EIA study.
6	Soil Characteristics	Physical and Chemical Parameters	Once at 6 locations during study period
7	Land use	Existing land use for different categories	Based on Survey of India topographical sheet and satellite imagery and primary survey.
8	Socio-Economic Aspects	Socio-economic and demographic characteristics, worker characteristics	Based on primary survey and secondary sources data like census of India 2011.
9	Hydrology	Drainage pattern of the area, nature of streams, aquifer characteristics, recharge and discharge areas	Based on data collected from secondary sources as well as hydro-geology study report prepared.
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires and explosions and release of toxic substances	Based on the findings of Risk assessment done for the mining associated activities

Source: Field Monitoring Data

The data has been collected as per the requirement of the ToR issued by SEIAA – TN and Standard ToR Published by MoEF & CC.

1.7.1 Regulatory Compliance & Applicable Laws/Regulations

- Application for Quarrying Lease as per Tamil Nadu Minor Mineral Concession Rules, 1959
- Obtained Precise Area Communication Letter as per Tamil Nadu Minor Mineral Concession Rules, 1959 for Preparation of Mining Plan and obtaining Environmental Clearance
- The Mining Plan of Rough Stone quarry has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959
 - Lr No. SEIAA-TN/F.No.8711/SEAC/ToR- 1049/2022 Dated: 31.01.2022- P1
Approved Mining Plan of Rough Stone quarry project.

CHAPTER – 2: PROJECT DESCRIPTION

2.0 General

The Proposed Rough Stone Quarry requires Environmental Clearance. There are one proposed quarry and one existing quarry forming a cluster; calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is 6.97.5ha.

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

2.1 Description of the Project

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

Method is mining is common for all the proposed quarries in the cluster. Rough Stone quarries are proposed to be excavated by opencast mechanized method involving splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone quarry from pithead to the needy crushers and rock breakers to avoid secondary blasting.

2.2 Location of the Project

- The area is located in **S.F.No. 662 (P)** of Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District.
- The entire quarry lease area falls in the Government Poramboke Land, the lease applied area is exhibits **an undulated topography**.
- The Altitude of the area is **812m (max)** above MSL.
- The area is mentioned in GSI Topo sheet No. **57 - H/14**
- The Latitude between of **12°41'35.04"N to 12°41'45.02"N**
- The Longitude between of **77°54'06.94"E to 77°54'14.16"E** on WGS 1984datum.

TABLE 2.1: SITE CONNECTIVITY TO THE CLUSTER QUARRIES

Nearest Roadway	NH – 44 – Bangalore – Salem – 1.0km – NE SH – 17 – Hosur – Dharmapuri – 4.0km – SW
Nearest Village	Islampuram – 1.0km – NW
Nearest Town	Hosur – 9.0km – NW
Nearest Railway	Hosur – 9.0km – NW
Nearest Airport	Bangalore Airport – 60Km - NW

Source: Google image, Survey of India Toposheet

The cluster quarries coners coordinates are given below.

TABLE 2.2 – BOUNDARY CO-ORDINATES OF PROPOSED PROJECT

BOUNDARY CO-ORDINATES OF PROJECT – P1		
Corner Nos.	Latitude	Longitude
1	12° 41' 35.37"N	77° 54' 06.94"E
2	12° 36' 38.33"N	77° 54' 09.40"E
3	12° 41' 40.91"N	77° 54' 10.57"E
4	12° 41' 41.68"N	77° 54' 10.74"E
5	12° 41' 42.61"N	77° 54' 11.17"E
6	12° 41' 45.02"N	77° 54' 12.14"E
7	12° 41' 44.23"N	77° 54' 14.12"E
8	12° 41' 43.62"N	77° 54' 14.16"E
9	12° 41' 43.70"N	77° 54' 13.76"E
10	12° 41' 40.40"N	77° 54' 13.13"E
11	12° 41' 39.95"N	77° 54' 13.12"E
12	12° 41' 37.88"N	77° 54' 12.36"E
13	12° 41' 36.74"N	77° 54' 10.75"E
14	12° 41' 35.87"N	77° 54' 09.04"E
15	12° 41' 35.04"N	77° 54' 07.25"E

Source: Mine Lease Plan Plate of the respective proposals

FIGURE 2.1: TOPOGRAPHICAL VIEW OF THE PROJECT SITE-P1

FIGURE 2.2: SHOWING GOOGLE IMAGE ROUGH STONE QUARRY PROJECT AREAS



SATELLITE IMAGERY OF P1

FIGURE 2.3: QUARRY LEASE PLAN



FIGURE 2.4: SATELLITE IMAGERY OF CLUSTER QUARRIES

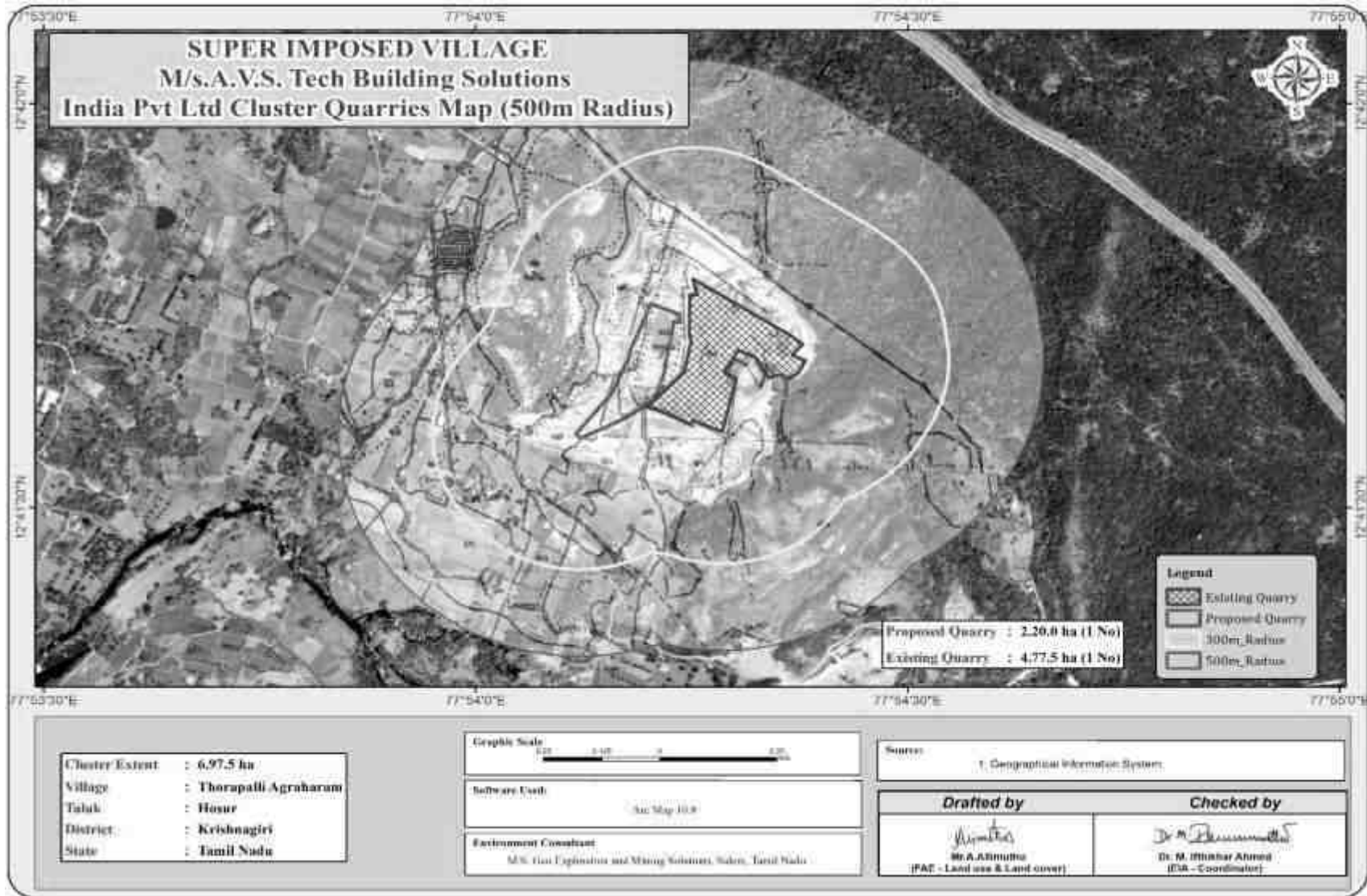


FIGURE 2.5: DIGITIZED MAP OF THE STUDY AREA (10 KM RADIUS FROM PROJECT SITE)

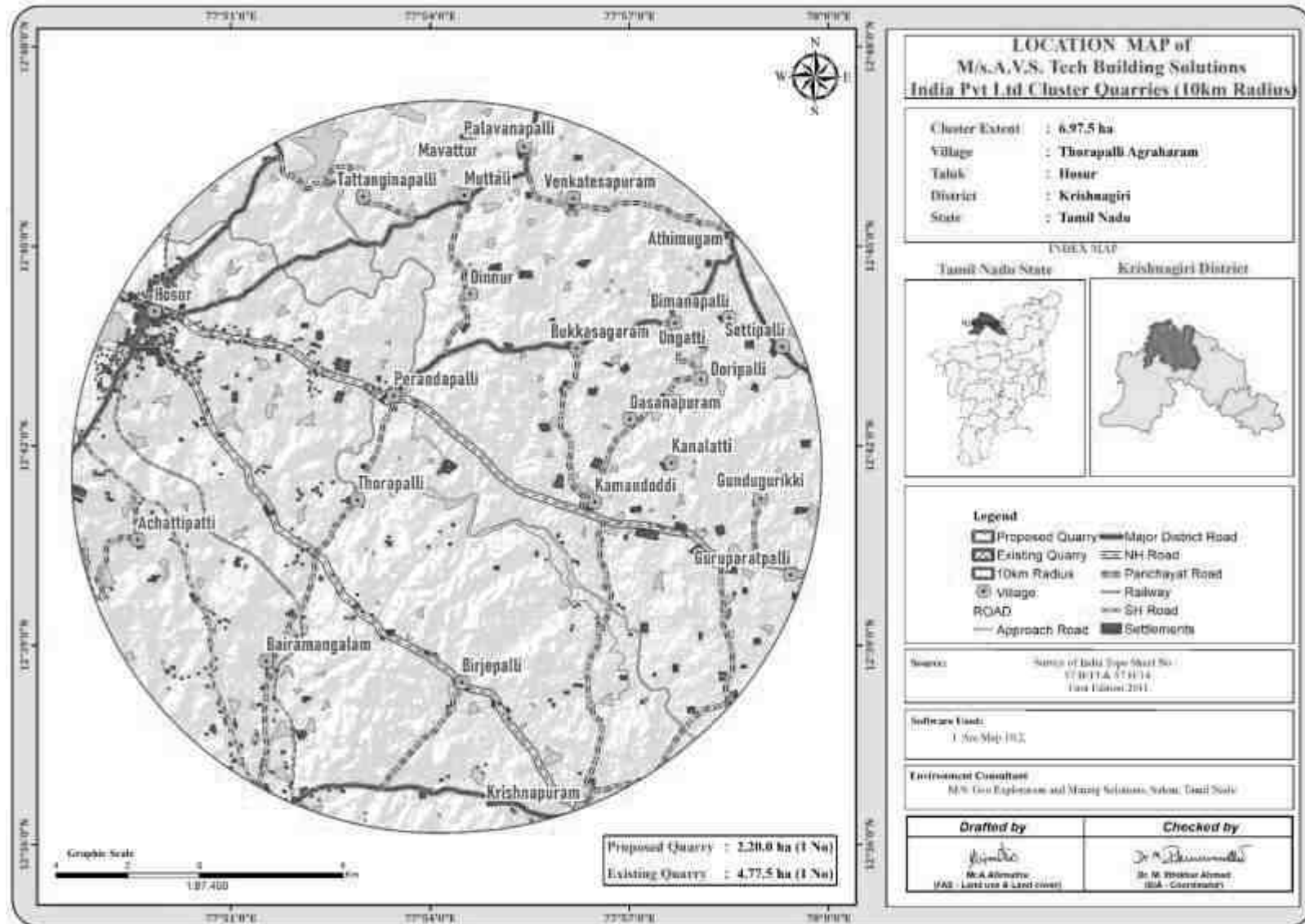


FIGURE 2.6: DIGITIZED MAP OF THE STUDY AREA (5 KM RADIUS FROM PROJECT SITE)

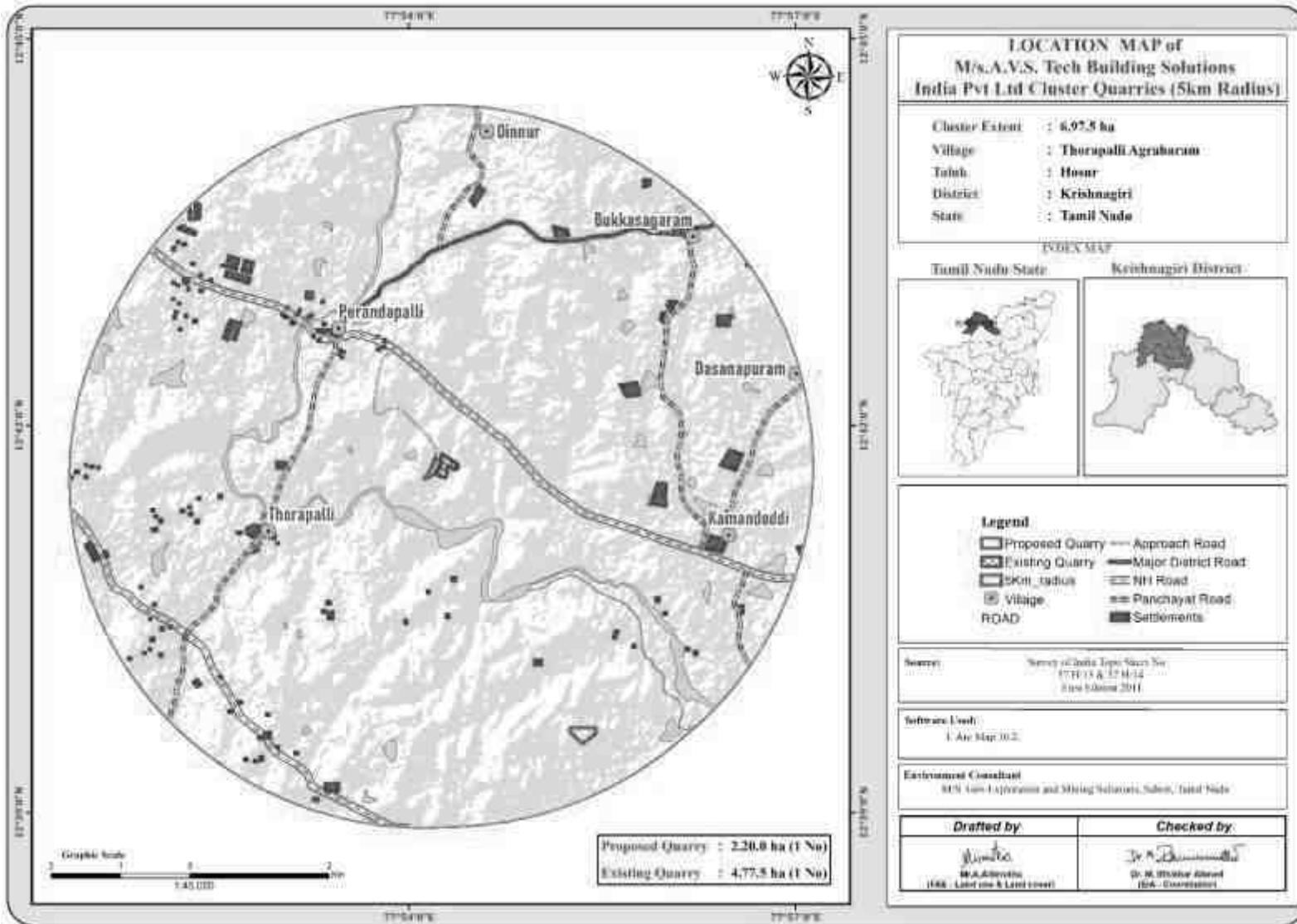
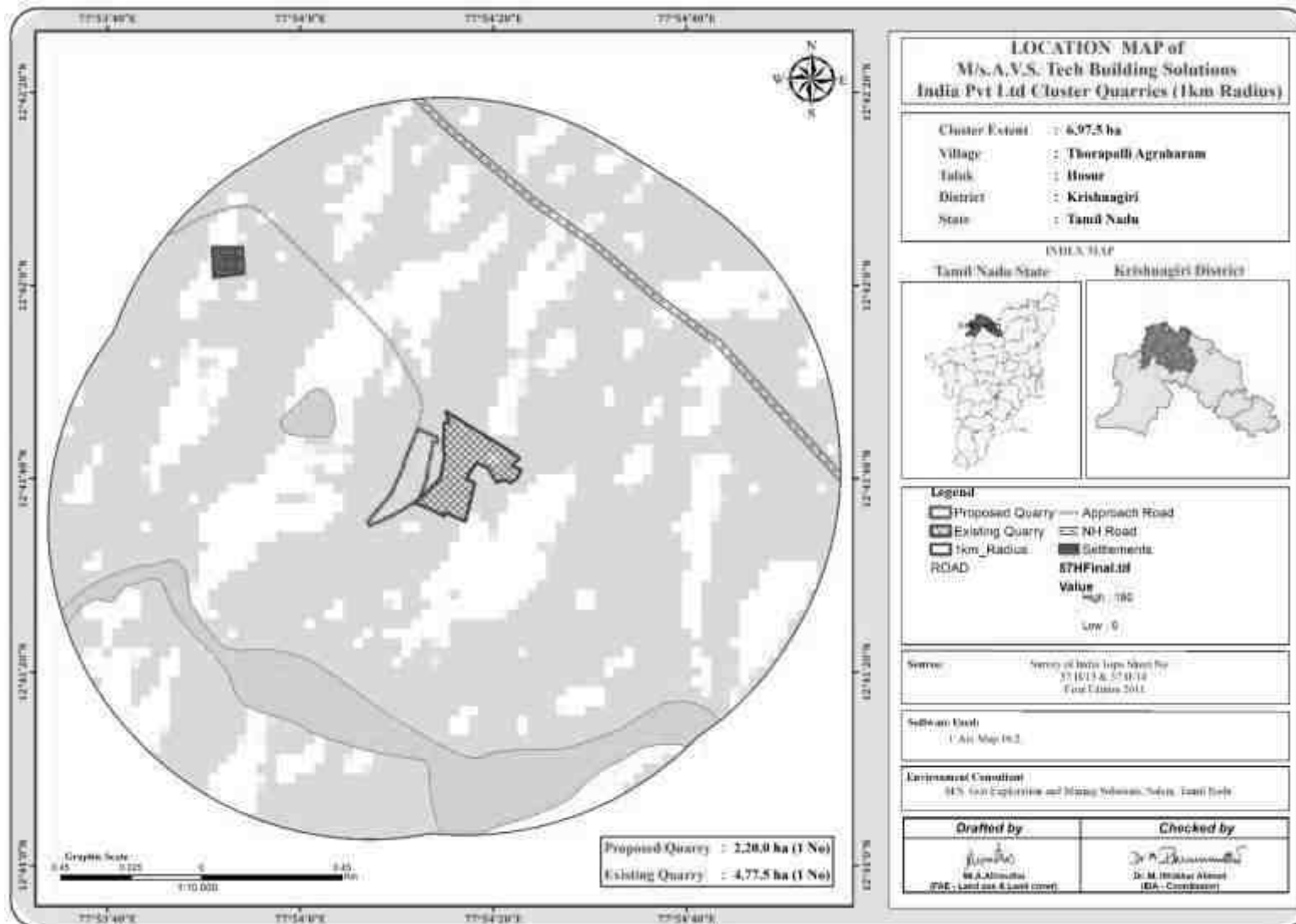


FIGURE 2.7: DIGITIZED MAP OF THE STUDY AREA (1 KM RADIUS FROM PROJECT SITE)



2.2.1 Project Area

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

TABLE 2.3 – LAND USE PATTERN OF THE PROPOSED PROJECTS

<i>Description</i>	<i>Present area (Ha)</i>	<i>Area at the end of Lease period (Ha)</i>
Area Under Quarrying	0.85.7	1.63.3
Infrastructure	Nil	0.01.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.15.0
Unutilized Area	1.32.3	0.38.7
Grand Total	2.20.0	2.20.0

Source: Approved Mining Plan

2.2.2 Size or Magnitude of Operation

TABLE 2.4: OPERATIONAL DETAILS FOR PROPOSED PROJECTS

OPERATIONAL DETAILS FOR PROJECT – P1		
PARTICULARS	DETAILS	
	Rough Stone quarry (m³) (5 Year Plan period)	Top Soil (m³) (2Years Plan period)
Geological Resources	8,66,891	14,467m ³
Mineable Reserves	3,04,455m ³	7,344 m ³
Production for five-year plan period	3,04,455 m³	7,344 m ³
Mining Plan Period / Lease Applied Period	5Years	
Number of Working Days	300 Days	
Production per day	203	12
No of Lorry loads (12m ³ per load)	17	2
Total Depth of Mining	51m (16m Agl+35m Bgl)	

Source: approved mining plan

* Topsoil formation are proposed to excavate for two years only

2.3 GEOLOGY

2.3.1 Regional Geology

The geological formations of the district belong mainly to Archaean age along with rock of Proterozoic age. The former is represented by Khondalite Group of rocks, Charnockite Group of rocks, Migmatites Complex, Sathyamangalam Group of rocks, while the latter is represented by alkaline rocks. The Khondalite Group includes garnet sillimanite gneiss and quartzite which occur as small patches. The migmatite complex includes garnetiferous quartzofeldspathic gneiss and hornblends biotite gneiss, the former exposed on the western part of the district. The Sathyamangalam Group includes fuchsite quartzite, sillimanite mica schist and amphibolites. The Bhavani Group in this area includes fissile hornblende-biotite gneiss, granitoid gneiss and pink migmatite. Amphibolites with barbed ferruginous quartzite and associated quartzo-feldspathic rocks (Champion Gneiss) represent the Kolar group and are found west and southwest of Veppanapalli. Following this there are basic intrusions occurring as dykes. The

Charnockite Group occupies a major part of the south-west portion of this district with small bands of garnetiferous quartzo-feldspathic gneiss, Granite gneiss and dolerite dykes. The North-East and Northern part of the district mainly consist of granite gneiss with small patches of Pink Migmatite, hornblende-biotite gneiss and dolerite dykes. The Eastern part of the district consists of Epidote-Hornblende Gneiss, Ultra Mafics, Syenite and Carbonatite.

The Alkaline Complex is represented by epidote-hornblende gneiss, ultramafics, syenite and carbonatite and these are distributed in the eastern part of the district. Innumerable basic dykes and felsites, quartz, barites and pegmatite veins form part of the Alkali Complex.

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite body N35°E – S35°W with vertical dipping

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

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

2.3.2 Local Geology:

The study area follows the regional trend and mainly comprises of Hard Rock Formation as a homogeneous formation / Batholith formation of Charnockite. The project area is hilly terrain, sloping toward South with a highest altitude of 812m AMSL. The project area is covered with topsoil formation of 1m to 2m thickness; Massive Charnockite formation is found after 2 m topsoil formation which is clearly inferred from the existing quarry pit.

2.3.3 Hydrogeology

The origin, occurrence and movement of groundwater are controlled by geological setup of a terrain. During the study it is inferred that the entire cluster area is a Hard rock terrain and the low -resistance encountered at the depth between 65-70 m bgl, hence it is assumed that the possibility of Ground water occurrence will be below this level and it also proved that this hard batholith above 60 m will not encounter any subsurface water.

In the geophysical study it has been clearly inferred that the depth of the quarrying operation will not intersect the ground water table.

TABLE 2.5: GROUND WATER LEVEL VARIATIONS OF KRISHNAGIRI DISTRICT

Jan 2017	May 2017	Jan 2018	May 2018	Jan 2019	May 2019	Jan 2020	May 2020	Jan 2021	May 2021	5 Years Pre-Monsoon Average	5Years Post Monsoon Average
12.1	14.9	6.3	8.1	11.0	12.7	8.9	11	8.4	10.6	9.5	7.9

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

FIGURE 2.8: REGIONAL GEOLOGY MAP

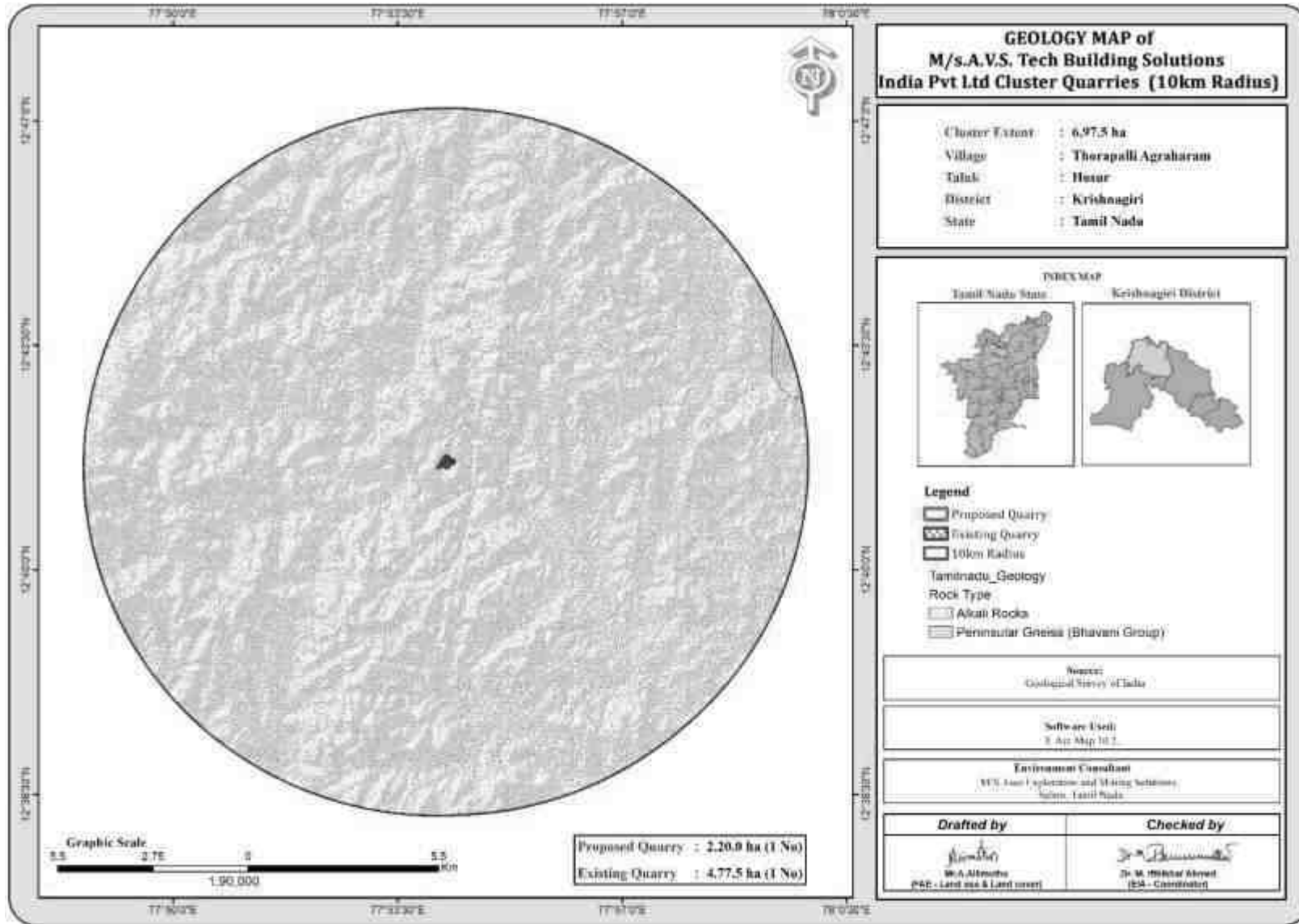


FIGURE 2.9: GEOMORPHOLOGY MAP

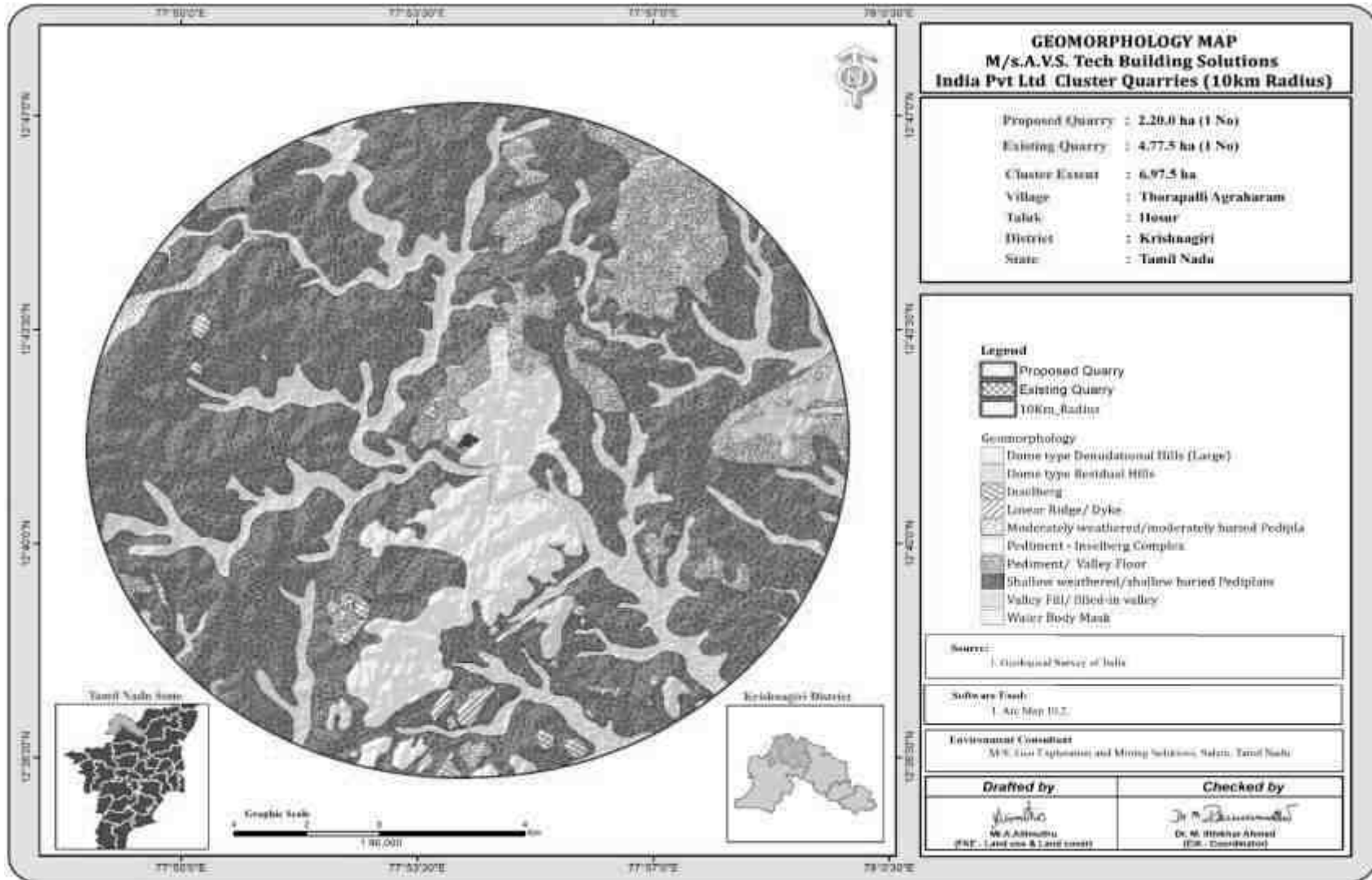
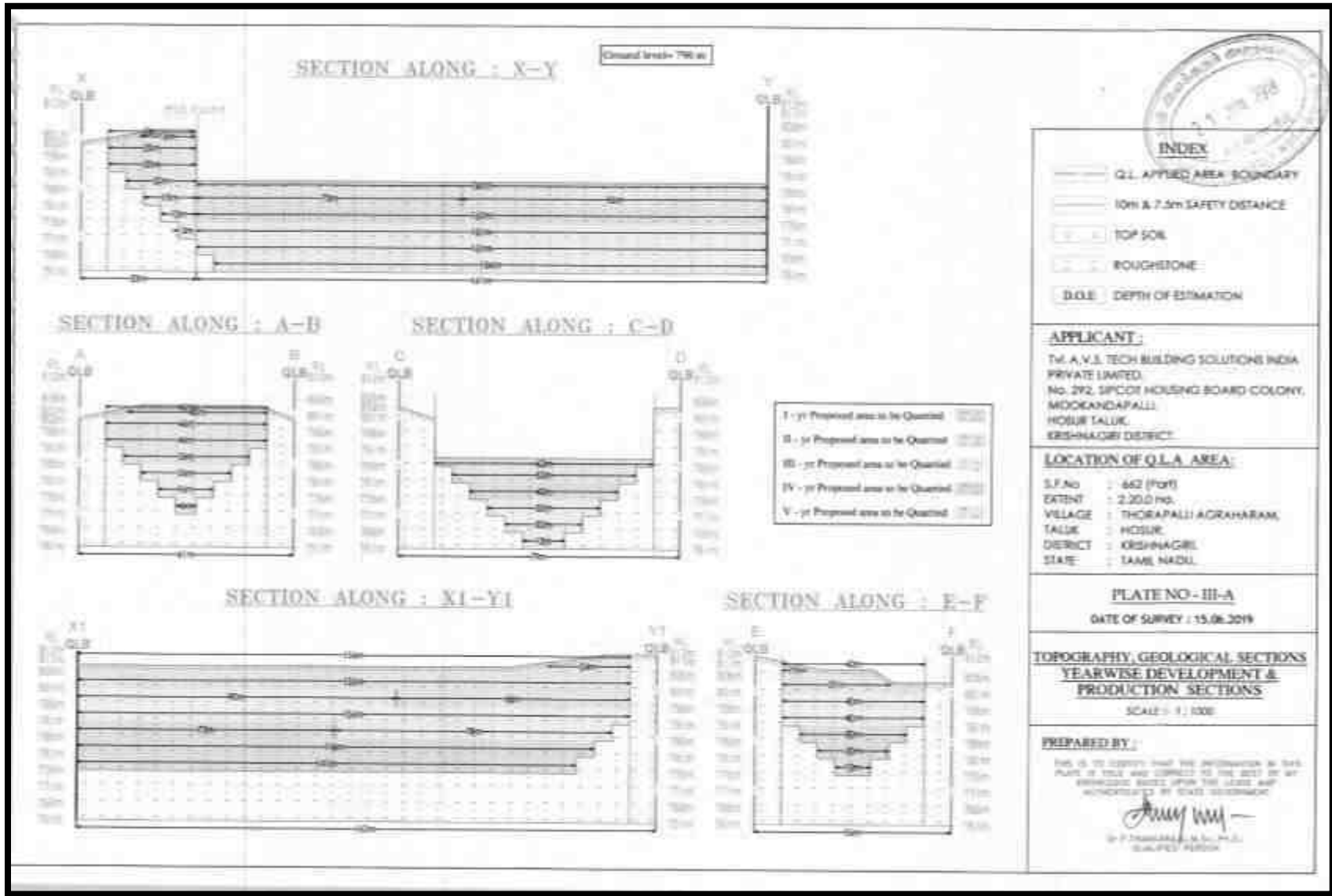


FIGURE 2.10: TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT PRODUCTION PLAN AND SECTION



2.4 RESOURCES AND RESERVES

The Resources and Reserves of Rough Stone quarry and Topsoil were calculated based on Cross-Section Method by plotting sections to cover the maximum lease area.

Based on the availability of Geological Resources the Mineable Reserves are calculated by considering excavation system of bench formation and leaving essential safety distance of 7.5 m (Safety Barrier all around the applied area) and safety distance as per precise area communication letter and deducting the locked up reserves during bench formation (Also called as Bench Loss) and the Mineable Reserves is calculated considering there is no waste / overburden / side burden (100% Recovery Anticipated).

TABLE 2.6: AVAILABLE GEOLOGICAL RESOURCES OF PROPOSED PROJECTS- P1 & P2

Description	P1	
	Rough Stone quarry	Topsoil
Geological Resource	8,66,891m ³	14,467m ³
Mineable Reserves	3,04,455m ³	7,344 m ³

Source: Approved Mining Plan

TABLE 2.7: YEAR-WISE PROPOSAL FOR FIRST FIVE YEARS PRODUCTION PLAN-P1

YEAR	ROUGH STONE QUARRY (m ³)	TOPSOIL (m ³)
I	60835	1104
II	60580	6240
III	60900	-
IV	66410	-
V	55730	-
TOTAL	304455	7344

Source: Approved Mining Plan

Disposal of Waste

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

Conceptual Mining Plan/ Final Mine Closure Plan

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

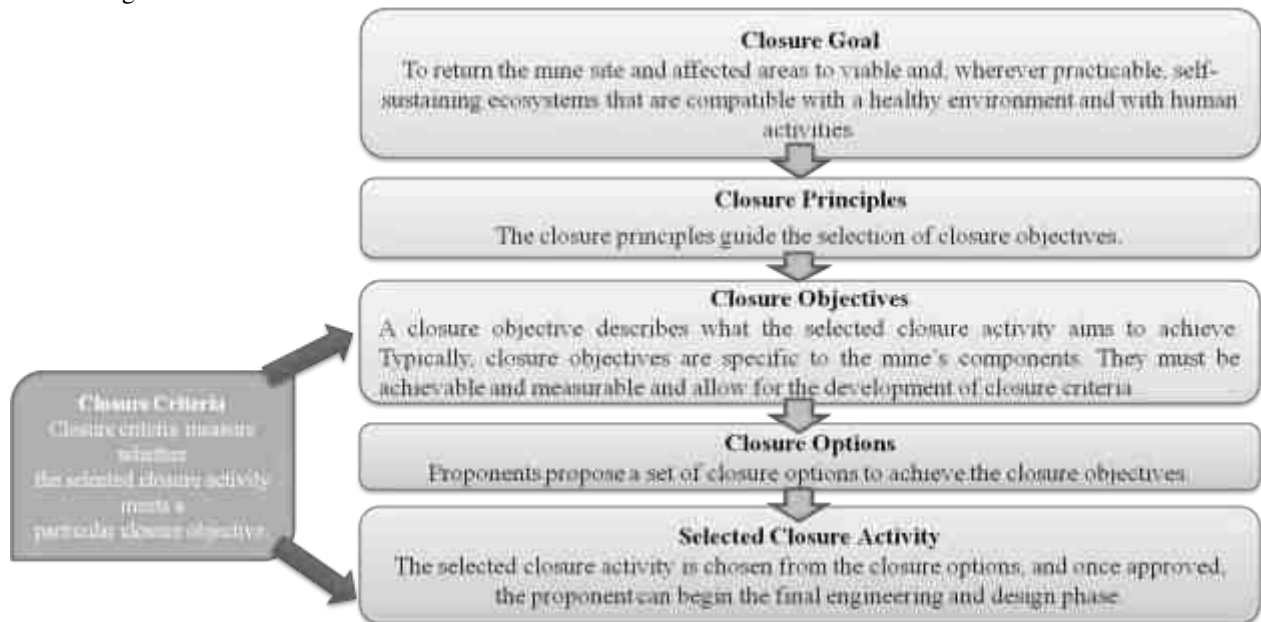
TABLE 2.9: ULTIMATE PIT DIMENSIONS-

Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)
I	186	62	51 m (16m AGL+ 35 m BGL)
II	156	40	

Source: Approved Mining Plan

- At the end of life of mine, the excavated mine pit / void will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season.

- After mine closure the greenbelt developed along the safety barrier and top benches and temporary water reservoir will enhance the ecosystem
- Mine Closure is a process of returning a disturbed site to its natural state or which prepares it for other productive uses that prevents or minimizes any adverse effects on the environment or threats to human health and safety.
- The principle closure objectives are for rehabilitated mines to be physically safe to humans and animals, geo-technically stable, geo-chemically non-polluting/ non-contaminating, and capable of sustaining an agreed post-mining land use.



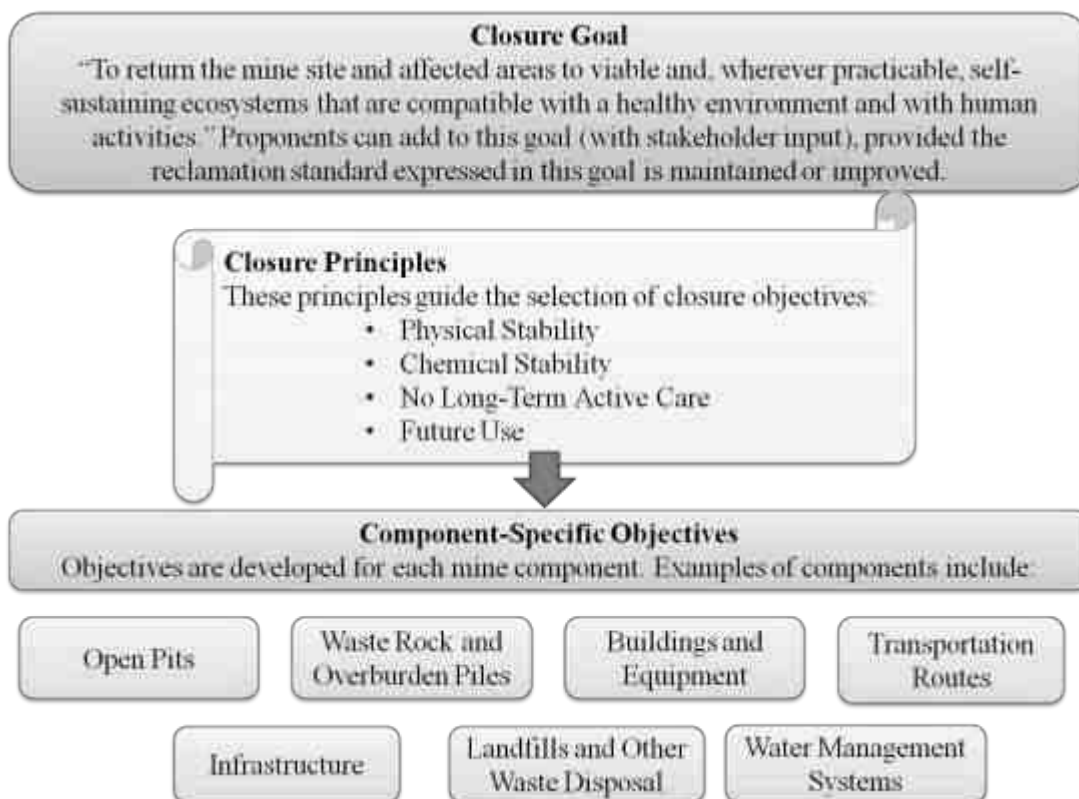
Closure Objectives

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

Closure Planning & Options Considerations in Mine Design –

- The closure of mine is well planned at the initial stage of planning & design consideration by the internal and external stake holders
- Construction of 2m height bund all along the mine pit boundary and ensure its stability all time & construction of garland drain along the natural slope to avoid sliding and collection of soil to the pit & surface runoff during rainfall
- After complete exploitation of mineral, the lowest bench foot wall side will be maintained as plain surface without any sump pits to avoid any accidents
- All the sharp edges will be dressed to smoother face before the closure of mine and ensure no loose debris on hanging wall side
- There is a river on southern side of the project area. The river will not be hindered by any of mine closure activities
- The project proponent as a part of social responsibilities assures to supply the stored mine pit water to the nearby villages after effective treatment process as per the standards of TNPCB & TWAD

- Native species will be planted in 3 row patterns on the boundary barriers and 1st bench, a full-time sentry will be appointed at the gate to prevent inherent entry of public & cattle.
- The access road to the quarry will be cut-off immediately after the closure
- The layout design shall be prepared and get approved from Department of Geology and Mining.
- The proponent is instructed to construct as per the layout approved
- Physical and chemical stability of structures left in place at the site, the natural rehabilitation of a biologically diverse, stable environment, the ultimate land use is optimized and is compatible with the surrounding area and the requirements of the local community, and taking the needs of the local community into account and minimizing the socio-economic impact of closure
- There will be a positive change in the environmental and ecology due to the mine closure



Post-Closure Monitoring –

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

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

TABLE 2.10: MINE CLOSURE BUDGET-P1

ACTIVITY	YEAR					RATE	COST (Rs.)
	I	II	III	IV	V		
Plantation under safety zone	100	100	100	100	100	@100 Rs Per sapling	50,000
	10000	10000	10000	10000	10000		
Plantation in the quarried out top benches, approach road and panchayat road	160	160	160	160	160	Including Maintenance	80,000
	16000	16000	16000	16000	16000		
Wire Fencing for 790 Mtrs length	237000	-	-	-	-	@300 Rs Per Meter	2,37,000
Garland Drain with settling traps for 730 Mtrs length	219000	-	-	-	-	@300 Rs Per Meter	2,19,000
Total							5,86,000

Source: Proposed by FAE's and EC

2.5 Method of Mining

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

The top layer of overburden (Topsoil) will be Excavate directly by Hydraulic Excavators and loaded into tippers directly and sold to needy customers. The Rough Stone quarry is a batholith formation and the splitting of rock mass of considerable volume from the parent rock mass will be carried out by deploying jackhammer drilling and Slurry Explosives will be used for blasting. Hydraulic Excavators attached with Rock Breakers unit will be deployed for breaking large boulders to required fragmented sizes to avoid secondary blasting and hydraulic excavators attached with bucket unit will be deployed for loading the Rough Stone quarry into the tippers and then the stone is transported from pithead to the nearby crushers.

2.5.1 Drilling

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

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

2.5.2 Blasting

Blasting will be done as per details below: -

- Controlled blasting parameter: -

Spacing – 1.2m

Burden – 1.0 m

Depth of hole – 1.5m

Charge per hole – 50grams

Powder factor – 6.0 tonnes/kg

Dia of hole – 30-32 mm

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

Volume of Rough Stone quarry will be excavated from one hole	=	3 Tonnes
Total Volume from one proposed quarry	=	3,04,455m³
	=	3,04,455m ³ /5
	=	60891/300
	=	203* 2.6
	=	528Tonnes per day
Therefore, Number of Holes per day	=	528 /3
	=	176 Holes per day (for 1 Quarry)

Type of Explosives to be used –

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

2.5.3 Extent of Mechanization

TABLE 2.12 PROPOSED MACHINERY DEPLOYMENT

PROPOSAL – P1				
S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	8	1.2m to 2.0m	Compressed air
2	Compressor	2	400psi	Diesel Drive
3	Excavator with Bucket / Rock Breaker	2	300 HP	Diesel Drive
4	Tippers	3	20 Tonnes	Diesel Drive

Source: Approved Mining Plan of the project.

2.6 General Features

2.6.1 Existing Infrastructures

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

2.6.1 Drainage Pattern

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

2.6.2 Traffic Density

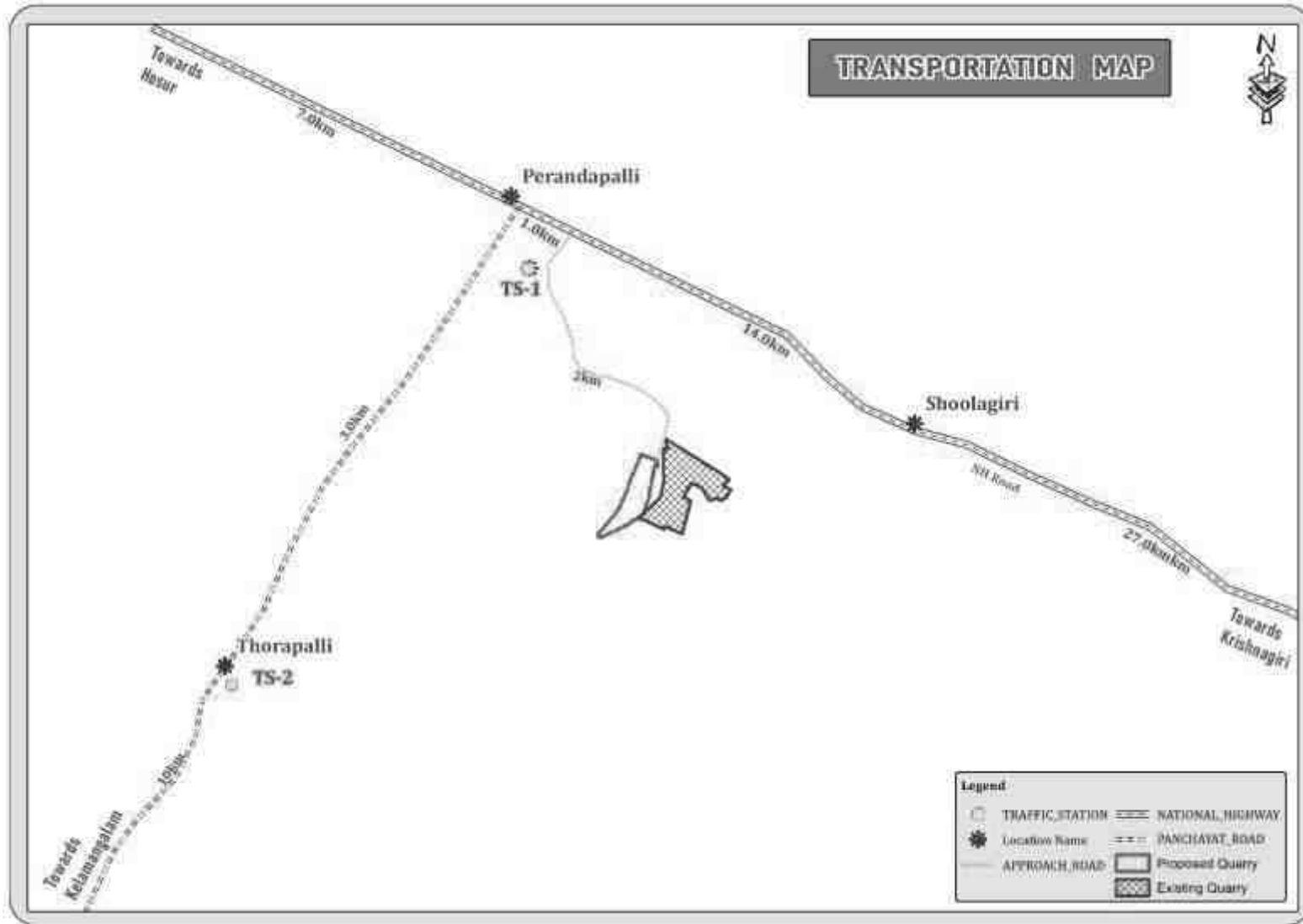
Traffic density measurements were performed as per IRC 1960 Guidelines at three locations based on the transportation route. Traffic density measurement were made continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station during each shift- one person on either direction for counting the traffic. At the end of each hour, fresh counting and recording was undertaken.

TABLE 2.13 – TRAFFIC SURVEY LOCATION'S

Station code	Station location	Distance and Direction	Type of Road
TS1	Approach Road	1Km- NW	Approach Road
TS2	Perandapalli to Kelamangalam	2.5Km -SW	Panchayat Road

Source: On-site monitoring by GEMS FAE & TM

FIGURE 2.11: TRAFFIC SURVEY LOCATIONS & TRANSPORTATION ROUTE MAP



(Source: Survey of India Toposheet)

TABLE 2.14 – EXISTING TRAFFIC VOLUME

Station code	HMV (Hourly Average)		LMV hourly average		2/3 Hourly average		Total PCU per hour
	No	PCU	No	PCU	No	PCU	
TS1	50	150	20	20	90	45	215
TS2	100	300	45	45	120	60	405

Source: On-site monitoring by GEMS FAE & TM

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

TABLE 2.15 – ANTICIPATED TRAFFIC DUE TO THIS PROPOSED PROJECT

Transportation of Rough Stone quarry per day		
Capacity of trucks	Cumulative Trips	Volume in PCU
10/20 tonnes	36Trips	108

Source: Anticipated based on Approved Mining Plan Production

TABLE 2.16– SUMMARY OF TRAFFIC VOLUME

Route	Existing traffic value in PCU	Incremental traffic from the quarry in PCU	Total traffic volume	Hourly Capacity in PCU as per IRC guidelines
Approach Road	215	108	323	500
Panchayat Road	405	108	513	1200

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

- As per the IRC 1960 this existing District Road can handle 1200 PCU in hour in hour & village road 500 PCU hence there will not be any conjunction due to this proposed transportation.

2.6.3 Mineral Beneficiation and Processing

There is no proposal for the mineral processing or ore beneficiation in this project

2.6.4 Existing Infrastructure

It is a new quarry, no infrastructural facility available within the project area. The infrastructural facilities to be made after the start of the quarrying operations will be prepared outside limit as per the rules and safe distance to be adopted.

2.6.2 Drainage Pattern

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

2.7 Project Requirement

2.7.1 Water Source & Requirement

Detail of Total water requirements in KLD as given below:

TABLE 2.17 – WATER REQUIREMENT FOR THE PROPOSAL PROJECT -P1

PROPOSAL – P1		
*Purpose	Quantity	Source
Domestic & Drinking purpose	0.5KLD	From Existing, bore wells and drinking water will be sourced from Approved Water vendors.
Dust Suppression	2.0KLD	From Existing bore wells from nearby area
Green Belt	0.5KLD	From Existing bore wells from nearby area
Total	3.0KLD	

Source: Prefeasibility Report

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

2.7.2 Power and Other Infrastructure Requirement

The project's does not require power supply for the quarry operation. The quarrying activity is proposed during day time only (General Shift 8 AM – 5 PM, Lunch Break 1 PM – 2 PM). Electricity for use in office and other internal infrastructure will be obtained from TNEB. For the quarrying operation like compressor for drilling Diesel will be utilized.

The temporary infrastructures such as Mine Office, First Aid Room, Rest Shelter etc., will be constructed within the project area before commencing the quarry operation. No workshops are proposed inside the project area hence there will not be any process effluent generation from the project area. Domestic effluent from the mine office will be discharged to septic tank and soak pit. There is no toxic effluent expected to generate in the form of solid, liquid or gaseous form hence there is no requirement of waste treatment.

2.7.3 Fuel Requirement -P1

Fuel is to be used inform of diesel for quarrying operations, compressors and running of tippers and other transportation vehicles. Quantity for fuel will depend upon the usage of transportation vehicle and other machineries and level of achievement of estimated production. Diesel will be out sourced from nearby diesel pumps.

1. Top soil:

Per hour Excavator will consume	= 10 liters / hour
Per hour Excavator will excavate	= 60m ³ of Rough Stone
Top soil quantity	= 7,344/60 = 122 hours
Diesel consume	= 122 hours x 10 liters
Total diesel consumption	= 1,220 Liters of HSD will be utilized for Rough Stone

2. Rough Stone:

Per hour Excavator will consume	= 16 liters / hour
Per hour Excavator will excavate	= 20m ³ of Rough Stone
Rough Stone quantity	= 3,04,455/20 =15,223 hours
Diesel consume	= 15,223 hours x 16 liters
Total diesel consumption	= 2,43,568 Liters of HSD will be utilized for Rough Stone

Total diesel consumption is around **2,44,788 Liters** of HSD for the entire period of life.

2.7.4 Employment Requirement:

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

TABLE 2.18: EMPLOYMENT POTENTIAL FOR PROPOSED QUARRY

Identification code	Employment in Nos
P1	32
Total	32

A total of 32 people will get employment due to these 1 quarry in the cluster quarries.

2.7.5 Project Cost

TABLE 2.19 – PROJECT COST OF PROPOSED PROJECTS

Identification code	Project Cost
P1	Rs.1,65,23,000/-
Total	Rs.1,65,23,000/-

Source: Approved Mining Plan & Prefeasibility Report of the respective projects

2.8 Project Implementation Schedule

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

TABLE 2.20 – EXPECTED TIME SCHEDULE FOR THE PROPOSED QUARRY

S. No	Particulars lease execution	Time schedule (in month)					Remarks if any
		1 st	2 nd	3 rd	4 th	5 th	
1	Environmental Clearance						
2	Consent to operate						Production start period

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

CHAPTER – 3: DESCRIPTION OF ENVIRONMENT

3.0 General

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

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

Study Area

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

Study Period

The baseline study was conducted during the summer season i.e., March, April & May 2022

Study Methodology

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

1. The project area (Core zone) was surveyed in detail with the help of Total Station survey instrument and the boundary pillars were picked up with the help of handheld GPS. The boundary coordinates were superimposed on the satellite imagery to understand the relief of the area, besides Land use pattern of the area was studied through the Bhuvan (ISRO).
2. Soil samples were collected and analysed for relevant physico-chemical characteristics, exchangeable cations, nutrients & micro nutrients etc., in order to assess the impact of mining activities and proposed greenbelt development.

3. Ground water samples were collected during the study period from the open wells and bore wells, while surface water was collected from river and lake in the buffer zone. The samples were analysed for parameters necessary to determine water quality (based on IS: 10500:2012 criteria) and those which are relevant from the point of view of environmental impact of the proposed quarries.
4. A meteorological station was setup in pachapalayam village. Wind speed, Wind direction, Dry and wet bulb temperature, Relative humidity, Rainfall with cloud cover and general weather conditions were recorded throughout the study period.
5. In order to assess the Ambient Air Quality (AAQ), samples of Ambient Air were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, PM₁₀ and SO₂, NO_x with gaseous attachments & Fine Dust Samplers (FDS) for PM_{2.5} and other parameters as per NAAQ norms and analysed for primary air pollutants to work out the existing status of air quality.
6. The noise level measurements were also made at various locations in different intervals of time with the help of sound level meter to establish the baseline noise levels in the impact zone.
7. Baseline biological studies were carried out to assess the ecology of the study area to study the existing flora and fauna pattern of the area.
8. Socio-Economic survey was conducted at village and household level in the study area to understand the present socio-economic conditions and assess the extent of impact due to the proposed mining project.

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

TABLE 3.1 – ENVIRONMENTAL MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
*Soil	Physio-Chemical Characteristics	Once during the study period	6 (1 core & 5 buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (2 surface water & 4 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Automatic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
*Ambient Air Quality	PM ₁₀ PM _{2.5} SO ₂ NO _x Fugitive Dust	24 hourly twice a week (Dec –Feb 2023)	8 (1 core & 7 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB

*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	8 (1 core & 7 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrate & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio–Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.

Source: On-site monitoring/sampling by **KGS Enviro Laboratory Pvt Ltd**, in association with GEMS

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

3.1 LAND ENVIRONMENT

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

3.1.1 LAND USE/ LAND COVER

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

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

Point No. 10. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted.

Current vintage data of Indian Remote Sensing Satellite ResourceSat-2A L4FMX (False Color Composite) has been used for Land Use / Land Cover study. Satellite image has been procured from National Remote Sensing Centre, Hyderabad.

3.1.2 OBJECTIVE

The objectives of the LULC study are as follow:

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

Technical specification of Satellite imagery Data Used:

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

- ☞ Satellite Image - Resourcesat1-LISSIII, 23.5m Resolution
- ☞ Satellite Data Source - NRSC, Hyderabad
- ☞ Satellite Vintage - 14st July 2020, Swath 141km wide.
- ☞ SOI Toposheet No - 57 H/14
- ☞ Software Used - ArcGIS 10.8

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

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

TABLE 3.2: Resourcesat1-LISSIII SENSOR characteristics

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

Source: NRSC, Hyderabad

3.1.3 METHODOLOGY

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

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

- ∞ Geo-Referencing of satellite Imagery with the help of Geo-Referenced Toposheets
- ∞ Enhancement of the Satellite Imagery
- ∞ Base Map layer creation (Roads, Railway, Village Names, and other Secondary data, etc.)
- ∞ Data analysis and Classification using Digital interpretation techniques.
- ∞ Ground truth studies or field Verification.
- ∞ Error fixing / Reclassification
- ∞ Final Map Generation.

The land use/Land cover Map of the buffer zone is given in 3.4(b).

Land Use Pattern of the Buffer Zone (Study area)

Details of the same are given in Table - 3.3 and the map is shown in Figure - 3.2

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

S.No	CLASSIFICATION	AREA_HA	AREA_%
BUILTUP			
1	URBAN	1446.92	4.40
2	RURAL	345.32	1.05
3	MINING	625.59	1.90
AGRICULTURAL LAND			
4	CROP LAND	19090.76	57.99
5	PLANTATION	2388.75	7.26
6	FALLOW LAND	3190.10	9.69
FOREST			
7	EVERGREEN/FOREST EVERGREEN	1704.93	5.18
8	SCRUB FOREST	302.61	0.92
BARREN/WASTE LANDS			
9	SALT AFFECTED LAND	197.13	0.60
10	SCRUB LAND	2064.23	6.27
11	BARREN ROCKY	530.04	1.61
WETLANDS/ WATER BODIES			
12	WATER BODIES/LAKE	1033.64	3.14
TOTAL		32920.02	100.00

Source: Bhuvan, NRSC.

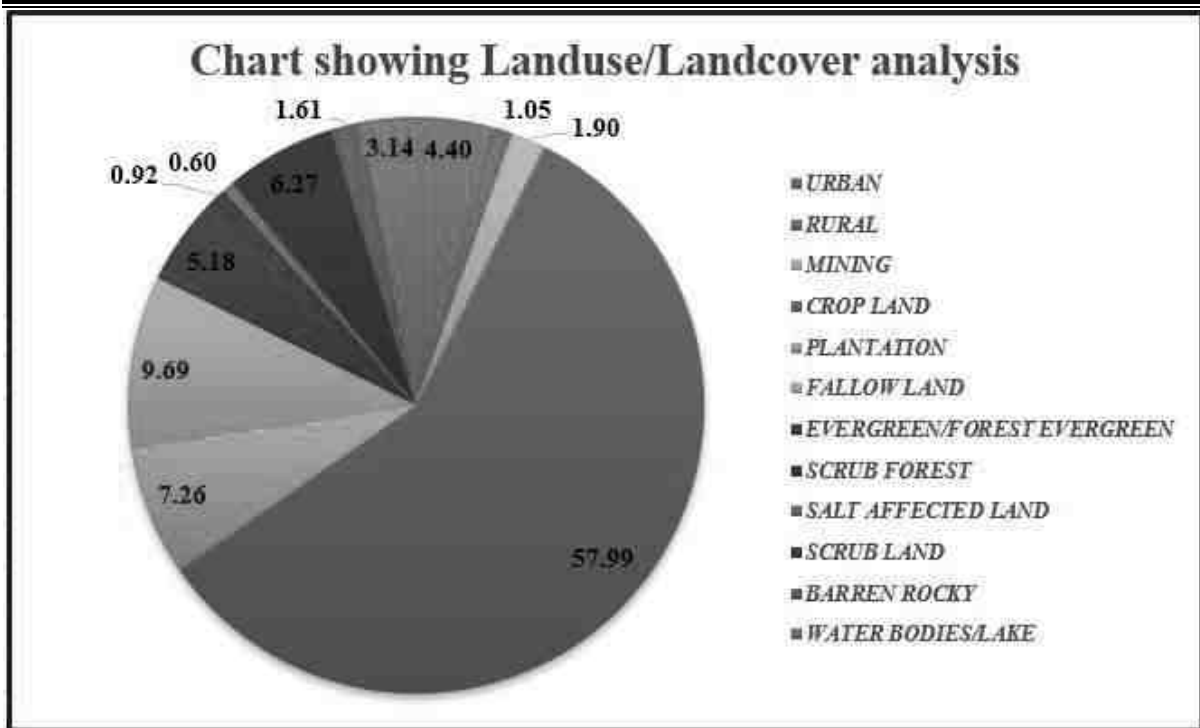


FIGURE 3.1: CHART SHOWING LANDUSE/LANDCOVER ANALYSIS USING LISS III Data

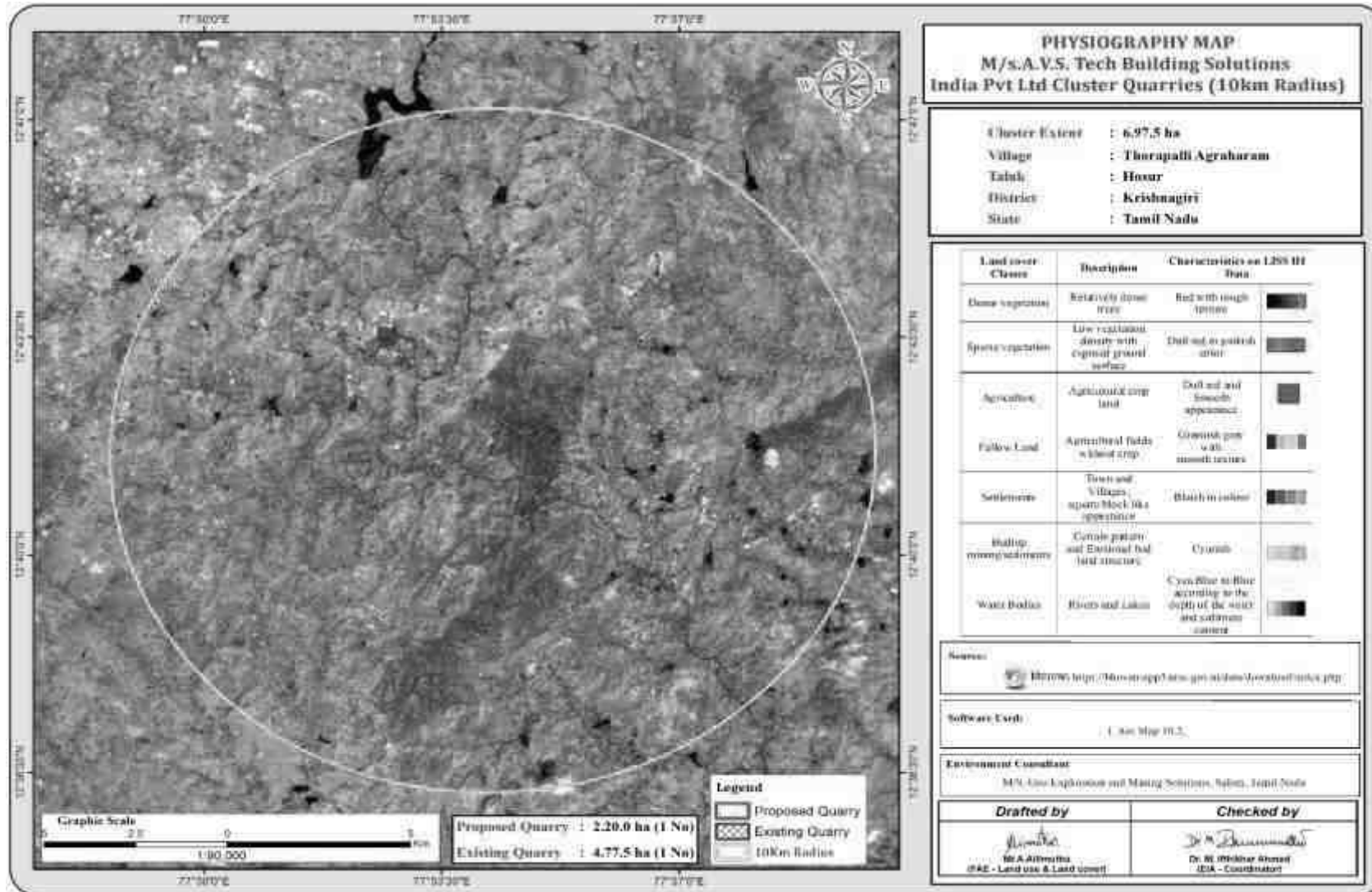


FIGURE 3.2: MAP SHOWING FALSE COLOR COMPOSITE (3,2,1) SATELLITE IMAGERY OF THE STUDY AREA

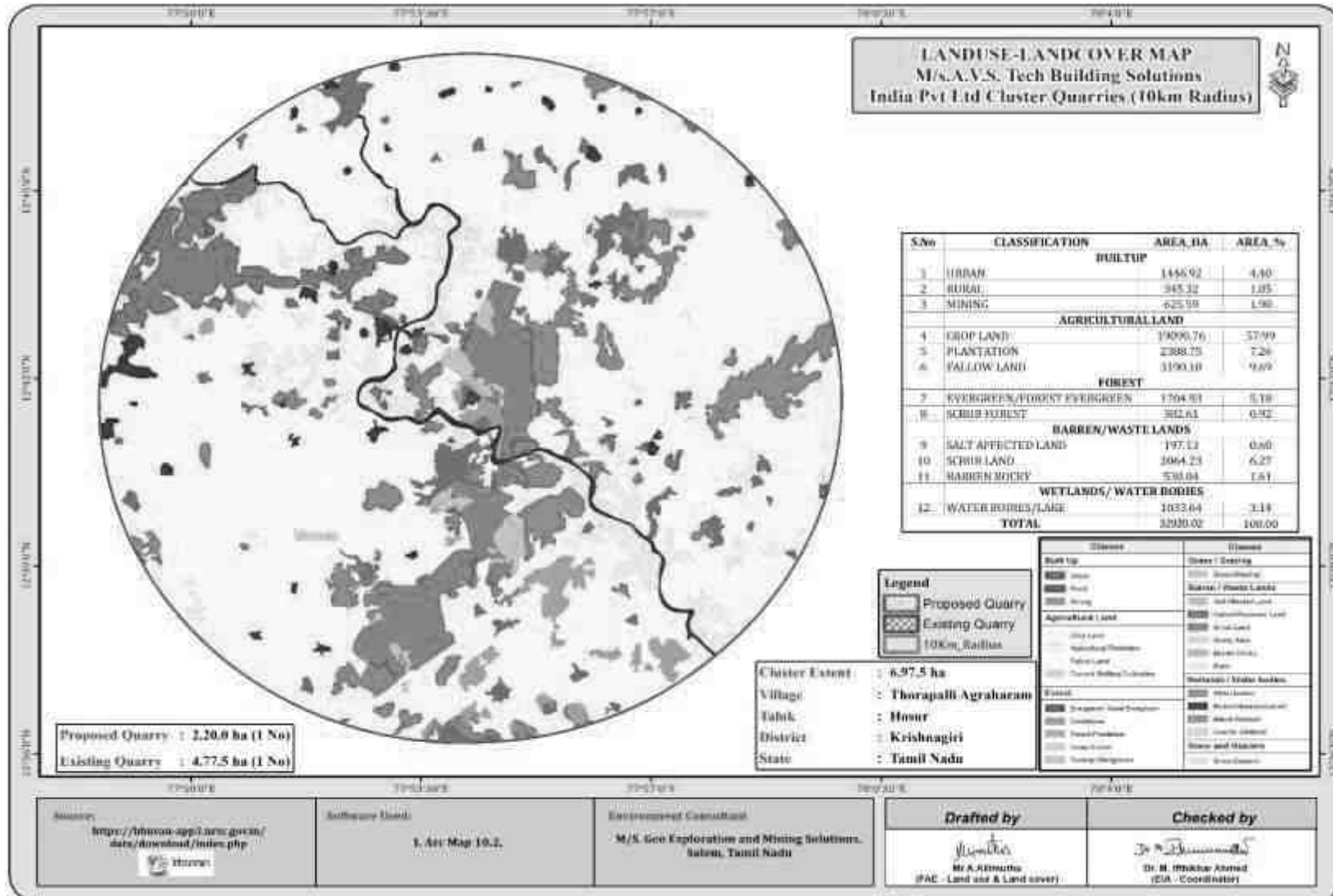


FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS

3.1.4 Interpretation

- ☞ The 10 km radius study area mainly comprises of crop land & Agriculture Plantation land accounting of 57.99% & 7.26% of the total study area. The study area also consists of fallow land of 9.69%.
- ☞ The buffer zone studied has no ecological sensitive area (National Park, Wildlife Sanctuary, Biosphere Reserve/ etc.).
- ☞ Water Bodies such as ponds/ lakes comprises of 3.14% of the total buffer area. The seasonal rivers such as Kuttai 420m-NW, Ponnaiyar river at 620m in South direction, Trippalam Tank 3.8km in NW of the total study area.
- ☞ The Scrub land accounts of 0.92%. As per the primary survey, it was observed the scrub land is mainly occupied by the stony waste and left-over domestic waste generated by the nearby areas.
- ☞ The R.F area (Sanamav R.F), Perandapalli Forest, Sanamavu Forest, Udedurgam R.F area covered is about 5.18% in buffer zone, Scrub Forest is about 0.92% in the study area.
- ☞ 2% of the total study area is occupied by the mine industries of captive mines. The area occupied by Mainly Roughstone of the total buffer area. As also observed within the primary survey, the 10 km buffer area is also occupied by the medium scaled granite and small Brick kiln industries also located in the study area.
- ☞ 5.45% of the area is covered under the Builtup Land. The nearest village within the 3 km radius from the project site boundary is observed to be villages Perandapalli, Bukkasagarm, Kadirapalli etc.,

3.1.5 Cropping Pattern of the Buffer Zone

Krishnagiri district is one of the potential districts for cultivation of agricultural and horticultural crops. total cultivated area of 224767 Hectares, out of which 180902 Ha Net cultivated area against the 5,14,325 Ha. of total geographical area.

It is one of the potential districts for agricultural and horticultural crop production. The major agricultural crops in the district are grown Paddy, Ragi, Redgram, Cowpea, Maize, Cumbu, Groundnut, Horsegram and minor millets. The major cultivated area of agricultural crops occupied by rainfed agriculture. The major horticultural crops grown in the district are fruit crops like Mango, Banana and Guava, Vegetable like eggplant, okra, capsicum, onion and chilli, spices like Turmeric, Black pepper and flower crops like Rose, Gerbera and Carnations.

Source: <https://www.agrifarming.in/district-wise-crop-production-in-tamil-nadu#krishnagiri>

3.1.6 Interpretation and Conclusion

- ☞ Thorapalli village Roughstone quarry has proposed Project. It is a government poramboke land.
- ☞ Total project area is 32920.02 ha around 10km radius.
- ☞ As Existing quarry is coming in the area, percentage of human settlement will be increased in surrounding of project site and Infrastructure facilities also will be developed on the basis of requirement.
- ☞ The 10 km study area mostly covers of crop land 58%. As per current study area is occupied by scrub land 6%, Barren rocky land 1.61% in 10 km radius from the study area land use into quarrie purpose for this proposed project.
- ☞ The R.F area (Sanamav R.F), Perandapalli Forest, Udedurgam R.F area covered is about 6% in buffer zone.

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

3.1.7 Topography

The lease applied area exhibits flat terrain. The area has gentle sloping towards North eastern side from Krishnagiri district. The altitude of the area is 812m AMSL. The area is covered by 2m thickness of Topsoil formation. Massive Charnockite which is clearly inferred from the proposed and Existing quarry pits.

3.2 Drainage Pattern of the Area

There are no developed surface drainage channels in the study area. Ponnaiyar River a perennial pass 7km-North East from the project site. The area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. The area is mostly dry in all seasons except rainy seasons.

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

3.2.1 Environmental Features in the Study Area

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

3.2.2 Seismic Sensitivity

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

TABLE 3.4 – DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE PROJECT AREA

Sl. No	Sensitive Ecological Features	Name	Arial Distance in km from Mine Lease Boundary
1	National Park / Wild life Sanctuaries	Cauvery Wildlife Sanctuary	32km-SW
2	Reserve Forest	Sanamav R.F Udedugam R.F	300m-NE 17km-S
3	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	None	Nil within 10Km Radius
4	Critically Polluted Areas	None	Nil within 10Km Radius
5	Mangroves	None	Nil within 10Km Radius
6	Mountains/Hills	None	Nil within 10Km Radius

7	Notified Archaeological Sites	None	Nil within 10Km Radius
8	Defence Installation	None	Nil within 10Km Radius

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

TABLE 3.5 – WATER BODIES WITHIN THE CLUSTER FROM PROPOSED QUARRY

S.No	LABEL	DISTANCE & DIRECTION	Habitation
1	Kuttai	420m NW	700m- NW
2	Ponnaiyar River	620m South	
3	Tippalam Lake	3.8km NW	
4	Kamandoddi Lake	4.8km SE	
5	karapalli Lake	5.5km NW	
6	Kelarvarpalli Dam	9km NW	

Source: Village Cadastral Map and Field Survey, PFR Report

3.1.6 Soil Environment

Soil quality of the study area is one of the important components of the land environment. The composite soil samples were collected from the study area and analysed for different parameters. The locations of the monitoring sites are detailed in Table 3.5 and Figure 3.6.

TABLE 3.6 – SOIL SAMPLING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	S-1	Project Area	West	12°41'39.68"N 77°54'10.33"E
2	S-2	Kadirapalli	2.8km NW	12°43'13.67"N 77°54'10.80"E
3	S-3	Thorapalli Agraharam	2km SW	12°41'10.86"N 77°53'6.75"E
4	S-4	Bukkasagaram	4.5km NE	12°43'28.93"N 77°56'1.41"E
5	S-5	Tippalam	3.3km NW	12°42'7.63"N 77°52'27.59"E
6	S-6	Gangapuram	3km East	12°41'29.24"N 77°55'56.34"E

Source: On-site monitoring/sampling by KGS Enviro Laboratory Pvt Ltd in association with GEMS

FIGURE 3.6: SITE PHOTOGRAPHS OF SOIL SAMPLING LOCATIONS



The objective of the soil sampling is -

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

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

Methodology –

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

TABLE 3.7 – METHODOLOGY OF SAMPLING COLLECTION

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

Source: On-site monitoring/sampling by KGS Enviro Laboratory Pvt Ltd

Soil Testing Result –

The samples were analysed as per the standard methods prescribed in “Soil Chemical Analysis (M.L. Jackson, 1967) & Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India”. The important properties analysed for soil are bulk density, porosity, infiltration rate, pH and Organic matter, kjeldahi Nitrogen, Phosphorous and Potassium. The standard classification of soil and physico-chemical characteristics of the soils are presented below in Table 3.6 & Test Results in Table 3.7.

FIGURE 3.7: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS

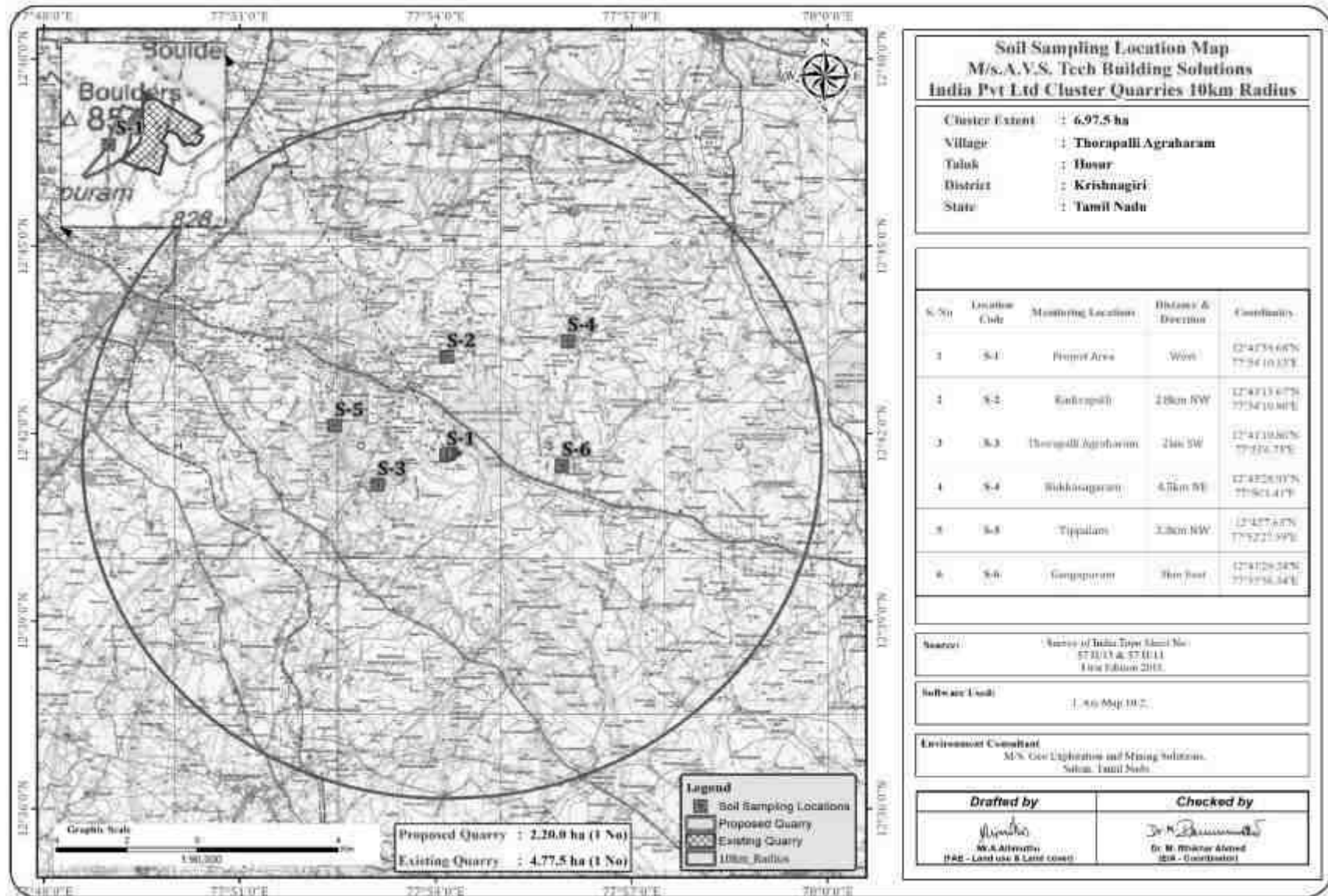


FIGURE 3.8: SOIL MAP

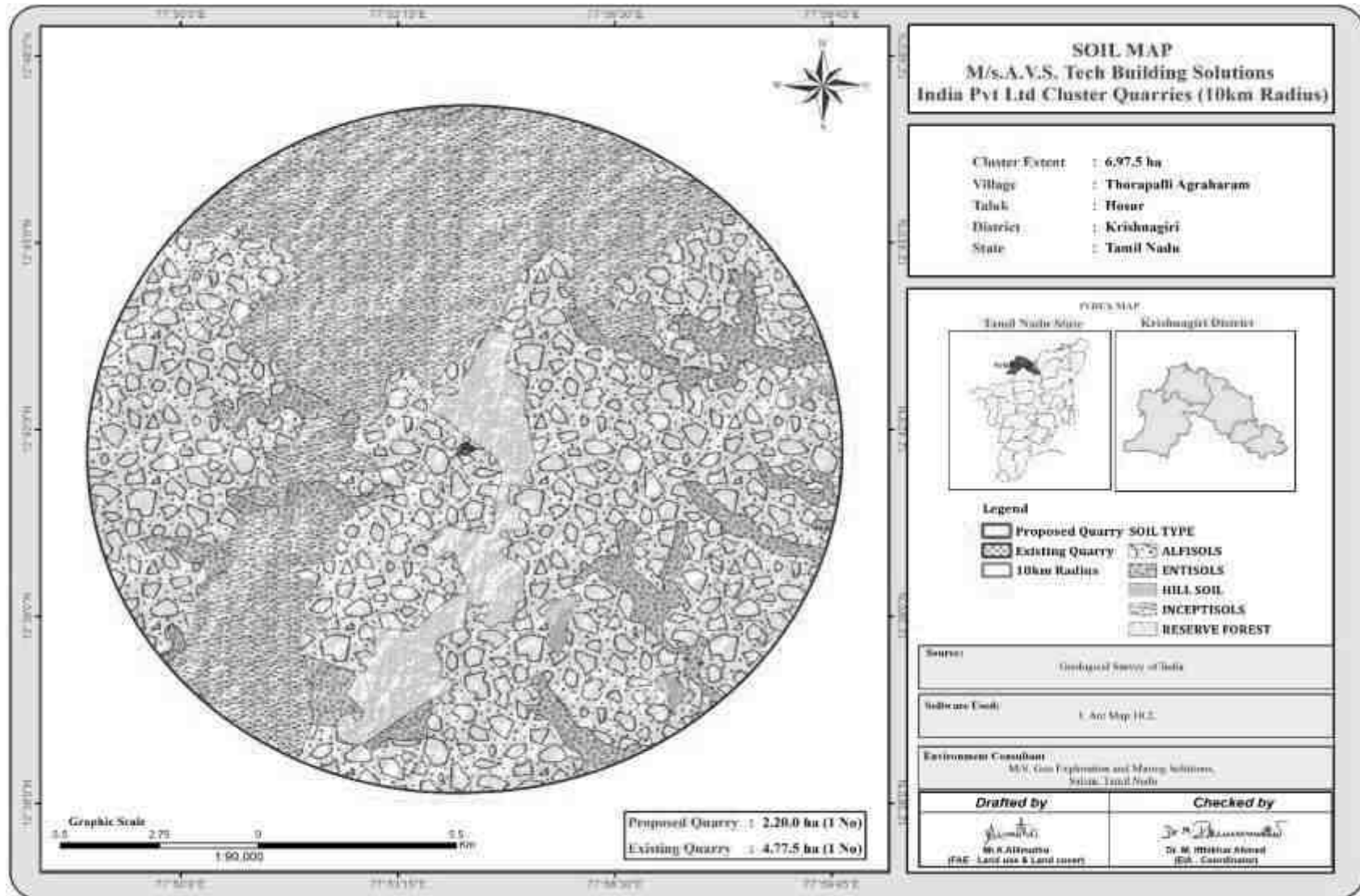


TABLE 3.8 – SOIL QUALITY MONITORING DATA

S.No	Test Parameters	Protocols	S-1 Project Area	S-2 Islampuram	S-3 Thorapalli Agraharam	S-4 Addakurukki	S-5 Bukkasagaram	S-6 Athalavadi
1	pHat27C	-	7.74	8.15	8.03	7.57	7.98	7.85
2	Electrical Conductivity at 25C	µs/cm	405	345	410	295	375	382
3	Texture	-	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam
4	Sand	%	32.0	34	30.0	33.6	35.0	33.0
5	Slit	%	33.0	37	35.0	34.1	33.8	35.0
6	Clay	%	35	29	35.0	32.3	31.2	32
7	Water Holding Capacity	%	37.6	40.5	41.6	44.8	42.4	35.6
8	Bulk Density	g/cc	1.22	1.08	1.05	1.14	1.09	1.19
9	Porosity	%	25	27.5	27	30.8	29.6	25
10	Exchangeable Calcium (as Ca)	mg/Kg	136	125	142	150	156	117
11	Exchangeable Magnesium (as Mg)	mg/Kg	19.4	22.8	30.2	32.6	32.4	18.3
12	Exchangeable Manganese (as Mn)	mg/Kg	28.4	32.2	31.6	34.4	28.0	28.7
13	Exchangeable Zinc as Zn	mg/Kg	0.25	0.76	1.08	0.58	1.32	0.60
14	Available Boron (as B)	mg/Kg	0.85	0.62	0.76	0.92	1.16	0.82
15	Soluble Chloride (as Cl)	mg/Kg	140	118	132	154	160	132
16	Soluble Sulphate (as S04)	mg/Kg	98	126	112	135	144	96
17	Available Potassium (as K)	mg/Kg	40.6	41.2	38.5	41.8	40.9	39.8
18	Available Phosphorous (as P)	Kg/hect	1.03	1.12	0.87	1.45	1.16	1.14
19	Available Nitrogen (as N)	Kg/hect	116	185	136	172.5	180	110
20	Cadmium (as Cd)	mg/Kg	BDL (DL:0.003)	BDL (DL:0.003)	BDL (DL:0.003)	BDL (DL:0.003)	BDL (DL:0.003)	BDL (DL:0.003)
21	Chromium (as Cr)	mg/Kg	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
22	Copper (as Cu)	mg/Kg	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
23	Lead (as Pb)	mg/Kg	0.61	1.15	0.92	0.74	1.11	0.64
24	Total Iron	mg/Kg	1.10	1.74	2.13	2.02	1.35	1.15
25	Organic Matter	%	1.68	2.01	1.27	1.65	1.69	1.72
26	Organic Carbon	%	0.97	1.16	0.73	0.95	0.98	0.98
27	CEC	meq/100g	31.5	39.6	36.5	44.2	34.6	29.8

Source: Sampling Results by *KGS Enviro Laboratory Pvt Ltd.*

Interpretation & Conclusion**Physical Characteristics –**

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay to Sandy Soil and Bulk Density of Soils in the study area varied between 1.05– 1.22 g/cc. The Water Holding Capacity (35.6-44.8) and Porosity of the soil samples is found to be medium i.e., ranging from 25.0 – 30.8%.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline in nature with pH range 7.57 to 8.15
- The available Nitrogen content range between 110 to 185 mg/kg
- The available Phosphorus content range between 0.87 to 1.45 mg/kg
- The available Potassium range between 38.5 to 41.8mg/kg

Whereas, the micronutrient as zinc (Zn), iron (Fe) and copper (Cu) were found in the range of Zinc 0.25 to 1.32mg/kg; Iron 1.10 to 2.13 mg/kg and Copper is BDL (DL:0.05)

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

3.2 Water Environment

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

3.2.1 Surface Water Resources:

Ponnaiyar river lies at 7 Km North from the project cluster. The area is studded with few tanks that serve as the source for agriculture and also their surplus feeds adjoining tanks. The rainfall over the area is moderate, the rainwater storage in open wells, trenches is in practice over the area and the stored water acts as source of freshwater for couple of months after rainy season.

3.2.2 Ground Water Resources:

The terrain is underlain by hard rock formations, Fissured and fractured crystalline rocks constitute the important aquifer systems in the Krishnagiri region. Ground water occurs under phreatic to semi-confined conditions in these formations and is being developed by means of dug wells and filter points. Proterozoic formation is the basement rocks which consist of quartzite, crystalline limestone, calc-granulite, hornblende – biotite gneiss, charnockite or pyroxene granulite, granite and pegmatite. Weathered, a fissured crack, shear zones and joints in the basement rock act as a good groundwater potential zone in the study area.

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

3.2.3 Methodology

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

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

Two (2) surface water and four (4) ground water samples were collected in the study area and physico-chemical, heavy metals and bacteriological parameters were analysed. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012 and 'Standard methods for the Examination of Water and Waste water' published by American Public Health Association (APHA). The water sampling locations are given in Table 3.8 and shown as Figure 3.5.

TABLE 3.9 – WATER SAMPLING LOCATIONS

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	SW-1	Ponnaiyar River	1.3km SW	12°41'14.20"N 77°53'27.43"E
2	SW-2	Lake Near Karapalli	5.8km NW	12°42'24.04"N 77°51'1.18"E
3	WW-1	Near Project Area	250m SW	12°41'27.91"N 77°54'3.37"E
4	WW-2	Bukkasagaram	4.5km NE	12°43'24.43"N 77°56'5.56"E
5	BW-1	Near Project Area	220m SW	12°41'31.62"N 77°54'0.98"E
6	BW-2	Kadirapalli	2.8km NW	12°43'14.09"N 77°54'7.24"E

Source: On-site monitoring/sampling by KGS Enviro Laboratory Pvt Ltd.

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

FIGURE 3.9: SITE PHOTOGRAPHS OF WATER SAMPLING LOCATIONS



TABLE 3.10 – SURFACE WATER ANALYSIS RESULTS

S.NO	Parameter	UNIT	Pit Water Project Area	SW1 Thorapalli Agraharam	SW2 Thotapalli
1	Color	Hazen	5	10	5
2	Odour	-	Agreeable	Agreeable	Agreeable
3	pH@ 25°C	-	7.25	7.52	7.34
4	Electrical Conductivity @ 25°C	µs/cm	695	785	756
5	Turbidity	NTU	4.5	7.5	3.3
6	Total Dissolved Solids	mg/l	446	504	488
7	Total Hardness as CaCO ₃	mg/l	135.0	173.0	160.9
8	Calcium as Ca	mg/l	35.0	42.6	40.8
9	Magnesium as Mg	mg/l	11.5	16.1	14.3
10	Total Alkalinity as CaCO ₃	mg/l	148	180	175
11	Chloride as Cl ⁻	mg/l	86.2	104.8	92.5
12	Sulphate as SO ₄ ⁻	mg/l	28.4	19.3	26.6
13	Iron as Fe	mg/l	0.12	0.15	0.12
14	Free Residual Chlorine	mg/l	BDL(DL: 2.0)	BDL(DL: 2.0)	BDL(DL: 2.0)
15	Fluoride as F	mg/l	0.18	0.22	0.18
16	Nitrates as NO ₃	mg/l	8.4	9.2	7.5
17	Copper as Cu	mg/l	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)
18	Manganese as Mn	mg/l	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
19	Mercury as Hg	mg/l	(BDL (DL: 0.0005))	(BDL (DL: 0.0005))	(BDL (DL: 0.0005))
20	Cadmium as Cd	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
21	Selenium as Se	mg/l	BDL (DL: 0.05)	BDL (DL: 0.05)	BDL (DL: 0.05)
22	Aluminium as Al	mg/l	BDL (DL: 0.03)	BDL (DL: 0.03)	BDL (DL: 0.03)
23	Lead as Pb	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
24	Zinc as Zn	mg/l	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)
25	Total Chromium	mg/l	BDL (DL: 0.05)	BDL (DL: 0.05)	BDL (DL: 0.05)
26	Boron as B	mg/l	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
27	Mineral Oil	mg/l	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
28	Phenolic Compounds as	mg/l	Absent	Absent	Absent
29	Anionic Detergents as	mg/l	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
30	Cynaide as CN	mg/l	Absent	Absent	Absent
31	Biological Oxygen	mg/l	8.9	10.9	7.6

32	Chemical Oxygen	mg/l	28	34	26
33	Dissolved Oxygen	mg/l	6.0	5.4	6.2
34	Total Coliform	Per 100ml	present	Present	present
35	E-Coli	Per 100ml	present	Present	present
36	Barium as Ba	mg/l	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)
37	Ammonia-n (as Total	mg/l	1.7	2.3	1.9
38	Sulphide as H ₂ S	mg/l	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
39	Molybdenum as Mo	mg/l	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)
40	Total Arsenic as As	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
41	Total Suspended Solids	mg/l	10.5	15.6	11.8

TABLE 3.11 – GROUND WATER ANALYSIS RESULTS

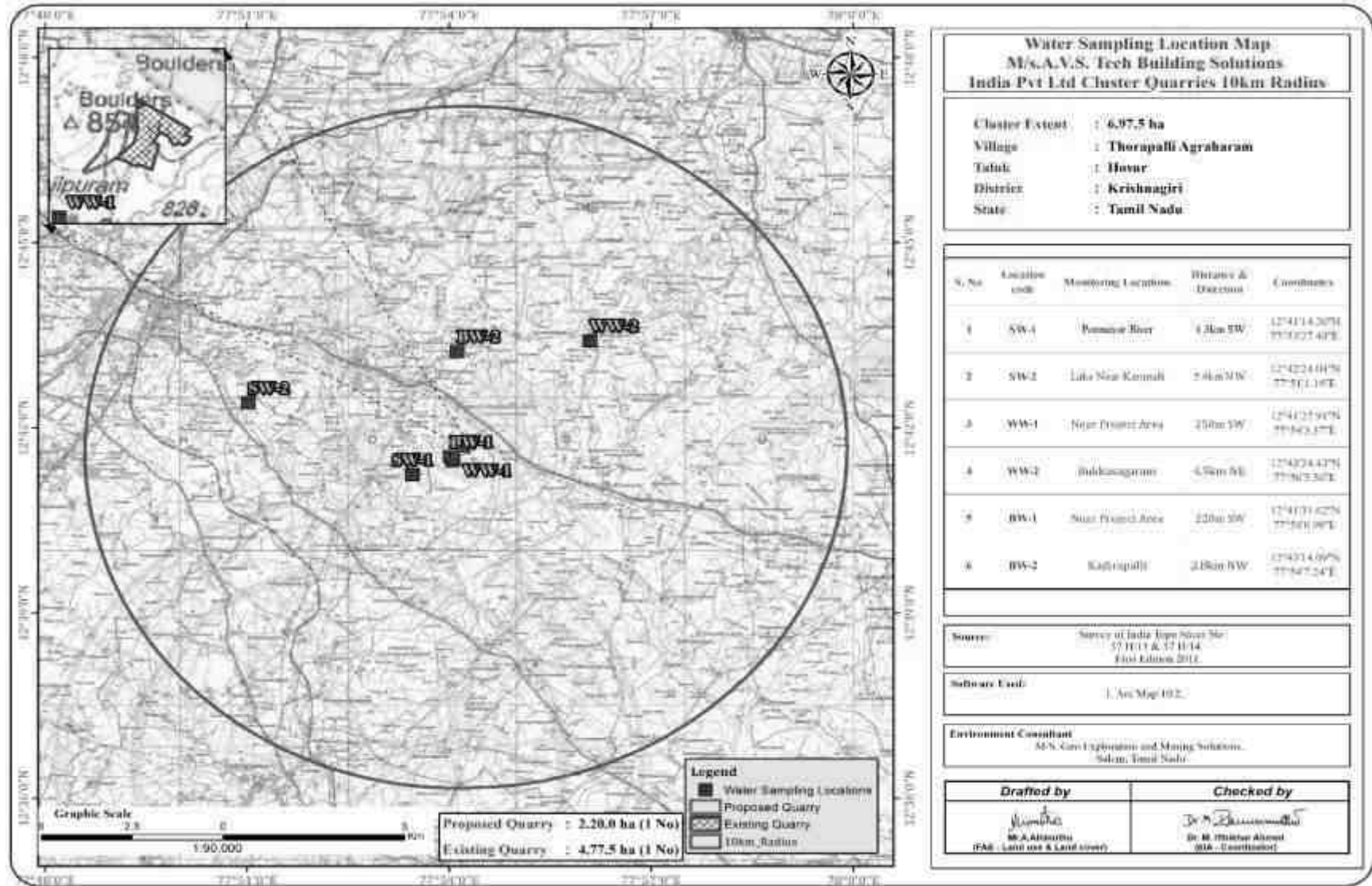
S.NO	Parameter	Unit	BW1 Islamapuram	WW1 Kadirapalli	WW2 Gobasandiram	BW2 Addakurukki
1	Color	Hazen	< 5	< 5	< 5	< 5
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
3	pH@ 25°C	-	6.91	7.35	7.69	7.85
4	Electrical Conductivity	µs/cm	695	805	615	745
5	Turbidity	NTU	< 1	< 1	< 1	< 1
6	Total Dissolved Solids	mg /l	445	513	387	476
7	Total Hardness as CaCO ₃	mg/l	132	161	138	157
8	Calcium as Ca	mg/l	28.2	35.6	39.5	36.8
9	Magnesium as Mg	mg/l	15.0	17.6	9.6	15.8
10	Total Alkalinity	mg/l	140	158	146	151
11	Chloride as Cl ⁻	mg/l	59.2	78.6	70.2	89.5
12	Sulphate as SO ₄ ⁻	mg/l	30.5	31.6	26.1	39.8
13	Iron as Fe	mg/l	0.2	0.10	0.24	0.17
14	Free Residual Chlorine	mg/l	BDL(DL: 2.0)	BDL(DL: 2.0)	BDL(DL: 2.0)	BDL(DL: 2.0)
15	Fluoride as F	mg/l	0.4	0.3	0.21	0.12
16	Nitrates as NO ₃	mg/l	8.6	11.5	13.2	10.4
17	Copper as Cu	mg/l	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)
18	Manganese as Mn	mg/l	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
19	Mercury as Hg	mg/l	(BDL (DL: 0.0005)	(BDL (DL: 0.0005)	(BDL (DL: 0.0005)	(BDL (DL: 0.0005)
20	Cadmium as Cd	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
21	Selenium as Se	mg/l	BDL (DL: 0.05)	BDL (DL: 0.05)	BDL (DL: 0.05)	BDL (DL: 0.05)
22	Aluminium as Al	mg/l	BDL (DL: 0.03)	BDL (DL: 0.03)	BDL (DL: 0.03)	BDL (DL: 0.03)
23	Lead as Pb	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
24	Zinc as Zn	mg/l	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)

25	Total Chromium	mg/l	BDL (DL: 0.05)	BDL (DL: 0.05)	BDL (DL: 0.05)	BDL (DL: 0.05)
26	Boron as B	mg/l	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
27	Mineral Oil	mg/l	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
28	Phenolic Compunds	mg/l	Absent	Absent	Absent	Absent
29	Anionic Detergents	mg/l	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
30	Cynaide as CN	mg/l	Absent	Absent	Absent	Absent
31	Total Coliform	Per 100ml	< 2	< 2	< 2	< 2
32	E-Coli	Per 100ml	< 2	< 2	< 2	< 2
33	Barium as Ba	mg/l	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)
34	Ammonia (as Total	mg/l	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
35	Sulphide as H ₂ S	mg/l	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
36	Molybdenum as Mo	mg/l	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)	BDL (DL:0.5)
37	Total Arsenic as	mg/l	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)	BDL (DL:0.01)
38	Total Suspended Solids	mg/l	BDL(DL:2)	BDL(DL:2)	BDL(DL:2)	BDL(DL:2)

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

Source: Sampling Results by KGS Enviro Laboratory Pvt Ltd.

FIGURE 3.10: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS



3.2.4 Interpretation & Conclusion**Surface Water**

The pH of surface 7.25-7.52 while turbidity found within the standards. Total Dissolved Solids 446-504mg/l and Chloride 86.2-104.8 mg/l. Nitrates 7.5-9.2mg/l, while sulphates 19.3-28.4 mg/l.

Ground Water

The pH of the water samples collected ranged from 6.91 to 7.85 and within the acceptable limit of 6.5 to 8.5. pH, Sulphates and Chlorides of water samples from all the sources are within the limits as per the Standard. on Turbidity, the water samples meet the requirement. Total Dissolved Solids were found in the range of 387 – 513mg/l in all samples. The Total hardness varied between 132 – 161 mg/l for all samples.

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

3.2.5 Hydrology and Hydrogeological studies

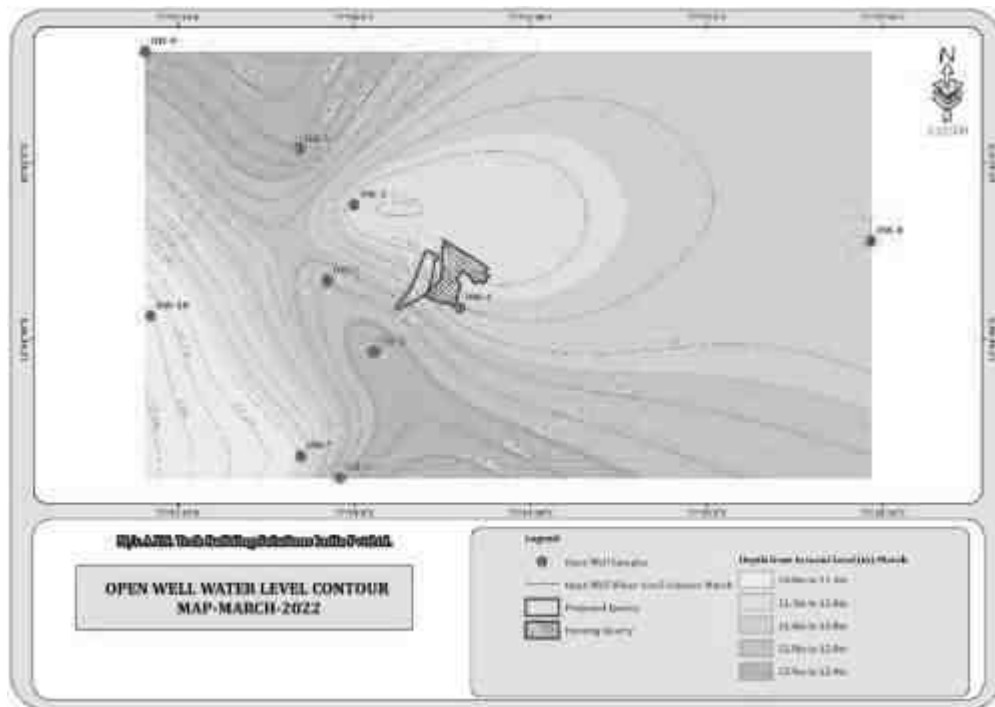
The district is underlain by hard rock formation Fissured and Fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-80 Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 70-65m. the quarrying operations is restricted upto 51m(16m agl + 35m bgl) hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area. There is no necessity of stream, channel diversion due to this upcoming project.

During the rainy season there is a possibility of collection of seepage water from the subsurface levels this is due to the high intensity of fracture and weathered portion upto a depth of 10m thus the collected seepage water will be stored in the mine sump pits and will be used for dust suppression and greenbelt development and during the end of the life of the mine this collected water will be as a temporary reservoir in that area.

TABLE 3.12: POST MONSOON WATER LEVEL OF OPEN WELLS 1 KM RADIUS

S.No	Name	LONGITUDE	LATITUDE	Mar-22	Apr-22	May-22
1	OW1	77° 54' 03.32"E	12° 41' 27.90"N	12.2	12.9	13.7
2	OW2	77° 53' 55.37"E	12° 41' 40.02"N	12	12.7	13.5
3	OW3	77° 53' 59.99"E	12° 41' 52.88"N	11.5	12.2	13
4	OW4	77° 54' 17.87"E	12° 41' 35.35"N	11.7	12.4	13.2
5	OW5	77° 53' 50.59"E	12° 42' 02.35"N	12.3	13	13.8
6	OW6	77° 53' 57.51"E	12° 41' 06.41"N	12.1	12.8	13.6
7	OW7	77° 53' 50.83"E	12° 41' 10.19"N	11.3	12	12.8
8	OW8	77°55'27.90"E	12°41'46.79"N	11.7	12.4	13.2
9	OW9	77°53'24.33"E	12°42'18.97"N	12.3	13	13.8
10	OW10	77°53'25.31"E	12°41'34.01"N	11	11.7	12.5

FIGURE 3.11: CONTOUR MAP OF OPEN WELL WATER LEVEL



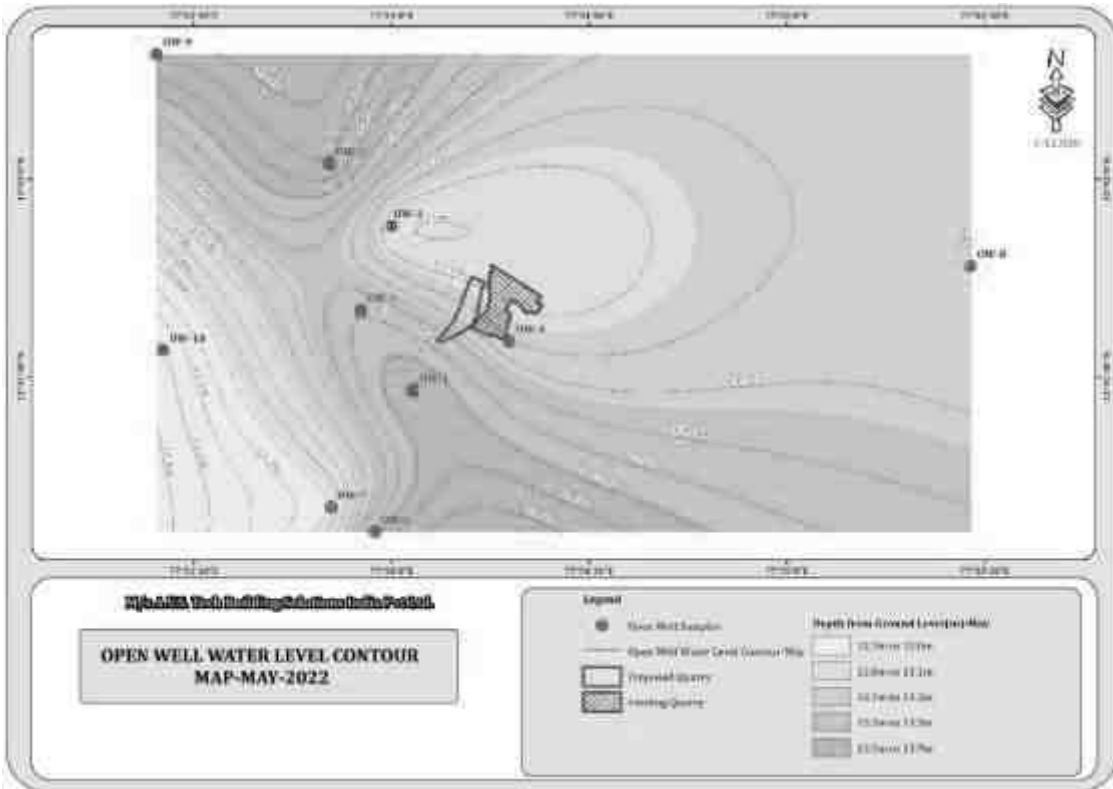
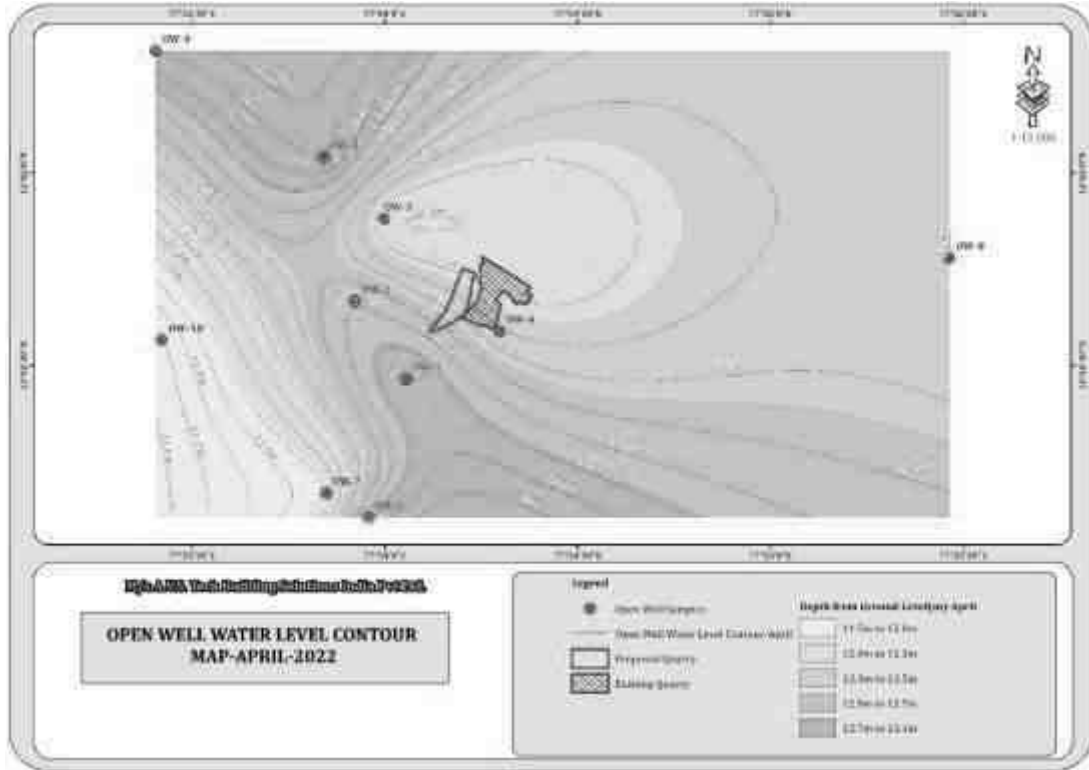
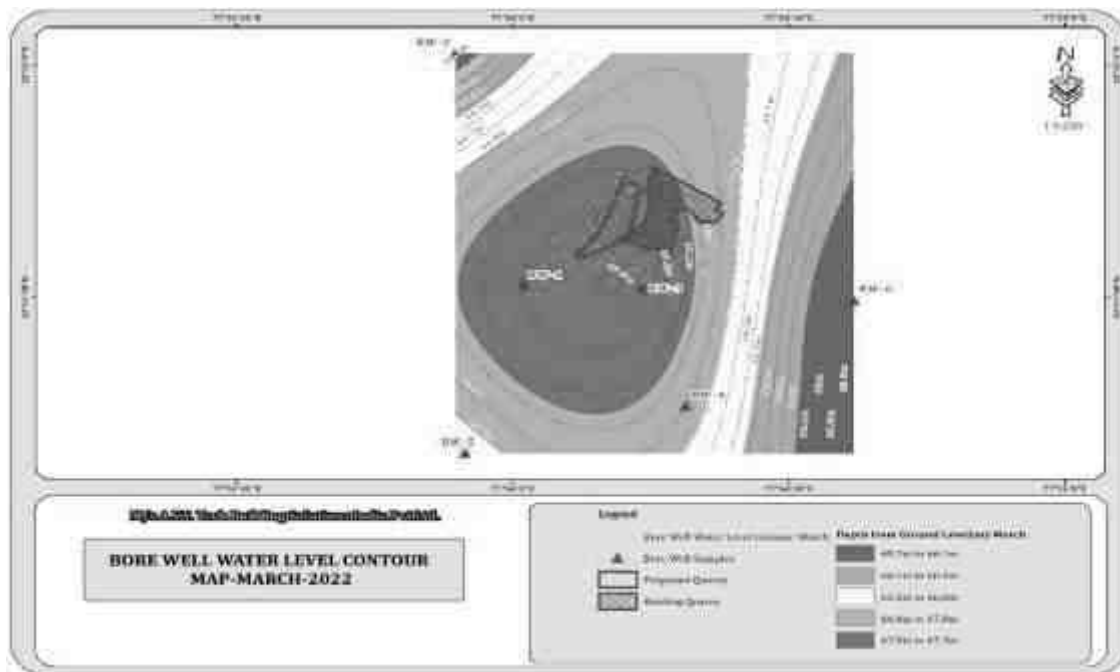


TABLE 3.13: POST MONSOON WATER LEVEL OF BOREWELLS 1 KM RADIUS

S.No	LABEL	LATITUDE	LONGITUDE	DEC 2022	JAN 2023	FEB 2023
1	BW1	77° 54' 01.11"E	12° 41' 31.57"N	67.2	67.9	68.5
2	BW2	77° 53' 53.80"E	12° 42' 01.53"N	66	66.7	67.3
3	BW3	77° 54' 14.18"E	12° 41' 31.27"N	67.3	68	68.6
4	BW4	77° 54' 18.81"E	12° 41' 16.06"N	66.9	67.6	68.2
5	BW5	77° 53' 54.83"E	12° 41' 09.95"N	66.7	67.4	68
6	BW6	77°54'37.06"E	12°41'29.72"N	65.7	66.4	67

FIGURE 3.12: CONTOUR MAP OF BORE WELL WATER LEVEL



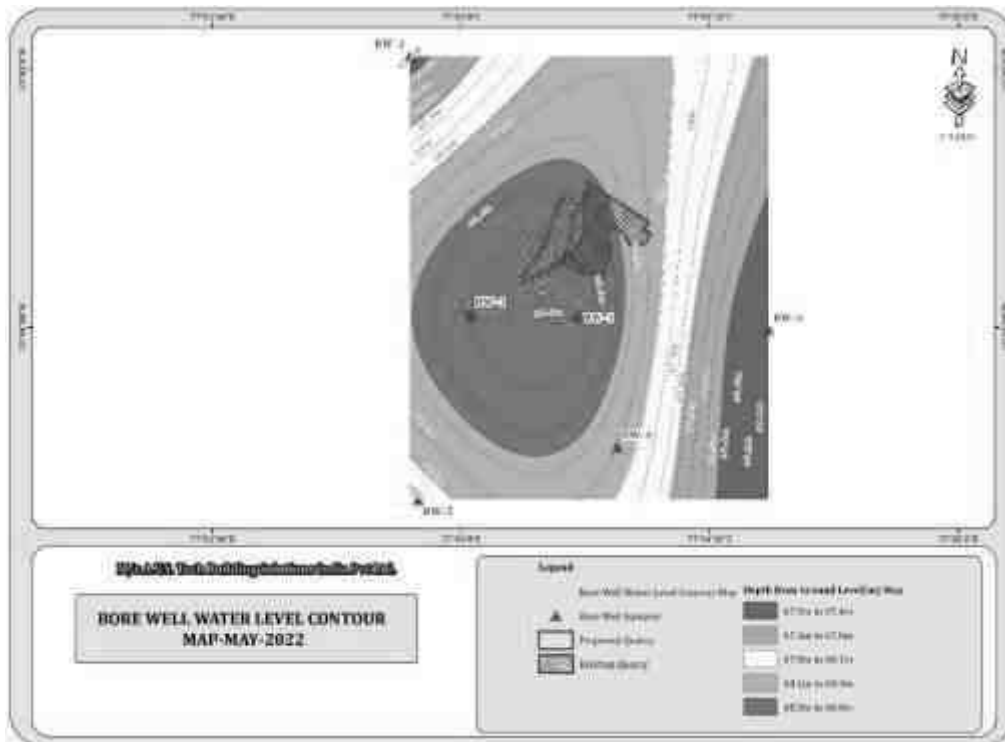
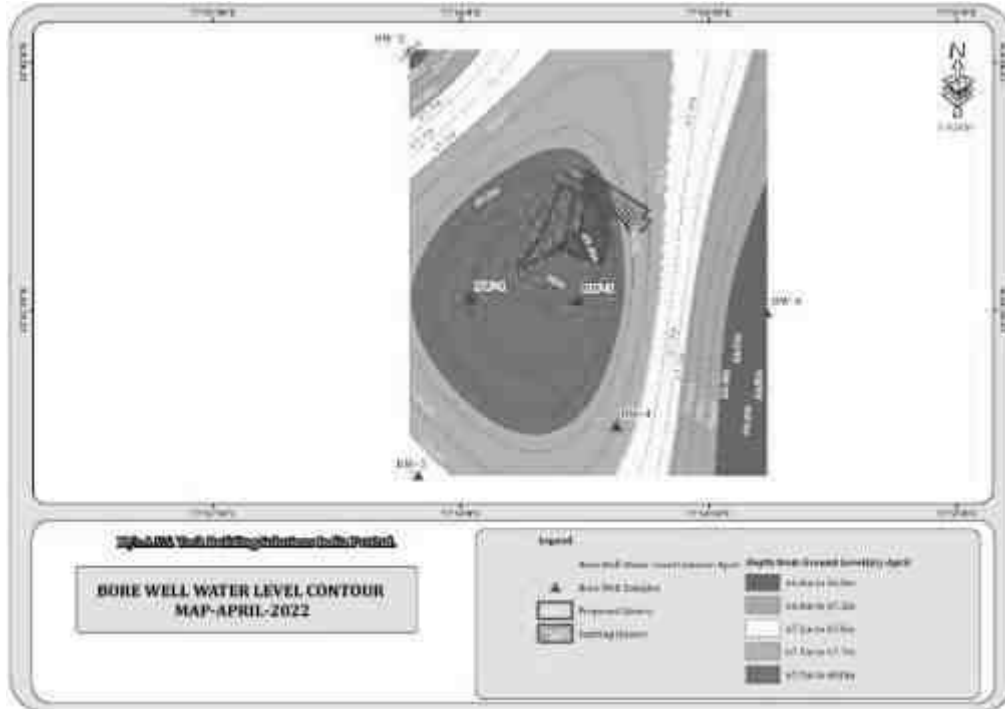


FIGURE 3.13: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE

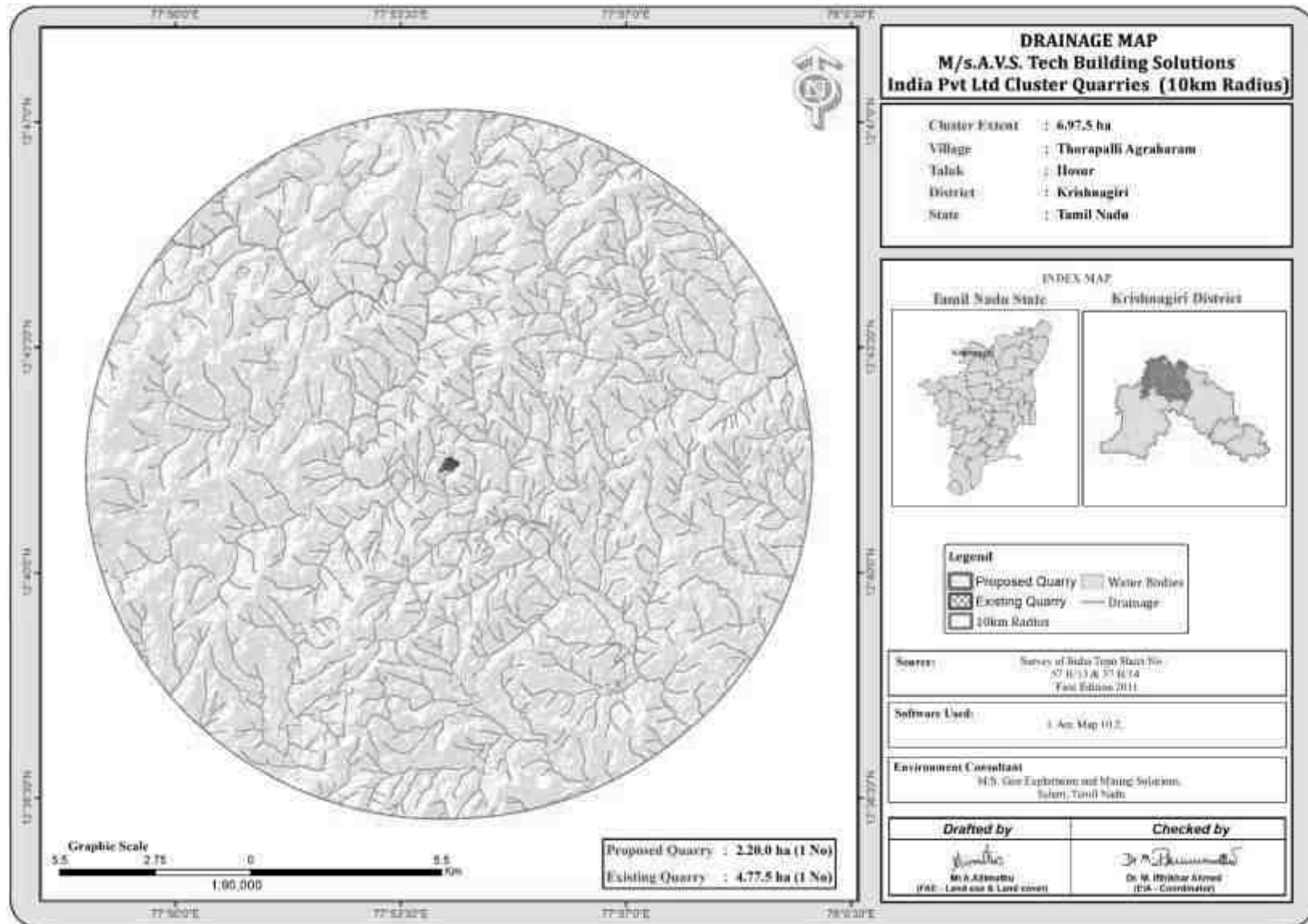
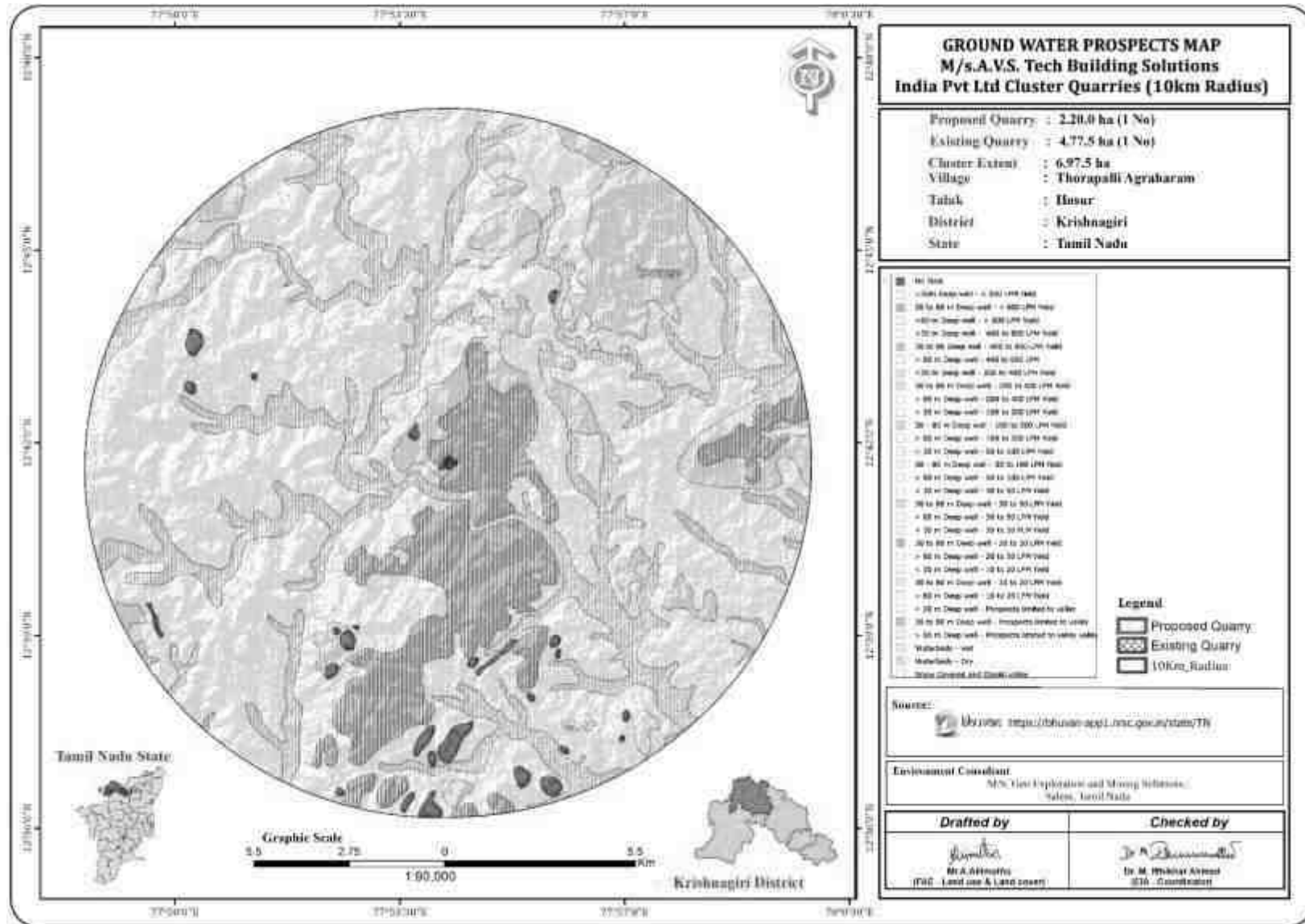


FIGURE 3.14: GROUND WATER PROSPECTS MAP



Source : Bhuvan

3.2.5.1 Methodology and Data Acquisition

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

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

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

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

ΔV = potential difference between receiving electrodes

G = Geometric Factor.

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

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

ρ_r = Resistivity of Rocks

ρ_w = Resistivity of water in pores of rock

F = Formation Factor

ϕ = Fractional pore volume

A = Constants with values ranging from 0.5 to 2.5

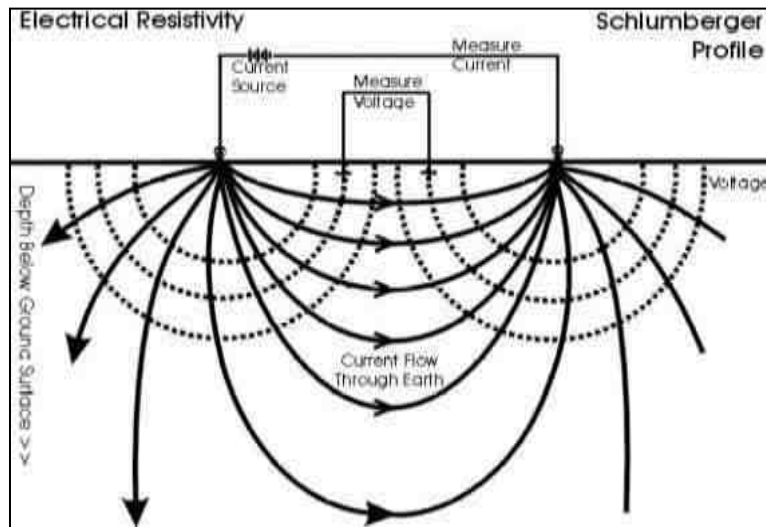
3.2.5.2 Survey Layout

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

The field equipment deployed for the study is in a deep resistivity meter with a model of SSR – MP – AT. This Signal stacking Resistivity meter is a high-quality data acquisition system incorporating several innovation

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

RESISTIVITY SURVEY PROFILE



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

3.2.5.3 Data Presentation

It was inferred that the low resistance encountered at the depth between 65-70m. The maximum depth proposed out of proposed projects is 76 m AGL. Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area.

3.2.5.4 Geophysical Data Interpretation

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

3.3 Air Environment

The ambient air quality with respect to the study area of 10 km radius including the cluster quarries forms the baseline information. The prime objective of baseline air quality monitoring is to assess existing air quality of

the area. This will also be useful in assessing the conformity to standards of the ambient air quality during the operations

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

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

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

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

3.3.1 Meteorology & Climate

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

A temporary meteorological station was installed at project site. The station was installed at a height of 4 m above the ground level in such a way that there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature are recorded on hourly basis.

Climate –

- ✓ Hosur are in the middle and the summers are that easy to define.
- ✓ The best time to visit are January, February, March, April, May, June, July, August, September, October, November.
- ✓ The month with the highest relative humidity is October (77.17 %). The month with the lowest relative humidity is March (43.75 %).
- ✓ The month with the highest number of rainy days is October (17.60 days). The month with the lowest number of rainy days is February (1.47 days).
- ✓ Hosur's climate is classified as tropical. The summers are much rainier than the winters in Hosur. The Köppen-Geiger climate classification is Aw. The temperature here averages 23.2 °C | 73.8 °F. About 920 mm | 36.2 inch of precipitation falls annually.
- ✓ Precipitation is the lowest in January, with an average of 5 mm | 0.2 inch. The greatest amount of precipitation occurs in October, with an average of 160 mm | 6.3 inch.
- ✓ At an average temperature of 26.9 °C | 80.4 °F, April is the hottest month of the year. The lowest average temperatures in the year occur in December, when it is around 20.3 °C | 68.5 °F.

Source: <https://en.climate-data.org/asia/india/tamil-nadu/hosur-53367/>

Rainfall –

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

TABLE 3.14 – RAINFALL DATA

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
1145.6	510.4	730.0	798.6	985.4	985

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

TABLE 3.15 – METEOROLOGICAL DATA RECORDED AT SITE

S.No	Parameters		Mar-2022	Apr-2022	May-2022
1	Temperature (°C)	Max	28.58	31.51	32.08
		Min	21.67	25.93	24.75
		Avg	25.125	28.72	28.415
2	Relative Humidity (%)	Avg	61.5	62.315	66.845
3	Wind Speed (m/s)	Max	4.59	3.7	6.78
		Min	1.62	1.61	1.88
		Avg	3.105	2.655	4.33
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ENE,SSE	ESE,SE	W,WNW

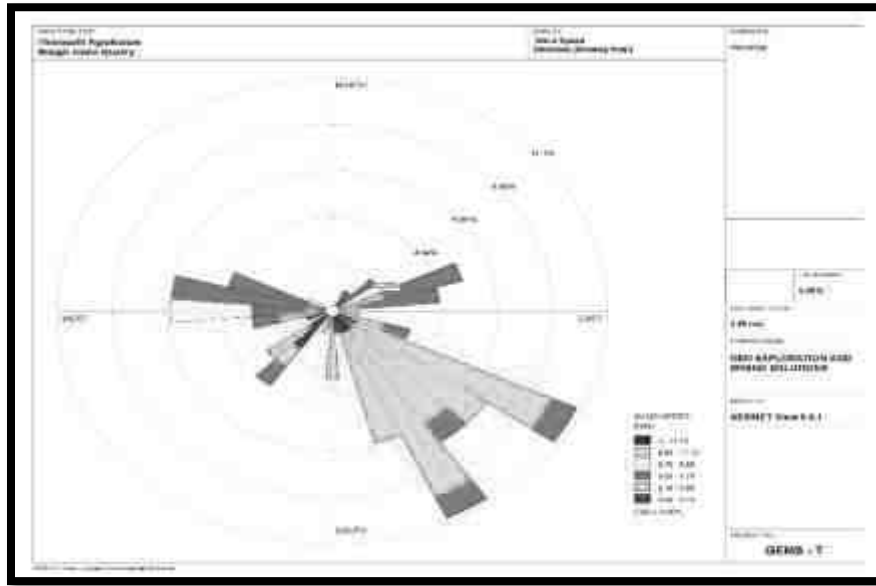
Source: On-site monitoring/sampling by KGS Enviro Laboratory Pvt Ltd in association with GEMS

Correlation between Secondary and Primary Data

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

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

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

FIGURE 3.15: WINDROSE DIAGRAM

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

1. Predominant winds were from ENE, SSE, ESE, SE, W, WNW,
2. Wind velocity readings were recorded between 0.50 to 5.70 km / hour
3. Calm conditions prevail of about 0.00% of the monitoring period
4. Temperature readings ranging from 21.67-32.08⁰C
5. Relative humidity ranging from 61.5 to 66.8%
6. The monitoring was carried out continuously for three months

3.3.2 Methodology and Objective

The prime objective of the ambient air quality study is to assess the existing air quality of study area and its conformity to NAAQS. The observed sources of air pollution in the study area are industrial, traffic and domestic activities. The baseline status of the ambient air quality has been established through a scientifically designed ambient air quality monitoring network considering the followings:

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

3.3.3 Sampling and Analytical Techniques

TABLE 3.16 – METHODOLOGY AND INSTRUMENT USED FOR AIR QUALITY ANALYSIS

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

Source: Sampling Methodology followed by KGS Enviro Laboratory Pvt Ltd & CPCB Notification

TABLE 3.17 – NATIONAL AMBIENT AIR QUALITY STANDARDS

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

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

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

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

3.3.4 Frequency & Parameters for Sampling

Ambient air quality monitoring has been carried out with a frequency of two samples per week at Eight (8) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period March 2022-May 2022. The baseline data of ambient air has been generated for PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂) & Nitrogen Dioxide (NO₂).

3.3.5 Ambient Air Quality Monitoring Stations

Eight (8) monitoring stations were set up in the study area as depicted in Figure 3.17 for assessment of the Proposed ambient air quality. Details of the sampling locations are as per given below.

TABLE 3.18 – AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ-1	Project Area	NW Corner	12°41'45.08"N 77°54'12.13"E
2	AAQ-2	Perandapalli	2.4km NW	12°42'46.62"N 77°53'19.96"E
3	AAQ-3	Bukkasagaram	4.5km NE	12°43'26.88"N 77°56'2.26"E
4	AAQ-4	Kadirapalli	2.8km NW	12°43'14.30"N 77°54'9.43"E
5	AAQ-5	Tippalam	3.5km NW	12°42'18.01"N 77°52'19.73"E
6	AAQ-6	Gangapuram	3km East	12°41'28.82"N 77°55'58.45"E
7	AAQ-7	Agaram Agraharam	6.5km SE	12°39'24.89"N 77°56'58.92"E
8	AAQ-8	Thorapalli Agraharam	2km SW	12°41'10.74"N 77°53'6.40"E

Source: On-site monitoring/sampling by KGS Enviro Laboratory Pvt Ltd in association with GEMS

FIGURE 3.16: SITE PHOTOGRAPHS OF AMBIENT AIR MONITORING



Source: Monitoring photographs from the FAE and Team Members

FIGURE 3.17 AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

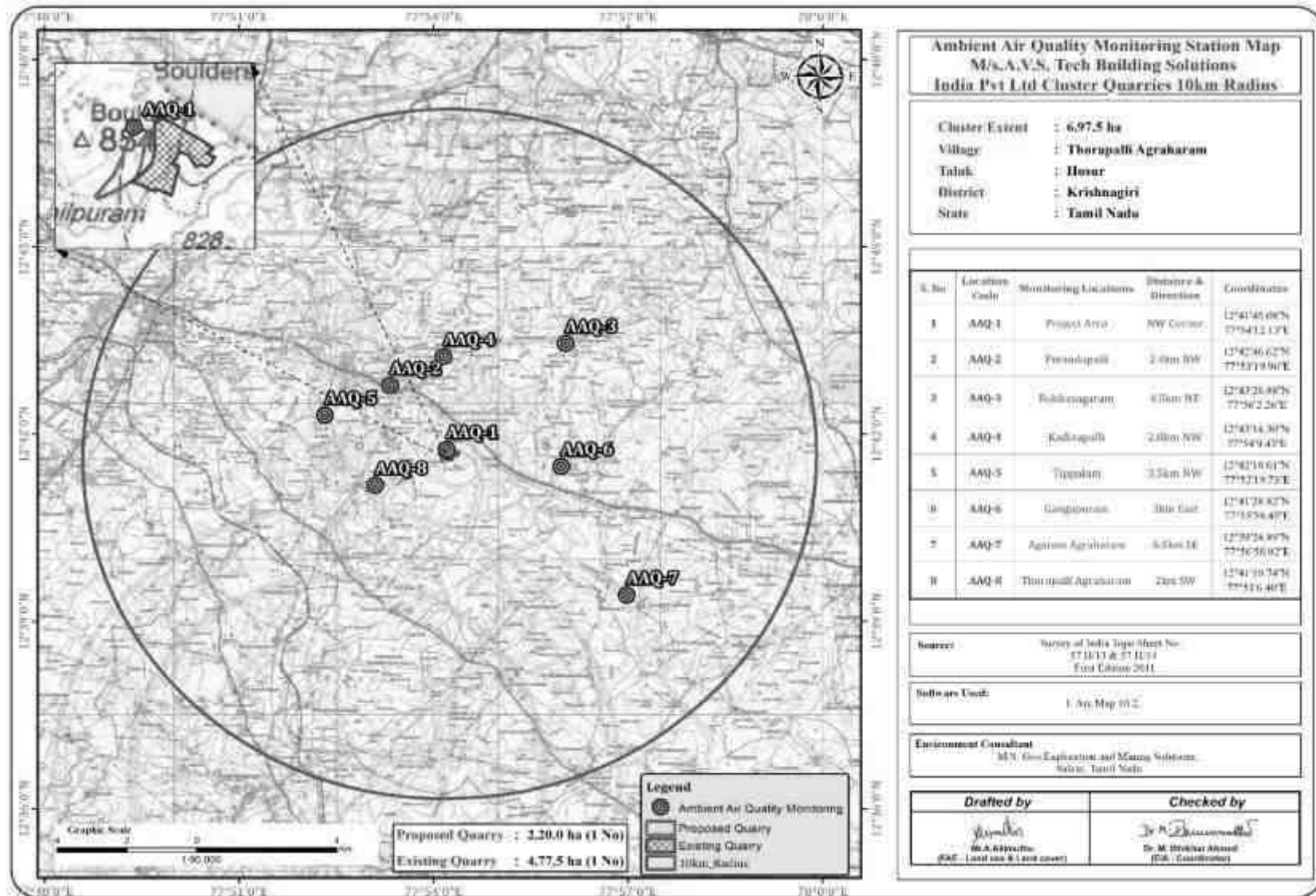


TABLE 3.19 AMBIENT AIR QUALITY DATA LOCATION AAQ1-:

Period: Mar - May -2022

Location: AAQ1- Project Area

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m ³			Gaseous Pollutants, µg/m ³					Other Pollutants (Particulate Phase) , µg/m ³				
Date	Period, hrs.	SPM	PM _{2.5}	PM ₁₀	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , ng/m ³	BaP, ng/m ³
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	07.00-07.00	61.3	23.5	45.3	8.5	19.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	07.15-07.15	61.8	22.6	43.5	7.3	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.03.2022	07.00-07.00	60.5	21.3	44.7	7.9	20.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	07.15-07.15	60.9	21.8	42.6	9.0	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.03.2022	07.00-07.00	58.4	22.9	43.8	8.4	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	07.15-07.15	59.6	21.2	44.9	8.3	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.03.2022	07.00-07.00	61.7	22.1	42.6	7.4	18.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	07.15-07.15	59.5	23.0	44.0	7.6	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2022	07.00-07.00	61.6	21.7	42.5	8.4	20.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	07.15-07.15	60.7	22.6	43.6	8.9	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.04.2022	07.00-07.00	59.4	21.7	43.8	7.4	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	07.15-07.15	61.8	22.5	45.0	7.1	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.04.2022	07.00-07.00	62.0	21.7	44.2	8.4	19.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	07.15-07.15	59.7	22.6	44.8	8.7	20.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.04.2022	07.00-07.00	60.2	21.0	43.6	7.6	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	07.15-07.15	59.1	22.6	43.6	7.7	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.04.2022	07.00-07.00	61.6	21.8	44.8	8.1	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	07.15-07.15	60.0	22.3	43.6	7.8	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.05.2022	07.00-07.00	58.4	21.0	42.9	8.6	20.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	07.15-07.15	59.7	22.8	44.9	8.4	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.05.2022	07.00-07.00	60.7	21.6	42.0	7.5	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	07.15-07.15	59.1	21.4	44.6	7.9	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.05.2022	07.00-07.00	60.4	22.9	43.9	8.1	18.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	07.15-07.15	61.9	23.0	43.2	8.6	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.05.2022	07.00-07.00	62.0	21.3	44.1	7.8	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	07.15-07.15	59.4	21.6	42.7	9.0	19.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.05.2022	07.00-07.00	60.8	22.2	44.6	8.6	20.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.05.2022	07.15-07.15	59.4	21.7	43.6	7.6	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.20 AMBIENT AIR QUALITY DATA LOCATION AAQ2-:

Period: Mar - May -2022

Location: AAQ2- Islampuram

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	07.30-07.30	59.6	21.2	42.6	7.6	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	07.45-07:45	60.2	22.6	43.8	7.1	20.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.03.2022	07.30-07.30	60.7	21.7	43.7	8.6	18.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	07.45-07:45	58.2	21.8	44.0	8.9	21.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.03.2022	07.30-07.30	59.7	22.1	44.8	7.0	20.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	07.45-07:45	60.4	23.0	42.3	7.5	19.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.03.2022	07.30-07.30	61.7	21.6	43.6	8.4	20.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	07.45-07:45	60.9	21.8	44.8	8.1	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2022	07.30-07.30	58.6	22.7	42.3	8.6	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	07.45-07:45	59.4	21.3	44.6	7.7	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.04.2022	07.30-07.30	60.8	21.7	45.0	7.3	20.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	07.45-07:45	61.6	22.3	44.1	8.6	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.04.2022	07.30-07.30	61.1	22.8	44.5	9.0	19.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	07.45-07:45	62.0	21.5	43.8	8.1	18.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.04.2022	07.30-07.30	58.6	22.9	43.8	8.6	19.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	07.45-07:45	58.1	21.6	42.6	7.3	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.04.2022	07.30-07.30	60.1	22.0	43.9	7.4	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	07.45-07:45	61.2	22.6	42.1	8.6	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.05.2022	07.30-07.30	62.0	21.0	42.6	7.9	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	07.45-07:45	61.6	22.6	44.2	8.2	18.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.05.2022	07.30-07.30	60.5	22.9	42.9	8.8	20.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	07.45-07:45	58.3	21.1	44.7	7.6	21.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.05.2022	07.30-07.30	59.6	22.5	43.8	7.1	18.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	07.45-07:45	60.0	21.8	44.1	7.9	19.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.05.2022	07.30-07.30	61.3	22.4	43.8	7.5	19.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	07.45-07:45	61.8	21.9	42.9	8.1	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.05.2022	07.30-07.30	60.5	22.4	43.7	8.8	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.05.2022	07.45-07:45	59.6	22.1	44.9	8.3	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.21 AMBIENT AIR QUALITY DATA LOCATION AAQ3-:

Period: Mar - May -2022

: AAQ3 - Thorapalli Agraharam

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase) , $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs.)	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	08.05-08.05	61.8	21.6	43.6	7.5	19.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	08.20-08.20	59.6	22.8	42.8	7.1	20.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.03.2022	08.05-08.05	58.1	21.9	44.6	8.6	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	08.20-08.20	61.5	22.7	45.0	8.8	22.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.03.2022	08.05-08.05	62.0	21.3	42.6	8.1	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	08.20-08.20	58.9	23.0	44.6	8.7	19.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.03.2022	08.05-08.05	60.1	22.9	43.7	7.6	18.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	08.20-08.20	60.8	21.7	43.1	7.9	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2022	08.05-08.05	61.6	22.3	42.7	8.0	20.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	08.20-08.20	61.8	22.8	44.1	7.6	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.04.2022	08.05-08.05	60.5	21.5	43.7	7.4	21.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	08.20-08.20	59.7	21.9	44.8	7.1	19.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.04.2022	08.05-08.05	58.6	21.0	43.9	7.6	18.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	08.20-08.20	58.1	21.9	44.7	8.3	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.04.2022	08.05-08.05	60.5	21.2	42.9	8.7	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	08.20-08.20	60.8	22.6	43.7	9.0	20.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.04.2022	08.05-08.05	61.6	22.1	42.6	7.4	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	08.20-08.20	61.1	21.4	42.1	7.3	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.05.2022	08.05-08.05	59.7	21.9	44.8	8.4	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	08.20-08.20	58.3	21.0	45.0	8.1	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.05.2022	08.05-08.05	60.2	22.3	42.8	7.7	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	08.20-08.20	61.6	22.9	43.6	7.4	18.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.05.2022	08.05-08.05	61.4	21.5	44.5	8.6	20.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	08.20-08.20	59.6	21.1	42.7	8.1	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.05.2022	08.05-08.05	58.4	23.0	43.6	8.4	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	08.20-08.20	60.0	22.6	44.8	8.6	19.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.05.2022	08.05-08.05	61.5	22.1	43.7	9.0	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.05.2022	08.20-08.20	60.7	21.8	42.5	7.6	20.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.22 AMBIENT AIR QUALITY DATA LOCATION AAQ4-:

Period: Mar - May -2022

Location: AAQ4 – Thotapalli

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase), $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	08.30-08.30	59.7	21.7	43.7	7.6	19.2	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	08.45-08:45	60.8	22.6	42.1	7.1	20.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.03.2022	08.30-08.30	61.4	21.1	44.9	8.6	18.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	08.45-08:45	61.9	21.9	43.8	8.1	20.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.03.2022	08.30-08.30	60.5	22.6	42.6	7.3	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	08.45-08:45	58.7	22.4	43.1	7.9	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.03.2022	08.30-08.30	60.3	23.0	44.8	8.7	20.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	08.45-08:45	61.7	22.4	45.0	8.1	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2022	08.30-08.30	62.0	21.9	44.6	9.0	19.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	08.45-08:45	61.6	22.5	43.8	7.3	19.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.04.2022	08.30-08.30	60.5	21.7	44.8	7.7	18.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	08.45-08:45	59.4	21.5	43.2	8.6	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.04.2022	08.30-08.30	59.1	21.3	42.6	8.1	20.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	08.45-08:45	60.8	22.0	42.1	8.9	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.04.2022	08.30-08.30	61.7	22.9	44.8	7.6	18.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	08.45-08:45	59.6	22.6	45.0	7.1	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.04.2022	08.30-08.30	60.8	21.4	43.7	8.9	19.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	08.45-08:45	61.3	21.8	44.6	7.2	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.05.2022	08.30-08.30	60.2	21.1	42.7	7.7	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	08.45-08:45	58.9	22.0	43.6	8.6	20.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.05.2022	08.30-08.30	59.6	22.9	44.8	8.3	19.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	08.45-08:45	61.1	23.0	44.1	7.6	21.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.05.2022	08.30-08.30	60.5	22.6	42.6	7.1	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	08.45-08:45	62.0	21.3	43.7	8.8	20.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.05.2022	08.30-08.30	59.7	22.1	44.1	7.6	19.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	08.45-08:45	61.7	22.8	43.6	7.1	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.05.2022	08.30-08.30	60.1	22.4	42.7	8.0	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.05.2022	08.45-08:45	59.6	21.8	42.2	8.6	19.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.23 AMBIENT AIR QUALITY DATA LOCATION AAQ5-:

Period: Mar - May -2022

: AAQ5- Kadirapalli

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase) , $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	08.55-08.55	60.7	22.7	43.7	7.6	19.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	09.10-09.10	58.3	21.6	44.8	7.1	20.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.03.2022	08.55-08.55	59.4	23.0	45.0	8.9	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	09.10-09.10	60.5	22.6	42.6	8.4	21.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.03.2022	08.55-08.55	61.7	21.8	42.7	8.5	19.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	09.10-09.10	61.9	21.1	44.6	9.0	18.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.03.2022	08.55-08.55	60.5	22.0	42.8	7.2	20.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	09.10-09.10	59.6	21.4	42.1	7.6	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2022	08.55-08.55	58.7	22.3	43.6	8.1	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	09.10-09.10	58.0	22.1	44.0	8.7	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.04.2022	08.55-08.55	59.6	21.8	44.8	7.1	20.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	09.10-09.10	60.8	21.4	45.0	7.6	19.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.04.2022	08.55-08.55	61.4	22.3	44.1	8.4	18.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	09.10-09.10	62.0	23.0	43.6	8.3	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.04.2022	08.55-08.55	58.7	22.3	43.8	7.9	20.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	09.10-09.10	59.4	21.7	42.6	7.2	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.04.2022	08.55-08.55	59.1	21.2	42.1	9.0	22.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	09.10-09.10	60.4	22.6	42.8	8.2	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.05.2022	08.55-08.55	61.7	22.3	43.6	7.6	18.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	09.10-09.10	60.5	21.4	43.1	7.2	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.05.2022	08.55-08.55	59.6	21.9	44.9	8.3	20.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	09.10-09.10	58.3	22.8	44.3	8.0	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.05.2022	08.55-08.55	60.4	21.4	43.9	8.3	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	09.10-09.10	61.8	22.0	42.8	7.9	19.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.05.2022	08.55-08.55	61.1	21.7	43.7	7.5	18.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	09.10-09.10	59.4	23.0	44.5	8.3	20.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.05.2022	08.55-08.55	60.7	21.8	42.6	8.9	19.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.05.2022	09.10-09.10	61.4	22.6	43.7	9.0	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.24 AMBIENT AIR QUALITY DATA LOCATION AAQ6:-

Period: Mar - May -2022

Location: AAQ6 – Gobasandiram

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase) , $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	09.20-09.20	61.7	21.3	43.6	7.4	19.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	09.35-09:35	60.5	22.6	44.8	7.1	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.03.2022	09.20-09.20	60.9	22.7	45.0	8.6	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	09.35-09:35	58.4	23.0	42.8	8.8	18.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.03.2022	09.20-09.20	59.6	22.3	43.6	8.0	19.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	09.35-09:35	59.1	21.7	42.7	7.3	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.03.2022	09.20-09.20	61.7	21.0	44.8	7.1	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	09.35-09:35	62.0	22.6	43.6	8.6	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2022	09.20-09.20	61.6	22.8	42.3	8.4	19.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	09.35-09:35	59.6	21.3	43.9	7.9	18.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.04.2022	09.20-09.20	59.7	21.7	42.0	7.7	19.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	09.35-09:35	60.5	22.1	42.6	9.0	20.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.04.2022	09.20-09.20	61.4	22.6	44.5	8.8	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	09.35-09:35	62.0	22.0	45.0	8.1	20.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.04.2022	09.20-09.20	59.4	21.3	44.6	7.4	20.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	09.35-09:35	59.1	21.8	44.1	7.1	19.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.04.2022	09.20-09.20	60.4	21.7	43.8	8.0	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	09.35-09:35	61.7	23.0	42.5	8.3	21.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.05.2022	09.20-09.20	61.1	22.6	42.9	7.4	19.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	09.35-09:35	62.0	22.1	43.6	7.5	18.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.05.2022	09.20-09.20	58.6	21.5	44.8	8.6	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	09.35-09:35	59.3	21.2	44.1	8.8	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.05.2022	09.20-09.20	60.4	21.9	43.6	9.0	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	09.35-09:35	60.9	22.6	42.1	7.1	19.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.05.2022	09.20-09.20	61.8	23.0	42.5	7.7	18.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	09.35-09:35	61.4	22.6	44.7	8.6	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.05.2022	09.20-09.20	59.7	21.8	45.0	8.1	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.05.2022	09.35-09:35	60.4	22.6	44.2	7.3	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.25 AMBIENT AIR QUALITY DATA LOCATION**AAQ7-:**

Period: Mar - May -2022

Location: AAQ7- Addakurukki

Sampling Time: 24-hourly

Monitoring		Particulates, $\mu\text{g}/\text{m}^3$			Gaseous Pollutants, $\mu\text{g}/\text{m}^3$					Other Pollutants (Particulate Phase) , $\mu\text{g}/\text{m}^3$				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, $\mu\text{g}/\text{m}^3$	As, ng/m^3	Ni, ng/m^3	C ₆ H ₆ , ng/m^3	BaP, ng/m^3
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	09.50-09.50	59.4	21.3	43.6	7.6	19.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	10.05-10:05	60.8	22.6	44.8	7.1	20.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.03.2022	09.50-09.50	60.1	21.8	42.5	8.2	18.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	10.05-10:05	62.0	23.0	43.6	8.8	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.03.2022	09.50-09.50	61.7	22.7	45.0	9.0	19.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	10.05-10:05	58.6	21.3	44.9	8.4	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.03.2022	09.50-09.50	59.0	21.9	44.1	7.6	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	10.05-10:05	61.6	21.7	43.6	7.1	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2022	09.50-09.50	61.9	22.9	42.8	8.0	20.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	10.05-10:05	61.0	22.1	44.6	8.8	18.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.04.2022	09.50-09.50	59.4	21.4	45.0	7.4	19.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	10.05-10:05	58.4	21.8	43.6	7.7	19.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.04.2022	09.50-09.50	60.5	22.6	42.8	8.5	21.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	10.05-10:05	61.4	22.8	44.6	9.0	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.04.2022	09.50-09.50	59.3	21.7	43.7	8.6	19.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	10.05-10:05	58.4	21.0	42.1	8.1	18.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.04.2022	09.50-09.50	60.3	22.6	44.0	7.4	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	10.05-10:05	61.8	21.7	43.8	7.2	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.05.2022	09.50-09.50	58.4	21.1	43.2	7.7	19.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	10.05-10:05	59.3	22.3	42.3	8.0	20.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.05.2022	09.50-09.50	60.7	22.6	43.6	8.3	18.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	10.05-10:05	61.4	23.0	44.7	7.6	20.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.05.2022	09.50-09.50	62.0	21.4	43.2	7.2	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	10.05-10:05	59.8	21.9	42.9	7.7	21.9	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.05.2022	09.50-09.50	60.3	22.5	43.5	8.4	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	10.05-10:05	61.8	21.4	44.9	9.0	19.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.05.2022	09.50-09.50	59.4	21.9	45.0	8.6	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.05.2022	10.05-10:05	58.5	22.3	43.8	7.4	20.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

TABLE 3.26 AMBIENT AIR QUALITY DATA LOCATION AQ8:-

Period: Mar - May -2022

Location: AAQ8- Bukkasagaram

Sampling Time: 24-hourly

Monitoring		Particulates, µg/m ³			Gaseous Pollutants, µg/m ³					Other Pollutants (Particulate Phase), µg/m ³				
Date	Period, hrs.	SPM	PM2.5	PM10	SO ₂	NO ₂	NH ₃	O ₃ (8-hly Avg.)	CO (8-hly Avg.)	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , ng/m ³	BaP, ng/m ³
NAAQ Norms*		(24 hrs.)	60(24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	10.20-10.20	59.4	21.8	43.7	7.6	19.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.03.2022	10.35-10:35	61.8	22.6	45.0	8.1	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
07.03.2022	10.20-10.20	62.0	22.1	44.8	8.8	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
08.03.2022	10.35-10:35	60.8	21.4	42.1	7.4	18.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
14.03.2022	10.20-10.20	60.1	23.0	42.7	7.0	20.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
15.03.2022	10.35-10:35	61.6	21.9	44.1	8.6	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
21.03.2022	10.20-10.20	58.7	22.3	43.7	8.9	19.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
22.03.2022	10.35-10:35	60.4	22.7	42.0	7.4	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
28.04.2022	10.20-10.20	60.1	21.0	44.8	7.8	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
29.04.2022	10.35-10:35	61.8	21.6	43.6	8.0	19.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
04.04.2022	10.20-10.20	59.6	22.8	42.7	8.5	19.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
05.04.2022	10.35-10:35	61.7	23.0	43.6	9.0	21.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
11.04.2022	10.20-10.20	60.5	21.3	44.9	7.6	22.0	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
12.04.2022	10.35-10:35	58.4	22.1	45.0	7.2	20.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
18.04.2022	10.20-10.20	59.3	22.8	42.6	8.4	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
19.04.2022	10.35-10:35	60.7	21.6	43.7	8.9	19.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
25.04.2022	10.20-10.20	61.3	21.3	44.9	8.1	18.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
26.04.2022	10.35-10:35	59.6	22.8	44.1	7.6	21.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
02.05.2022	10.20-10.20	61.7	22.4	43.6	7.8	19.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
03.05.2022	10.35-10:35	62.0	22.1	42.7	8.0	21.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
09.05.2022	10.20-10.20	60.5	23.0	42.2	8.6	18.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
10.05.2022	10.35-10:35	59.4	21.6	43.6	8.1	20.4	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
16.05.2022	10.20-10.20	58.7	22.8	44.8	7.6	21.3	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
17.05.2022	10.35-10:35	60.5	21.4	45.0	7.2	19.8	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
23.05.2022	10.20-10.20	61.3	21.1	44.2	7.0	18.6	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
24.05.2022	10.35-10:35	59.7	22.5	42.6	8.2	20.5	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
30.05.2022	10.20-10.20	61.7	22.7	43.7	8.8	21.7	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0
31.05.2022	10.35-10:35	58.6	21.3	44.6	8.2	20.1	<5	<5	<1.0	<0.01	<5	<3	<1.0	<3.0

Sampling Results by KGS Enviro Laboratory Pvt Ltd.

TABLE 3.27: SUMMARY OF AAQ

PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	22.1	22.1	22.0	22.1	22.1	22.1	22.0	22.1
Minimum	21.0	21.0	21.0	21.1	21.1	21.0	21.0	21.0
Maximum	23.5	23.0	23.0	23.0	23.0	23.0	23.0	23.0
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0

PM10	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	43.8	43.7	43.7	43.8	43.7	43.6	43.7	43.7
Minimum	42.0	42.1	42.1	42.1	42.1	42.0	42.1	42.0
Maximum	45.3	45.0	45.0	45.0	45.0	45.0	45.0	45.0
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SO₂	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	8.1	8.0	8.0	7.9	8.0	8.0	8.0	8.0
Minimum	7.1	7.0	7.1	7.1	7.1	7.1	7.1	7.0
Maximum	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

NO₂	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	20.7	20.3	20.6	20.5	20.4	20.2	20.3	20.5
Minimum	18.4	18.1	18.6	18.3	18.3	18.4	18.1	18.6
Maximum	22.0	22.0	22.6	22.0	22.5	22.0	22.0	22.0
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

TABLE 3.28 – ABSTRACT OF AMBIENT AIR QUALITY DATA

1	Parameter	SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂
2	No. of Observations	260	260	260	260	260
3	10 th Percentile Value	55.87	21.1	41.89	5.6	20.6
4	20 th Percentile Value	56.74	21.5	42.3	6.1	21.6
5	30 th Percentile Value	57.6	21.8	42.5	6.4	22.3
6	40 th Percentile Value	58.6	22.5	42.7	6.7	22.82
7	50 th Percentile Value	60.25	22.9	42.9	7.1	23.5
8	60 th Percentile Value	61.32	23.5	43.4	7.5	23.7
9	70 th Percentile Value	62.3	23.73	43.6	7.73	24.1
10	80 th Percentile Value	62.76	24.3	43.9	8.3	24.9
11	90 th Percentile Value	63.83	25.41	45.1	9.1	25.72
12	95 th Percentile Value	64.8	25.9	46.1	9.61	26.5
13	98 th Percentile Value	65.39	26.66	46.5	10.5	26.8
14	Arithmetic Mean	60.86	21.36	42.7	8.75	19.85
15	Geometric Mean	60.78	21.19	42.66	8.28	19.71
16	Standard Deviation	3.3	2.8	1.9	3.1	2.5
17	Minimum	21.0	21.0	42.0	7.0	18.1
18	Maximum	23.5	23.5	45.3	9.0	22.6
19	NAAQ Norms*	-	100.0	60.0	80.0	80.0
	% Values exceeding Norms*	0.0	0.0	0.0	0.0	0.0

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

* NAAQ Norms-National Ambient Air Quality Norms-Revised as per GSR 826(E) dated 16.11.2009 for Industrial, Residential, Rural and other Area.

FIGURE 3.18 : BAR DIAGRAM OF SUMMARY OF AAQ 1 – AAQ 8

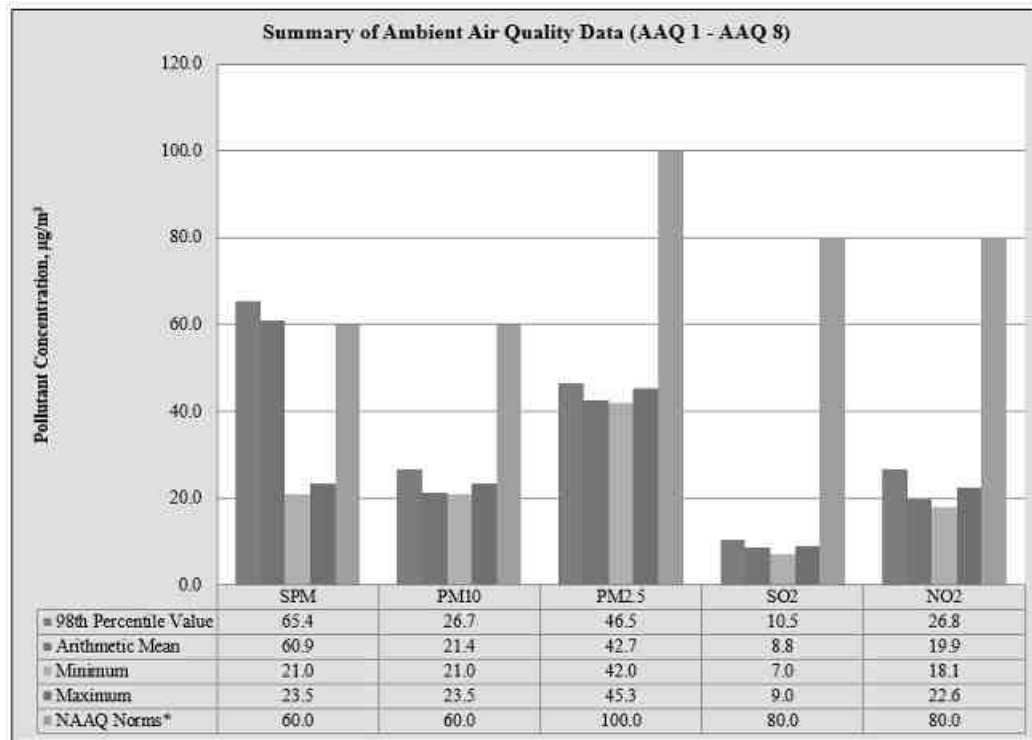


FIGURE 3.19 : BAR DIAGRAM OF PARTICULATE MATTER (PM₁₀)

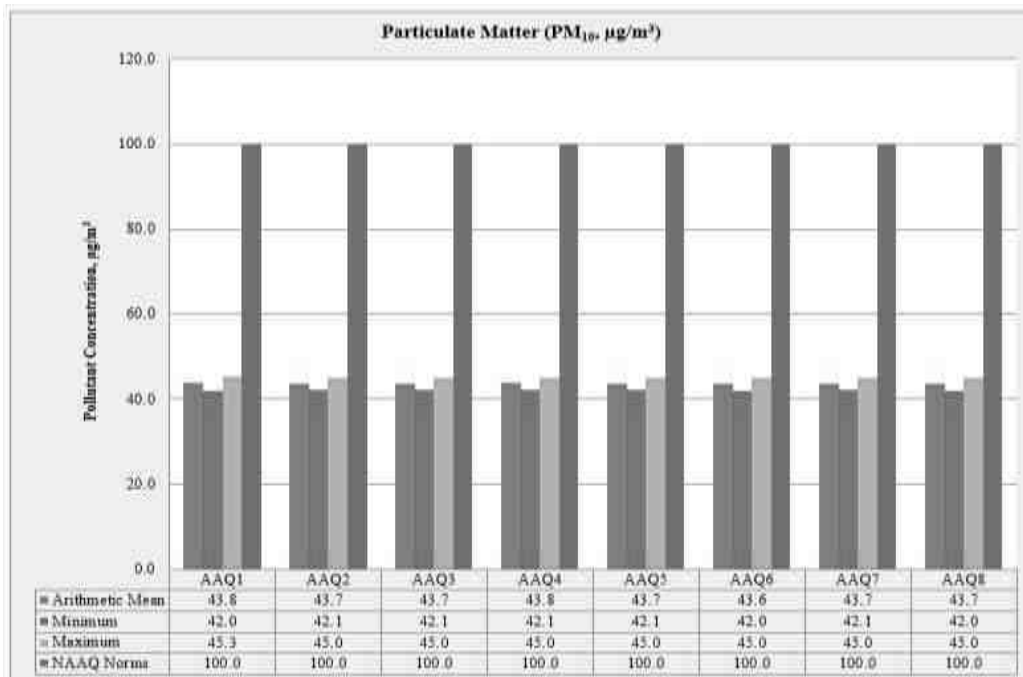


FIGURE 3.20 A : BAR DIAGRAM OF PARTICULATE MATTER (PM_{2.5})

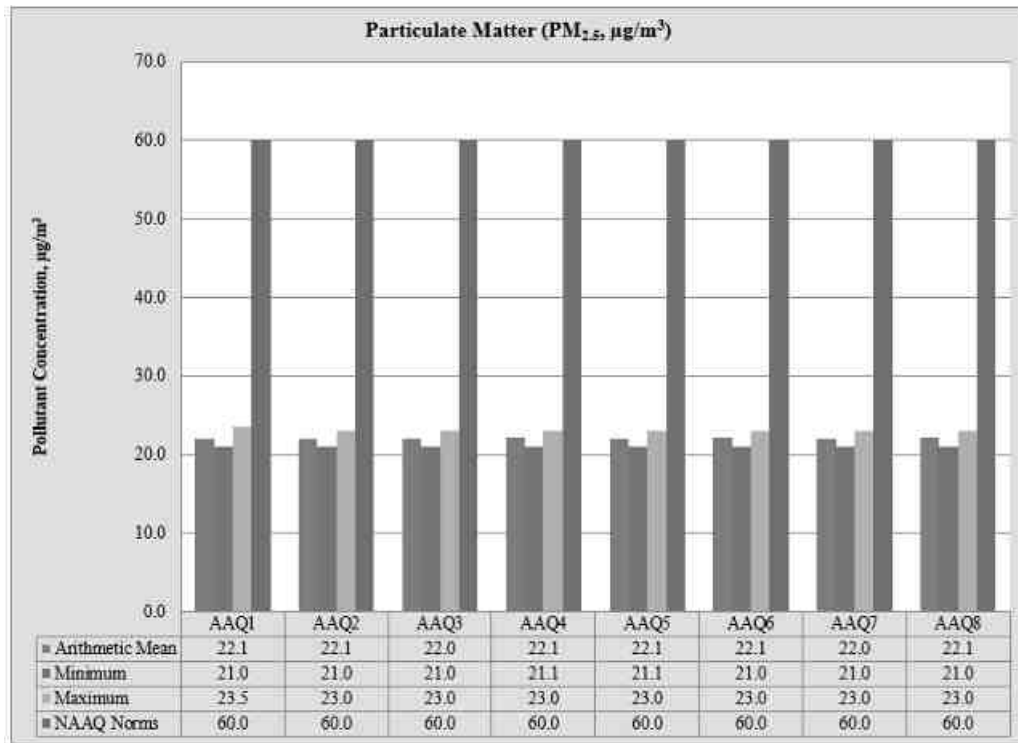


FIGURE 3.21 BAR DIAGRAM OF PARTICULATE MATTER (SO₂)

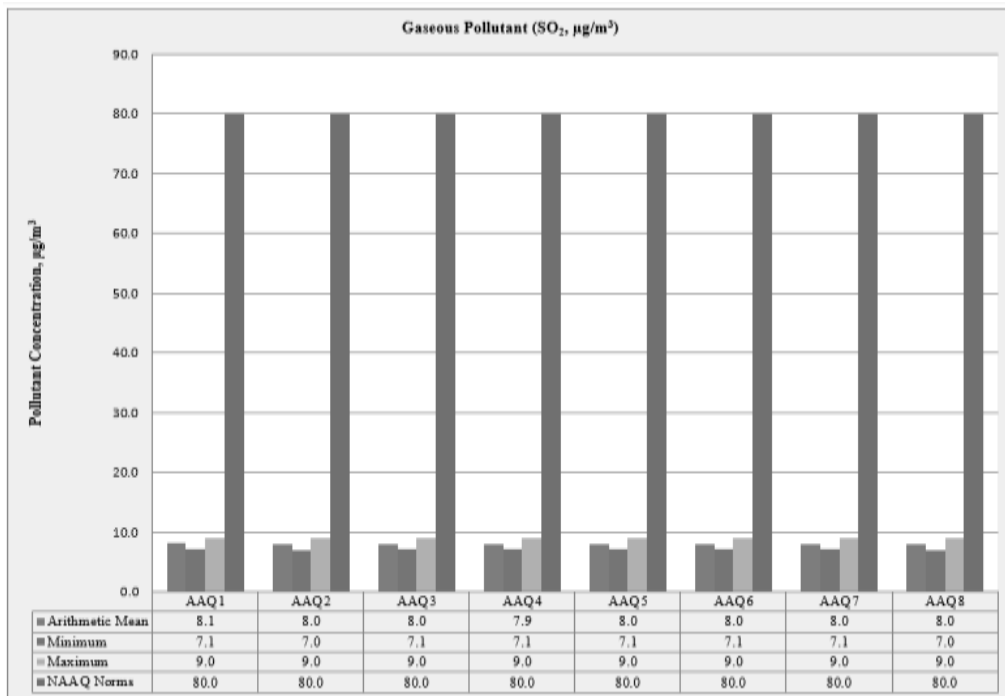
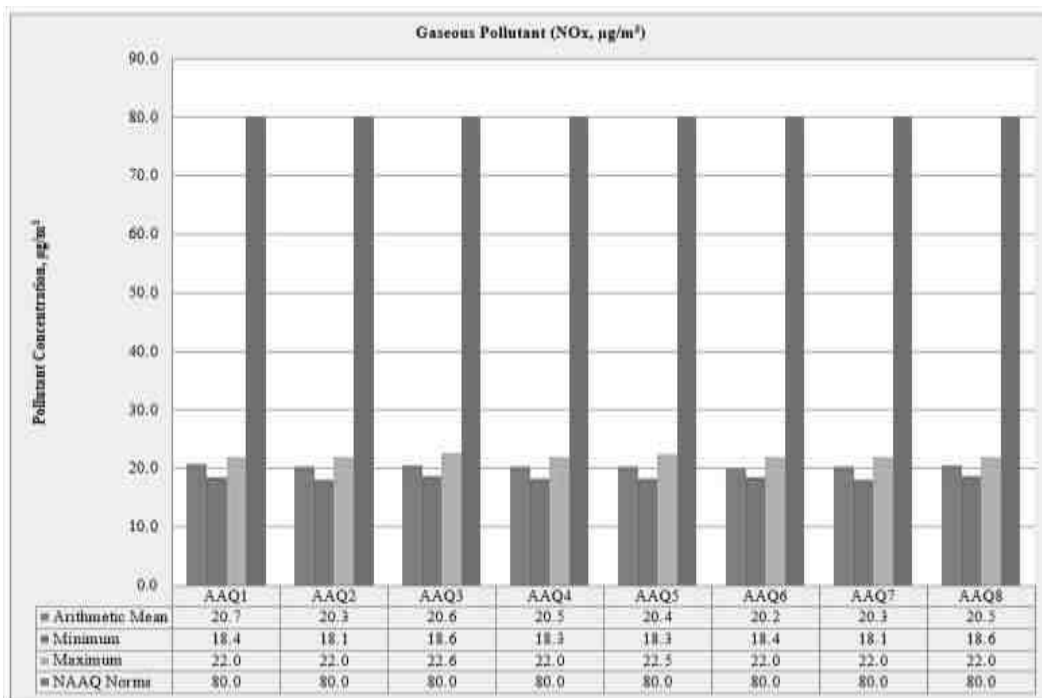


FIGURE 3.22 : BAR DIAGRAM OF PARTICULATE MATTER (NO₂)

3.3.6 Interpretations & Conclusion

As per monitoring data, PM₁₀ ranges from 42µg/m³ to 45.3 µg/m³, PM_{2.5} data ranges from 21 µg/m³ to 23.5 µg/m³, SO₂ ranges from 7.0 µg/m³ to 9.0 µg/m³ and NO₂ data ranges from 18.1 µg/m³ to 22.6 µg/m³. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB. The minimum & maximum concentrations of PM₁₀ were found to be 42.0 in Project area, Gangapuram, Thorapalli Agraharam & 45.3µg/m³ in Project area. The minimum & maximum concentrations of PM_{2.5} were found to be 21.0 µg/m³ in Project area, Perandapalli, Bukkasagaram & 23.5 µg/m³ in Project area. The maximum concentration in the core zone is due to the cluster of quarries situated within 500m radius.

3.3.7 FUGITIVE DUST EMISSION

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

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

AAQ Locations	Avg SPM (µg/m ³)
AAQ 1	60.44
AAQ 2	60.31
AAQ 3	57.87
AAQ 4	60.60
AAQ 5	60.13
AAQ 6	60.57
AAQ 7	60.36
AAQ 8	60.45

Source: Line Diagram of Table 3.29

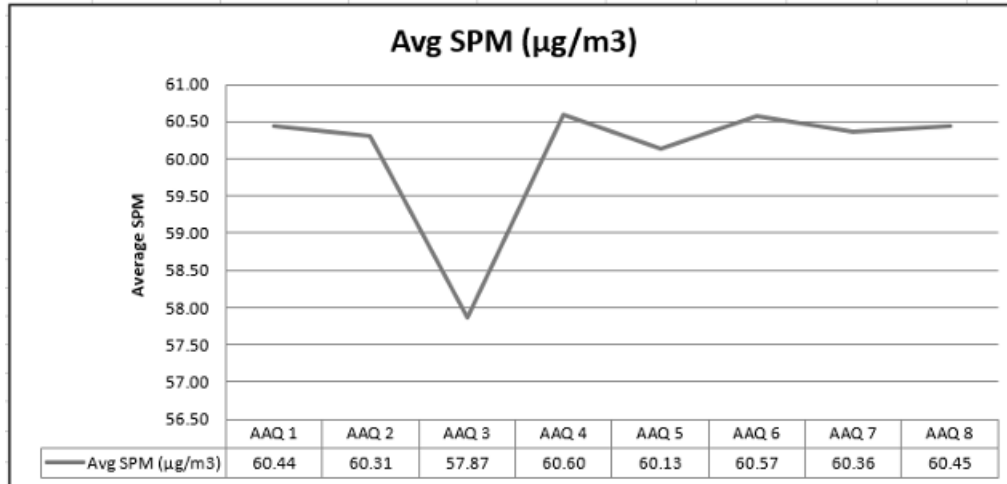
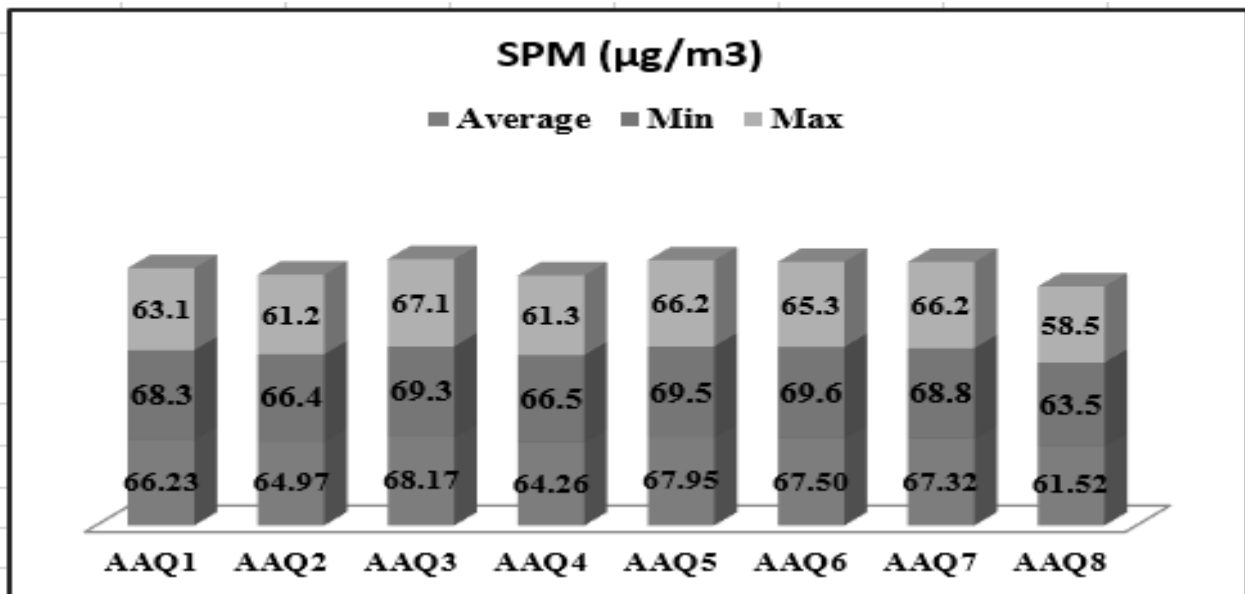


TABLE 3.30– FUGITIVE DUST SAMPLE VALUES IN µg/m³

SPM (µg/m ³)	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Average	60.44	60.31	57.87	60.60	60.13	60.57	60.36	60.45
Min	58.40	58.10	58.10	58.70	58.00	58.40	58.40	58.40
Max	62.00	62.00	62.00	62.00	62.00	62.00	62.00	62.00

Source: Calculations from Lab Analysis Reports



Source: Bar Diagram of table 3.30

3.4 Noise Environment

The vehicular movement on road and mining activities is the major sources of noise in study area, the environmental assessment of noise from the mining activity and vehicular traffic can be undertaken by taking into

consideration various factors like potential damage to hearing, physiological responses, and annoyance and general community responses.

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

3.4.1 Identification of Sampling Locations

In order to assess the ambient noise levels within the study area, noise monitoring was carried out at eight (8) locations. The noise level monitoring locations were carried out by covering commercial, residential, rural areas within the radius of 10km. A noise monitoring methodology was chosen such that it best suited the purpose and objectives of the study.

TABLE 3.31 – DETAILS OF SURFACE NOISE MONITORING LOCATIONS

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	N-1	Project Area	East	12°41'39.28"N 77°54'12.23"E
2	N-2	Perandapalli	2.4km NW	12°42'46.11"N 77°53'19.72"E
3	N-3	Bukkasagaram	4.5km NE	12°43'29.94"N 77°55'58.16"E
4	N-4	Kadirapalli	2.8km NW	12°43'14.36"N 77°54'10.42"E
5	N-5	Tippalam	3.3km NW	12°42'10.29"N 77°52'23.82"E
6	N-6	Gangapuram	3km East	12°41'29.34"N 77°55'58.05"E
7	N-7	Agaram Agraharam	6.5km SE	12°39'24.11"N 77°56'59.19"E
8	N-8	Thorapalli Agraharam	2km SW	12°41'10.18"N 77°53'6.10"E

Source: On-site monitoring/sampling by KGS Enviro Laboratory Pvt Ltd in association with GEMS

FIGURE 3.23: SITE PHOTOGRAPHS OF NOISE MONITORING IN CLUSTER



P1

3.4.2 Method of Monitoring

Digital Sound Level Meter was used for the study. All reading was taken on the 'A-Weighting' frequency network, at a height of 1.5 meters from ground level. The sound level meter does not give a steady and consistent reading and it is quite difficult to assess the actual sound level over the entire monitoring period. To mitigate this shortcoming, the Continuous Equivalent Sound level, indicated by L_{eq} , is used. Equivalent sound

level, 'Leq', can be obtained from variable sound pressure level, 'L', over a time period by using following equation.

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

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

T = Time interval of observation

3.4.3 Analysis of Ambient Noise Level in the Study Area

An analysis of the different Leq data obtained during the study period has been made. Variation was noted during the day-time as well as night-time. The results are presented in below Table 3.6

Day time : 6:00 hours to 22.00 hours.

Night time : 22:00 hours to 6.00 hours

TABLE 3.32 – NOISE MONITORING RESULTS IN CORE AND BUFFER ZONE

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Core Zone	50.8	43.9	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Hanumanthapuram	50.1	43.2	
3	Krishnapuram	50.2	42.6	
4	Onnagurukki	49.6	40.8	
5	Sankaranarayanapuram	50.1	41.2	Residential Day Time– 55 dB (A) Night Time- 45 dB (A)
6	Varanaganapalli	49.8	40.1	
7	Anusonai	49.2	40.9	
8	Beerjepalli	50.6	43.4	

Source: On-site monitoring/sampling by KGS Enviro Laboratory Pvt Ltd in association with GEMS

FIGURE 3.24: NOISE MONITORING STATIONS AROUND 10 KM RADIUS

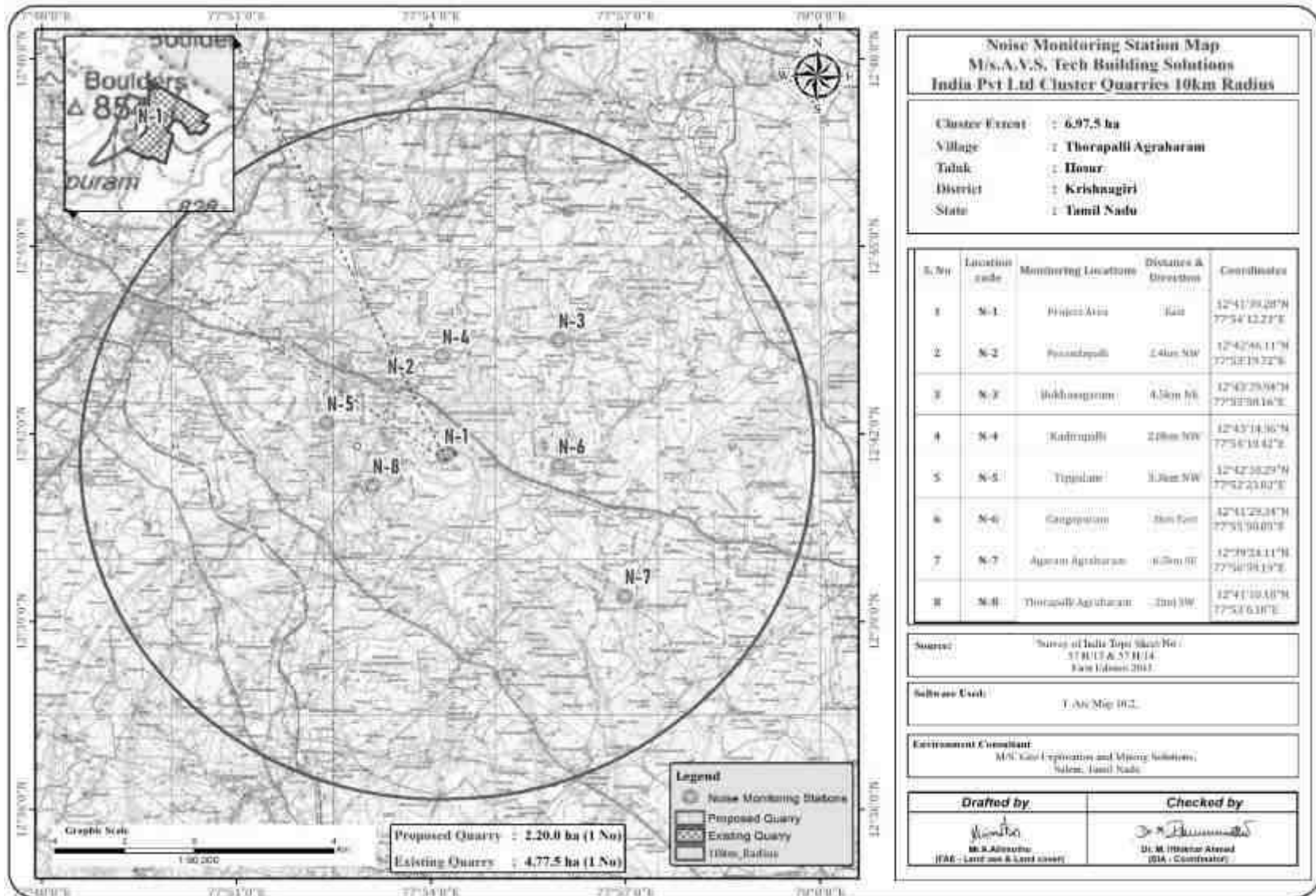
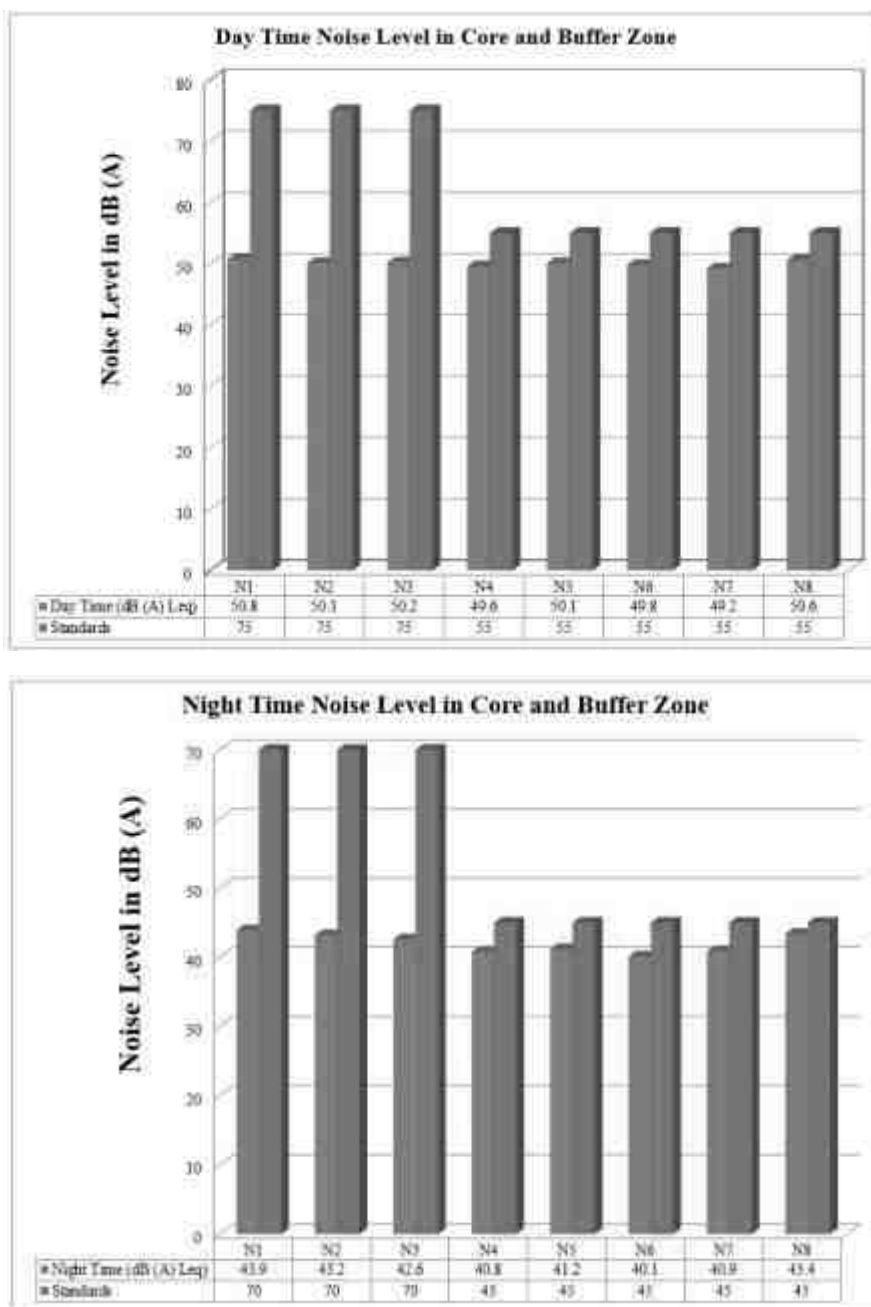


FIGURE 3.25: DAY & NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE



3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 8 (eight) locations around the project area considering cluster quarries. Noise levels recorded in core zone during day time were from 50.8 dB (A) Leq and during night time were from 43.9 (A) Leq. Noise levels recorded in buffer zone during day time were from 49.2 – 50.6 dB (A) Leq and during night time were from 40.1– 43.4 dB (A) Leq.

The values of noise observed in some of the areas are primarily owing to quarrying activities due to cluster of quarries within 500m radius, movement of vehicles and other anthropogenic activities. Noise monitoring results reveal that the maximum & minimum noise levels at day time were recorded in the range of 57.8 dB(A) in Bukkasagaram Village and 34.9 dB(A) in Tippalam village and 50.5dB(A) in Project area &

33.1 dB(A) in Gangapuram and Agaram Village respectively in night time. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5 BIOLOGICAL ENVIRONMENT

3.5.1. Study area Ecology

The core area extent of 2.20.0 Ha of Rough stone quarry has an impact on the diversity of flora and fauna of the surrounding area. But present work was carried out on a detailed study of the impacts of the Rough stone quarry on the ecology and biodiversity of the core lease area with the proper mitigation and sustainable management plan. The lease-applied area exhibits an undulated topography. The following methods were applied during the baseline study of flora, fauna, and diversity assessment.

3.5.2. Objectives of Biological Studies

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

3.5.3. Methodology of Sampling

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

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

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

and records the occurrence of an individual for study. A straight-line walk covering desired distance, within a time span of one hour to 30 minutes was carried out in the proposed region. Bird species were recorded during the hours of peak activity. 0700 to 1100 Hrs and 1430 to 1730 Hrs (Bibby et al. 2000).

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

3.5.3.1. Sampling

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

3.5.3.2. Sampling Size

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

3.5.3.3. Timing of Study

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

3.5.3.4. Observations from Sampling

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

3.5.3.5. Equipment/ References

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

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

3.5.4 Part I Field Sampling Techniques

3.5.4.1. Transect walk – Birds

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

3.5.4.2. Modified Pollard Walk – for Butterflies

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

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

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

3.5.4.4. Observational methods- Mammals

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

3.5.4.5. Multiple Stage Quadrat – Vegetation

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

3.5.4.6 Flora

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

3.5.5 Flora Composition in the Core Zone

Taxonomically a total of 22 species belonging to 14 families have been recorded from the core zone mining lease area. The lease applied area exhibits an undulated topography. Based on the habitat classification of the enumerated plants the majority of species were Herbs 8, followed by Trees 5, Shrubs 5, Grass 2, Creeper 1, and Cactus 1. Details of flora with the scientific name were mentioned in Table No. 3.33. The result of the core zone of flora studies shows that Fabaceae and Poaceae, Asteraceae are the main dominating species in the study area mentioned in Table No.3.33. No species were found as threatened category.

Table No: 3.33. Flora in the Core zone of Thorapalli agraharam Village, Rough stone quarry

SI. No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
2.	River tamarind	Savundal maram	<i>leucaena leucocephala</i>	Fabaceae
3.	Pala indigo	Pala maram	<i>Wrightia tinctoria</i>	Apocynaeceae

4.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	Fabaceae
5.	Bitter Albizia	Arappu Tree	<i>Albizia amara</i>	Fabaceae
Shrubs				
1.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
2.	Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
3.	Thorn apple	Oomathai	<i>Datura stramonium</i>	Solanaceae
4.	Tanner's cassia	Avaram	<i>Senna auriculata</i>	Fabaceae
5.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
Herbs				
1.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
2.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae
3.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
4.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
5.	Bitter bush	-	<i>Chromolaena odorata</i>	Asteraceae
6.	Bindii	Nerunji mullu	<i>Tribulus terrestris</i>	Zygophyllaceae
7.	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae
8.	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae
Creeper / Climbers				
1.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
Grass				
1.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
2.	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae
Cactus				
1.	Prickly pear	Nagathali	<i>Opuntia dillenii</i>	Cactaceae

(Sources: Species observation in the field study)

Fig No: 3.26 Flora species observation in the Core zone area



a. Wrightia tinctoria



b. Calotropis gigantea



c. Senna auriculata



d. Opuntia dillenii



e. leucaena leucocephala



f. Parthenium hysterophorus



g. Mimosa pudica



h. Albizia amara



h. Chromolaena odorata



i. Euphorbia antiquorum



j. Albizia amara



k. Datura stramonium

Table No: 3.34. Flora in Buffer Zone of Thorapalli agraharam Village, Rough stone quarry

S.No.	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Bitter Albizia	Arappu Tree	<i>Albizia amara</i>	Fabaceae
2.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	Fabaceae
3.	Wild Date Palm	Icham	<i>Phoenix sylvestris</i>	Arecaceae
4.	Blue gum	Thayala maram	<i>Eucalyptus</i>	Myrtaceae
5.	Banana tree	Vazhaimaram	<i>Musa acuminata</i>	Musaceae
6.	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae
7.	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	Legumes
8.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
9.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
10.	Coral Tree	Kalyana murungai	<i>Erythrina variegata</i>	Papilionoide
11.	Bamboo	Moonghil	<i>Bambusa bambo</i>	Poaceae
12.	Yellow flame tree	Perunkondrai	<i>Peltophorum pterocarpum</i>	Fabaceae
13.	Indian almond	Padam maram	<i>Terminalia catappa</i>	Combretaceae
14.	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	Arecaceae
15.	Indian ash tree	Odiya maram	Lanea coromandelica	Anacardiaceae
16.	Curry leaves	Karuveppali	<i>Murraya koenigii</i>	Rutaceae
17.	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	Rutaceae

18.	Bidi leaf tree	Thiruvathi Plant	<i>Bauhinia racemosa</i>	Fabaceae
19.	Rusty Acacia	Parambai	<i>Acacia ferruginea</i>	Mimosaceae
20.	Mango	Manga	<i>Mangifera indica</i>	Anacardiaceae
21.	Peepal	Arasanmaram	<i>Ficus religiosa</i>	Moraceae
22.	Indian ash tree	Odiya maram	<i>Lannea coromandelica</i>	Anacardiaceae
23.	Custard apple	Seethapazham	<i>Annona reticulata</i>	Annonaceae
24.	Flamboyant	Cemmayir-konrai	<i>Delonix regia</i>	Fabaceae
25.	Chinaberry	Malai vembu	<i>Melia azedarach L.</i>	Meliaceae
26.	Monkey pod tree	Thungumoonchi	<i>Samanea saman</i>	Fabaceae
27.	Yellow Flame	Iyalvagai	<i>Peltophorumpterocarpum</i>	Fabaceae
28.	Teak	Thekku	<i>Tectona grandis</i>	Verbenaceae
29.	Indian gooseberry	Nelli	<i>Emblica officinalis</i>	Phyllanthaceae
30.	Henna	Marudaani	<i>Lawsonia inermis</i>	Lythraceae
31.	Black Siris	Karuvagai	<i>Albizia odoratissima</i>	Mimosaceae
32.	Madras thorn	Kudukapuli	<i>Pithecellobium dulce</i>	Fabaceae
33.	Malayan Cherry	Ten Pazham	<i>Muntingia calabura</i>	Muntingiaceae
34.	Pomegranate	Mathulai	<i>Punica granatum</i>	Lythraceae
35.	Jamun Fruit Plant	Naval maram	<i>Syzygium cumini</i>	Myrtaceae
36.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	Moraceae
37.	Chinese chaste tree	Nochi	<i>Vitex negundo</i>	Verbenaceae

38.	Ceylon satinwood	Porasu	<i>Chloroxylon swietenia</i>	Rutaceae
39.	Indian Jujube	Ilanthai	<i>Ziziphus jujuba</i>	Rhamnaceae
40.	Millettia pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae
41.	Coconut	Thennai maram	<i>Cocos nucifera</i>	Arecaceae
42.	Guava	Koyya	<i>Psidium guajava</i>	Myrtaceae
43.	Notched Leaf Soapnut	Poovankottai	<i>Sapindus emarginata</i>	Sapindaceae
44.	Pala indigo	Pala maram	<i>Wrightia tinctoria</i>	Apocynaceae
45.	River tamarind	Savundal maram	<i>leucaena leucocephala</i>	Fabaceae
46.	Portia tree	Poovarasam	<i>Thespesia populnea</i>	Malvaceae
47.	Drumstick tree	Murunga maram	<i>Moringa oleifera</i>	Moringaceae
48.	Sacred Tree	Porasu	<i>Butea monosperma</i>	Fabaceae
49.	Papaya	Pappali maram	<i>Carica papaya L</i>	Caricaceae
50.	Jackfruit	Palamaram	<i>Artocarpus heterophyllus</i>	Moraceae
Shrubs				
1.	Tanner's cassia	Avaram	<i>Senna auriculata</i>	Fabaceae
2.	Castor oil plant	Amanakku	<i>Ricinus communis</i>	Euphorbiaceae
3.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
4.	Indian Oleander	Arali	<i>Nerium indicum</i>	Apocynaceae
5.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
6.	Night shade plan	Sundaika	<i>Solanum torvum</i>	Solanaceae

7.	-	Odankodi	<i>Hippocratea indica</i>	Odankodi
8.	Broom creeper	Kattukodi	<i>Cocculus hirsutus</i>	Menispermaceae
9.	<i>Solanum pubescens</i>	Malaisundai	<i>Solanum pubescens Willd</i>	Solanaceae
10.	Thorn apple	Oomathai	<i>Datura stramonium</i>	Solanaceae
11.	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae
12.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae
13.	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae
14.	Chinese chastetree	Nalla nochi	<i>Vitex negundo L</i>	Verbinaceae
15.	Jackal jujube	Suraimullu	<i>Ziziphus oenoplia</i>	Rhamnaceae
16.	Malabar catmint	Pei veratti	<i>Anisomeles malabarica</i>	Lamiaceae
17.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae
18.	Bush Morning Glory	Neiveli Kattamani	<i>Ipomoea carnea</i>	Convolvulaceae
19.	Carray Cheddle	Kaarai	<i>Canthiumparviflorum</i>	Rubiaceae
20.	Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
21.	Flame of the Woods	Idlipoo	<i>Xoracoc cinea</i>	Rubiaceae
22.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
Herbs				
1.	Eggplant	Kathrikkai	<i>Solanum melongena</i>	Solanaceae
2.	Aloe barbadensis	Katrazhai	<i>Aloe vera</i>	Asphodelaceae
3.	Bara Gokhru	Yanainerunjil	<i>Pedaliium murex</i>	Pedaliaceae

4.	Commelina benghalensis	Kanavazha	<i>Commelina benghalensis</i>	Commelinaceae
5.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
6.	-	Impoora chakkalathi	<i>Oldenlandia dichotoma</i>	Rubiaceae
7.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae
8.	Chilli	Milakai	<i>Capsicum annuum</i>	Solanaceae
9.	Indian Copperleaf	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae
10.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae
11.	Tomato	Thakkali	<i>Solanum lycopersicum</i>	Solanaceae
12.	White dammar	Mookutipoondu	<i>Vicoa indica</i>	Asteraceae
13.	Cleome viscosa	Nai kadugu	<i>Celome viscosa</i>	Capparidaceae
14.	Bindii	Nerunji mullu	<i>Tribulus terrestris</i>	Zygophyllaceae
15.	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae
16.	Field beans	Avarai	<i>Hyacinth Beans</i>	Fabaceae
17.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
18.	Spiny amaranth	Mullu keerai	<i>Amaranthus spinosus</i>	Amaranthaceae
19.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
20.	Ban Tulsi	Melakai poondu	<i>Croton bonplandianus</i>	Euphorbiaceae
21.	Europeanblack nightshade	Manathakkali	<i>Solanumnigrum</i>	Solanaceae
22.	Ladies' fingers	Vendakkai	<i>Abelmoschus esculentus</i>	Malvaceae
23.	Majjigeberru gida	Purpannai	<i>Aerva monsoniae</i>	Amaranthaceae

24.	Vigna mungo	Ulunthu	<i>Vigna mungo</i>	Fabaceae
25.	chicken weed	Sirupasalai	<i>Portulaca quadrifida L</i>	Portulacaceae
26.	Bright eyes	Nithiyakalyani	<i>Catharanthus roseus</i>	Apocynaceae
27.	Carrot grass	Parttiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
28.	Indian mint	Karpura valli	<i>Coleus amboinicus</i>	Lamiaceae
Climber				
1.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
2.	Rosary Pea	Gundumani	<i>Abrus precatorius</i>	Fabaceae
3.	Ivy gourd	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae
4.	Balloon plant	Mudakrttan	<i>Cardiospermum halicacabum</i>	Sapindaceae
5.	Bitter apple	Peikkumatti	<i>Citrullus colocynthis</i>	Cucurbitaceae
6.	Butterfly pea	Sangu poo	<i>Clitoria ternatea</i>	Fabaceae
7.	Betel	Vettilai	<i>Piper betle</i>	Piperaceae
8.	Pointed gourd	Kovakkai	<i>Trichosanthes dioica</i>	Cucurbitaceae
9.	Wild bitter	Pavarkai	<i>Momordica charantia</i>	Cucurbitaceae
10.	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	Cucurbitaceae
11.	White pumpkin	Poosanaikkaai	<i>Cucurbitaceae</i>	Cucurbitaceae
12.	Wild jasmine	Malli	<i>Jasminum augustifolium</i>	Oleaceae
Creeper				
1.	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae

2.	Cucumis maderaspatanus	Musumusukkai	<i>Mukia maderaspatana</i>	Cucurbitaceae
Grass				
1.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
2.	Windmill grass	Chevvarakupul	<i>Chloris barbata</i>	Amaranthaceae
3.	Great brome	Thodappam	<i>Bromus diandrus</i>	Poaceae
Cactus				
1.	Prickly pear	Nagathali	<i>Opuntia dillenii</i>	Cactaceae

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

(Sources: Species observation in the field study)

3.5.6 Economically important Flora of the study area

The major irrigated crops in the district are paddy, ragi, turmeric, sugarcane, banana, tomato, groundnut, cotton, coconut and flowers. The irrigated area under vegetables, fruit and flowers. Farmers have adopted to cultivation methods through judicious use of water with modern water management techniques and technology.

3.5.6.1. Major Crops in the District

Owing to the climate and soil conditions Krishnagiri District suits to diverse type of cultivation. There are about 26 type of crops grown in the District including medicinal plants. Important crops grown in the District are Paddy, Ragi, Cholam, Red gram, Black gram, Horse Gram, Mango, Coconut, Cabbage, Banana, Tomato, Califlower etc., and the major cash crops are groundnut, flowers and cotton. **Source: DDS – Krishnagiri, 2019**

3.5.7 Flora Composition in the Buffer Zone

Similar habitats may be found in the buffer area as well, although there is a wider variety of plants there than in the core zone area. The buffer zone has some forests located away from the proposed project site and there are 118 species in the buffer zone study area in total, based on records. The floral (118) varieties among them Trees 50, Herbs 28, Shrubs 22, Climbers 12, Grasses 3, Creepers 2, and Cactus 1 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Cucurbitaceous, Euphorbiaceae is the main dominating species in the study area mentioned in Table No.3.34 There are no impacts due to this mining activity. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. Apart from the proposed project area, there is agricultural land. Horticulture and agricultural land are untouched. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. A list of floral species has been prepared based on primary survey (site observations) and discussion with local people. The total number of different plant life forms under trees, shrubs, herbs, and climbers is shown in Table 3.35 and their % distribution is shown in Figure 3.27.

Table 3.35: Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	50
2	Shrubs	22
3	Herbs	28
4	Climber	12
5	Creepers	2
6	Grass	3
7	Cactus	1
Total No. of Species		118

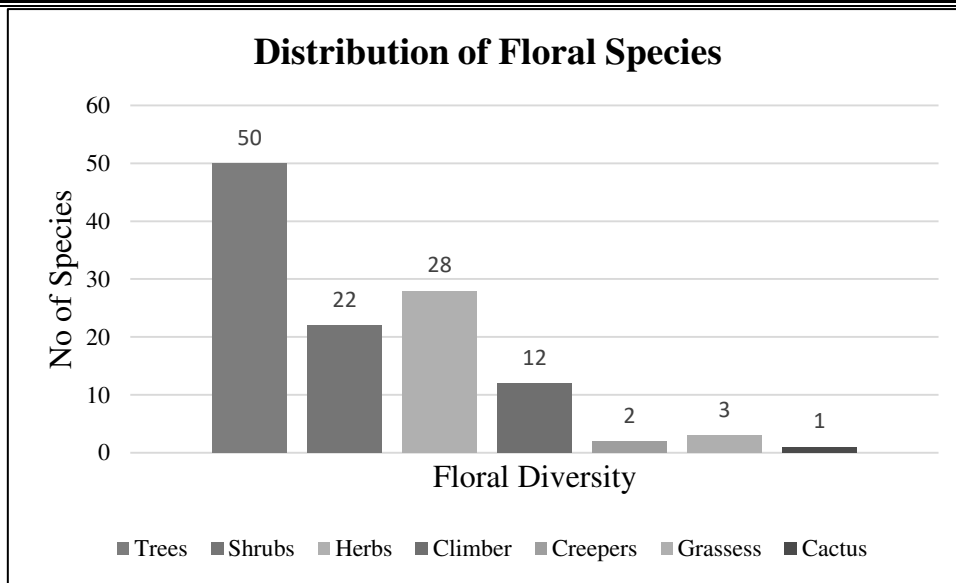


Fig No. 3.27: Diagram showing % distribution of floral life forms

Table No: 3.36 List of medicinal plants recorded from the nearby forest area

S.No	Botanical Name	Family	Local name(s)	Habit	Part(s) used	Uses
1.	Azadirachta indica A. Juss	Meliaceae	Vaambu	T	Bark, Leaves, Flower, Seeds and Oil	Antiviral, anthelmintic, insecticide, antiseptic, skin diseases, small pox and clean teeth.
2.	Abrus precatorius L.	Fabaceae	Kundumani	CL	Leaves, Seeds	Skin diseases, Eye disease and tooth ache.
3.	Acacia catechu (L.f.) Willd	Mimosaceae	Karungaali	T	Wood	Skin diseases, mouth ulcer, dysentery and Leprosy.
4.	Acacia nilotica (L.) Willd. ex Del. subsp. indica (Benth) Brenan	Mimosaceae	Karuvelam	T	Bark, heartwood, Leaves, Seeds and gum	Urino-genital diseases, wounds, haemorrhage, ulcers, cough and tooth ache.
5.	Acalypha indica L	Euphorbiaceae	Kuppaimeni	H	Whole plant	Eczema, skin diseases, cough and bronchitis, Wounds and ulcer
6.	Erythrina variegata	Papilionoide	Kalyana murungai	T	Whole plant	Laxative, diuretic, anthelmintic, galactagogue and emmenagogue, venereal buboes.
7.	Achyranthes aspera L	Amaranthaceae	Nayurivi	H	Whole plant	Diuretic, astringent, skin diseases and piles
8.	Albizia lebeck (L.) Willd	Mimosaceae	Vaagai	T	Seeds, Leaves, Bark, Flowers and Pod	Eczema, Ulcer, rheumatism, leprosy
9.	Aloe vera (L.) Burm.f.	Asphodelaceae	Chotthukathazhai	H	Leaf juice	Dysentery, leucorrhoea, amenorrhoea, menstrual problems, intestinal worms and skin tonics
10.	Cissus quadrangularis L.	Vitaceae	Pirandai	CL	Stem	Rheumatoid arthritis, appetizer, bone fracture and nervine tonic.
11.	Calotropis gigantea (L.) R.Br	Asclepiadaceae	Erukku	S	Whole plant	Anthelmintic, skin diseases, leprosy, snake bite, ulcers, piles, cough and asthma
12.	Abutilon indicum (L.) Swee	Malvaceae	Thuthi	S	Seed, Root, Barks and Leaves	Urinary troubles, Nervous disorders, Leprosy and Leucorrhoea

13.	Ormocarpum cochinchinense (Lour.) Merr.	Fabaceae	Elumbotti	S	Bark	Fever, rheumatism and bone setting.
14.	Phyllanthus urinaria L	Euphorbiaceae	Malai Kizhanelli	H	Whole plant	Jaundice, gonorrhoea, urinary diseases, indigestion, bleeding piles and menstrual problems.

H-Herb; S-Shrub; CL- Climber; T-Tree

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

There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar sites, Tiger/Elephant Reserves/(existing as well as proposed) within 10 km of the mine lease area. There are a few reserve forests located in the study areas, Sanamavu R.F has located about 200 m on the Northeast side. There are no protected forests within the project area. Hence submission of clearance from the National Board of Wildlife does not arise. No Wildlife Sanctuary in the study area. In addition, No Biosphere Reserves, Wildlife corridors, or, Tiger / Elephant reserves within 10 km of the project area. No protected (PF) forests either in the mine lease area or in the buffer zone. Thus, no forest land is involved in any manner.

There are no protected or ecologically sensitive areas such as National parks or Important Bird Areas (IBAs), or Wetlands or migratory routes of fauna or water bodies or human settlements within the proposed mine lease area. There are no Biosphere reserves or wildlife sanctuaries or National parks or Important Bird Areas (IBAs), or migratory routes of fauna. Thus, the area under study (Mine lease area and the 10 Km buffer zone) is not ecologically sensitive.

Thus, no forest land is involved in any manner. There are no impacts due to this mining activity. There are neither forests nor forest dwellers nor forest-dependent communities in the mine lease area. There shall be no forest-impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project.

3.5.9 Fauna

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

3.5.10. Fauna Composition in the Core Zone

A total of 24 varieties of species were observed in the Core zone of Thorapalli Agraharam Village, Rough stone quarry (Table No.3.37) among them numbers Insects 5, Reptiles 4, Mammals 2, and Avian 11. A total of 22 species have been recorded from the core mining lease area. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and 12 species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 11 species of bird were sighted in the mining lease area. There are no critically endangered, endangered, vulnerable, and endemic species were observed. Details of fauna in the core zone with the scientific name were mentioned in Table No. 3.37

Table No: 3.37 Fauna in the Core zone of Thorapalli Agraharam Village, Rough stone quarry, Krishnagiri District, Tamil Nadu

SI. No	Common name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
Insects					
1.	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC

2.	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	Schedule IV	LC
3.	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
4.	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	NL	NL
5.	Termite	Blattodea	<i>Hamitermes silvestri</i>	NE	LC
Reptiles					
1.	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
2.	Common skink	Scincidae	<i>Mabuya carinatus</i>	NL	LC
3.	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)	LC
4.	Green vine snake	Colubridae	<i>Ahaetulla nasuta</i>	Schedule IV	NL
Mammals					
1.	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	NL
2.	Common rat	Muridae	<i>Rattus rattus</i>	Schedule IV	LC
Aves					
1.	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
2.	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
3.	Sunbird	Nectariniidae	<i>Cinnyris asiaticus</i>	Schedule IV	LC
4.	Shikra	Laniidae	<i>Laniusexcubitor</i>	Schedule IV	LC
5.	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC
6.	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
7.	Koel	Cuculidae	<i>Eudynamis</i>	Schedule IV	LC
8.	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NE	LC
9.	Rock pigeon	Columba livi	<i>Columbidae</i>	Schedule IV	LC
10.	Indian Robin	Turdinae	<i>Saxicoloides fulicata</i>	Schedule IV	LC
11.	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	NL	LC

*NL- Not listed, LC- Least Concern

3.5.11. Fauna Composition in the Buffer Zone

Taxonomically a total of 64 species have been recorded from the buffer zone area. Based on habitat classification the majority of species were Birds 25 and the list of bird species recorded during the field survey and literature from the study area is given in Table 3.6, followed by Insects 21, Reptiles 9, Mammals 5 (*directly sighted animals & Secondary data), and amphibians 4. There are six Schedule II species and 41 species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 25 species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed. There are no impacts on nearby fauna species. It is apparent from the list that none of the species either spotted or reported is included in Schedule I of the Wildlife Protection Act. Similarly, none of them comes under the REET category. Dominant species are mostly birds and insects, and four amphibian was observed during the extensive field visit is mentioned in table 3.38 The result of core & Buffer zone of fauna studies shows that

Nymphalidae, Colubridae, and Scincidae are the main dominating species in the study area; it is mentioned in Table No.3.38 There is no schedule I Species in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

Table No: 3.38 Faunal Diversity in Buffer Zone of Thorapalli agraharam Village, Rough stone quarry, Krishnagiri District, Tamil Nadu

Sl. No	Common Name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
1.	Plain Tiger	Nymphalidae	<i>Danaus chrysippus</i>	Schedule IV	LC
2.	Grey pansy	Nymphalidae	<i>Junonia atlites</i>	Schedule IV	LC
3.	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	Schedule IV	LC
4.	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
5.	Common Pierrot	Lycaenidae	<i>Castalius rosimon</i>	NL	LC
6.	Common Leopard	Nymphalidae	<i>Phalanta phalantha</i>	Schedule IV	LC
7.	Common grass yellow	Pieridae	<i>Eurema hecabe</i>	Schedule IV	LC
8.	Milkweed butterfly	Nymphalidae	<i>Danainae</i>	NL	LC
9.	Termite	Blattodea	<i>Hamitermes silvestri</i>	NE	LC
10.	Lemon pansy	Nymphalidae	<i>Junonia lemonias</i>	Schedule IV	LC
11.	Common emigrant	Pieridae	<i>Catopsilia pomona</i>	Schedule IV	LC
12.	Chocolate pansy	Nymphalidae	<i>Junonia iphita</i>	NL	LC
13.	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
14.	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NL	LC
15.	Ant	Formicidae	<i>Camponotus Vicinus</i>	NL	NL
16.	Tawny coster	Nymphalidae	<i>Danaus chrysippus</i>	Schedule IV	LC
17.	Dragonfly	Gomphidae	<i>Ceratogomphus pictus</i>	Schedule IV	LC
18.	Common Indian crow	Nymphalidae	<i>Euploea core</i>	Schedule IV	LC

19.	Grass yellow	Pieridae	<i>Eurema hecabe</i>	NL	LC
20.	Lesser grass blue	Lycaenidae	<i>Zizina Otis indica</i>	Schedule IV	LC
21.	Indian honey bee	Apidae	<i>Apis cerana</i>	Schedule IV	LC
Reptiles					
2	Fan-Throated Lizard	Agamidae	<i>Sitanaponticeriana</i>	NL	LC
3	Indian cobra	Elapid snakes	<i>Naja naja</i>	Sch II (Part II)	LC
4	Green vine snake	Colubridae	<i>Ahaetulla nasuta</i>	Schedule IV	NL
	Chameleon	Chamaelenidae	<i>Chameleon zeylanicus</i>	Sch II (Part II)	LC
5	Rat snake	Colubridae	<i>Ptyas mucosa</i>	Sch II (Part II)	LC
6	Common krait	Elapid snakes	<i>Bungarus caeruleus</i>	Schedule IV	NL
	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
7	Indian wall lizard	Gekkonidae	<i>Hemidactylus flaviviridis</i>	Schedule IV	NL
9	Russell's viper	Viperidae	<i>Vipera russeli</i>	Sch II (Part II)	LC
Mammals					
1	Indian palm squirrel	Sciuridae	<i>Funambulus palmarum</i>	Schedule IV	LC
2	Asian Small Mongoose	Herpestidae	<i>Herpestes javanicus</i>	Schedule (Part II)	LC
3	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	LC
4	Brown rat	Muridae	<i>Rattus norwegicus</i>	Schedule IV	LC
5	Indian hare	Leporidae	<i>Lepus nigricollis</i>	Schedule (Part II)	LC
Aves					
1.	Koel	Cucalidae	<i>Eudynamys</i>	Schedule IV	LC

2.	Black-headed Munia	Estrildidae	<i>Lonchuramalacca</i>	Schedule IV	LC
3.	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NL	LC
4.	Indian Roller	Coraciidae	<i>Coracias benghalensis</i>	Schedule IV	LC
5.	Rock pigeon	Columba livi	<i>Columbidae</i>	Schedule IV	LC
6.	Indian Robin	Turdinae	<i>Saxicoloides fulicata</i>	Schedule IV	LC
7.	Pond-Heron	Ardeidae	<i>Ardeo labacchus</i>	Schedule IV	LC
8.	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
9.	House crow	Corvidae	<i>Corvussplendens</i>	NL	LC
10.	Cattle Egret	Ardeidae	<i>Bubulcus ibis</i>	-	-
11.	Sunbird	Nectariniidae	<i>Nectariniidae</i>	NL	LC
12.	Indian blue robin	Larvivorabrunnea	<i>Muscicapidae</i>	Schedule IV	LC
13.	Asian green bee-eater	Meropidae	<i>Meropsorientalis</i>	NL	LC
14.	Hoopoe	Upupidae	<i>Upupaepops</i>	Schedule IV	LC
15.	Small blue Kingfisher	Alcedinidae	<i>Alcedo atthis</i>	Schedule IV	LC
16.	Rose-ringed parkeet	Psittaculidae	<i>Psittacula krameri</i>	NL	LC
17.	White Breasted king fisher	Alcedinidae	<i>Halcyon smyrnensis</i>	Schedule IV	LC
18.	Red-vented Bulbul	Pycnonotidae	<i>Pycnonotus cafer</i>	Schedule IV	LC
19.	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
20.	Cuckoo	Cuculidae	<i>Cuculuscanorus</i>	Schedule IV	LC
21.	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC

22.	Woodpecker bird	Picidae	<i>Picidae</i>	Schedule IV	LC
23.	Two-tailed Sparrow	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
24.	Grey Francolin	Phasianidae	<i>Francolinus pondicerianus</i>	Schedule IV	LC
25.	House Sparrow	Passerinae	<i>Passer domesticus</i>	Schedule IV	LC
Amphibians					
1.	Indian Burrowing frog	Dicroglossidae	<i>Sphaerotheca breviceps</i>	Schedule IV	LC
2.	Indian Skipper Frog	Dicroglossidae	<i>Euphlyctis cyanophlyctis</i>	Schedule IV	LC
3.	Indian Pond Frog	Dicroglossidae	<i>Euphlyctis hexadactylus</i>	Schedule IV	LC
4.	Indian Toad	Dicroglossidae	<i>Bufo melanostictus</i>	Schedule IV	LC

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

3.5.12 Aquatic Vegetation

The study area has few seasonal small water bodies away from the proposed project Ponnaiyar River is located about 600m on the south side and followed by Tippalam lake -3.8km NW, Kamandoddi Lake-4.8km SE, Karapalli Lake-5.5km NW, Kelarvarpalli Dam-9km NW. But no major drainage system can be found within the study area. No Aquatic diversity is noticed in the core zone area. Aquatic weeds are found to be growing everywhere in 10 km radius area, in every water bog, pond, etc. Typha angustata can be found growing all along the drains of villages, small water-logged depressions, and agricultural fields lacking water but containing enough moisture to support its growth. And where water is present, Eichhornia crassipes has taken its roots and covers the entire water surface by its sprawl and invasion. All the aquatic plant species listed in Table 3.39.

Table No: 3.39. List of aquatic plants observed in the study area

S.No	Scientific Name	Common Name	Type
1.	<i>Typha angustifolia</i>	Lesser Bulrush	Emergent hydrophytes
2.	<i>Ipomea aquatica</i>	Water Morning Glory	Marshy amphibious hydrophytes
3.	<i>Hydrilla verticillata</i>	Hydrilla	Submerged hydrophytes
4.	<i>Pistia stratiotes</i>	Water lettuce	Free floating hydrophytes
5.	<i>Cyperus articulatus</i>	Jointed flatsedge	Emergent Hydrophytes
6.	<i>Eichhornia crassipes</i>	Common water hyacinth	Free floating hydrophytes

*LC- Least Concern, NA-Not yet assessed

3.5.13. Findings/Results

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

Records of threatened species in the area

No threatened species were observed

Endangered Species as per Wildlife (Protection) Act

No Endangered fauna was recorded in the project area.

Endemic Species of the Project areas

No endemic species were observed in the project area.

Migratory species of the Project areas

No migratory fauna observed in project area.

Migratory corridors and Flight paths

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

Breeding and spawning grounds

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

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

There are a few reserve forests located in the study areas such as Sanamavu R.F is located about 200 m on the Northeast side. There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar sites, Tiger/Elephant Reserves (existing as well as proposed) within 10 km of the mine lease area. There are no protected forests within the project area. Hence submission of clearance from the National Board of Wildlife does not arise.

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

3.5.14 Conclusion

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

3.6 SOCIO ECONOMIC ENVIRONMENT

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

3.6.1 Objectives of the Study

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

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

3.6.2 Scope of Work

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

3.6.3 Methodology

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

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

3.6.4 Sources of Information and Data Base

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

3.6.5 Primary Survey

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

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

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

3.6.6 Collection of Data from Secondary Sources

Data from secondary sources were collected on following aspects:

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

Table 3.40 Type of Information and Sources

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

b) Data Presentation and Analysis

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

3.7 Background Information of the Area

Tamil Nadu is the 11th largest states in India in terms of area. The state is the seventh most populous state in the country and its main language Tamil has origins that date back to 500 BC. Chennai is the capital of Tamil Nadu and lies on the eastern coast line of India. Tamil Nadu is famous for its

wonderful temples and monuments that have been built 1000s of years ago and has places that have been marked as heritage sites by the United Nations. In a 180-degree paradigm shift, this state with a rich historical importance is also one of the fastest developing centres for technology and trade.

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

3.8 Geography of the Area

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

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

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

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

3.9 Population Growth Rate

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

Year	Tamil Nadu	India
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1941	11.91	14.22
1951	14.66	13.31
1961	11.85	21.51
1971	22.30	24.80
1981	17.50	24.66
1991	15.39	23.86
2001	11.19	21.34
2011	15.61	5.96
2021	5.96	1.0

3.10 Krishnagiri District

Krishna' refers to 'black' and 'giri' refers to 'hill'. This district is gifted with black granite hillocks and named as "krishnagiri". The region came under the rule of Krishna Deva Raya and hence it might have been named after this king.

Krishnagiri district is bounded by Vellore and Thiruvannamalai districts in the East, Karnataka state in the west, State of Andhra Pradesh in the North Dharmapuri District in the south. Its area is **5143 Sq. Kms.** This district is elevated from 300m to 1400m above the mean sea level. Source: <https://krishnagiri.nic.in/about-district/district-at-a-glance/>

It is located between 11° 12'N to 12° 49'N Latitude, 77° 27'E to 78° 38'E Longitude.

3.11 Study Area

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

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

Table 3.41 Shows the socio-economic profile of the study area as compared to district, state and national level socio-economic profile

Particular	India	Tamil Nadu	Krishnagiri District	Study Area (10km Radius)
Area (in sq. km.)	3,287,263	130058	5143	334
Population Density/ sq. Km.	368	554	370	700
No. of Households	249454252	13357027	448053	55611
Population	1210569573	72147030	1879809	233837
Male	623121843	36137975	960232	119132
Female	587447730	36009055	919577	114705
Scheduled Tribes	104281034	794697	22388	2801
Scheduled Castes	201378086	14438445	267386	28038
Literacy Rate	73%	80%	72%	76%
Sex Ratio (Females per 1000 Males)	943	996	956	963

Source: Census of India, 2011

Table no 3.41 show demographic pattern of India, Tamil Nadu, Krishnagiri District & Study area (10km Radius). In India had total area of 3.2 sqkm, State of Tamil Nadu area was 130058 sqkm, District of Krishnagiri area was 5143 sqkm and study area is about 334 sqkm. Population density is total population per sqkm. So, India population density was 368 sqkm, state of Tamil Nadu density was 554 sqkm, District had density about 370 sqkm and study area density is about 700 sqkm. As per Census 2011, about 5.96percent of population in the state lives in areas. Krishnagiri had comparing state wise 2.61percent of population lives in the district. In study area has 12% around 10km radius. State, District and study area. In Tamil Nadu state SC categories people had about 19 %, district of Krishnagiri about 14.22 % it had decreasing to Study area about 12% increasing in the total population Similarly ST population is about 1.10%, 1.19 % and 1.20 % of the total population in the study area. State level Literacy rate is 80%, district level is 75% but study area has an increased about 76%. There is literacy rate is study area is an increase comparing district level decreased. Sex ratio female per thousand males about state level is 996, District level is 956 and study area is 963.

The study area has population density 700 persons per sq.km of total population about 233837 as per census 2011. There were about 51 percent male and 49% female population. Study area has literate rate is about 76%, District had about 72% of literate rate as per census 2011.

3.13 Population Projection of the Study Area

Krishnagiri Population 2022 – 2023

The last census of Krishnagiri was done in 2011 and next census of 2021 has been postponed or cancelled. But we can do projection of future Krishnagiri 2022 Population on the basis likely Population Growth Rate.

Year	Projected Population (Estimation)
2001	1561118
2011	1879809
2021	2198500
2025	2325976
2030	2485322

Source: <https://www.census2011.co.in>

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

A population projection gives a picture of what the future size and structure of the population by sex and age might look like. It is based on knowledge of the past trends, and, for the future, on assumptions made for three components: fertility, mortality and migration.

Table 3.42 Total Population of Study Area

Sl No.	Population in 2001	Population in 2011
1	178692	233837

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

Table 3.43 Population Projection of Study Area

S. No	Year	Projected Population (Approximately)
-------	------	---

1.	2021	288982
2.	2031	344127
3.	2041	399272
4.	2051	454417

Source: Calculated by SPSS V23 Linear Regression Method.

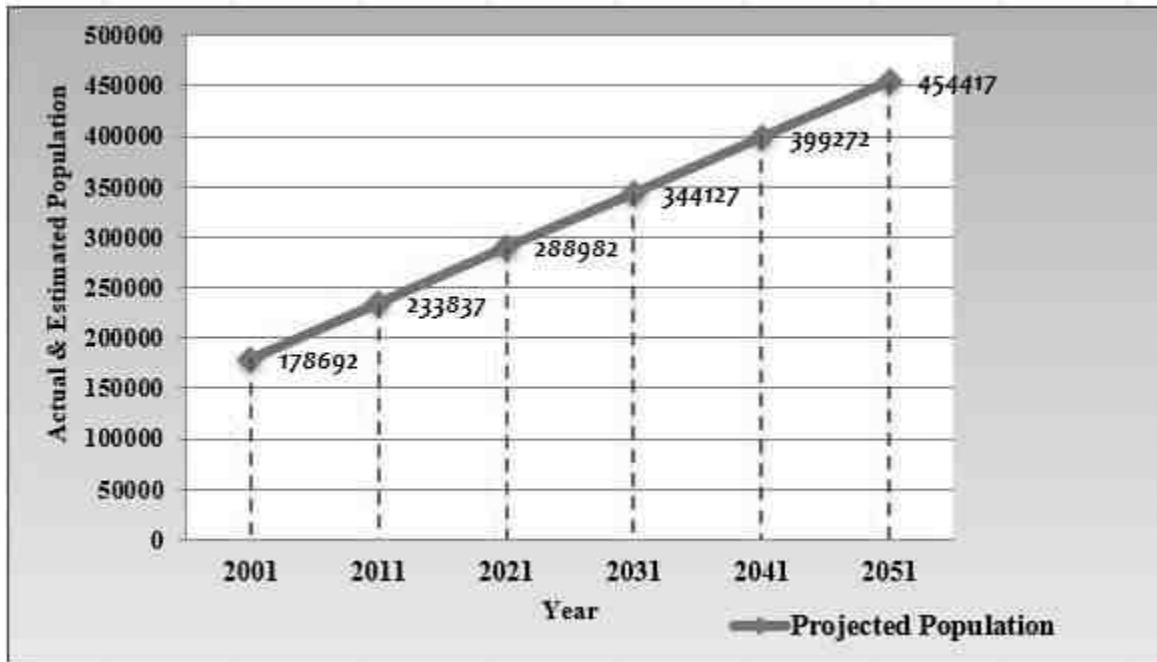


Fig 3.13.3 Graph Showing Population Projection

Following formula has been used for the projection of population.

$$Y=a+bt$$

Where: Y= Dependent variable (Population)

a=Intercept

b=Slope

t=Interdependent variables (Time)

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

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

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

3.14 Population Growth of the Study Area

Table 3.44 Population Growth rate in Study area

Year	Actual Population	Growth Rate %
2001	178692	
2011	233837	13.09
2021	288982	12.36
2031	344127	11.91
2041	399272	11.60
2051	454417	11.38

Source: Compiled by Author-2022

above table no 3.44 is showing the growth rate of population since 2001, as per census in 2001 the population of study area was 178692 and 2011 it was 233837, if the population growth rate is 13.09%, it will approximately gradually an increase about 288982 in year 2021 and 454417 in the year of 2051. It has approximately population growth rate decline will be 11.38%.

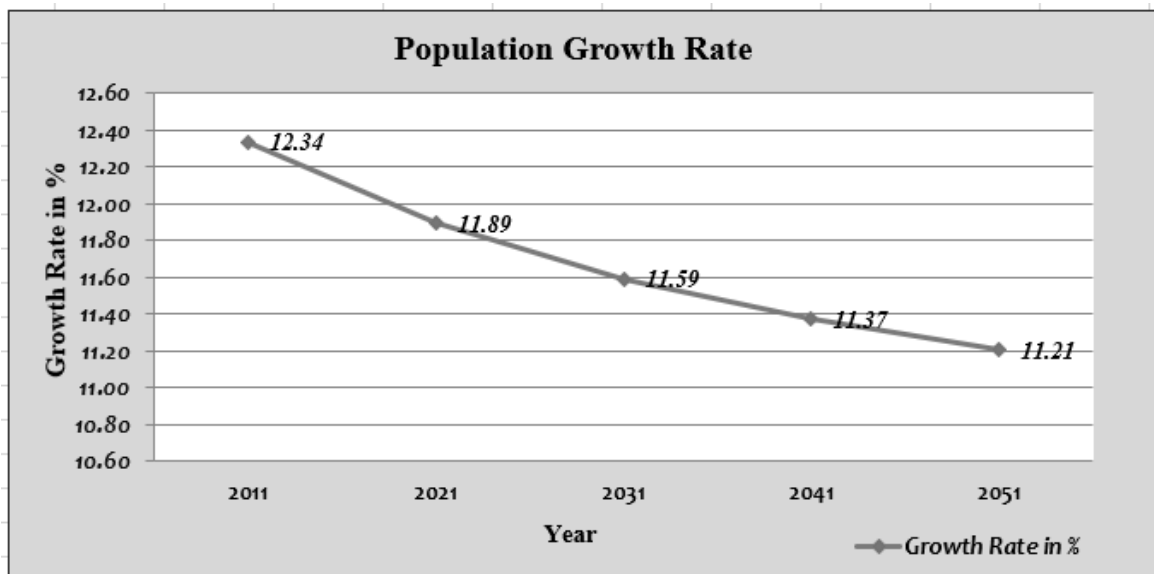


Fig.3.14.2 Graph Showing Population Growth Rate

Planning Analysis:

Calculating Growth Rates

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

Where:

PR=Percent Rate

V_{Present} =Present or Future Value

V_{Past} = Past or Present Value

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

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

3.15 Population Distribution and Composition of Study Area

The population as per 2011 Census records is 55611 (for 10 km radius buffer zone). Total no. of household is 4629, 10253 and 40729 respectively, in primary, secondary and tertiary zone. Sex ratio is 1011, 937 and 964 (females per 1000 males) observed in primary, secondary and tertiary zone respectively. SC population distribution is 2756, 6862 and 18420 respectively in primary, secondary and tertiary zone. ST population distribution is very less 222,379 and 2200 respectively in primary, secondary and tertiary. Average household size is 4. Zone wise Demographic profile of study area is given in the table 3.45 below:

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

Table 3.45 Zone wise Demographic Profile of Study Area

Zone	No. of Villages	Total Household	Total Population	Male Population	%	Female Population	%
Primary Zone (0 - 3 Km)	4	4629	20920	10404	49.73	10516	50.27
Secondary Zone (3 - 7 Km)	17	10253	44663	23063	51.64	21600	48.36
Tertiary Zone (7 - 10 km)	21	40729	168254	85665	50.91	82589	49.09
Study Area (0-10 km)	42	55611	233837	119132	50.95	114705	49.05

Source: *Census of India, 2011*

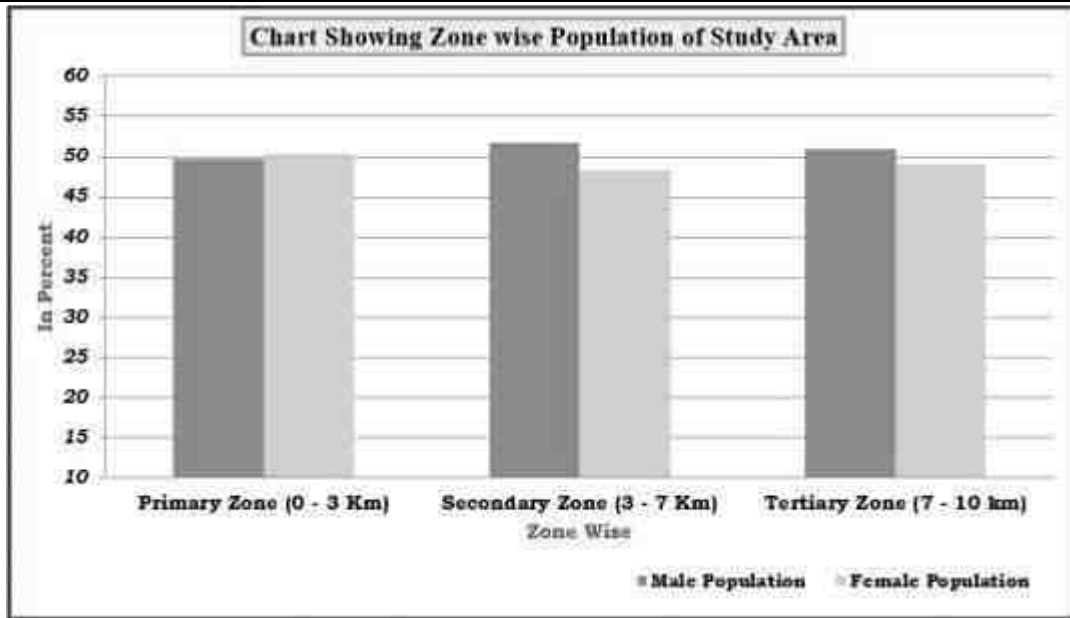


Figure 3.15.2 Population of study area

- ✓ Above table identifies the presence of villages and their subsequent population divided under three zones from plant boundary (i.e., Primary, secondary and tertiary zone).
- ✓ Primary zone has 4 villages where as much as 4629 households with 20920 population are located. Mostly lying on Built-up land for their livelihood and substance.
- ✓ Secondary and tertiary zone both comprise of 17 and 21 villages having a total population of 44663 and 168254 respectively.

Table 3.46 Village wise Demographic Profile of the Study Area (Core and Buffer Zone)

Sno	Name	No of Households	Total population	Total Male	Total Female	Population below 6	Male below 6	Female below 6	SC population	SC Male	SC Female	ST population	ST Male	ST Female	Literate population	Male Literate	Female Literate	Total workers	Main workers	Marginal workers	Nonworkers
0-3km																					
1	Alur	83	404	205	199	31	15	16	258	132	126	0	0	0	305	152	153	373	22	351	31
2	Thorapalli Agraharam	2177	9849	4669	5180	1328	694	634	1178	581	597	10	3	7	6149	3014	3135	3855	3157	698	5994
3	Kamandoddi	1450	6524	3394	3130	797	415	382	878	460	418	130	76	54	3601	2093	1508	3003	2221	782	3521
4	Thiyarandurgam	919	4143	2136	2007	463	223	240	442	232	210	82	40	42	2245	1337	908	2137	1692	445	2006
Total		4629	20920	10404	10516	2619	1347	1272	2756	1405	1351	222	119	103	12300	6596	5704	9368	7092	2276	11552
3-7km																					
1	Bukkasagaram	460	2126	1109	1017	259	128	131	319	165	154	0	0	0	1213	742	471	364	278	86	1762
2	Peddakullu	109	521	265	256	56	28	28	120	66	54	0	0	0	264	141	123	252	241	11	269
3	Karibasanapuram	1	4	2	2	0	0	0	0	0	0	0	0	0	3	1	2	1	1	0	3
4	Chinnakullu	71	331	165	166	38	20	18	69	30	39	0	0	0	207	109	98	195	188	7	136
5	Punugandoddi	187	834	430	404	100	54	46	226	113	113	0	0	0	482	267	215	435	430	5	399
6	Moranapalli	2174	9160	4855	4305	1301	668	633	1503	767	736	13	4	9	5842	3403	2439	4081	3811	270	5079
7	Addakurukki	581	2504	1288	1216	366	191	175	425	226	199	8	4	4	1298	758	540	1023	682	341	1481
8	Marandapalli	963	4663	2355	2308	579	303	276	122	58	64	0	0	0	2363	1355	1008	2427	1688	739	2236
9	Basthalapalli	221	969	485	484	118	66	52	17	10	7	0	0	0	491	301	190	531	528	3	438
10	Subbagiri	158	656	333	323	81	46	35	0	0	0	0	0	0	360	194	166	208	208	0	448
11	Sanamavu	925	4248	2182	2066	513	270	243	659	322	337	183	100	83	2549	1487	1062	1913	1661	252	2335
12	Halekotta	707	2990	1535	1455	301	148	153	209	103	106	83	46	37	1831	1071	760	1263	1098	165	1727
13	Agaram Agraharam	288	1219	620	599	126	68	58	131	71	60	23	9	14	687	389	298	741	692	49	478
14	Thuppuganapalli	989	4281	2192	2089	501	248	253	1201	616	585	0	0	0	2328	1340	988	2395	2322	73	1886
15	Gollapalli	121	534	291	243	58	30	28	0	0	0	0	0	0	241	158	83	308	308	0	226
16	Bairamangalam	1207	4932	2569	2363	520	258	262	1213	638	575	11	5	6	3376	1940	1436	2330	1723	607	2602
17	Uddanapalli	1091	4691	2387	2304	555	308	247	648	326	322	58	28	30	2779	1563	1216	2306	1820	486	2385
Total		10253	44663	23063	21600	5472	2834	2638	6862	3511	3351	379	196	183	26314	15219	11095	20773	17679	3094	23890
7-10km																					
1	Meenandoddi	83	358	180	178	48	23	25	62	28	34	0	0	0	176	94	82	200	200	0	158
2	Athimugam	937	4540	2339	2201	572	272	300	334	163	171	17	9	8	2297	1317	980	1936	1525	411	2604
3	Venkatesapuram	650	2873	1484	1389	325	172	153	583	290	293	0	0	0	1655	960	695	1211	965	246	1662
4	Advanapalli	58	239	123	116	34	16	18	1	0	1	0	0	0	125	75	50	68	48	20	171
5	Alnatham	71	327	170	157	28	12	16	77	41	36	0	0	0	176	118	58	91	69	22	236
6	Sudugondapalli	87	447	229	218	50	30	20	95	49	46	0	0	0	217	128	89	329	211	118	118
7	Palavanapalli	258	1096	540	556	114	58	56	370	183	187	0	0	0	637	349	288	480	478	2	616
8	Muthalli	108	444	223	221	46	23	23	130	64	66	0	0	0	222	132	90	156	155	1	288
9	Dhasapalli	152	894	443	451	127	64	63	1	0	1	0	0	0	363	202	161	521	519	2	373
10	A.Settipalli	605	2764	1428	1336	331	178	153	509	264	245	11	8	3	1595	960	635	1577	1415	162	1187
11	Kelavarapalli	117	529	274	255	42	15	27	49	27	22	0	0	0	312	174	138	334	329	5	195
12	Kothagondapalli	1087	4706	2346	2360	552	277	275	1795	881	914	11	7	4	2953	1614	1339	1977	1887	90	2729
13	Nallaganakothapalli	968	3933	2028	1905	524	247	277	419	207	212	26	15	11	2309	1378	931	1659	1383	276	2274
14	Ayaranapalli	1171	4986	2578	2408	558	277	281	768	392	376	702	362	340	2923	1734	1189	2628	2422	206	2358
15	Hosur (M)	29255	116821	59351	57470	14307	7274	7033	9438	4816	4622	200	99	101	89593	47353	42240	43959	39730	4229	72862
16	Nagamangalam	1115	4948	2502	2446	577	298	279	650	322	328	57	25	32	2675	1559	1116	2617	2326	291	2331
17	Udedurgam	763	3441	1780	1661	412	225	187	818	429	389	206	113	93	1792	1041	751	2079	1844	235	1362
18	Pachapanatti	863	3895	1959	1936	446	232	214	380	186	194	231	117	114	2098	1183	915	1772	935	837	2123
19	Hanumanthapuram	1125	5241	2712	2529	705	366	339	652	328	324	739	373	366	2667	1578	1089	2983	2694	289	2258
20	Jagirkarupalli	393	1905	1004	901	231	119	112	132	66	66	0	0	0	1046	630	416	1058	883	175	847
21	Kundumarapalli	863	3867	1972	1895	436	199	237	1157	594	563	0	0	0	2243	1342	901	1784	1562	222	2083
Total		40729	168254	85665	82589	20465	10377	10088	18420	9330	9090	2200	1128	1072	118074	63921	54153	69419	61580	7839	98835
G.Total		55611	233837	119132	114705	28556	14558	13998	28038	14246	13792	2801	1443	1358	156688	85736	70952	99560	86351	13209	134277

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

3.16 Gender and Sex Ratio

Sex ratio is used to describe the number of females per 1000 of males. Sex ratio is a valuable source for finding the population of women in India and what is the ratio of women to that of men in India. In the Population Census of 2011, it was revealed that the population ratio in India 2011 is 940 females per 1000 of males. The study area has 963 females per 1000 males. Gender and sex ratio determine the Human Development Index (HDI) of an area thereby understanding the status of women in that region. Following table entails information about sex ratio of 42 villages lying in study area (buffer zone) as primary, secondary and tertiary zone.

Table 3.47 Sex ratio of the study area

S. No.	Buffer Zone	Sex Ratio of Study area Female/ 1000 Male
1	Primary Zone (0-3 km)	1011
2	Secondary zone (3-7 km)	937
3	Tertiary Zone (7-10 km)	964

Source: Census of India, 2011

Figure 3.16.2 Sex Ratio within 10 Km study area

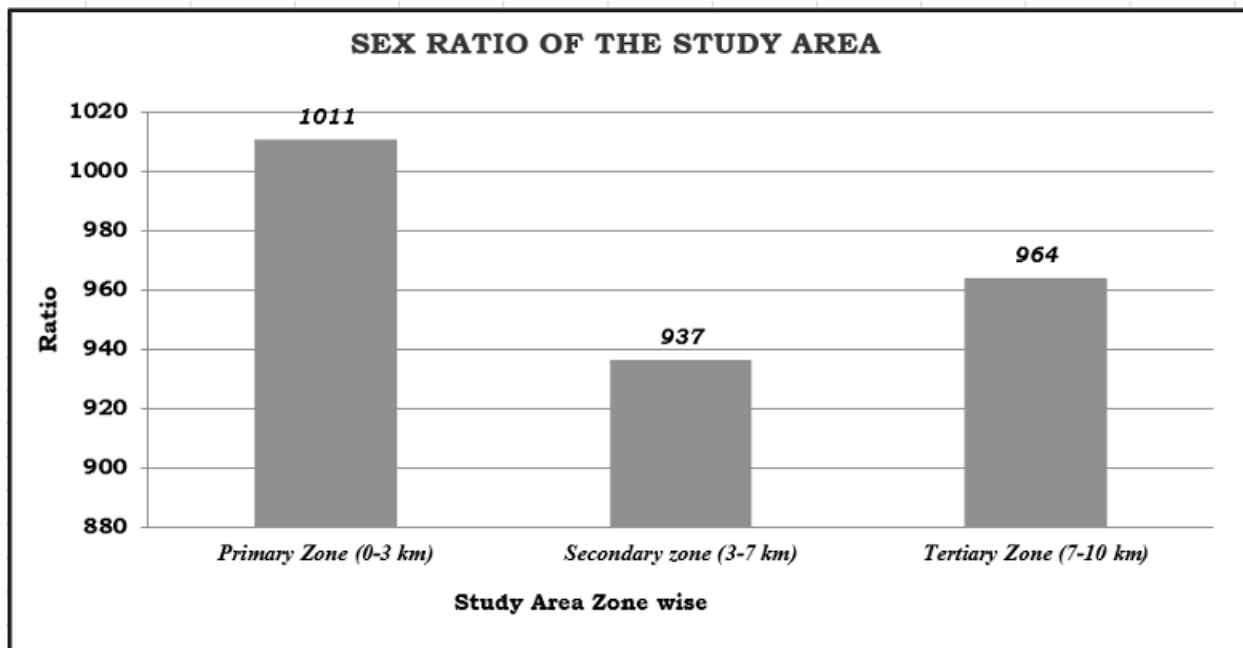
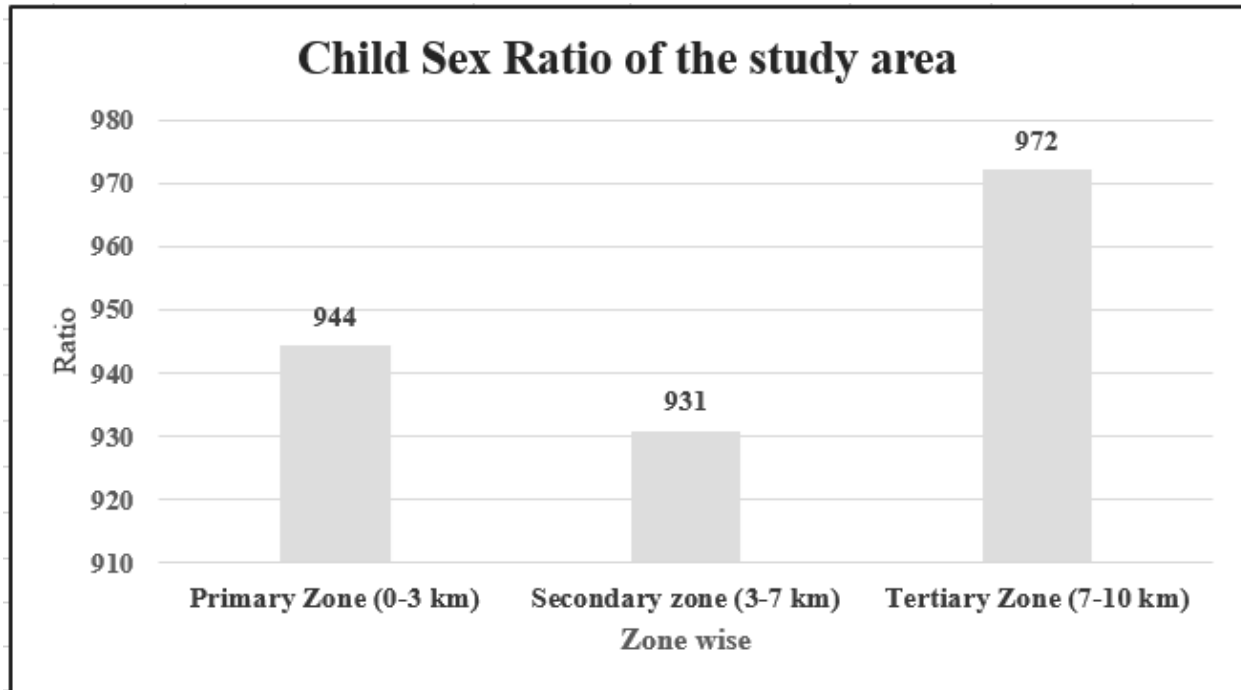


Table 3.47-b Child Sex ratio of the study area

S. No.	Buffer Zone	Sex Ratio of Study area Female/ 1000 Male
1	Primary Zone (0-3 km)	944
2	Secondary zone (3-7 km)	931
3	Tertiary Zone (7-10 km)	972

**Figure 3.16.2-b Child Sex Ratio within 10 Km study area**

3.17 Literacy Rate in Study Area

Literacy Rate is the percentage of people in a country with the ability to read and write. The analysis of the literacy levels is done in the study area. The 10 km radius of study area demonstrates a literacy rate of 76% as per census data 2011. The male literacy rate in the study area indicates 82% whereas the female literacy rate, which is an important indicator for social change, is observed to be 70% as per the census data 2011. This needs to focus on the study area and enhance further development focusing on education. (Table no 3.17.1).

Table 3.48 Literacy Rate of the Study Area

Zone	No. of Villages	Male Literacy Population	Male literacy Rate	Female Literacy Population	Female literacy Rate	Total Literacy	Total Literacy Rate
Primary Zone (0 - 3 Km)	4	6596	72.83	5704	61.70	12300	67.21
Secondary Zone (3 - 7 Km)	17	15219	75.23	11095	58.51	26314	67.14
Tertiary Zone (7 - 10 Km)	21	63921	84.90	54153	74.69	118074	79.89
Study Area (0-10km)	42	85736	81.99	70952	70.45	156688	76.33

Source: Census of India, 2011

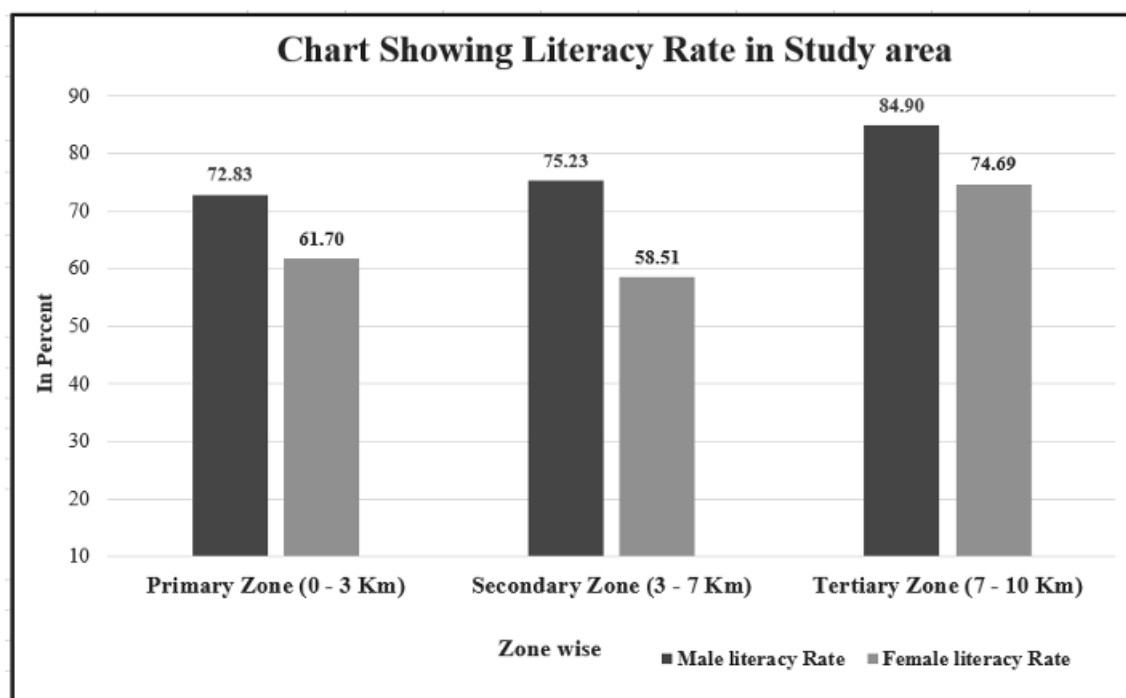


Figure 3.17.2 Gender wise Literacy Rate in the study area

3.18 Family Size

Size of family also describes about family functioning, resource consumption, total income generated and their expenditure pattern. Census 2011 data suggests that most of these households have a family size of up to 4 members, knowing the size of family also give fair understanding of relating how much resource consumption is being incurred, and annual income being generated and spent.

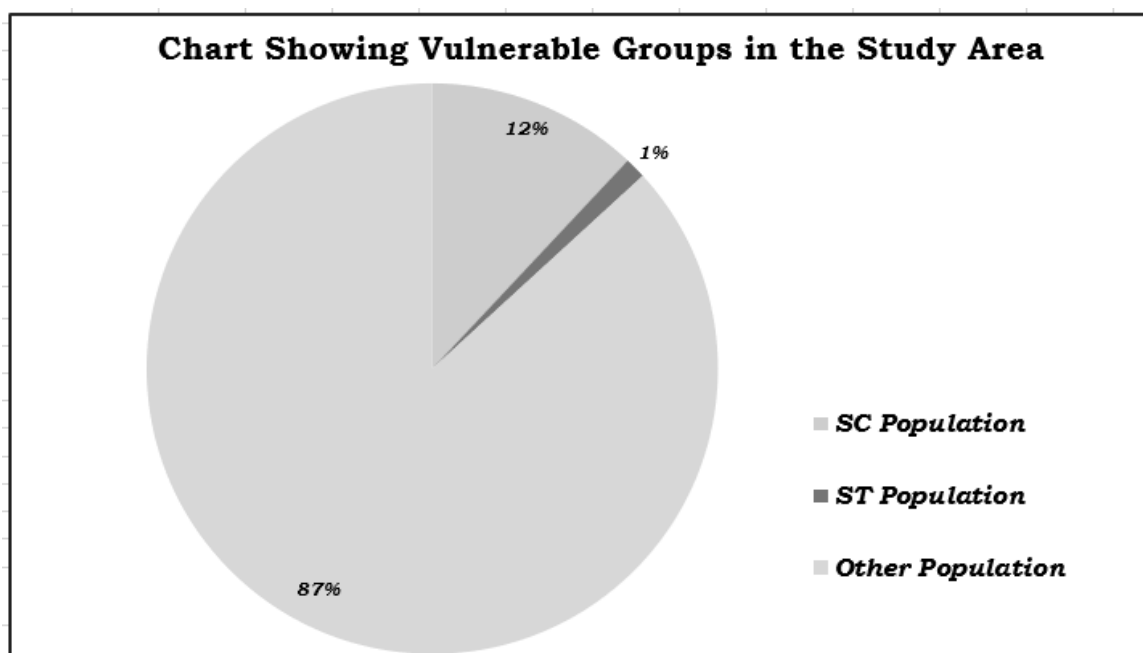
3.19 Vulnerable Group

While developing an action plan, it is very important to identify the population who fall under the marginalized and vulnerable groups and special attention has to be given towards these groups while making action plans. Special provisions should be made for them. In the observed villages schedule caste (SC) population is 12% and Schedule Tribe population 1.20 %, Other Population is 87% in total study area.

Table 3.49 vulnerable groups of the study area

Zone	No. of Villages	Vulnerable Groups					
		SC Population	%	ST Population	%	Other Population	%
Primary Zone (0 - 3 Km)	4	2756	13.17	222	1.06	17942	85.76
Secondary Zone (3 - 7 Km)	17	6862	15.36	379	0.85	37422	83.79
Tertiary Zone (7 - 10 Km)	21	18420	10.95	2200	1.31	147634	87.74
Total area (10km)	42	28038	11.99	2801	1.20	202998	86.81

Source: Census of India, 2011

**Figure 3.19.2 vulnerable groups**

3.20 Economic Activities

The economy of an area is defined by the occupational pattern and income level of the people in the area. The occupational structure of residents in the study area is studied with reference to work category. The population is divided occupation wise into three categories, viz., Total workers, Main workers and non-workers. The main workers include cultivators, agricultural laborers, those engaged in household industry and other services. The non-workers include those engaged in unpaid household duties like, students, retired persons, dependents, beggars, vagrants etc. besides Institutional intimates or all other non-workers who do not fall under the above categories.

Table 3.50 shows the work force of the study area

Zone	No. of Villages	Total Workers	%	Main Workers	%	Marginal Workers	%	Non-Workers	%
Primary Zone (0 - 3 Km)	4	9368	44.78	7092	33.90	2276	10.88	11552	55.22
Secondary Zone (3 - 7 Km)	17	20773	46.51	17679	39.58	3094	6.93	23890	53.49
Tertiary Zone (7 - 10 Km)	21	69419	41.26	61580	36.60	7839	4.66	98835	58.74
Study Area (10 Km)	42	99560	42.58	86351	36.93	13209	5.65	134277	57.42

Source: Census of India, 2011

The above table shows that out of the total working population, the percentage of main workers is 37% while 6% are marginal workers. Number of working populations is 43% and non-working population is 57% in the study area. As per the data obtained from the survey (as mentioned previously in occupational structure) most of these people are employed for major period of the year. Also, to mention the natural environment also restricts the people in finding stable business is performed for only certain months. Thus, proposed project will act as possible exposure for them to get enrol and earn sustain livelihood.



Figure 3.20.2. Working population in the study area

3.21 Infrastructure Base

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

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

- **Administrative offices** are located in Tamil Nadu, Krishnagiri District (32km-E) from site which by local transport.
- **Kelevarapalli Reservoir** North western side 9km-NW from mine lease boundary this dam requires people around the village and Kelavarapalli Village 7.5km-NW, Peddakullu Village – 6.5km-NW side, **Ponnaiyar River** 640m-SW, some Bathlapalli Lake –(5km -W), Kumudapalli lake (3.0km-NW), Kamandoddi Lake-4.8km SE, Karapalli Lake-5.5km NW, Gollapalli Village, Pennamadam Village people require water and Tippalam Lake-4km-W, from mine lease boundary, require people in the study area.
- **Availability of PUM** Government Elementary school, Kothapalli Village Government Boys Higher secondary school, Kelamangalam Town Panchayat Government High school, Uddanapalli Village Government High school, Sanamavu Village, many Pre-primary school, Elementary school, Engineering college, Medical and Training institute found in study area taluk and district level.
- **Health facilities** covered in the area GPHC Hosur municipality (12km-NW), Government PHC Payarkuttalai Village, (7km-N), Government Hospital Nagamangalam Other private clinics and Pharmacy available in the study area taluk and district level.

3.22. Other Issues in the Study Area

1. Deforestation of Land (Cutting Trees or Plant etc.)
2. Agriculture Land very less in the study area. (Dry with barren land or scrub with grass Land).
3. Lack of awareness among vulnerable groups for their welfare
4. Medical/Clinic facilities, PHC need, for the Core area.
5. Environmental clean with solid wastage pin each village.
6. Proper Functioning of Hospital facilities with Sub Health care centers.
7. Need proper drainage system with public toilet men and women separately.
8. Avoid Road damage during carriage by mine vehicles (tipper Lorry).
9. Use sprinkler water when loading mine materials, to avoid water pollution during dust emission.
10. Water bodies like Ponnaiyar river, Lake, pond avoid dust emission.

3.23 Interpretation

Based on the data, following inferences could be drawn:

- Total literacy rate in the study area is 76%.
- The study area had average educational facilities. The overall status depicts that the education is limited to primary and middle level.
- The schedule tribe community forms 1.20% and Scheduled Caste forms 12% of the total population of study area.
- The Other Population forms 87% of the total population of study area.
- The study area is well connected by NH/SH/Village Road.
- The study area not well health facilities of primary level.
- **Ponnaiyar River.** southern side 640m-SW from mine lease boundary.
- **Perandapalli Forest, Sanamavu R.F** boundary 350m-NW from mine lease boundary.
- Considering the above facts, the proposed project will boost the socio-economic development activities in the area and hence will leave positive impact.
- The study area has mobile connectivity.

3.24 Recommendation and Suggestions

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

- **Women empowerment**– Home based income generation activities, vocational training programs and common education centre for increasing the literacy rate.

-
- **Education** – Free uniform, construction of common rooms and library, computer education and physical education, additional schools for girls, furniture and equipment in schools, up-gradation of existing school infrastructure.
 - **Agriculture/livestock** – Infrastructure such as agricultural practices, electricity connections, assistance with buying improved tools and equipment, capacity building, supply and/or knowledge of better variety of seeds, pasture land development and trainings on animal husbandry & facility of veterinary doctor.
 - **Health** – Improvements in sanitary conditions of villages, assistance with construction of latrines, improvement in drainage system, health camps and awareness campaigns for diseases like Covid-19, malaria, typhoid, tuberculosis, yellow fever and pneumonia. Repairing of PHCs and Anganwadi centers.
 - **People with disability** – Establishment of centre for special education, sensitization of the community towards disabled and awareness on Government schemes.
 - While **Developing an Action Plan**, it is very important to identify the population who falls under the marginalized and vulnerable groups. So that special attention can be given to these groups with special provisions while making action plans.
 - **Connectivity** – Transport connectivity to easiness accessibility to the region.

3.25 Conclusion

To evaluate the impacts of proposed and existing rough stone quarry project on the surrounding area, it is vital to assess the baseline status of the environmental quality in the locality of the site. Hence it can be concluded that the present environment status of the study area will not be affected by the project as **Thorapalli Agraharam Rough stone Cluster quarry** will adopt adequate control measures to protect the surrounding environment and will contribute in development of the study areas.

Socio Economic/ demographic status of the study area reveals that area further require improvement in the Economy and Infrastructure Development of the area. Hence it can be concluded that the present baseline environment status of the study area will not be affected by the proposed project.

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

CHAPTER – 4: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 General

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

In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans for sustainable resource extraction. Based on the baseline environmental status at the existing mine site, the environmental factors that are likely to be affected (Impacts) are identified, quantified and assessed. The various anticipated impacts will be on.

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

4.1 Land Environment

4.1.2 Anticipated Impact from Proposed Project

- Permanent or temporary change on land use and land cover.
- Change in Topography: Topography of the ML area will change at the end of the life of the mine.
- Movement of heavy vehicles sometimes cause problems to agricultural land, human habitations due to dust, noise and it also causes traffic hazards.
- Due to degradation of land by pitting the aesthetic environment of the core zone may be affected.
- Earthworks during the rainy season increase the potential for soil erosion and sediment laden water entering the water ways.
- If no due care is taken wash off from the exposed working area may choke the water course & can also causes the siltation of water course

4.1.2.1 Common Mitigation Measures for Proposed Project

- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development of greenbelt etc.,

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

4.1.3 Soil Environment

4.1.4 Impact on Soil Environment

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

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

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

4.1.5 Common Mitigation Measures for Respective Individual Proposed Projects

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

4.1.6 Waste Dump Management

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

4.2 Water Environment

4.2.1 Anticipated Impact on Surface and ground water

The impact due to quarrying on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process. The quarrying activity will not intersect ground water table as the maximum depth of the quarry in the cluster is 16m agl & 35 m bgl and water table is found at a depth of 70-65m BGL. The quarrying operation will be carried out well above the water table. There is no intersection of surface water bodies (Streams, Canal, Odai etc.) in the project area. During rainy season rain water will be collected in the quarry pit and later used for greenbelt development and for the water sprinkling in the haul roads. There is no proposal for discharging of quarry pit water outside the project area.

TABLE 4.1: WATER REQUIREMENTS

PROPOSAL – P1		
*Purpose	Quantity	Source
Domestic & Drinking purpose	0.5KLD	From Existing, bore wells and drinking water will be sourced from Approved Water vendors.
Dust Suppression	2.0KLD	From Existing bore wells from nearby area
Green Belt	0.5KLD	From Existing bore wells from nearby area
Total	3.0 KLD	

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

Source: Approved Mining Plan Pre-Feasibility Report

Total water requirement in the cluster quarries is about 3.0 KLD, the water for dust suppression and greenbelt development will be sourced from the mine pit water collected during rainy seasons, the water for domestic purpose and drinking will be sourced from the approved water vendors.

4.2.2 Common Mitigation measures:

- Garland drain, settling tank will be constructed along the proposed mining lease area. The Garland drain will be connected to settling tank and sediments will be trapped in the settling traps and only clear water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judiciously utilize the rainwater as part of rainwater harvesting system.
- Providing benches with inner slopes and through a system of drains and channels, allowing rain water to descent into surrounding drains, so as to minimize the effects of erosion & water logging arising out of uncontrolled descent of water.

- Reuse the water collected during storm for dust suppression and greenbelt development within the mines
- Installing interceptor traps/oil separators to remove oils and greases. Water from the tipper wash-down facility and machinery maintenance yard will pass through interceptor traps/oil separators prior to its reuse;
- Using flocculating or coagulating agents to assist in the settling of suspended solids during monsoon seasons;
- Periodic (every 6 month once) analysis of quarry pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits.
- Waste water discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
- De-silting will be carried out before and immediately after the monsoon season.
- Regular monitoring (every 6 month once) and analysing the quality of water in open well, bore wells and surface water

4.3 Air Environment

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

4.3.1. Anticipated

Impact

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

4.3.1.1. Modelling of Incremental Concentration from Proposed Project

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

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

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

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

4.3.1.2 Emission Estimation

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

The general equation for emissions estimation is:

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

Where:

E = emissions;

A = activity rate;

EF = emission factor, and

ER =overall emission reduction efficiency, %

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

TABLE 4.2: ESTIMATED EMISSION RATE

EMISSION ESTIMATION FOR QUARRY "P1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.091386961	g/s
	Blasting	Point Source	0.001541827	g/s
	Mineral Loading	Point Source	0.042989258	g/s
	Haul Road	Line Source	0.002493434	g/s/m
	Overall Mine	Area Source	0.054467977	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000776936	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000038668	g/s

4.3.2 Frame work of Computation & Model details

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

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

Air Pollution Dispersion Modelling

Baseline Air Quality –

Baseline air quality has been measured at 11 locations in the cluster and 7 locations within the buffer zone of the study area. The 24 - hourly average samples of particulate matters (PM_{10} and $PM_{2.5}$), SO_2 and NO_x were measured following the National Ambient Air Quality Standards (NAAQS), 2009. Monitoring data of 8 sampling stations are given below –

Meteorological Data –

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

A temporary meteorological station was installed at project site and monitored continually for study period without break. The station was installed at a height of 4 m above the ground level in such a way that there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature are recorded on hourly basis. A weather data was collected from IMD, Krishnagiri agro for the month of Dec22 – Feb2023 to correlate with site data and found not much of change in the parameters.

FIGURE 4.1: AERMOD TERRAIN MAP

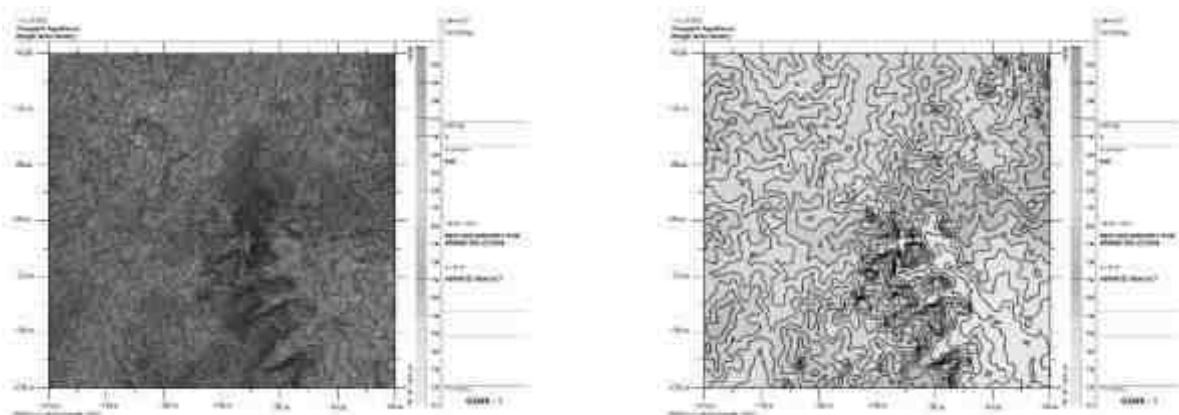


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀

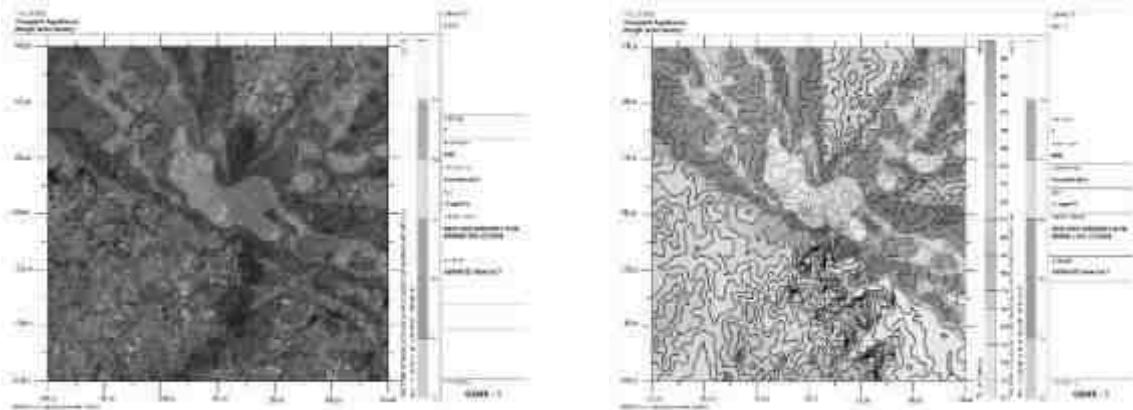


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM₂₅

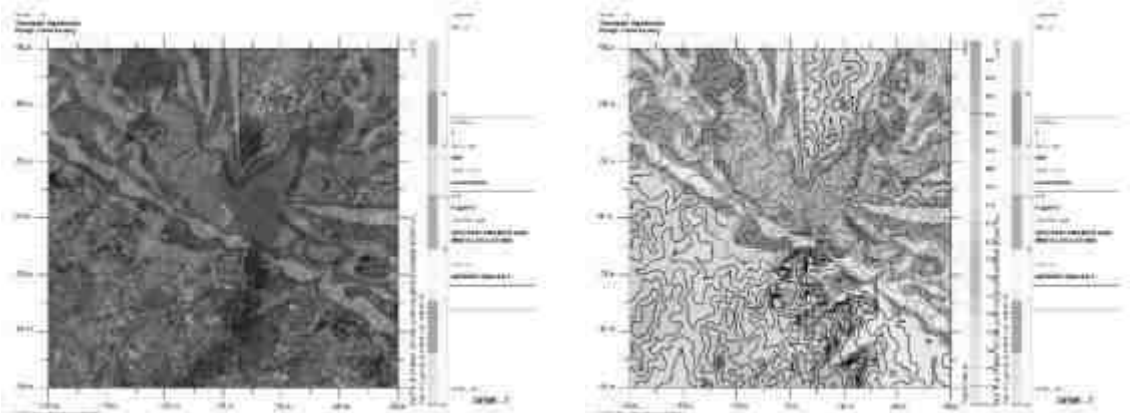


FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF SO₂

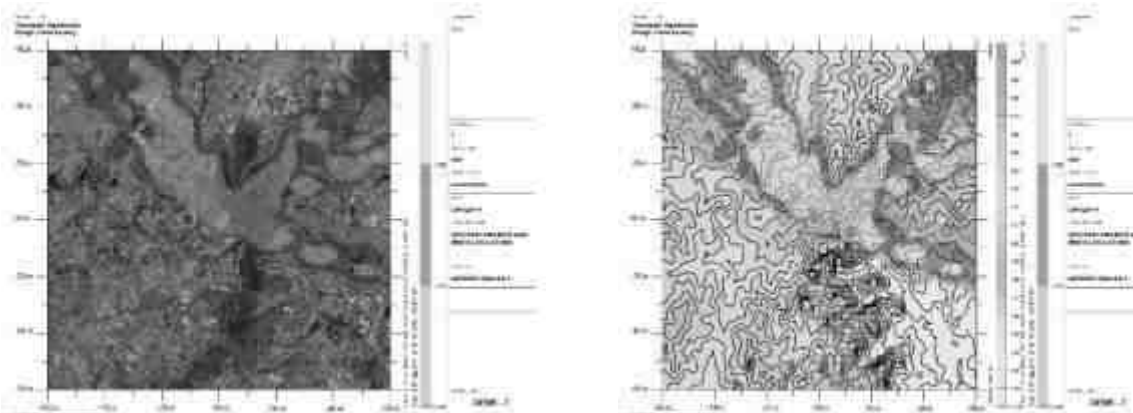


FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF NO_x

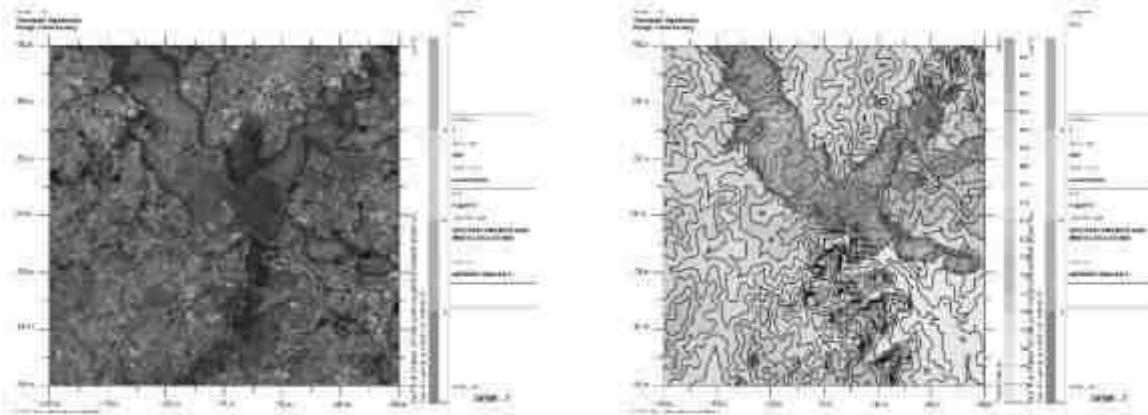
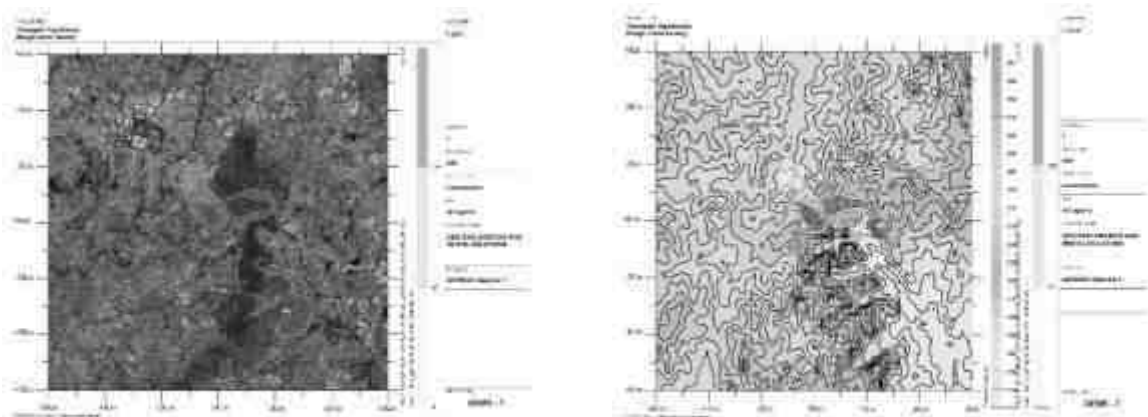


FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST



4.3.2.1 Model Results

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

TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM₁₀

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM ₁₀ (µg/m ³)	Incremental value of PM ₁₀ due to mining (µg/m ³)	Total PM ₁₀ (µg/m ³) (5+6)
AAQ1	12°41'45.08"N 77°54'12.13"E	19	159	43.8	14.82	58.6
AAQ2	12°42'46.62"N 77°53'19.96"E	-1575	2072	43.7	14.27	57.9
AAQ3	12°43'26.88"N 77°56'2.26"E	3387	3321	43.7	13.76	57.5
AAQ4	12°43'14.30"N 77°54'9.43"E	-64	2929	43.8	11.00	54.8
AAQ5	12°42'18.01"N 77°52'19.73"E	-3415	1180	43.7	4.93	48.6
AAQ6	12°41'28.82"N 77°55'58.45"E	3271	-346	43.6	8.10	51.7
AAQ7	12°39'24.89"N 77°56'58.92"E	5119	-4195	43.7	0	43.7
AAQ8	12°41'10.74"N 77°53'6.40"E	-1988	-894	43.7	1.06	44.8

TABLE 4.4: INCREMENTAL & RESULTANT GLC OF PM_{2.5}

Station Code	Location	X Coordi	Y Coordinate	Average Baseline	Incremental value of	Total PM _{2.5}
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		nate (m)	(m)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	PM _{2.5} due to mining ($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	12°41'45.08"N 77°54'12.13"E	19	159	22.1	6.75	28.8
AAQ2	12°42'46.62"N 77°53'19.96"E	-1575	2072	22.1	6.12	28.2
AAQ3	12°43'26.88"N 77°56'2.26"E	3387	3321	22.0	5.42	27.4
AAQ4	12°43'14.30"N 77°54'9.43"E	-64	2929	22.1	4.59	26.7
AAQ5	12°42'18.01"N 77°52'19.73"E	-3415	1180	22.1	2.39	24.5
AAQ6	12°41'28.82"N 77°55'58.45"E	3271	-346	22.1	3.61	25.7
AAQ7	12°39'24.89"N 77°56'58.92"E	5119	-4195	22.0	0.44	22.5
AAQ8	12°41'10.74"N 77°53'6.40"E	-1988	-894	22.1	1.50	23.6

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline So ₂ ($\mu\text{g}/\text{m}^3$)	Incremental value of So ₂ due to mining ($\mu\text{g}/\text{m}^3$)	Total So ₂ ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	12°41'45.08"N 77°54'12.13"E	19	159	8.1	2.59	10.7
AAQ2	12°42'46.62"N 77°53'19.96"E	-1575	2072	8.0	2.50	10.5
AAQ3	12°43'26.88"N 77°56'2.26"E	3387	3321	8.0	2.06	10.1
AAQ4	12°43'14.30"N 77°54'9.43"E	-64	2929	7.9	1.79	9.7
AAQ5	12°42'18.01"N 77°52'19.73"E	-3415	1180	8.0	0	8.0
AAQ6	12°41'28.82"N 77°55'58.45"E	3271	-346	8.0	0.80	8.8
AAQ7	12°39'24.89"N 77°56'58.92"E	5119	-4195	8.0	0	8.0
AAQ8	12°41'10.74"N 77°53'6.40"E	-1988	-894	8.0	0	8.0

TABLE 4.6: INCREMENTAL & RESULTANT GLC OF NO_x

Station Code	Location	X Coordinat e (m)	Y Coordinate (m)	Average Baseline Nox ($\mu\text{g}/\text{m}^3$)	Incremental value of Nox due to mining ($\mu\text{g}/\text{m}^3$)	Total Nox ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	12°41'45.08"N 77°54'12.13"E	19	159	20.7	9.48	30.2
AAQ2	12°42'46.62"N 77°53'19.96"E	-1575	2072	20.3	8.13	28.4
AAQ3	12°43'26.88"N 77°56'2.26"E	3387	3321	20.6	4.35	25.0
AAQ4	12°43'14.30"N 77°54'9.43"E	-64	2929	20.5	0	20.5
AAQ5	12°42'18.01"N 77°52'19.73"E	-3415	1180	20.4	0	20.4
AAQ6	12°41'28.82"N 77°55'58.45"E	3271	-346	20.2	0	20.2
AAQ7	12°39'24.89"N 77°56'58.92"E	5119	-4195	20.3	0	20.3
AAQ8	12°41'10.74"N 77°53'6.40"E	-1988	-894	20.5	0	20.5

TABLE 4.7: INCREMENTAL & RESULTANT GLC OF FUGITIVE DUST

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Fugitive ($\mu\text{g}/\text{m}^3$)	Incremental value of Fugitive due to mining ($\mu\text{g}/\text{m}^3$)	Total Fugitive ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	12°41'45.08"N 77°54'12.13"E	19	159	60.44	187	247.44
AAQ2	12°42'46.62"N 77°53'19.96"E	-1575	2072	60.31	0	60.31
AAQ3	12°43'26.88"N 77°56'2.26"E	3387	3321	57.87	0	57.87
AAQ4	12°43'14.30"N 77°54'9.43"E	-64	2929	60.60	0	60.6
AAQ5	12°42'18.01"N 77°52'19.73"E	-3415	1180	60.13	0	60.13

AAQ6	12°41'28.82"N 77°55'58.45"E	3271	-346	60.57	0	60.57
AAQ7	12°39'24.89"N 77°56'58.92"E	5119	-4195	60.36	0	60.36
AAQ8	12°41'10.74"N 77°53'6.40"E	-1988	-894	60.45	0	60.45

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

4.3.4. Common Mitigation Measures for Proposed Project

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

Advantages of Wet Drilling: -

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

Blasting –

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

Haul Road & Transportation –

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

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

Green Belt –

- Planting of trees all along main mine haul roads and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project areas

Occupational Health –

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

4.4 Noise Environment (Impact & Mitigation Measures)

Noise pollution is mainly due to operation like drilling & blasting and plying of trucks & HEMM. These activities will not cause any problem to the inhabitants of this area because there is no human settlement in close proximity to the project area. Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities.

Predictions have been carried out to compute the noise level at various distances around the working pit due to these major noise-generating sources. Noise modelling has been carried out to assess the impact on surrounding ambient noise levels. Basic phenomenon of the model is the geometric attenuation of sound. Noise at a point generates spherical waves, which are propagated outwards from the source through the air at a speed of 1,100 ft/sec, with the first wave making an ever-increasing sphere with time. As the wave spreads the intensity of noise diminishes as the fixed amount of energy is spread over an increasing surface area of the sphere. The assumption of the model is based on point source relationship i.e., for every doubling of the distance the noise levels are decreased by 6 dB (A).

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

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

Where:

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

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

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

4.4.1 Anticipated Impact

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

- Source data
- Receptor data
- Attenuation factor

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

TABLE 4.8: ACTIVITY AND NOISE LEVEL PRODUCED BY MACHINERY

Sl.No.	Machinery / Activity	Impact on Environment?	Noise Produced in dB(A) at 50 ft from source*
1	Blasting	Yes	94
2	Jack Hammer	Yes	88
3	Compressor	No	81
4	Excavator	No	85
5	Tipper	No	84
Total Noise Produced			95.8

*50 feet from source = 15.24 meters

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

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

TABLE 4.9: PREDICTED NOISE INCREMENTAL VALUES

Location ID	N1	N2	N3	N4	N5	N6	N7	N8
Maximum Monitored Value (Day) dB(A)	56.1	56.7	57.8	57.1	57.6	57.1	57.1	57.1
Incremental Value dB(A)	46.12	32.50	27.04	31.16	29.73	30.56	23.84	46.12
Total Predicted Noise level dB(A)	56.52	56.72	57.80	57.11	57.61	57.11	57.10	57.12
NAAQ Standards	Industrial		Day Time- 75 dB (A)		Night Time- 70 dB (A)			
	Residential		Day Time- 55 dB (A)		Night Time- 45 dB (A)			

4.4.2 Common Mitigation Measures for Proposed Project

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

- Time intervals for each quarry during blasting.
- Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
- Limiting time exposure of workers to excessive noise.
- Proper and regular maintenance of vehicles, machinery and other equipment's.
- The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipment's.
- Speed of trucks entering or leaving the quarry will be limited to moderate speed to prevent undue noise from empty vehicles...
- Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes (occasionally).

- Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment.
- Provision of Quiet areas, where employees can get relief from workplace noise.
- The development of green belts around the periphery of the quarry site to attenuate noise.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.

4.4.3 Ground Vibrations

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

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining lease area and may cause injury to persons or damage to the structures. Nearest habitation from the project area is located 1km Southeast in Karacheri village. The ground vibrations due to the blasting in proposed mine are calculated using the empirical equation.

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

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

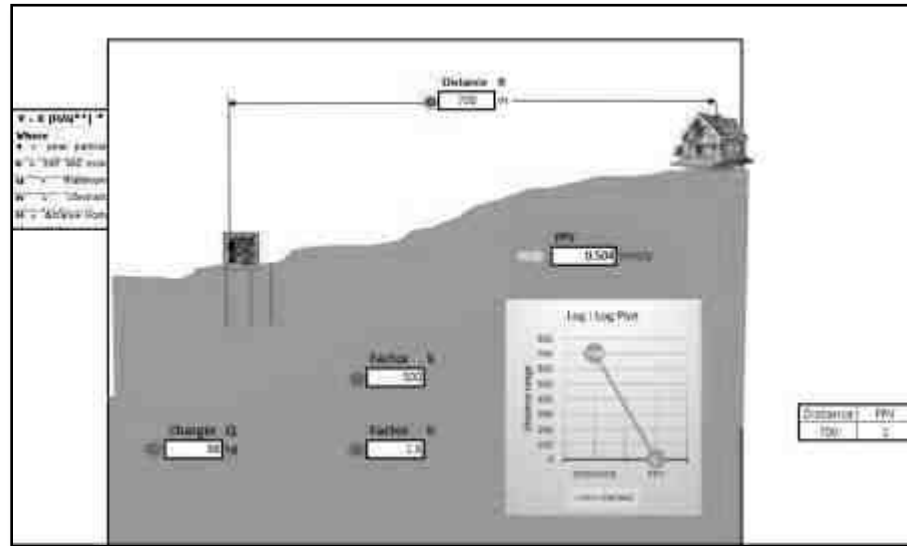
Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

TABLE 4.10: PREDICTED PPV VALUES DUE TO BLASTING

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	88	700	0.504



From the above, the charge per blast of 88Kg is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. It should be ensured that the explosives used for blasting at one blast should not exceed more than 28 Kg at any point of time. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.4.3.1 Common Mitigation Measures for Proposed Project

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

- The detonators will be connected in a predetermined sequence to ensure that only one charge is detonated at any one time and a NONEL or similar type initiation system will be used.
- The detonation delay sequence shall be designed so as to ensure that firing of the holes is in the direction of free faces so as to minimise vibration effects.
- Appropriate blasting techniques shall be adopted such that the predicted peak particle velocity shall not exceed 8 Hz.
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices.

4.5 Biological Environment

4.5.1. Anticipated Impact on Flora

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

4.5.2 Mitigation Measures

4.5.2.1. General Guidelines for Green Belt Development

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

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

4.5.2.2. Species Recommendation for Plantation granted in the District.

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

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

Table No 4.11 List of plant species proposed for Greenbelt development

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

4.5.3. Anticipated Impact on Fauna

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

4.5.3.1. Measures for protection and conservation of wildlife species

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

4.5.3.2. Mitigation Measures

- A suitable plan for the conservation of Schedule-I Species have been prepared and the necessary fund for implementation for the same will be made.
- All the preventive measures will be taken for the growth & development of fauna.
- Creating and developing awareness for nature and wildlife in the adjoining villages.
- The workers shall be trained to not harm any wildlife, should it come near the project site. No work shall be carried out after 6.00 pm.

4.5.3.3. Impact on Aquatic Biodiversity

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

4.5.3.5 Impact Assessment on Biological Environment

This chapter highlights the various impacts on ecology and biodiversity due to mining activity. The major adverse impacts due to pre-mining and mining phases are loss of habitat, biodiversity, rare flora and fauna, fisheries and other aquatic life, migration of wildlife, and overall disruption of the ecology of the area. During the post-mining phase after land restoration, ecology may effectively improve. A detail of impact and assessments was mentioned in Table No.4.12.

4.5.4. Anticipated Environmental Impacts and Mitigation Measures of Thiyanadurgam Village, Cluster area, Rough Stone quarry, Krishnagiri District, Tamil Nadu.

Details of anticipated issues for the next operation period were summarized with possible impacts and mitigation measures to meet the problem (Table No.4.2.).

Table No: 4.12. Anticipated impact of Ecology and Biodiversity in Thorapalli Agraharam Village, Rough Stone Quarry, Krishnagiri District, Tamil Nadu.

S. No	Aspect Description	Likely Impacts on Ecology and Biodiversity (EB)	Impact Consequence Probability Description Justification	Significance	Mitigation Measures
Pre-mining phase					
1	Uprooting of vegetation of lease area	Site specific loss of common floral diversity (Direct impact)	The site possesses Common floral (not tree) species. Clearance of these species will not result in loss of flora.	Less severe	No immediate action is required. However, a Greenbelt /plantation will be developed on the project site and on the periphery of the project boundary,
		Site specific loss of associated faunal diversity (Partial impact)	The site supports only common species, which use a wide variety of habitats of the buffer zone reserve		

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

Table No. 4.13. Overall Ecological impact assessments of Thorapalli Agraharam Village, Rough Stone Quarry, Krishnagiri District, Tamil Nadu.

S.No	Attributes	Assessment
1	Impact of mining activity on agricultural land nearby the proposed project site.	Agricultural land is located away from the proposed project site. There are no impacts on the agricultural land & Horticulture. Kindly refer to the conclusion.
	Activities of the project affect the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in the mining lease site. The fauna sighted mostly migrated from the buffer area.
2	Located near an area populated by rare or endangered species	No Endangered, Critically Endangered, or vulnerable species were sighted in the core mining lease area.
3	Proximity to national park/wildlife sanctuary/reserve forest /mangroves/	Sanamavu R.F is located about 2km on the Northwest followed by Udedurgam R.F is located about 7km on the South side and Dekanikottai R.F is located about 8.5km on the Southwest side.

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

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

4.5.5 Proposed Green Belt

TABLE 4.14: GREENBELT DEVELOPMENT PLAN

PROPOSAL FOR P1					
Year	No. of trees proposed to be planted	Survival %	Area to be planted	Name of the species	No. of trees to be plant
I	It is proposed to plant 1300 Nos of trees in the 1 st year	80%	Safety barrier, Unutilized areas and nearby village roads	Neem, Pongamia pinnata, Casuarina, etc	1100

TABLE 4.15: BUDGET FOR GREENBELT DEVELOPMENT PLAN-P1

ACTIVITY	YEAR					RATE	COST (Rs.)
	I	II	III	IV	V	@100 Rs	
Plantation under safety zone	100	100	100	100	100	Per sapling	50,000
	10000	10000	10000	10000	10000	Including	

Plantation in the quarried out top benches, approach road and panchayat road	160	160	160	160	160	Maintenance	80,000
	16000	16000	16000	16000	16000		
Wire Fencing for 790 Mtrs length	237000	-	-	-	-	@300 Rs Per Meter	2,37,000
Garland Drain with settling traps for 730 Mtrs length	219000	-	-	-	-	@300 Rs Per Meter	2,19,000
Total							5,86,000

Source: Approved Mining Plan

TABLE 4.16: ECOLOGICAL IMPACT ASSESSMENTS

SI.No	Attributes	Assessment
1	Activities of the project affect the breeding/nesting sites of birds and animals.	No breeding and nesting site was identified in the mining lease site. The fauna sighted mostly migrated from buffer area.
2	Located near an area populated by rare or endangered species.	No endangered, critically endangered, vulnerable species sighted in core mining lease area.
3	Proximity to national park/wildlife sanctuary/reserveforest /mangroves/coastline/estuary/sea	No national park or eco-sensitive zone around 10km radius.
4	Proposed project restricts access to waterholes for wildlife	'NO'
5	Proposed mining project impact surface water quality that also provide water to wildlife	'NO' 'scheduled or threatened wildlife animal sighted regularly core in core area.
6	Proposed mining project increase siltation that would affect nearby biodiversity area.	Surface runoff management such as drains is constructed properly so there will be no siltation affect in nearby mining area.
7	Risk of fall/slip or cause death to wild animals due to project activities	'NO'
8	The project release effluents into a water body that also supplies water to a wildlife	No water body near to core zone so chances of water become polluted is low.
9	Mining project effect the forest based livelihood/ any specific forest product on which local livelihood depended	'NO'
10	Project likely to affect migration routes	'NO' 'migration route observed during monitoring

		period.
11	Project likely to affect flora of an area, which have medicinal value	'NO '
12	Forestland is to be diverted, has carbon high sequestration	'NO 'There was no forest land diverted.
13	The project likely to affect wetlands, Fish breeding grounds, marine ecology	'NO'. Wetland was not present in near core Mining lease area. No breeding and nesting ground present in core mining area.

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

4.6 Socio Economic Impacts

4.6.1 Construction Phase

Anticipated Impacts:

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

Mitigation measures:

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

♣ To overcome behavioral impact, supervision will be done by site in charge. In advance, emergency cell will be formed with fully equipped communication system, medical and safety services to take control over the incident/violence caused.

4.6.2 Operation Phase:

Anticipated Impacts:

♣ Long term exposure to the pollutants such as PM, SO₂ and NO₂ Cement dust have a potential to create health impacts such as risk of cardiovascular and respiratory disease, eye irritation, bronchitis, lung damage, increased heart ailments, etc.

♣ Other impacts, associated with the applied for Rough Stone quarry Project will create a positive impact as it will result in the overall development of the area in respect to the infrastructure development, educational growth, health facilities etc., as a part of the CSR activity.

Mitigation Measures:

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

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

4.6.3 Impact Evaluation:

Table 4.17 Impact Evaluation *is given in table below.*

Impact Evaluation Element	Impact on socio economics due to the applied for Thorapalli Agraharam Village, Rough Stone quarry cluster quarry over an extent of 6.97.5ha of Poramboke land of Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Tamil Nadu State.			
Potential Effect/ Concern	Proposed Existing project will provide direct & indirect employment opportunities to the local residents, which will help to increase their earning and better living standard as well as further up-liftment of socio-economic status of the area.			
Characteristics of Impacts				
Nature	Positive		Negative	Netural
	✓			
Type	Direct	Indirect	Cumulative	
			✓	
Extent	Project area	Local	Zonal	Regional
		✓		
Duration	Short time		Long term	

			✓	
Intensity	Low		Medium	High
			✓	
Frequency	Remote (R)	Occasional (O)	Periodic (P)	Continuous (C)
			✓	
Significance of Impact				
Significance	Insignificant	Minor	Moderate	Major
			✓	

4.7 Occupational Health and Safety

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

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

4.7.1 Respiratory Hazards

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

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

4.7.2 Noise

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

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

4.7.3 Physical Hazards

The following measures are proposed for control of physical hazards

- Specific personnel training on work-site safety management will be taken up;

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

4.7.4 Occupational Health Survey

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

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

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

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

4.8 *Mine Waste Management*

No waste is anticipated from any of the proposed existing quarry.

4.9 *Mine Closure*

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

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

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

4.9.1 Mine Closure Criteria

The criteria involved in mine closure are discussed below:

4.9.1.1 Physical Stability

All anthropogenic structures, which include mine workings, buildings, rest shelters etc., remaining after mine decommissioning should be physically stable. They should present no hazard to public health and safety as a result of failure or physical deterioration and they should continue to perform the functions for which they were designed. The design periods and factors of safety proposed should take full account of extreme events such as floods, hurricane, winds or earthquakes, etc. and other natural perpetual forces like erosion, etc.,

4.9.1.2 Chemical Stability

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

4.9.1.3 Biological Stability

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

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

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

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

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

5.0 Introduction:

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

- This area denotes the indicative of flow pattern of the rock mass in N35⁰E to S35⁰W with dipping SE70⁰.
- Transportation facility for materials & manpower.
- Overall impact on environment and mitigation feasibility.
- Socio – economic background.

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

5.1 Factors Behind the Selection of Project Site

Rough Stone Quarry Projects at Thorapalli Agraharam Village in proposed existing mining lease area has following advantages: -

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

5.2 Analysis of Alternative Site

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

5.3 Factors Behind Selection of Proposed Technology

Mechanized open cast mining operation with drilling and blasting method will be used to extract Rough Stone quarry in the area. The quarry areas fall in the clusters has following advantages –

- As the mineral deposition is homogeneous and batholith formation, therefore opencast method of working out deposit is preferred over underground method.

- The material will be loaded after sprinkling with water with the help of excavators into dumpers / trippers and transported to the needy customers.
- Blasting and availability of drills along with controlled blasting technology gives desired fragmentation so that the mineral is handled safely and used without secondary blasting.

Semi skilled labours fit for quarrying operations are easily available around the nearby villages.

5.4 *Analysis of Alternative Technology*

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

CHAPTER – 6: ENVIRONMENTAL MONITORING PROGRAMME

6.0 General

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

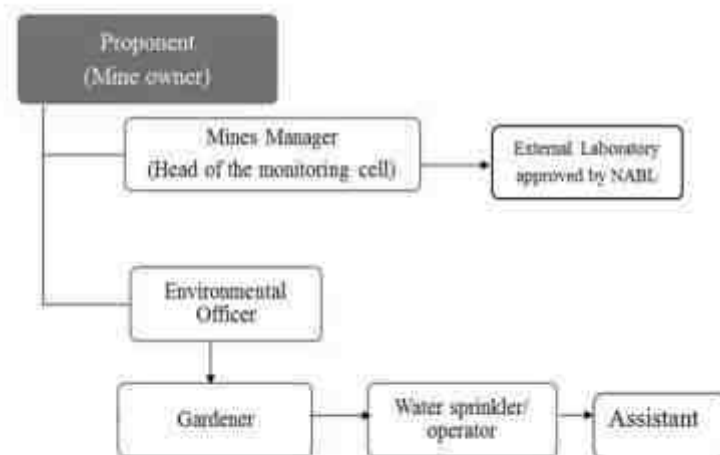
The monitoring and evaluation of environmental parameters indicates potential changes occurring in the environment, which paves way for implementation of rectifying measures wherever required to maintain the status of the natural environment. Evaluation is also a very effective tool to judge the effectiveness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

6.1 Methodology of Monitoring Mechanism

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

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

FIGURE 6.1 HIERARCHY OF ENVIRONMENTAL MONITORING CELL



The responsibilities of this cell will be:

- Implementation of pollution control measures
- Monitoring programme implementation
- Post-plantation care
- To check the efficiency of pollution control measures taken
- Any other activity as may be related to environment
- Seeking expert's advice when needed

The environmental monitoring cell will co-ordinate all monitoring programs at site and data thus generated will be regularly furnished to the State regulatory agencies. The sampling and analysis report of the monitored environmental attributes will be submitted to the Tamil Nadu Pollution Control Board (TNPCB) at a frequency of monthly, half-yearly and yearly. The half-yearly reports will be submitted to Ministry of Environment and Forest, Regional Office and SEIAA as well.

The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board (CPCB)/Ministry of Environment, Forest and Climate Change (MoEF & CC).

6.2 Implementation Schedule of Mitigation Measures

The mitigation measures proposed in Chapter-4 will be implemented so as to reduce the impact on the environment due to the operations of the proposed project. Implementation schedule of mitigation measures is given in Table 6.1.

TABLE 6.1 IMPLEMENTATION SCHEDULE

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

6.3 Monitoring Schedule and Frequency

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

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

- Soil Quality; and
- Greenbelt Development

The details of monitoring are detailed in Table 6.2

TABLE 6.2: PROPOSED MONITORING SCHEDULE POST EC

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

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

6.4 Environmental Policy of the Proponents

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

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

6.5 Budgetary Provision for Environmental Monitoring Programme

The cost in respect of monitoring of environmental attributes, parameter to be monitored, sampling/monitoring locations with frequency and cost provision against each proposal is shown in Table 6.3. Monitoring work will be outsourced to external laboratory approved by NABL / MoEF.

The proposed total cost for Environmental Monitoring Programme for proposed quarries for the mining plan period is Rs 3,60,000/-

TABLE 6.3 ENVIRONMENT MONITORING BUDGET

Parameter	Sl. Nos	Capital Cost
Air Quality, Meteorology, Water Quality, Hydrology, Soil Quality	P1	Rs.3,60,000
Noise Quality, Vibration Study Greenbelt	Total	Rs. 3,60,000

Source: Approved Mining Plan

6.6 Reporting Schedules of Monitored Data

The monitored data on Air quality, Water quality, Noise levels and other environmental attributes will be periodically examined by the proponent with Environmental Monitoring cell and necessary corrective measures will be carried out. The monitoring data will be submitted to Tamil Nadu State Pollution Control Board in the Compliance to CTO Conditions & environmental audit statements every year to MoEF & CC and Half-Yearly Compliance Monitoring Reports to MoEF & CC Regional Office and SEIAA.

Periodical reports to be submitted to: -

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

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

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

CHAPTER – 7: ADDITIONAL STUDIES

7.0 General

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

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

7.1. *Public Consultation:*

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

7.2 *Risk Assessment*

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

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

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

TABLE 7.1 RISK ASSESSMENT & CONTROL MEASURES

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

			<ul style="list-style-type: none"> ▪ 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 shall be daily done in order to avoid any overhang or undercut; ▪ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager; ▪ Maintenance and testing of all mining equipment as per manufacturer 's guidelines.
2	Drilling& Blasting	<p>Due to improper and unsafe practices</p> <p>Due to high pressure of compressed air, hoses may burst</p> <p>Drill Rod may break</p>	<ul style="list-style-type: none"> ▪ Safe operating procedure established for drilling (SOP) will be strictly followed. ▪ Only trained operators will be deployed. ▪ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places. ▪ Drilling shall not be carried on simultaneously on the benches at places directly one above the other. ▪ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. ▪ All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition. ▪ Operator shall regularly use all the personal protective equipment.
3	Blasting	<p>Fly rock, ground vibration, Noise and dust.</p> <p>Improper charging, stemming & Blasting/fining of blast holes</p> <p>Vibration due to movement of vehicles</p>	<ul style="list-style-type: none"> ▪ The maximum charge per delay and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blast can be conducted safely. ▪ SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation ▪ Shots are fired during daytime only. ▪ All holes charged on any one day shall be fired on the same day. ▪ The danger zone is and will be distinctly demarcated (by means of red flags)
4	Transportation	Potential hazards and unsafe workings	<ul style="list-style-type: none"> ▪ Before commencing work, drivers personally check the dumper/truck/tipper

		<p>contributing to accident and injuries</p> <p>Overloading of material</p> <p>While reversal & overtaking of vehicle</p> <p>Operator of truck leaving his cabin when it is loaded.</p>	<p>for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio-visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition.</p> <ul style="list-style-type: none"> ▪ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. ▪ Concave mirrors should be kept at all corners ▪ All vehicles should be fitted with reverse horn with one spotter at every tipping point ▪ Loading according to the vehicle capacity ▪ Periodical maintenance of vehicles as per operator manual.
5	Natural calamities	Unexpected happenings	<ul style="list-style-type: none"> ▪ Escape Routes will be provided to prevent inundation of storm water ▪ Fire Extinguishers & Sand Buckets
6	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	<ul style="list-style-type: none"> ▪ Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

7.3 Disaster Management Plan

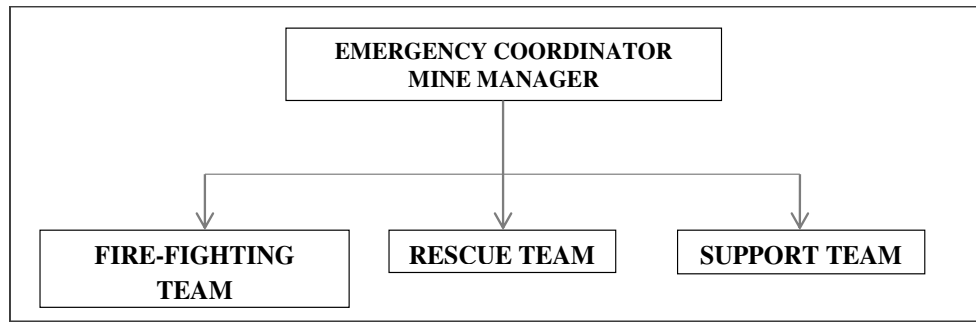
Natural disasters like Earthquake, Land slides has not been recorded in the past history as the terrain is categorized under seismic zone III. The area is far away from the sea hence the disaster due to heavy floods and tsunamis are not anticipated. The Disaster Management Plan is aimed to ensure safety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

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

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

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

FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT FOR P1



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

TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION

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

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

Roles and responsibilities of emergency team –

(a) Emergency coordinator (EC)

The emergency coordinator shall assume absolute control of site

(b) Incident controller (IC)

Incident controller shall be a person who shall go to the scene of emergency and supervise the action plan to overcome or contain the emergency. Shift supervisor or Environmental Officer shall assume the charge of IC.

(c) Communication and advisory team

The advisory and communication team shall consist of heads of Mining Departments i.e., Mines Manager

(d) Roll call coordinator

The Mine Foreman shall be Roll Call Coordinator. The roll call coordinator will conduct the roll call and will evacuate the mine personnel to assembly point. His prime function shall be to account for all personnel on duty.

(e) Search and rescue team

There shall be a group of people trained and equipped to carryout rescue operation of trapped personnel. The people trained in first aid and fire-fighting shall be included in search and rescue team

(f) Emergency security controller

Emergency Security Controller shall be senior most security person located at main gate office and directing the outside agencies e.g. fire brigade, police, doctor and media men etc.,

Emergency control procedure –

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

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

Proposed fire extinguishers at different locations –

The following type of fire extinguishers is proposed at strategic locations within the quarry.

Location	Type of Fire Extinguishers
Electrical Equipment's	CO ₂ type, foam type, dry chemical powder type
Fuel Storage Area	CO ₂ type, foam type, dry chemical powder type, Sand bucket
Office Area	Dry chemical type, foam type

Alarm system to be followed during disaster

On receiving the message of disaster from Site Controller, fire-fighting team, the mine control room attendant will sound siren wailing for 5 minutes. Incident controller will arrange to broadcast disaster message through public address system.

On receiving the message of "Emergency Over" from Incident Controller the emergency control room attendant will give "All Clear Signal", by sounding alarm straight for 2 minutes.

The features of alarm system will be explained to one and all to avoid panic or misunderstanding during disaster.

In order to prevent or take care of hazard / disasters if any the following control measures have been adopted.

- All safety precautions and provisions of Metalliferous Mines Regulations (MMR), 1961 is strictly followed during all mining operations
- Fire fighting and first-aid provisions in the mines office complex and mining area will be provided.
- Provisions of all the safety appliances such as safety boot, helmets, goggles, dust masks, ear plugs and ear muffs etc. are made available to the employees and the use of same is strictly adhered to through regular monitoring
- Training and refresher courses for all the employees working in the quarry in phase manner
- Cleaning of mine faces will be carried out regularly
- Provision of high-capacity standby pumps with generator sets with enough quantity of diesel for emergency pumping especially during monsoon.
- A blasting SIREN will be used at the time of blasting for audio signal.
- Checking of blasting area for any un-blasted hole or material.
- Warning notice boards indicating the time of blasting and NOT TO TRESPASS will be displayed at prominent places

7.4 CUMULATIVE IMPACT STUDY

There are one proposed quarry falls in the cluster. The list of quarries is as below –

TABLE 7.3: LIST OF QUARRIES WITHIN 500 METER RADIUS FROM THIS PROPOSAL

PROPOSED QUARRY					
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha	G.O. No & Date	Status
P1	M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,	662 (P) Thorapalli Agraharam Village of Hosur Taluk	2.20.0	Roc.217/2019/Mines dated: 13.06.2019	Lr No.SEIAA- TN/F.No.8711/SEAC/ToR- 1049/2022 Dated: 31.01.2022
	Total Extent		2.20.0 Ha		
EXISTING QUARRY					
CODE	Name of the Proponent and	S.F. Nos, Village &	Extent in Ha		Lease Period

	Address	Taluk			
E1	M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,	663/1A(P),1B1 (P), 1B2 (P) etc	4.77.5	Roc.680/2016/Mines dated: 05.12.2019	05.12.2019-04.12.2024
ABANDONED/EXPIRED QURRIES					
CODE	Name of the Proponent and Address	S.F. Nos, Village & Taluk	Extent in Ha		Lease Period
NIL					
TOTAL CLUSTER EXTENT			6.97.5		

Source :500m Cluster letter by AD, G&M, Krishnagiri.

Note:-

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

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

TABLE 7.4: SALIENT FEATURES OF THE PROPOSED PROJECTS IN CLUSTER

SALIENT FEATURES OF PROPOSAL “P1”		
Name of the Mine	M/s. A.V.S. Tech Building Solutions India Pvt Ltd, Rough Stone Quarry Project	
Land Type	It is a Government/Poramboke Land.	
S.F. Nos	662 (P)	
Extent	2.20.0 Ha	
Previous quarry operation details	It is an Existing quarry pits.	
Geological Reserves	Rough Stone quarry	TopSoil
	8,66,891m ³	14,467m ³
Mineable Reserves	Rough Stone quarry	TopSoil
	3,04,455m ³	7,344 m ³
Proposed production for Five years	3,04,455m ³ (Depth 51m AGL)	
Mining Plan Period / Lease Period	5 Years	
Depth of mining	51m (16m Agl+35m Bgl)	
Existing Pit Dimension	160m(L) x 60m (W) x19.5m(D)	
Ultimate Pit Dimension	Pit I 186m(L) x 62m (W) 51m(D) (16m Agl +35m Bgl) Pit II 156m(L) x 40m (W)	
Toposheet No	57 H/14	
Latitude	12°41'35.04''N to 12°41'45.02''N	
Longitude	77°54'06.94''E to 77°54'14.16''E	
Highest elevation	The lease applied area is exhibits an undulated topography. The area has gentle sloping towards Southern side. The altitude of the area is 812m (max) above Mean Sea level.	
Ground water level	The Ground water is about 70m - 65m depth from ground level.	
Water requirement & source	Total water requirement for 3.0KLD from water vendors & nearby Bore well.	
Machinery proposed	Jack Hammer	8
	Compressor	2
	Excavator with Bucket and Rock Breaker	2
	Tippers	3
Blasting	Usage of Slurry Explosive with MSD detonators	

Manpower Deployment	32Nos	
Total Project Cost	Operational Cost	Rs.1,61,43,000/-
	EMP Cost	Rs. 3,80,000/-
	Total	Rs.1,65,23,000/-
CER Cost	Rs.5,00,000/-	
Habitation	700m-NW	

Source: Approved Mining Plan

SALIENT FEATURES OF EXISTING QUARRY "E1"		
Name of the Mine	M/s. A.V.S. Tech Building Solutions India Pvt Ltd, Rough Stone Quarry Project	
Land Type	It is a Government/Poramboke Land.	
EC Status	Lr. No.SEIAA-TN/F.No.6969/1(a)/EC.No: 4071/2019 dated: 06.11.2019	
S.F. Nos	663/1A(P),663/1B1(P),663/1B2(P),663/1B3(P),663/2(P) &679/1(P)	
Extent	4.77.5 Ha	
Previous quarry operation details	It is an Existing quarry pits.	
Approved Quantity	882511 m ³	
Mining Plan Period / Lease Period	5Years	
Category (B1/B2)	B2	
Depth of mining	57m (15m Agl+42m Bgl)	
Existing Pit Dimension	160m(L) x 60m (W) x19.5m(D)	
Ultimate Pit Dimension	Pit I 186m(L) x 62m (W) 51m(D) (16m Agl +35m Bgl) Pit II 156m(L) x 40m (W)	
Toposheet No	57 H/14	
Latitude	12°41'35.57"N to 12°41'46.96"N	
Longitude	77°54'11.54"E to 77°54'22.89"E	
Highest elevation	The lease applied area is exhibits an undulated topography. The area has gentle sloping towards Southern side. The altitude of the area is 830m (max) above Mean Sea level.	
Water requirement & source	Total water requirement for 4.0KLD from water vendors & nearby Bore well.	
Blasting	Usage of Slurry Explosive with MSD detonators	
Manpower Deployment	10Nos	
Total Project Cost	Operational Cost	Rs.68 Lakhs
	EMP Cost	Rs. 6.60 Lakhs
CER Cost	Rs.1.49 Lakhs	
Habitation	725m-NW	

Source: EC certificate.

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

Impact on Air Environment –

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

TABLE 7.5 CUMULATIVE PRODUCTION LOAD OF ROUGH STONE QUARRY

Quarry	Production for five-year plan period m ³	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day @ 6m ³ per load
P1	3,04,455	60,891	203	34 Trips /Day

Total	3,04,455	60,891	203	34 Trips /Day
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TABLE 7.6: CUMULATIVE PRODUCTION OF TOP SOIL IN PROPOSAL QUARRY

Quarry	Mineable Reserves in m ³	*Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load @ 6m ³ per load
P1	7,344	3,672	12	2Trips /Day
Total	7,344	3,672	12	2Trips /Day

Source: Approved Mining plans of the respective projects, *Topsoil 2year plan period.

Based on the above production quantities the emissions due to various activities in all the 1 proposal quarries includes various activities like ground preparation, excavation, handling and transport of mineral. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 7.7.

TABLE 7.7: EMISSION ESTIMATION FROM PROPOSAL QUARRY

EMISSION ESTIMATION FOR QUARRY "P1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.091386961	g/s
	Blasting	Point Source	0.001541827	g/s
	Mineral Loading	Point Source	0.042989258	g/s
	Haul Road	Line Source	0.002493434	g/s/m
	Overall Mine	Area Source	0.054467977	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000776936	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000038668	g/s

Source: Emission Formula

TABLE 7.8: INCREMENTAL & RESULTANT GLC WITHIN PROPOSAL QUARRY

PM ₁₀ in µg/m ³	
Location	AAQ1 – CORE
Background (average)	43.8
Highest Incremental	14.82
Resultant	58.6
NAAQ Norms	100 µg/m ³
PM _{2.5} in µg/m ³	
Background (average)	22.1
Highest Incremental	6.75
Resultant	28.8
NAAQ Norms	80 µg/m ³
SO ₂ in µg/m ³	
Location	AAQ1 – CORE
Background (average)	8.1
Highest Incremental	2.59
Resultant	10.7
NAAQ Norms	80 µg/m ³
NO _x in µg/m ³	
Location	AAQ1 – CORE
Background (average)	20.7
Incremental	9.48
Resultant	30.2
NAAQ Norms	80 µg/m ³

Noise Environment

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

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

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

Where:

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

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

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

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

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

TABLE 7.9: PREDICTED NOISE INCREMENTAL VALUES FROM PROPOSAL QUARRY

Location ID	N1	N2	N3	N4	N5	N6	N7	N8
Maximum Monitored Value (Day) dB(A)	56.1	56.7	57.8	57.1	57.6	57.1	57.1	57.1
Incremental Value dB(A)	46.12	32.50	27.04	31.16	29.73	30.56	23.84	46.12
Total Predicted Noise level dB(A)	56.52	56.72	57.80	57.11	57.61	57.11	57.10	57.12
NAAQ Standards	Industrial		Day Time- 75 dB (A)		Night Time- 70 dB (A)			
	Residential		Day Time- 55 dB (A)		Night Time- 45 dB (A)			

Source: Lab Monitoring Data

The incremental noise level is found within the range of 23.84– 46.12 dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.).

Ground Vibrations

Ground vibrations due to mining activities in the all the 1-proposal existing quarry within cluster are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from the all the 1-proposal quarry is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed

structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining areas and may cause injury to persons or damage to the structures. Nearest Habitations from 2 mines respectively are as in below Table 7.10

TABLE 7.10: NEAREST HABITATION FROM PROPOSAL QUARRY

Location ID	Distance in Meters
Habitation Near P1	700

Source: Satellite Imagery and Field Data

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

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

TABLE 7.11: GROUND VIBRATIONS FROM PROPOSAL QUARRY

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	88	700	0.504

Source: PPV Calculation

From the above table, the charge per blast is considered as maximum in each mine and the resultant PPV is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997.

Socio Economic Environment –

The mines shall provide employment and revenue will be created to government

TABLE 7.12: SOCIO ECONOMIC BENEFITS FROM PROPOSAL QUARRY

Location Code	Employment	Project Cost	CER Cost
P1	32	Rs.1,65,23,000	Rs.5,00,000/-

A total of 32 people will get employment due to mines in cluster. 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 by all the mines.

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

- 1 Proposed project shall fund towards CER – **Rs. Rs.5,00,000/-**

TABLE 7.13: GREENBELT DEVELOPMENT BENEFITS FROM PROPOSAL MINES

PROPOSAL FOR P1					
Year	No. of trees proposed to be planted	Survial %	Area to be planted	Name of the species	No. of trees to be plant
I	It is proposed to plant 1100 Nos of trees in the 1 st year	80%	Safety barrier, Un utilized areas and nearby village roads	Neem, Pongamia pinnata, Casuarina, etc	880

Based on the Proposed Mining Plans it's anticipated that there shall growth of native species of Neem, Pongamia Pinnata, Casuarina, etc in the Cluster at a rate of 1100 Trees Planted over a period of 5 Years with Survival Rate of 80% over an area of proposed quarry.

7.5 PLASTIC WASTE MANAGEMENT PLAN FOR P1

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

Objective –

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

TABLE 7.14: ACTION PLAN TO MANAGE PLASTIC WASTE

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

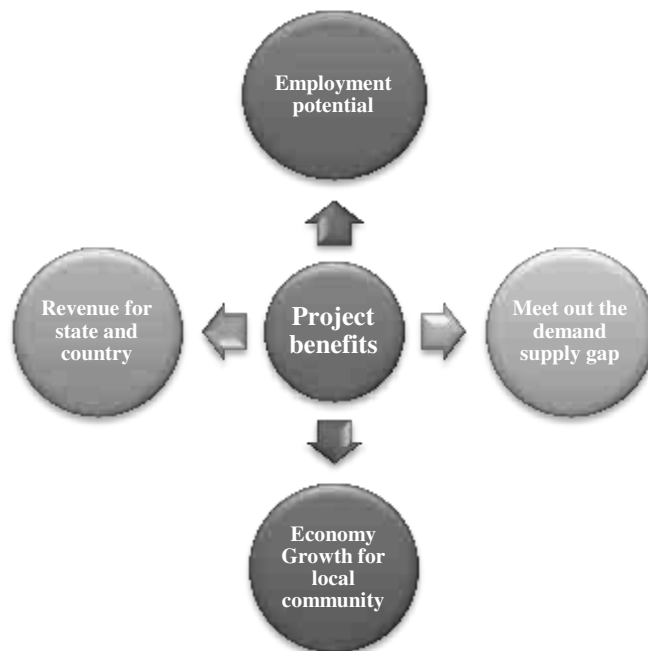
Source: Proposed by FAE's and EC

CHAPTER – 8: PROJECT BENEFITS

8.0 General

The Proposed Project for Rough Stone quarry at Thorapalli Agraharam Village aims to produce about **3,04,455m³** Rough Stone quarry over period of 5Years & **7,344 m³** of Topsoil over a period of 2 Years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits

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



8.1 Employment Potential

It is proposed to provide employment to about 32 persons for carrying out mining operations and give preference to the local people in providing employment. In addition, there will be opportunity for indirect employment to many people in the form of contractual jobs, business opportunities, service facilities etc. the economic status of the local people will be enhanced due to mining project.

8.2 Socio-Economic Welfare Measures Proposed

The impact of mining activity in the area will be more positive than negative on the socio-economic environment in the immediate project impact area. The employment opportunities both direct and indirect will

contribute to enhanced money incomes to job seekers with minimal skill sets especially among the local communities.

8.3 Improvement in Physical Infrastructure

The proposed existing project site is located in Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District of Tamil Nadu and the area have communications, roads and other facilities already well established. The following physical infrastructure facilities will further improve due to the cluster quarry projects.

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

8.4 Improvement in Social Infrastructure

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

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

8.5 Other Tangible Benefits

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

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

CORPORATE SOCIAL RESPONSIBILITY

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 10 km of the project site. For this purpose, separate budget will be provided every year. For finalization of these schemes, proponent will interact with LSG. The schemes will be selected from the following broad areas –

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

CSR Cost Estimation

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

CORPORATE ENVIRONMENT RESPONSIBILITY–

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

As per para 6 (II) of the office memorandum, all the mines being a green field project & Capital Investment is \leq 100 crores, they shall contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC and the total CER amount from proposed mines is Rs **Rs 5,00,000/-**

TABLE 8.1 CER – ACTION PLAN

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

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

CHAPTER – 9: ENVIRONMENTAL COST BENEFIT ANALYSIS

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

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN – M/s. A.V.S. TECH BUILDING SOLUTIONS INDIA PVT LTD,

10.1 General

Environment Management Plan (EMP) aims at the preservation of ecological system by considering in-built pollution abatement facilities at the proposed site. Good practices of Environmental Management plan will ensure to keep all the environmental parameters of the project in respect of Ambient Air quality, Water quality, Socio – economic improvement standards.

Mitigation measures at the source level and an overall environment management plan at the study area are elicited so as to improve the supportive capacity of the receiving bodies. The EMP presented in this chapter discusses the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored after approval of the EIA.

10.2 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 will –

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

Description of the Administration and Technical Setup –

The Environment Monitoring Cell discussed under Chapter 6 will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level of each Proposed Quarry.

The said team will be responsible for:

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

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

10.3 Land Environment Management –

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

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

TABLE 10.1: PROPOSED CONTROLS FOR LAND ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.4 Soil Management

Top Soil Management –

- There is topsoil for this project site. 7,344 m³

Overburden / Waste and Side Burden Management –

- The overburden in the form of topsoil formation, the topsoil will be directly loaded into tippers for the filling and levelling of low-lying areas, this will be done only after obtaining permission and paying necessary seigniorage fees to the Government.

TABLE 10.2: PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Garland drains are to be paved around the quarry pit area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface water via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Environment Officer
keeping records of mitigation of erosion events, to improve on management techniques	Environment Officer
A monitoring map with information including their GPS coordinates, erosion type, intensity, and the extent of the affected area, as well as existing control measures and assessment of their performance	Environment Officer
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Environment Officer
Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.5 Water Management

In the proposed quarrying project, no process is involved for the effluent generation, only oil & grease from the machinery wash is anticipated and domestic sewage from mine office.

The quarrying operation is proposed upto a depth of 51m (16m AGL + 35m BGL), the water table in the area is 70m – 65m below ground level, hence the proposed projects will not intersect the Ground water table during entire quarry period.

TABLE 10.3: PROPOSED CONTROLS FOR WATER ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.6 Air Quality Management

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

TABLE 10.4: PROPOSED CONTROLS FOR AIR ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.7 Noise Management

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

TABLE 10.5: PROPOSED CONTROLS FOR NOISE ENVIRONMENT

CONTROL	RESPONSIBILITY
Development of thick greenbelt all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Foreman
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Mines Manager
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Mining Mate
Provision of effective silencers for mining machinery and transport vehicles	Mines Manager
Provision of sound proof AC operator cabins to HEMM	Mines Manager
Sharp drill bits are used to minimize noise from drilling	Mines Foreman
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring shall be carried out in the project area and in surrounding villages to access the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.8 Ground Vibration and Fly Rock Control

TABLE 10.6: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK

CONTROL	RESPONSIBILITY
Controlled blasting using delay detonators will be carried out to maintain the PPV value (below 8Hz) well within the prescribed standards of DGMS	Mines Manager
Drilling and blasting will be carried under the supervision of qualified persons	Mines Manager
Proper stemming of holes should be carried out with statutory competent qualified blaster under the supervision of statutory mines manager to avoid any anomalies during blasting	Mines Manager
Suitable spacing and burden will be maintained to avoid misfire / fly rocks	Manager Mines
Number of blast holes will be restricted to control ground vibrations	Manager Mines
Blasting will be carried out only during noon time	Mining Mate
Undertake noise or vibration monitoring	Mines Manager
ensure blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material	Mines Foreman

Source: Proposed by FAE's & EIA Coordinator

10.9 Biological Environment Management

The proponent will take all necessary steps to avoid the impact on the ecology of the area by adopting suitable management measures in the planning and implementation stage. During mining, thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of quarried out area etc.,

Following control measures are proposed for its management and will be the responsibility of the Mines Manager.

- Greenbelt development all along the safety barrier of the project area
- It is also proposed to implement the greenbelt development programme and post plantation status will be regularly checked for every season.
- The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and installing a sprinkler unit near the newly planted area.
- Year wise greenbelt development will be recorded and monitored
 - Based on the area of plantation.
 - Period of plantation
 - Type of plantation
 - Spacing between the plants
 - Type of manuring and fertilizers and its periods
 - Lopping period, interval of watering
 - Survival rate
 - Density of plantation
- The ultimate reclamation planned leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period.

10.9.1 Green Belt Development Plan

About 1300nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

TABLE 10.7 PROPOSED GREENBELT ACTIVITIES FOR 5 YEAR PLAN PERIOD – P1

PROPOSAL FOR P1					
Year	No. of trees proposed to be planted	Survial %	Area to be planted	Name of the species	No. of trees to be plant
I	It is proposed to plant 1300 Nos of trees in the 1 st year	80%	Safety barrier, Un utilized areas and nearby village roads	Neem, Pongamia pinnata, Casuarina, etc	1100

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

The objectives of the greenbelt development plan are –

- Provide a green belt around the periphery of the quarry area to combat the dispersal of dust in the adjoining areas,
- Protect the erosion of the soil, Conserve moisture for increasing ground water recharging,
- Restore the ecology of the area, restore aesthetic beauty of the locality and meet the requirement of fodder, fuel and timber of the local community.

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

10.9.2 Species Recommended for Plantation

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

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

TABLE 10.8: RECOMMENDED SPECIES TO PLANT IN THE GREENBELT – P1

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

Source: Proposed by FAE's & EIA Coordinator

10.10 Occupational Safety & Health Management

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health impact in quarries are fugitive dust and noise. Safety of employees during quarrying operation and maintenance of mining equipment will be taken care as per Mines Act

1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

10.10.1 Medical Surveillance and Examinations –

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

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

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

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

TABLE 10.10.1: MEDICAL EXAMINATION SCHEDULE – P1

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

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

10.10.2 Proposed Occupational Health and Safety Measures –

- The mine site will have adequate drinking water supply so that workers do not get dehydrated.
- Lightweight and loose-fitting clothes having light colours will be preferred to wear.
- Noise exposure measurements will be taken to determine the need for noise control strategies.
- The personal protective equipment will be provided for mine workers.
- Supervisor will be instructed for reporting any problems with hearing protectors or noise control equipment.
- At noisy working activity, exposure time will be minimized.
- Dust generating sources will be identified and proper control measure will be adopted.
- Periodic medical examinations will be provided for all workers.
- Strict observance of the provisions of DGMS Acts, Rules and Regulations in respect of safety both by management and the workers.
- The width of road will be maintained more than thrice the width of the vehicle. A code of traffic rules will be implemented.
- In respect of contract work, safety code for contractors and workers will be implemented. They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training centres. All personal protective equipment's will be provided to them.
- A safety committee meeting every month will be organized to discuss the safety of the mines and the persons employed.
- Celebration of annual mines safety week and environmental week in order to develop safety awareness and harmony amongst employees and co quarry owners.

FIGURE 10.1: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS – P1

10.10.3 Health and Safety Training Programme

The Proponents will provide special induction program along with machinery manufacturers for the operators and co-operators to run and maintain the machinery effectively and efficiently. The training program for the supervisors and office staffs will be arranged in the Group Vocational Training Centres in the State and engage Environmental Consultants to provide periodical training to all the employees to carry out the mining operation in and eco-friendly manner.

TABLE 10.10.2: LIST OF PERIODICAL TRAININGS PROPOSED FOR EMPLOYEES – P1

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

				Escape ways, emergency evacuations Fire warning Ground control hazards First aid Electrical hazards Accident prevention Explosives Respirator devices
Hazard Training	All employees exposed to mine hazards	Once	Variable	Hazard recognition and avoidance Emergency evacuation procedures Health standards Safety rules Respiratory devices

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

10.10.4 Budgetary Provision for Environmental Management –P1

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

TABLE 10.10.3: EMP BUDGET FOR PROPOSED PROJECT – P1

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	22000	22000
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 8 Units	200000	20000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 3 Units	15000	750
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000

	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	44000
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	791583

Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	22000	5000
	2. Progressive Closure Activity Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	440000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 1300 Tress (500 Tress inside the lease area and 800 Trees outside the 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)	100000	15000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	240000	24000

	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	87900	0
	5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site	1796285	0
Implementation of EC, Mining Plan & DGMS Condition- Public hearing commitment	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality Sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee) - 32 Employees	128000	32000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	32000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	4400

	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	110000	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
	Construction of Greenmesh along with wire fencing around the lease area	Per Hectare greenmesh cost @ Rs. 50,000/- with Maintenance of Rs 20,000/- per annum	1,50,000	20,000
CER	As per MoEF &CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	0
TOTAL			2887000	1987733

In order to implement the environmental protection measures, an amount of Rs.28.87 lakhs as capital cost and recurring cost as Rs. 19.8 lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project.

Year Wise Break Up	
1 st Year	₹ 48,74,733
2 nd Year	₹ 20,87,120
3 rd Year	₹ 21,91,476
4 th Year	₹ 23,01,049
5 th Year	₹ 25,04,002
Total	140 lakhs

10.11 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 review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus, the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area.

CHAPTER – 11: SUMMARY AND CONCLUSIONS

Rough Stone Quarry of M/s. A.V.S. Tech Building Solutions India Pvt Ltd (Cluster Extent 6.97.5 ha) falls under “B” category as per MoEF & CC Notification (S.O. 3977 (E)).

Now, as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018 clarified the requirement for EIA, EMP and therefore, Public Consultation for all areas from 5 to 25 ha falling in Category B-1 and appraised by SEAC/ SEIAA as well as for cluster situation.

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

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

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the months Mar 2022 to May 2022 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

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

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

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

Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 32 people directly in the cluster and indirectly around 60 people.

As discussed, it is safe to say that the proposed quarries are not likely to cause any significant impact to the ecology of the area, as adequate preventive measures will be adopted to keep the various pollutants within the permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigate technique, as well as to serve as biological indicators for the pollutants released from Rough Stone quarry (Extent: 6.97.5 ha).

CHAPTER 12: DISCLOSURE OF CONSULTANTS

The Project Proponent's –

M/s. A.V.S. Tech Building Solutions India Pvt Ltd have engaged M/s Geo Exploration and Mining Solutions, an Accredited Organization under Quality Council of India – National Accreditation Board for Education & Training, New Delhi, for carrying out the EIA Study as per the ToR Issued.

Name and address of the consultancy:

GEO EXPLORATION AND MINING SOLUTIONS

No 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004

Tamil Nadu, India

Email: infogeoexploration@gmail.com

Web: **www.gemssalem.com**

Phone: 0427 2431989.

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

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

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

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

Declaration by experts contributing to the EIA/EMP for Rough Stone quarry Cluster Quarries over an Extent of **6.97.5 ha** in Thorapalli Agraharam Village of Hosur Taluk, Krishnagiri District, Tamil Nadu State. It is also certified that information furnished in the above EIA study are true and correct to the best of our knowledge.

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

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

Designation: **EIA Coordinator**

Date & Signature:















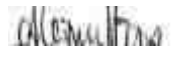





Period of Involvement: **January 2022 to till date**

Associated Team Member with EIA Coordinator:



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




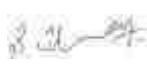
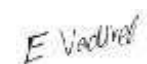


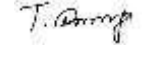
FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

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

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

LIST OF TEAM MEMBERS ENGAGED IN THIS PROJECT

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

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

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, Dr. M. Ifthikhar Ahmed, Managing Partner, Geo Exploration and Mining Solutions, hereby, confirm that the above-mentioned Functional Area Experts and Team Members prepared the EIA/EMP for Rough Stone quarry Cluster over an Extent of 6.97.5ha in Thorapalli Agraharam Village of Hosur Taluk, Krishnagiri District, Tamil Nadu State. It is also certified that information furnished in the EIA study are true and correct to the best of our knowledge.

Signature & Date:



Name:

Dr. M. Ifthikhar Ahmed

Designation:

Managing Partner

Name of the EIA Consultant Organization:

M/s. Geo Exploration and Mining Solutions

NABET Certificate No & Issue Date:

NABET/EIA/2225/RA 0276 Dated: 20-02-2023

Validity:

Valid till 06.8.2025

ANNEXURE

M/s. A.V.S. Tech Building Solutions India Pvt Ltd. Rough Stone Quarry

Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District

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

ToR obtained vide

Lr No.SEIAA-TN/F.No.8711/SEAC/ToR- 1049/2022 Dated: 31.01.2022

CLUSTER EXTENT = 6.97.5 Ha

Project Details

Name and Address of the proponent	Project site Details
M/s. A.V.S. Tech Building Solutions India Pvt Ltd., S.Srinivasan (managing Director) No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	S.F.No. 662 (P), 2.20.0 Ha, Thorapalli Agraharam Village of H Taluk, Krishnagiri District

JULY 2023

LIST OF ANNEXURES

Proposed Quarry		
P1 - M/s. A.V.S. Tech Building Solutions India Pvt Ltd.	Copy of ToR	1A – 14A
	Copy of 500m Radius Letter	15A – 17A
	Copy of Mining plan approval and Existing Pit letter	18A – 21A
	Copy of Approved Mining plan with Plates	22A – 114A
	Copy of additional documents	115A – 119A
	Copy of Baseline Monitoring Study Data	120A – 170A
	Copy of Consultant Accreditation Certificate	171A
	Copy of Laboratory Accreditation Certificate	172A



**TMT.P.RAJESWARI, I.F.S.,
MEMBER SECRETARY**

**STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU**

3rd Floor, Panagal Maaligai,
No.1 Jeenis Road, Saidapet, Chennai-15.
Phone No.044-24359973

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.8711/SEAC/ToR- 1049/2022 Dated: 31.01.2022

To

M/S.A.V.S. Tech Building Solutions India Pvt Ltd
No.292, Sipcot Housing Board Colony
Mookandapalli
Hosur Taluk
Krishnagiri District-635126

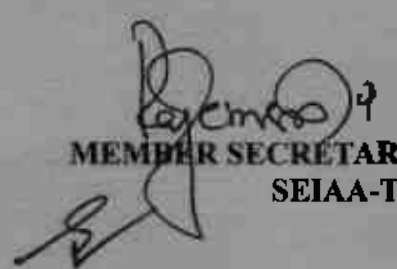
Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the proposed Rough Stone quarry lease over an extent of 2.20.0 Ha in S.F.No. 662 (P) at Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Tamil Nadu by M/s. A.V.S. Tech Building Solutions India Pvt Ltd - under project category – "B1" and Schedule S.No. 1(a) – ToR issued along with Public Hearing- preparation of EIA report – Regarding.

Ref: 1. Online proposal No.SIA/TN/MIN/ 64324/2021, dated: 30.06.2021
2. Your application submitted for Terms of Reference dated: 17.08.2021
3. Minutes of the 237th meeting of SEAC held on 08.10.2021
4. Minutes of the 481st Authority meeting held on 24.01.2022 & 25.01.2022.

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

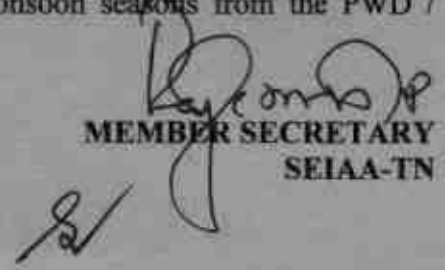
The proponent, M/s. A.V.S. Tech Building Solutions India Pvt Ltd has submitted application for ToR with public Hearing on 30.06.2021, in Form-I, Pre- Feasibility report for the proposed Rough Stone quarry lease over an extent of 2.20.0 Ha in S.F.No.662 (P) at Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Tamil Nadu.


**MEMBER SECRETARY
SEIAA-TN**

Discussion by SEAC and the Remarks:-


The proposal was placed for appraisal in the 237th meeting of SEAC held on 08.10.2021. 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) with Public Hearing**, subject to the following ToR 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. Restricting the depth of mining to 41m ultimate depth and quantity of 277385 cu.m of Rough Stone for five years with a bench height of 5m as per the approved mining plan considering the hydrogeological regime of the surrounding area as well as to ensure sustainable and safe mining.
2. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
 - a) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 - b) Quantity of minerals mined out.
 - c) Detail of approved depth of mining.
 - d) Actual depth of the mining achieved earlier.
 - e) Name of the person already mined in that leases area.
 - f) If EC and CTO already obtained, the copy of the same shall be submitted.
 - g) whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
3. A detailed study of the lithology of the mining lease area shall be furnished.
4. 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.
5. 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 /


MEMBER SECRETARY
SEIAA-TN

TWAD so as to assess the impacts on the wells due to mining activity.

6. 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.
7. The Proponent shall carry out the Cumulative impact study due to mining from all the mines on the environment in terms of air pollution, water pollution, & health impacts, accordingly the Environment Management plan should be prepared.
8. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity.
9. 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.
10. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report.
11. All the queries raised during public hearing by the local habitants need to be addressed and the protective measures or management plan may be revised accordingly and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF & CC accordingly.
12. The recommendation for the issue of "Terms of Reference" is subjected to the outcome of the Hon'ble NGT, Principal Bench, New Delhi in O.A No.186 of 2016 (M.A.No.350/2016) and O.A. No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No. 758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A. No. 843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No. 981/2016, M.A.No.982/2016 & M.A.No.384/2017).
13. The purpose of Green belt around the project is to capture the fugitive emissions and to attenuate the noise generated, in addition to the improvement in the aesthetics. A wide range of indigenous plants species should be planted in and around the premise in consultation with the DFO, District / State Agriculture University. The plants species should have thick canopy cover, perennial green nature, native origin and large leaf areas. Medium size trees and small trees alternating with shrubs shall be planted. Miyawaki method of planting i.e. planting different types of trees at very close intervals may be tried which will give a good green cover. Greenbelt needs to be developed in the periphery of the mines area so that at


MEMBER SECRETARY
SEIAA-TN

the closure time the trees would have grown well.

14. The project proponent shall furnish the details of the existing/proposed Green belt area earmarked with GPS coordinates and list of trees that are proposed to be planted surrounding the mining area atleast to a width of 3m along with a copy of photos/documents, and the same shall be included in the EIA Report.

Discussion by SEIAA and the Remarks:-

The subject was placed in the 481st Authority meeting held on 24.01.2022 & 25.01.2022. After detailed discussions, the Authority accepted the recommendation of SEAC and decided to grant Terms of Reference (ToR) with Public Hearing under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal condition in addition to the following conditions:

1. As per the recommendation of SEAC and as accepted by the proponent, restricting the depth of mining to 41m and quantity of 277385 cu.m of Rough stone for five years with a bench height of 5m as per the approved mining plan considering the hydrogeological regime of the surrounding area as well as to ensure sustainable and safe mining.
2. 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.
3. 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.
4. 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.
5. Action should be specifically suggested for sustainable management of the area and restoration of ecosystem for flow of goods and services.


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A. STANDARD TERMS OF REFERENCE

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


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slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.

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


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

- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 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


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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.
- 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


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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 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


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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:-
 - 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


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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)).
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.


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5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies


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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.

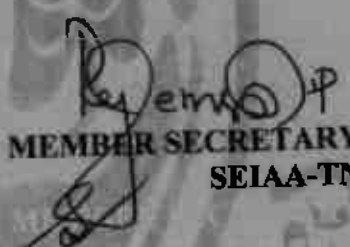
Besides the above, the below mentioned general points should also be followed:-

- 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.


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e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.

- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
- The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
- The TORs with public hearing prescribed shall be valid for a period of three years from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.


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Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai -34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
6. The District Collector, Krishnagiri District.
7. The EO/BDO, Thorapalli Village, Hosur Taluk, Krishnagiri District
8. Stock File.

From

Thiru L.Suresh, M.Sc.,
Assistant Director (Addl.Charge),
Dept of Geology and Mining,
Collectorate,
Krishnagiri.

To

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

Roc.No.217/2019/Mines

Dated : 21.06.2019.

Sir,

Sub: Mines and Minerals - Krishnagiri District - Rough Stone - Krishnagiri District - Hosur Taluk - Thorapalli Agraharam Village - Government land S.F.No.662 (Part) - over an extent of 2.20.0 Hect Rough Stone quarry lease application preferred by M/s.AVS Tech Building Solutions India Pvt Ltd, No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - Details of quarries situated within 500 mts radial distance - requested by the applicant - Details furnished - reg.

- Ref:
- 1 The Gazette of India, Ministry of Environment Forest and Climate change Notification, New Delhi dt:01.07.2016.
 - 2 The District Collector, Krishnagiri Pro.Roc.No.217/2019/ Mines dated: 13.06.2019.
 3. Mining Plan approved by the Assistant Director of Geology and Mining, Krishnagiri in Roc. No.217/2019/Mines Dated: 21.06.2021.
 4. M/s.AVS Tech Building Solutions India Pvt Ltd, No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District dated: 21.06.2019.

I am to invite kind attention to the references cited above.

M/s.AVS Tech Building Solutions India Pvt Ltd, No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District has been granted a Rough stone quarry lease for a period of 5 years over an extent of 2.20.0 Hect of Government land in S.F.No.662(Part) of Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District vide the District Collector, Krishnagiri Pro.Roc.No.217/2019/Mines dated: 13.06.2019 have communicated precise area over an extent of 2.20.0 Hect in Government S.F.No.662(Part) Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District and requested the applicant to furnish the approved Mining Plan and Environmental Clearance from the Competent Authority for the above said area.

The Mining Plan submitted by the applicant has been approved by the Assistant Director of Geology and Mining, Krishnagiri vide the reference 3rd cited.

In the reference 4th cited the applicant has requested to furnish the details of quarries situated within 500mts radial distance from the said quarry.

As per the notification issued by the Ministry of Environment Forest and Climate Change Notification, New Delhi dt. 01.07.2016, vide the reference 1st cited, the following instructions was given.

The leases not operative for three years or more and leases which have got environmental clearance as on 15th January, 2016 shall not be counted for calculating the area of cluster, but shall be included in the Environmental Management plan and the Regional Environmental Management plan.

As requested by the applicant and based on the above said MoEF notification the details of quarries situated within 500 mts Radial distance from the said quarry is furnished as follows:

(i) Details of Existing quarries.

Sl. No.	Name of the lessee	Village	S.F No.	Extent in Het	GO No.& Date	Lease period.
1	M/s.AVS Tech Building Solutions India Pvt Ltd, No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District.	Hosur Taluk, Thorapalli Agraharam Village,	662 (Part)	2.20.0	Roc.No.217/2019/Mines dated: 13.06.2019	Precise are given
2	M/s.AVS Tech Building Solutions India Pvt Ltd, No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District.	Hosur Taluk, Thorapalli Agraharam Village,	663/1A(P), 663/1B1(P), 663/1B2(P), 663/1B3(p), 679/1	4.77.0	Roc.No.680/2016/Mines dated: 05.12.2019	05.12.2019 to 04.12.2024

(ii) Details of abandoned/Old quarries.

Sl. No.	Name of the lessee	Village	S.F No.	Extent in Het	GO No.& Date	Lease period.
Nil	Nil	Nil	Nil	Nil	Nil	nil

(iii) Details of Proposed quarries

Sl. No.	Name of the lessee	Village	S.F No.	Extent in Het	GO No.& Date	Lease period.
	Nil	Nil	Nil	Nil	Nil	Nil

(iv) Details of applied area.

Sl.No.	Name of the lessee	Village	S.F No.	Extent in Het	GO No.& Date	Remarks
- Nil -						

Assistant Director (Additional Charge),
Dept of Geology and Mining,
Krishnagiri.

[Signature]
21/6/19

[Signature]
21/6/19

To

M/s. AVS Tech Building Solutions India Pvt Ltd,
No. 292, Sipcot Housing Board Colony,
Mookandapalli, Hosur Taluk,
Krishnagiri District.

From

Thiru.L.Suresh,M.Sc.,
Assistant Director (Addl. Charge),
Dept. of Geology and Mining,
Collectorate,
Krishnagiri.

To

M/s. A.V.S.Tech Building Solutions
India Pvt Ltd.,No.292,
Sipcot Housing Board Colony,
Mookandapalli, Hosur Taluk,
Krishnagiri District.

Roc.No.217/2019/Mines

Dated: 26-06-2019.

Sir,

Sub: Mines and Minerals – Rough Stone - Krishnagiri District –
Hosur Taluk, Thorapalli Agraharam village - S.F.No.662 (P)
- Over an extent of 2.20.0 Hects of Government Poramboke
lands - Quarry Lease for Rough Stone Application preferred
by M/s.A.V.S.Tech Building Solutions India Pvt Ltd.,
No.292, Sipcot Housing Board Colony, Mookandapalli,
Hosur Taluk, Krishnagiri District- Draft Mining Plan
submitted - Approved - reg.

- Ref: 1. Krishnagiri District Gazette No.07 Dt: 21.02.2019.
2. The District Collector Krishnagiri Roc.No.217/2019/
Mines dated:13.06.2019.
3. Draft Mining plan submitted by M/s.A.V.S.Tech
Building Solutions India Pvt Ltd.,No.292, Sipcot
Housing Board Colony, Mookandapalli, Hosur Taluk,
Krishnagiri District-635126 Dated.17.06.2019.

Kind attention is invited to the reference cited,

M/s.A.V.S.Tech Building Solutions India Pvt Ltd.,No.292, Sipcot
Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District-
635126 has been issued precise area over an extent of 2.20.0 Hects of
Government Poramboke land in S.F.No.662 (Part) in Thorapalli Agraharam
Village, Hosur Taluk, Krishnagiri District for the proposed grant of rough
stone quarry lease for a period of 5 years under tender cum auction system
under the provisions of Rule 8 (6) (b) of Tamil Nadu Minor Mineral
Concession Rules, 1959 and he has been directed to submit approved
mining plan and Environment Clearance vide the reference 2nd cited.

2. In this regard, M/s.A.V.S.Tech Building Solutions India Pvt Ltd had submitted 03 copies of draft Mining Plan vide the reference 3rd cited for approval for the said quarry lease.

3. The draft Mining Plan submitted by M/s.A.V.S.Tech Building Solutions India Pvt Ltd has been scrutinized as per the guide lines/ Instructions issued by the Commissioner of Geology and Mining, Chennai-32. The mining plan is prepared in accordance with the guidelines/ instructions issued and tallies with the field conditions. The special conditions imposed in the precise area letter had been incorporated in the Mining Plan.

4. Hence, as per the guidelines/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.

The applicant should get prior Environmental clearance from the appropriate authority and should submit it to the District Collector, Krishnagiri.

Assistant Director (Addl. Charge)
Dept of Geology and Mining,
Krishnagiri.

[Signature]
29/6/19

- Copy submitted to :
1. The Chairman, State Level Environment Impact Assessment Authority, Saidapet, Chennai.
 2. The Commissioner of Geology and Mining, Guindy, Chennai -32.

From

Thiru L.Suresh, M.Sc.,
Assistant Director(Addl.Charge),
Dept of Geology and Mining,
Collectoraee,
Krishnagiri.

To

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

Roc.No.217/2019/Mines

Dated: 21.06.2021.

Sir,

Sub: Mines and Minerals – Krishnagiri District – Rough Stone –Krishnagiri District, Hosur Taluk – Thorapalli Agraharam Village – Government Poramboke land S.F No.662(Part) – over an extent of 2.20.0 Hect Rough Stone quarry lease granted to M/s.AVS Tech Building Solutions India Pvt Ltd, No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District – quarry pit dimension details requested – Furnished - reg.

- Ref: 1 The District Collector, Krishnagiri Proc. Roc.No.217/2019/Mines dated: 13.06.2019.
2. M/s.AVS Tech Building Solutions India Pvt Ltd, No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District letter dated: 14.06.2021.
3. The Inspection report of the Assistant Geologist O/o the Assistant Director of Geology and Mining, Krishnagiri dated: 15.06.2021.

I am to invite kind attention to the reference cited.

M/s.AVS Tech Building Solutions India Pvt Ltd, No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District had been granted a quarry lease application for the Rough Stone over an extent of 2.20.0 Hect in Government Poramboke land S.F.No.662(Part) of Thorapalli Agraharam Village Hosur Taluk, Krishnagiri District for a period of 05 years vide reference 1st cited under the provisions of Rule 8(6)(b) of Tamil Nadu Minor Mineral Concession Rule 1959 .

M/s.AVS Tech Building Solutions India Pvt Ltd in his representation vide reference 2nd cited has stated that while he apply for Environmental Clearance in SEIAA, they have instructed to get the permitted quarry pit dimension details to the subject quarry and requested to give the same to get Environmental Clearance.

In this regard the subject quarry has been inspected and Measurement of the pit in the permitted quarry area are as follows:

The average dimensions of pits are below.

Length(m)(max)	Width(M)(Max)	Depth(m)(max)
160	60	19.5m

Assistant Director (Addl. Charge),
Dept of Geology and Mining,
Krishnagiri. 21/11/2021

To

^{6/25.6.21}
M/s.AVS Tech Building Solutions India Pvt Ltd,
No.292, Sipcot Housing Board Colony,
Mookandapalli,
Hosur Taluk,
Krishnagiri District.



**MINING PLAN AND PROGRESSIVE QUARRY
CLOSURE PLAN FOR THORAPALLI AGRAHARAM
ROUGH STONE QUARRY**

(PREPARED UNDER RULES 41 & 42 AS AMENDED IN TAMILNADU MINOR MINERAL CONCESSION RULES, 1959)

Government Land / Lease Period = Five Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT : 2.20.0 Ha
S.F.NO : 662 (P)
VILLAGE : THORAPALLI AGRAHARAM
TALUK : HOSUR
DISTRICT : KRISHNAGIRI
STATE : TAMIL NADU

FOR

APPLICANT

M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,

No.292, Sipcot Housing Board Colony,
Mookandapalli, Hosur Taluk,
Krishnagiri District - 635 126.

PREPARED BY

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

Qualified Person

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



M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,
No.292, Sipcot Housing Board Colony,
Mookandapalli, Hosur Taluk,
Krishnagiri District - 635 126.

CONSENT LETTER FROM APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Thorapalli Agraharam Rough Stone Quarry in S.F.No.662 (P) over an extent of 2.20.0 Ha of Government land in Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Tamil Nadu State has been prepared by

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

We request to the District Collector, Krishnagiri District to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

Dr. P. Thangaraju, M.Sc., Ph.D.,
Regd. Off. No. 17,
Advaitha Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.

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

Signature of the Applicant

For M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,

S.Srinivasan
(Managing Director)

Place: Krishnagiri
Date: 14.06.2019



M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,
No.292, Sipcot Housing Board Colony,
Mookandapalli, Hosur Taluk,
Krishnagiri District - 635 126.

DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Thorapalli Agraharam Rough Stone Quarry in S.F.No.662 (P) over an extent of 2.20.0 Ha of Government land in Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Tamil Nadu State has been prepared in full consultation with me.

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

Signature of the Applicant

For M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,

S.Srinivasan

(Managing Director)

Place: Krishnagiri

Date: 14.06.2019



CERTIFICATE

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

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

Accordingly, I am preparing this Mining Plan and Progressive Quarry Closure Plan in Respect of Thorapalli Agraharam Rough Stone Quarry in S.F.No.662 (P) over an extent of 2.20.0 Ha of Government land in Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Tamil Nadu State for **M/s. A.V.S. Tech Building Solutions India Pvt Ltd.**, having an office at No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person

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

Place: Salem

Date: 17.06.2019



Dr. P. Thangaraju, M.Sc., Ph.D.,
Regd. Off. No. 17,
Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.

CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Thorapalli Agraharam Rough Stone Quarry in S.F.No.662 (P) over an extent of 2.20.0 Ha of Government land in Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for **M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,**

No.292, Sipcot Housing Board Colony,
Mookandapalli, Hosur Taluk,
Krishnagiri District - 635 126.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the District Collector, Krishnagiri District, Tamil Nadu for such permissions/ exemptions/ relaxations and approvals.

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

Signature of the Qualified Person

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

Place: Salem

Date: 17.06.2019



Dr. P. Thangaraju, M.Sc., Ph.D.,
Regd. Off. No. 17,
Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations and Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Thorapalli Agraharam Rough Stone Quarry in S.F.No.662 (P) over an extent of 2.20.0 Ha of Government land in Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for

M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,
No.292, Sipcot Housing Board Colony,
Mookandapalli, Hosur Taluk,
Krishnagiri District - 635 126.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of Director General of Mines Safety (DGMS), No.#5, 17th Main, 100ft Road, 4th Block, Koramangala, Bengaluru, Kamataka – 560 034, for such permissions / exemptions / relaxations and approvals.

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

Signature of the Qualified Person

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

Place: Salem

Date: 17.06.2019



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**MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR
THORAPALLI AGRAHARAM ROUGH STONE QUARRY OVER AN EXTENT
OF 2.20.0Ha IN THORAPALLI AGRAHARAM VILLAGE, HOSUR TALUK,
KRISHNAGIRI DISTRICT, TAMIL NADU STATE.**

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

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

This Mining Plan and Environment Management Plan are prepared for M/s. **A.V.S. Tech Building Solutions India Pvt Ltd.**, having an office at No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.

The Rough Stone quarry lease applied area is a Government land. The applicant has preferred the application under Rule, 8 (6) (b) of Tamil Nadu Minor Mineral Concession Rules, 1959 and the area was awarded to the successful bidder M/s. **A.V.S. Tech Building Solutions India Pvt Ltd.**, through Tender Cum Auction for over an extent of **2.20.0Ha** of **Government land** in **S.F.No.662 (P)** of **Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District** under Rule 8 (6) (b) of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the District Collector, Krishnagiri District and passed a Precise Area Communication letter vide **Rc.No.217/2019/Mines, Dated:13.06.2019** to submit Mining Plan for the approval in Department of Geology and Mining, Krishnagiri District and obtain Environmental Clearance from the SEIAA, Chennai, Tamil Nadu State, with the conditions to provide:

1. The applicant should leave a safety distance of 7.5m to the adjacent Patta lands and 10m to the Government Poramboke lands.
2. The applicant should leave a safety distance of 10m to the village roads and 50m to the other Highway Roads.

(Please refer Annexure No – I).

In order to ensure compliance of the order of the Honourable Supreme Court Dated: 27.02.2012 in I.A.No.12.13.2011 in Special Leave Petition SLP (C) No 19628-19629/2009, it has been now decided that all mining projects of minor minerals including their renewal irrespective of sizes of the lease would hence forth require prior environmental clearance mining project within the lease applied



area up to less than 100ha including projects or minor mineral with lease applied area less than 5ha would be treated as category B as defined in the EIA notification 2006 and will be considered by the state notified by MoEF as prescribed procedure under EIA notification 2006.

In the above circumstances the applicant through his consultant is hereby preparing the Mining Plan, Environmental Management Plan and Progressive Quarry Closure Plan for approval and subsequent submission of Form-I, Form-IM and Pre feasibility report to obtain environmental clearance from the SEIAA, Chennai, Tamil Nadu State, Rough Stone quarry. This mining plan is prepared by considering the Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and its subsequent Amendment and judgments till 24.01.2019.

Short Notes of Mining Plan:

- a. Village Panchayat - Thorapalli Agraharam
- b. Panchayat Union - Hosur
- c. The Geological Resources are $8,66,891\text{m}^3$ of Rough Stone and $14,467\text{m}^3$ of Topsoil in the entire area.
- d. The Total Mineable Reserves are $3,04,455\text{m}^3$ of Rough Stone and $7,344\text{m}^3$ of Topsoil in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are $3,04,455\text{m}^3$ of Rough Stone for five years in the entire area.
- f. Total extent of the lease applied area = 2.20.0Ha
- g. Topography of the area = The area exhibits an undulated topography
- h. Proposed Depth of mining = 51m (16m AGL + 35m BGL) below general ground level
- i. This Mining Plan period = Five years
- j. It is a fresh lease application but, the applied area has been considered quarrying operation earlier. The quarry lease was granted by the state government, Tamil nadu by tender cum auction for the period of five years from 2009 to 2014.
- k. The maximum dimensions of the **existing quarry pits** are given table below (Refer Plate No. II).

Length (m) (max)	Width (m) (max)	Depth (m) (max)
160	60	19.5m (16m AGL + 3.5m BGL)

- l. Method of mining / level of mechanization.
Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.



- m. Type of machineries proposed in the quarrying operation is given below:
Excavators attached with rock breaker (Rental Basis).
Jack hammer, Compressor (Diesel drive) (4 Jack Hammer capacity) (Rental Basis).
- n. No trees will be uprooted due to this quarrying operation.
- o. The existing road from the main road to quarry is in good condition. The same will be maintained and utilized for Transportation of quarry materials and machineries.
- p. There is No Export of this Rough Stone.
- q. Topo sketch covering 10km and 1km radius around the proposed area with markings of habitations, water bodies including streams, rivers, roads, major structure like bridges, wells, archaeological importance, places of worships is marked and enclosed as Plate Nos. IA & IB.
- r. The lease applied area is about 2.20.0Ha bounded by fifteen corners; the corners are designated as 1-15 Clockwise from the Southwestern corner, the Co – ordinates for the all the corners are clearly marked in the Quarry Lease and Surface Plan enclosed as Plate No. II.
- s. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are enclosed as Plate Nos. III and IV.
- t. General conditions will not be applicable for the proposed area. The area applied for lease is 10Km away from the,
- i) *Interstate Boundary,*
 - ii) *Protected area under wild life protection ACT, 1972,*
 - iii) *Critically polluted areas as identified by CPCB,*
 - iv) *Notified Eco sensitive areas.*
- u. There is no waste anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- v. Around 32 employees are deploying in the quarrying operation.
- w. Total Cost of the project is about **Rs. 1,68,54,000/-**.

x. Infrastructures around the lease applied area given below in the table:

TABLE-1

Particulars	Location	Approximate aerial distance and direction from lease applied area
Nearest Post Office	Chennathur	5.0km – NW
Nearest School	Perandapalli	3.0km – NW
Nearest Dispensary	Onnalvadi	5.0km – SW
Nearest Town	Hosur	9.0km – NW
Nearest Police Station	Moranapalli	6.0km – NW
Nearest Hospital	Hosur	9.0km – NW
Nearest D.S.P. Office	Hosur	9.0km – NW
Nearest Railway Station	Hosur	9.0km – NW
Nearest Airport	Bangalore	60.0km – NW
Nearest Seaport	Chennai	260km – NE
District Head quarters	Krishnagiri	39.km – SE

**2.0 GENERAL INFORMATION**

2.1 a) Name of the Applicant : M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,
S.Srinivasan (Managing Director),

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

Address : No.292, Sipcot Housing Board Colony,
Mookandapalli, Hosur Taluk,
Krishnagiri District.

Pin Code : 635 126

Mobile No : +91 88259 41719 & 98429 49998

Aadhaar No : 4975 0010 1479 (S.Srinivasan (Managing Director))

Email ID : srinivasavs99@gmail.com

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

The applicant is a firm.

2.2 a) Mineral which the Applicant intends to mine:

The Applicant intends to quarry Rough Stone only.

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

The precise area communication letter was received from the District Collector, Krishnagiri District vide **Re.No.217/2019/Mines, Dated:13.06.2019** to submit approved mining plan and to obtain Environmental Clearance from the SEIAA, Chennai, Tamil Nadu State.

c) Period of permission / lease to be granted:

The applicant has applied for five years, the District Collector, Krishnagiri District has recommended for five years for Rough Stone.

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

Name : **Dr. P. Thangaraju, M.Sc., Ph.D.,**
Qualified Person

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

Telephone : 0427- 2431989 (Office)

Cell No : +91 94422 78601 & 94433 56539

Email : infogeoexploration@gmail.com

3.0 LOCATION

a) Details of the area with location map:

The lease applied area is about 39.0km Northwestern side of Krishnagiri town, 9.0km Southeastern side of Hosur town and 3.0km Northeastern side of Mudathurai Village.



Location Map of the Lease Applied Area

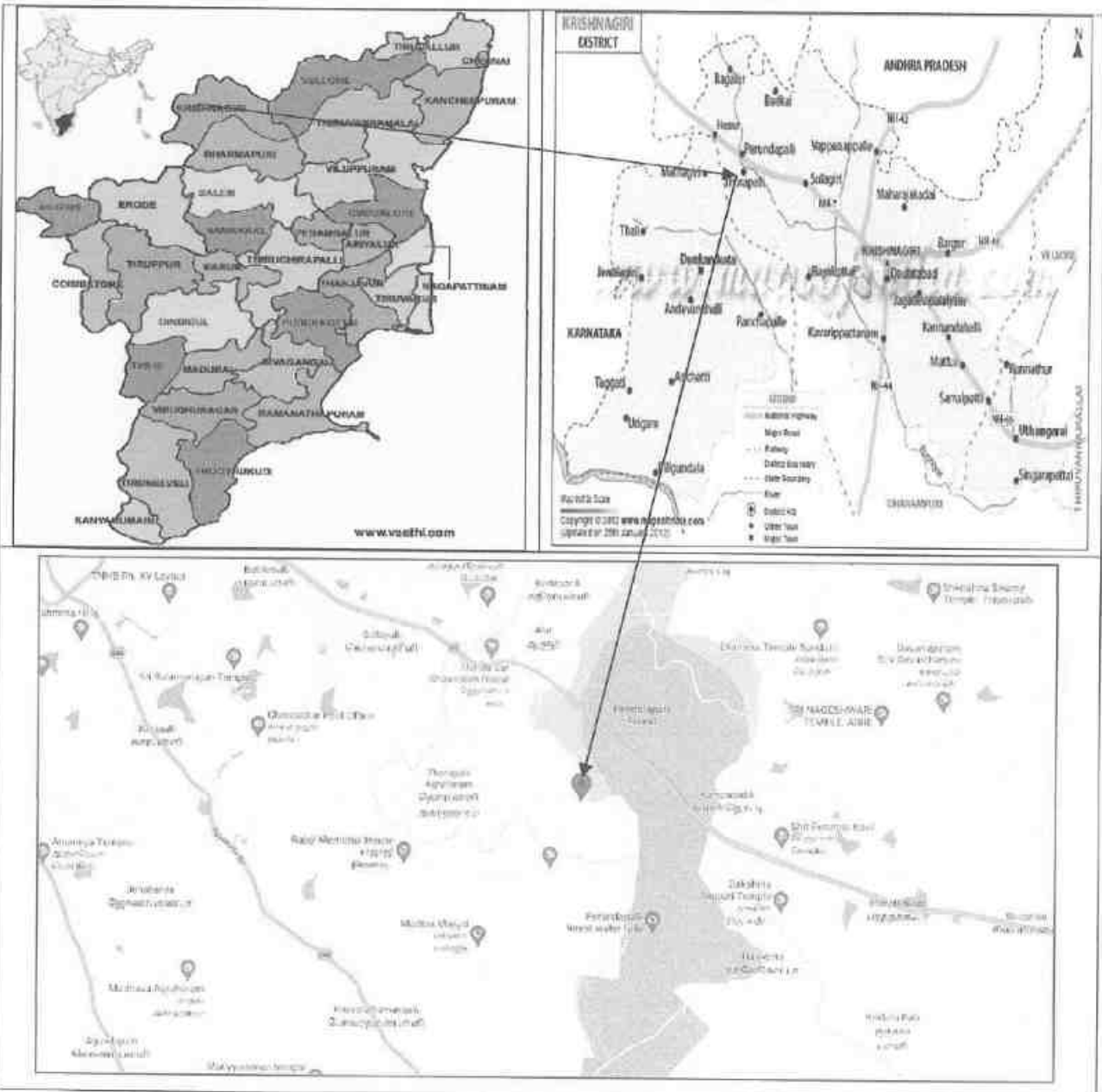


TABLE-2

District	Taluk	Village	S.F. Nos.	Lease Applied Area (Ha)
Krishnagiri	Hosur	Thorapalli Agraharam	662 (P)	2.20.0
Total Extent				2.20.0Ha

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 applied area (surface right):

It is a Government Poramboke land. The applicant has awarded tender cum auction from the Government.

d) Topo sheet No. with latitude and longitude:

The lease applied area falls in the Topo sheet No: 57 - H/14 Latitude between: 12°41'35.04"N to 12°41'45.02"N and Longitude between: 77°54'06.94"E to 77°54'14.16"E on WGS datum-1984.

Please refer the Plate Nos. I to II.

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

The approach (Earth) road is situated on the Eastern side which connects to the Islampuram village road at a distance 200m on the Southwestern side of the applied area.

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

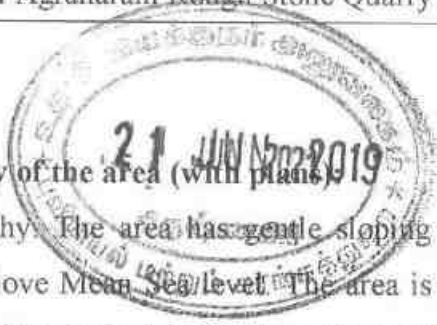
The approach road from the quarry is constructed, the same road will be maintained and utilized for haulage, besides trees will be planted on the either side of the road to prevent dust and noise propagation to the nearby areas.

The Nearest Railway line is Bangalore – Salem which is about 5.0km on the Southwestern side of the lease applied area.

PART – A

4.0 GEOLOGY AND MINERAL RESERVES

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



The lease applied area exhibits an undulated topography. The area has gentle sloping towards Southern side. The altitude of the area is 812m (max) above Mean Sea Level. The area is covered by 1m thickness of Topsoil formation. Massive Charnockite is found after 1m (Topsoil) which is clearly inferred from the existing quarry pits.

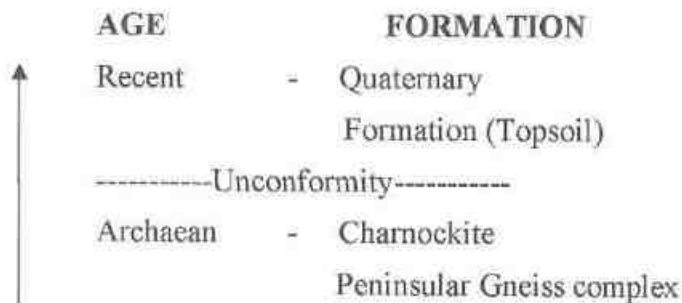
The Water table is found at a depth of 70m in summer and at 65m in rainy seasons. Average annual rainfall is about 851mm.

Topographical View of lease applied area



Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale of the Charnockite body is N35°E – S35°W with dipping towards SE70°.

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





4.2 Details of exploration already carried out if any:

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

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

4.3 Estimation of Reserves:

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

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

Totally five sections have been drawn, two sections are drawn Length wise as (X-Y & X1-Y1) and other three cross sections are drawn Width wise as (A-B, C-D & E-F) to cover the maximum area considered for lease.

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

Geological Resources (Plate No. III):

The Geological Resources of Rough Stone are calculated up to a maximum depth of 51m (16m AGL + 35m BGL) below from the general ground profile. **The total Geological resources are calculated by sectional method.** The total geological resources are given below:



TABLE-3

GEOLOGICAL RESOURCES

Section	Bench	Length (m)	Width (m)	Depth (m)	Geological Resources of Rough Stone (m ³)	Topsoil (m ³)
XY-AB	I	32	61	1		1952
	II	16	40	2	1280	
	III	32	61	5	9760	
	IV	32	61	5	9760	
	V	33	61	5	10065	
	VI	33	61	5	10065	
	VII	33	61	5	10065	
	VIII	33	61	5	10065	
	IX	33	61	5	10065	
	X	33	61	5	10065	
	Total					81190	1952
XY-CD	I	161	18	1		2898
	II	161	8	1	1288	
	III	161	18	5	14490	
	IV	161	18	5	14490	
	V	161	18	2.5	7245	
	V	161	79	2.5	31798	
	VI	161	79	5	63595	
	VII	161	79	5	63595	
	VIII	161	79	5	63595	
	IX	161	79	5	63595	
	X	161	79	5	63595	
Total					387286	2898
X1Y1-EF	I	163	59	1		9617
	II	31	15	5	2325	
	III	163	38	5	30970	
	IV	163	56	5	45640	
	V	163	56	5	45640	
	VI	163	56	5	45640	
	VII	163	56	5	45640	
	VIII	163	56	5	45640	
	IX	163	56	5	45640	
	X	163	56	5	45640	
	XI	163	56	5	45640	
Total					398415	9617
Grand Total					866891	14467

Total Geological Resources of Rough Stone : 8,66,891m³

Total Geological Resources of Topsoil : 14,467m³

**Existing Pit Dimension:**

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

TABLE-4

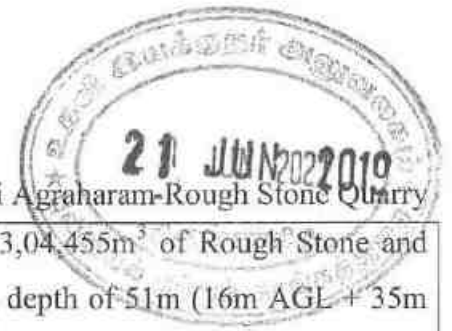
Length (m) (max)	Width (m) (max)	Depth (m) (max)
160	60	19.5m (16m AGL + 3.5m BGL)

Available Mineable Reserves:

The available mineable reserves are calculated after deducting safety distance, bench loss and existing quarry pit.

TABLE-5

MINEABLE RESERVES						
Section	Bench	Length (m)	Width (m)	Depth (m)	Mineable Reserves of Rough Stone (m ³)	Topsoil (m ³)
XY-AB	I	24	46	1		1104
	II	16	40	2	1280	
	III	25	46	5	5750	
	IV	25	46	5	5750	
	V	20	36	5	3600	
	VI	15	26	5	1950	
	VII	10	16	5	800	
	VIII	5	6	5	150	
Total					19280	1104
XY-CD	V	161	62	2.5	24955	
	VI	161	52	5	41860	
	VII	161	42	5	33810	
	VIII	161	32	5	25760	
	IX	161	22	5	17710	
	X	156	12	5	9360	
Total					153455	
X1Y1-EF	I	156	40	1		6240
	II	24	7	5	840	
	III	156	31	5	24180	
	IV	156	40	5	31200	
	V	156	40	5	31200	
	VI	151	30	5	22650	
	VII	146	20	5	14600	
	VIII	141	10	5	7050	
Total					131720	6240
Grand Total					304455	7344



The Available mineable reserves have been computed as 3,04,455m³ of Rough Stone and 7,344m³ of Topsoil at the rate of 100% recovery upto a maximum depth of 51m (16m AGL + 35m BGL) below general ground level for a period of five years.

5.0 MINING

5.1 Method of mining (opencast / underground):

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

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

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

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

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

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

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

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

**5.3 Proposed Bench Height and Width:**

The Charnockite is hard and compact rock, the bench height is proposed 5.0 meter vertical bench the width of the bench is not less than the Height.

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

The overburden in the form of Topsoil, the top soil (7,344m³) will be safely removed and preserved within the applied area. After completion of quarry operation backfilled in the part of the quarry pit also spread out the quarried out top bench to facilitate the greenbelt development. The entire quarried out Rough stone will be consumed hence waste dump is not proposed. The composite Year wise Development and production plan and section indicating the Pit lay out, Green belt development are shown in Plate No – III.

Year wise development and Production**TABLE-6**

YEARWISE RESERVES							
Section	Year	Bench	Length (m)	Width (m)	Depth (m)	Recoverable Reserves of Rough Stone (m ³)	Topsoil (m ³)
XY-AB	I	I	24	46	1		1104
		II	16	40	2	1280	
		III	25	46	5	5750	
		IV	25	46	5	5750	
		V	20	36	5	3600	
XY-CD	I	V	161	62	2.5	24955	
		VI	75	52	5	19500	
		Total					60835	1104
X1Y1-EF	II	VI	86	52	5	22360	
		I	156	40	1		6240
		II	24	7	5	840	
		III	156	31	5	24180	
		IV	66	40	5	13200	
	Total					60580	6240
	III	IV	90	40	5	18000	
		V	156	40	5	31200	
		VI	78	30	5	11700	
		Total					60900
IV	VI	73	30	5	10950		
	VII	146	20	5	14600		



XY-CD		VIII	141	10	5	7050	
		VII	161	42	5	33810	
		Total				66410	
XY-AB	V	VIII	161	32	5	25760	
		IX	161	22	5	17710	
		X	156	12	5	9360	
		VI	15	26	5	1950	
		VII	10	16	5	800	
		VIII	5	6	5	150	
		Total				55730	
Grand Total						304455	7344

The Recoverable reserves have been computed as **3,04,455m³** of Rough Stone and **7,344m³** of **Topsoil** for five years of 100% recovery upto depth of 51m (16m AGL + 35m BGL) below from the general ground profile for a mining period.

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

One lorry load	=	6m ³ (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed in this five years plan period	=	3,04,455m ³
Hence total lorry loads per day	=	3,04,455m ³ /6m ³
	=	50,743 lorry loads
	=	50,743/5 years
	=	10,149/300 Days
Rough Stone	=	33 - 34 lorry loads per day
Total quantity to be removed in these two years plan period	=	7,344m ³
Hence total lorry loads per day	=	7,344m ³ /6m ³
	=	1,224 lorry loads
	=	1,224/2 years
	=	612/300 Days
Topsoil	=	2 lorry loads per day
Working hours	=	8.30 am to 5.30 pm (with 12.30-1.30 pm lunch break)

**5.5 Machineries to be used:****For Mining:**

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

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

S. No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack hammer	8	30-35	1.2m to 2.0m	Compressed air
2	Compressor	2	-	400 psi	Diesel Drive

II. EXCAVATION & LOADING EQUIPMENT:

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

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

S. No.	Type	Nos	Capacity	Motive Power
1	Tippers	3	20 tonnes	Diesel Drive

5.6 Disposal of Overburden/Waste:

The overburden in the form of Topsoil, the top soil will be safely removed ($7,344\text{m}^3$) during the mining plan period. The quarried out topsoil will be preserved within the applied area and utilized for construction of bund and backfilled in the part of the quarry pit also spread out the quarried out top bench to facilitate the greenbelt development. There is no disposal of Topsoil. The excavated Rough stone will be directly loaded into Tippers to the needy customers. There is no Waste anticipated during this plan period hence, disposal of waste does not arise.

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

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

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



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

TABLE-8

Pit	Length in m (Max)	Width in m (Max)	Depth in m (Max)
I	186	62	51m (16m AGL + 35m BGL)
II	156	40	

Greenbelt has proposed on the Panchayat roads by planting native species of Neem, Casuarina and Pongamia pinnata, etc., tree sapling. All the base line information studies like Air quality monitoring, Noise and vibration monitoring, Water analysis studies will be carried out every year as per the MoEF & CC Norms. It is propose to engage any local institution to monitor the EIA and EMP during the course of quarrying operation after the grant of quarry lease.

Except topsoil, there is no wastage anticipated during the entire life of quarry. The quarried out topsoil will be preserved within the applied area and utilized for construction of bund and backfilled in the part of the quarry pit also spread out the quarried out top bench to facilitate the greenbelt development. The quarry area will be fenced with barbed wire fencing also safety bund constructed around the area to prevent inadvertent entry of public and cattle (Refer Plate No. IV).

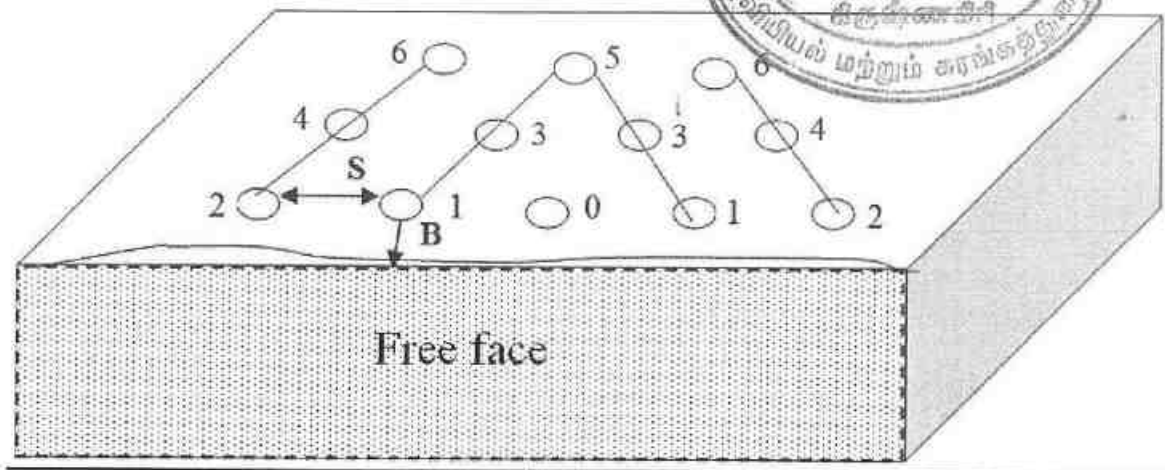
6.0 BLASTING

6.1 Blasting pattern:

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

Drilling and blasting parameters are as follows:

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

BLASTING PATTERN DRAWING**Staggered "V" Pattern of Blasting Design**

Spacing	=	1.2m
Burden	=	1.0m
Depth of the hole	=	1.5m
No of holes proposed per day	=	176 Holes

6.2 Type of explosives to be used:

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

6.3 Measures proposed to minimize ground vibration due to blasting:

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

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

Delay detonators:

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

The major advantages of delay blasting are:

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

**Blasting program for the production per day:**

No of Holes	= 176 Holes
Yield	= 528 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 88 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.00 – 12.30p.m (whenever required)

6.4 Storage and safety measures to be taken while blasting:

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

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

The Water Table in the area is 70m in summer season and 65m in rainy season which is observed from the nearby bore wells and the data obtained from existing private boreholes. The lease area is fully covered by Massive Charnockite formation. Hence the Ground Water problem will not arise. If water seepage may occur due to the fracture, the same will be used for Greenbelt.

TABLE-9

Type	Distance & Direction	Location
Bore Well	240m Southern side	12°41'27.44"N 77°54'5.97"E

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

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

**8.0 OTHER PERMANENT STRUCTURES (also shown in the map)****8.1 Habitations/ Villages natham:**

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

8.2 Power Lines (HT/LT):

There is no EB line (HT & LT Line) within the radius of 50m from the lease applied area.

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

There is no River, Pond, Lake, Odai, Canal located within 50m radius of the lease applied area.

8.4 Archaeological / historical monuments:

There are no Archaeological / historical monuments within 300m radius from the lease applied area.

8.5 Road (NH, SH, others):

The Nearest National Highway (NH-44) Bangalore – Salem is situated about 1.0km on the Northeastern side of the lease applied area.

The State Highway (SH-17) Hosur – Dharmapuri is situated about 4.0km on the Southwestern side of the lease applied area.

The District Major Road (MD-422) Shoolagiri – Berigai Road is situated about 10.0km on the Northeastern side of the lease applied area.

8.6 Places of worships:

There is no place of worships within the radius of 300m from the lease applied area.

8.7 Reserved forest / forest / social forest / wild life sanctuary etc.,

The Sanamavu R.F. is situated at 300m on the Northeastern side of the applied area. There is no other reserved forest / forest / social forest / wild life sanctuary etc., within radius of 500m of the lease applied area.



SALIENT FEATURES

S. No.	Salient Features Present around site	Prescribed safety distance	If any present within Prescribed distance it's actual distance and direction from the area																	
1.	Railways, Highways, Reservoirs or Canal	50m	None of the above situated within 50m radius.																	
2.	Village Road	10m	There is no village road situated within 10m radius of the area.																	
3.	Habitation / Village	300m	There is no approved habitation within 300m radius from the lease applied area (Refer Plate No I-B).																	
4.	Adjacent Patta lands / Govt. Land	7.5m/10m	<table border="1"> <thead> <tr> <th>Direction</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Govt. and</td> <td>10m</td> </tr> <tr> <td>East</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>South</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td rowspan="2">West</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td>Patta land</td> <td>7.5m</td> </tr> </tbody> </table> <p>(Refer Plate No. II).</p>	Direction	Classification	Safety Distance	North	Govt. and	10m	East	Patta land	7.5m	South	Patta land	7.5m	West	Govt. land	10m	Patta land	7.5m
Direction	Classification	Safety Distance																		
North	Govt. and	10m																		
East	Patta land	7.5m																		
South	Patta land	7.5m																		
West	Govt. land	10m																		
	Patta land	7.5m																		
5.	Housing area, EB line (HT & LT Line)	50m	There is no other Housing area, EB line (HT & LT Line) within the radius of 50m from the lease applied area.																	
6.	Boundaries of the permitted area	7.5m/10m	<p>The boundaries of the permitted areas are as follows:</p> <p>North – S.F.No.662 (P)</p> <p>East – S.F.No.663</p> <p>South – S.F.Nos.664 & 666</p> <p>West – S.F.Nos. 661 & 662 (P)</p> <p>(Refer Plate No. II).</p>																	
7.	Reserve forest	60m	<p>The Sanamavu R.F. is situated at 300m on the Northeastern side of the applied area. There is no reserved forest located within the radius of 60m from the lease applied area.</p> <p>(Refer Plate No. IA and IB).</p>																	
8.	Protected area / ECO sensitive area/Wild Life Sanctuary	10km	<p>There is no ECO sensitive Zone/ Wild Life Sanctuary/ Critically Polluted Area/ HACA/ CRZ located within 10km radius of the area.</p> <p>(Refer Plate No. IA).</p>																	



9.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES

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

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

a. Mine official & Competent Persons

Mines Manager/Mines Foreman	:	1
Mate/Blaster	:	1

b. Machinery Operators

Jack hammer operator	:	16
Excavator Operator	:	2
Tippers Driver	:	3

c. Ordinary Employee

Helper	:	3
Cleaner & Co-Operator	:	5
Security	:	1
Total	:	32

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

9.2 Welfare Measures:

a. **Drinking Water:**

Packaged drinking water is available from the nearby approved water vendors in Thorapalli Agraharam which is about 3.0km on the Southwestern side of the lease applied area.

b. **Sanitary Facilities:**

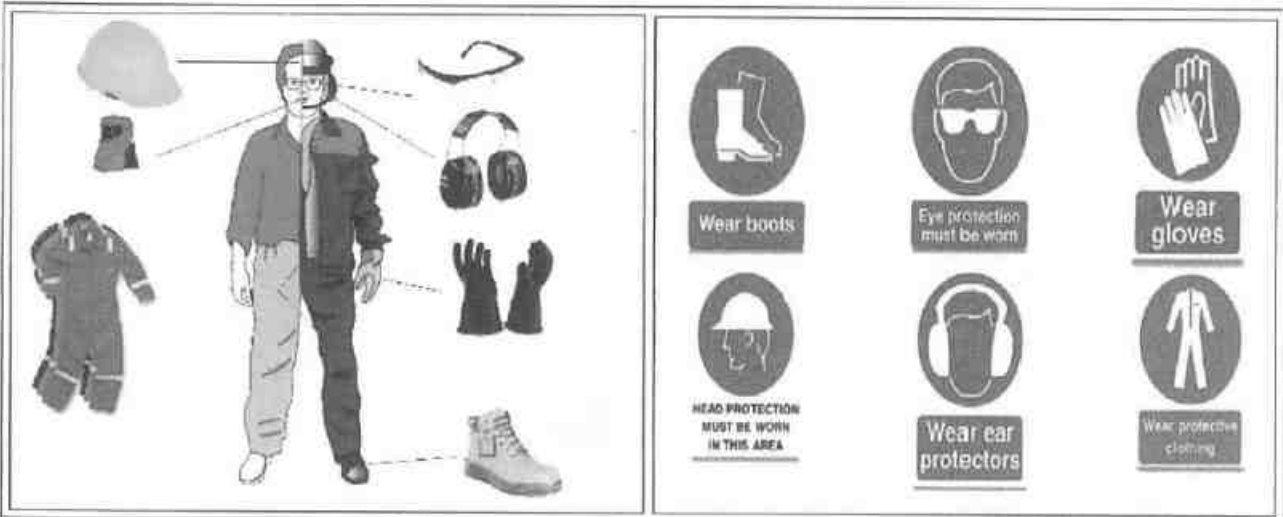
Hygienic modern Sanitary Facilities will be constructed as semi permanent structure and it will be maintained periodically as hygienic.

c. First aid facility:

First aid kits are kept in Mines office room, in case of such eventuality is the victim will be given first aid immediately at the site by the competent and statutory foreman/permit manager/mate will be in charge of first aid and injured person will be taken to the hospital by the applicant's vehicle. Hospital is available in Hosur located at a distance of 9.0km on the Northwestern side.

d. Labour Health:

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

e. Precautionary safety measures to the labourers:

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

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

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

The quarry lease applied area is exhibits an undulated topography. The area is a dry barren land devoid of Agriculture and Habitations. The lease applied area has utilized only for quarry operation in earlier.

LAND USE TABLE-10

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area under Quarrying	0.85.7	1.63.3
Infrastructure	Nil	0.01.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.15.0
Unutilized Area	1.32.3	0.38.7
Grand Total	2.20.0	2.20.0

10.2 Water Regime:

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







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

10.3 Flora and Fauna:

TABLE-11

S.No.	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Thespesia populnea</i>	Indian Tulip Tree	Poovarasu	Tree	
2.	<i>Tamarindus indica</i>	Caesalpiaceae	Puli	Tree	
3.	<i>Pongamia pinnata</i>	Fabaceae	Pungai	Tree	
4.	<i>Cassia auriculata</i>	Fabaceae	Aavarampoo	Shurb	
5.	<i>Ziziphus oenopia.</i>	Rhamnaceae	Suraimullu, Surai ilantai	Shurb	

List of Fauna

S.No.	Scientific Name	Common Name	Picture
1.	<i>Capra hircus</i>	Goat	
2.	<i>Boigaspp</i>	Cat snake	
3.	<i>Athene brama</i>	Spotted owl	
4.	<i>Passer domesticus</i>	House sparrow	
5.	<i>Precis hierta</i>	Yellow pansy	
6.	<i>Funambuluspalmarum</i>	Indian palm squirrel	

**10.4 Climatic Conditions:**

The area receives rainfall of about 851mm/annum and the rainy season is mainly from Oct - Dec during monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 23°C.

10.5 Human settlement:

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

TABLE-12

S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Sukkasagaram	4km – NE	600
2.	Gangapuram	3km – SE	700
3.	Thorapalli Agraharam	3km – SW	9,900
4.	Islampuram	1km – NW	500

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Hosur located at a distance of 9.0km on the Northwestern side of the area.

10.6 Plan for air, dust suppression:

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

The following Mitigations measures will be carried out:

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

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



10.7 Plan for Noise level control:

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

Engineering Noise control:

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

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

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

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

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

In the mining plan proposed for a production of Rough Stone does not involve deep hole drilling and blasting. Such limited mining activity is not likely to cause any impact adversely on the environment. As far as pollution of air, water and noise concerned, the Environment impact studies will be conducted as per EIA notification issued by MoEF & CC. It is B2 Category mine. The estimated budget would be around **Rs.3,80,000/-**.

10.9 Proposal for waste management:

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



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

In the mining plan proposed only to a maximum depth of 51m (16m AGL + 35m BGL) below general ground level has been envisaged as workable depth for safe & economic mining during entire lease applied area. There is no waste generated hence, backfilling is not possible. Hence, the quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. The barbed wire fencing cost would be around **Rs.2,37,000/-**.

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

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

TABLE-13

Year	No. of trees proposed to be planted	Survival %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	34	80%	300	Neem, Pongamia Pinnata, Casuarina, etc.,	27
II	34	80%	300		27
III	34	80%	300		27
IV	34	80%	300		27
V	34	80%	300		27

Nearly 1,500sq.m area is proposed to use under Greenbelt by planting 34 Number of tree saplings during every year with an anticipated survival rate of 80% (Please refer Plate No. III). The estimated budget for plantation and maintenance of Greenbelt development would be around **Rs.17,000/-** for the period of five years.

The Greenbelt Development will be formed in around the panchayat road of the lease applied area. The cost would be around **Rs.20,000/-**

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

Budget Provision for the entire quarrying period:

TABLE-14

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

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

i)	Land cost	It is a Government land the tender amount is	= Rs.1,18,00,000/-
ii)	Machinery to be used	The following machineries are proposed to meet out the productions. Excavator attached with rock breaker, Tippers, Tractor mounted compressor with jack hammer and loose tools (Rental Basis)	= Rs.30,00,000/-
iii)	Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattles cost would be around	= Rs.2,37,000/-
iv)	Labourers shed	Labour sheds will be constructed as semi permanent structure. The cost would be around	= Rs.1,50,000/-
v)	Sanitary facility	Adequate latrine and urinal accommodation shall be provided at conveniently accessible places the cost would be around	= Rs.80,000/-
vi)	Others items	First aid room & accessories	= Rs.1,00,000/-
vii)	Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around	= Rs.1,50,000/-



viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	= Rs.70,000/-
ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around	= Rs.1,00,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	= Rs.2,00,000/-
xi) Garland drains Construction	Construction of garland drains to divert surface runoff from virgin area away from mining area	= Rs.2,19,000/-
xii) Greenbelt etc.	Greenbelt program will be carried out in the boundary barriers the cost would be around	= Rs.17,000/-
	Greenbelt program will be carried out in the quarried out top benches, approach road and panchayat road	= Rs.20,000/-
	Total Operational Cost	= Rs.1,61,43,000/-
B. EMP Cost: - (Per year)		
Air Quality monitoring		Rs.52,000/-
Water Quality Sampling		Rs.18,000/-
Noise Monitoring		Rs. 2,000/-
Ground Vibration test		Rs. 4,000/-
Total Cost		Rs.76,000/-
Total EMP Cost for the five years period is Rs.3,80,000/-		
Description		Amount (Rs.)
A. Operational Cost		1,61,43,000
B. EMP Cost		3,80,000
Total Project Cost (A+ B)		1,65,23,000
The applicant indents to involve corporate environment responsibilities (CER) activity like Solar Panel System, Water Purifier, Cot and Bed facilities to the nearby Dispensary and Water Purifier and Tables facilities to the near Govt. School at 2.0% from the total project cost. The Cost would be around Rs.3,31,000/- .		3,31,000
Total Cost		1,68,54,000
The Total cost would be around one crore sixty eight lakhs and fifty four thousand only.		



11.0 PROGRESSIVE QUARRY CLOSURE PLAN

11.1 Introduction:

The Progressive Quarry Closure Plan for Rough Stone quarry over an extent of 2.20.0Ha of Government land in S.F.No.662 (P) of Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Tamil Nadu State has been prepared for M/s. **A.V.S. Tech Building Solutions India Pvt Ltd.**, having an office at No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.

11.2 Present Land use pattern:

LAND USE TABLE-15

Description	Present area (Ha)
Area under Quarrying	0.85.7
Infrastructure	Nil
Roads	0.02.0
Green Belt	Nil
Unutilized Area	1.32.3
Grand Total	2.20.0

11.3 Method of Mining:

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

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

11.4 Mineral Processing Operations:

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

11.5 Reasons for closure:

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

**11.6 Statutory obligations:**

The applicant ensures to comply all the conditions were imposed while granting the precise area communication letter before the execution of lease deed and during the course of quarry operations.

11.7 Progressive quarry closure plan preparation:

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

Name	:	Dr. P. Thangaraju, M.Sc., Ph.D., Qualified Person
Address	:	Regd. Off. No. 17, Advaitha Ashram Road, Alagapuram, Salem District – 636 004.
Telephone	:	0427- 2431989 (Office)
Cell No	:	+91 94422 78601 & 94433 56539

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

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

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

**11.9 Closure Plan:****(i) Mined Out Land:**

At the end of mining plan period, about 1.63.3Ha of area will be mined out. Land use at various stages is given in the table below.

LAND USE TABLE-16

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area under Quarrying	0.85.7	1.63.3
Infrastructure	Nil	0.01.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.15.0
Unutilized Area	1.32.3	0.38.7
Grand Total	2.20.0	2.20.0

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

(ii) Water quality management:

Following control measures will be adopted for controlling water pollution:

- Construction of garland drains to divert surface run-off from virgin area away from mining area.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- The quarried out pit will be allowed to collect rain and seepage water which will act as a reservoir for storage. This water storage will enhance the static level and ground water recharge of nearby wells and it will be used for agriculture purpose to the nearby agriculture lands.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

**(iii) Air Quality Management:**

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. Workers will be provided with personnel protective equipment like face-mask, earplug/ muffs.

For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

(iv) Top Soil and Waste Management:

The overburden is in the form of Top soil. The quarried out topsoil will be preserved within the applied area and utilized for construction of bund and backfilled in the part of the quarry pit also spread out the quarried out top bench to facilitate the greenbelt development. Except topsoil, there is no waste generated, hence waste management does not arise.

(v) Disposal of mining machinery:

All the machineries will be engaging on rental basis. Hence, disposal or decommissioning of mining machinery does not arise.

(vi) Safety & Security:

Safety measures will be implemented to prevent access in the excavation area an unauthorized person as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the work persons.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations and proper signal by siren alarm will be provide before blasting time to prevent any accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

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

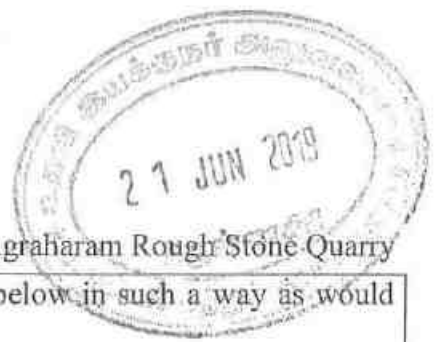
This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance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

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse, flying Stones due to blasting etc.
- The complete quarrying operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.
- The Greenbelt Development will be formed in around the quarried out top benches, approach road and panchayat road of the lease applied area.

(viii) Care and Maintenance during Temporary Discontinuance:

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

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



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

In case of discontinuance due to any natural calamities/abnormal conditions, quarrying operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:

The Quarry Lease is granted for a period of maximum five years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

(x) Time Scheduling for Abandonment:

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



(xi) Abandonment Cost:

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

LAND USE TABLE-17

ACTIVITY		YEAR					RATE	AMOUNT (INR)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	34	34	34	34	34		Rs.17,000/-
	Cost	3,400	3,400	3,400	3,400	3,400		
Plantation in the quarried out top benches, approach road and panchayat road	Nos	40	40	40	40	40	@100 Rs Per sapling	Rs.20,000/-
	Cost	4,000	4,000	4,000	4,000	4,000		
Wire Fencing (In Mtrs) 790 Mtrs		2,37,000	-	-	-	-	@300 Rs Per Meter	Rs.2,37,000/-
Garland drain (In Mtrs) 730 Mtrs		2,19,000	-	-	-	-	@300 Rs Per Meter	Rs.2,19,000/-
TOTAL								Rs.4,93,000/-

12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

This Mining Plan for Rough Stone (Charnockite) is under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied within the quarrying operation, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Concerned Department.

Prepared by



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

Qualified Person

Place: Salem

Date: 17.06.2019

DONATE RED
SPREAD GREEN
SAVE BLUE

This Mining Plan is approved based on guidelines / instruction issued and in corporation of the particulars specified in the letter Roc. No. 217/2019 Dated 21.6.2019 of the Deputy Director of Geology and Mining, Krishnagiri and subject to further fulfillment of the conditions laid down under Tamil Nadu Minor Mineral Concession Rules, 1959 and Minor Mineral Conservation and Development Rule 2910.

Assistant Director
(Additional Charge)
Geology & Mining Dept,
Collectorate, Krishnagiri

21/6/19

This Mining Plan is approved subject to the conditions / Stipulation indicated in the Mining Plan Approval

Letter Roc. No. 217/2019 Dated 16.2019



ந.க. எண் 217/2019/கனிமம்

மாவட்ட ஆட்சியர் அலுவலகம்,
(புலியியல் மற்றும் கரங்கத்தலை)
கிருஷ்ணகிரி மாவட்டம்,
கிருஷ்ணகிரி,
நாள் 13.06.2019.

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - சாதாரண கற்கள் கிருஷ்ணகிரி மாவட்டம் - ஓசூர் வட்டம் - தொரப்பள்ளி அக்ரஉறாரம் கிராமம் அரசு புல எண் 662 ல் 2.20.0 செறக்கீடர் பரப்பளவில் அரசு நிலத்தில் அமைந்துள்ள சாதாரண கற்குவாரிக்கு டெண்டருடன் இணைந்த ஏல முறையில் குத்தகை வழங்க டெண்டர்/ பொது ஏலம் நடத்தப்பட்டது — பொது ஏலத்தில் அதிக தொகை கோரிய தி/ள். ஏ.வி.எஸ்.டெக் பில்லங் செலுஸன் இந்திய பிரைவேட் லிட், 292 சிப்காட் வீட்டு வசதி வாரியம் காலணி, மூக்காண்டப்பள்ளி, ஓசூர் என்பவருக்கு சாதாரண கற்குவாரி குத்தகை வழங்குதல் தொடர்பாக அங்கீகரிக்கப்பட்ட கரங்கத்திட்டம், தமிழ்நாடு மாநில கற்றுச்ச குழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் தடைமின்மைச் சான்று மற்றும் தமிழ்நாடு மாக கட்டுப்பாட்டு வாரிய இன்சவு ஆகியவற்றை பெற்று வழங்க கோருதல் - தொடர்பாக.

- பார்வை**
1. கிருஷ்ணகிரி மாவட்ட அரசிதழ் சிறப்பு வெளியீடு எண்.07 நாள் 21.02.2019.
 2. 02.03.2019 அன்று தினமணி நாளிதழில் வெளியிடப்பட்ட பத்திரிக்கை செய்தி
 3. தி/ள். ஏ.வி.எஸ்.டெக் பில்லங் செலுஸன் இந்திய பிரைவேட் லிட், 292 சிப்காட் வீட்டு வசதி வாரியம் காலணி, மூக்காண்டப்பள்ளி, ஓசூர் என்பவருக்கு டெண்டர் விண்ணப்ப நாள் 08.03.2019.

கிருஷ்ணகிரி மாவட்டம் ஓசூர் வட்டம் தொரப்பள்ளி அக்ரஉறாரம் கிராமம் அரசு புல எண் 662 ல் 2.20.0 செறக்கீடர் பரப்பளவில் அமைந்துள்ள சாதாரண கற்குவாரிக்கு ஐந்து ஆண்டுகளுக்கு குவாரி குத்தகை வழங்குவது தொடர்பாக 08.03.2019 அன்று நடைபெற்ற பொது ஏலத்தில் தி/ள். ஏ.வி.எஸ்.டெக் பில்லங் செலுஸன்ஸ் இந்தியா பிரைவேட் லிட், 292 சிப்காட் வீட்டு வசதி வாரியம் காலணி, மூக்காண்டப்பள்ளி, ஓசூர் என்பவர் அரசு நிர்ணயம் செய்த குறைந்தபட்ச குத்தகை தொகையை விட அதிக தொகையான ரூ 1,18,00,000/- (ரூபாய் ஒரு கோடியே பதினெட்டு லட்சம் மட்டும்) ஐ பொது டெண்டரில் குறிப்பிட்டுள்ள அவருக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் விதி 8 (6) (b) ன்படி அவருக்கு கீழ்க்கண்ட நிபந்தனைகளுடன் குவாரி குத்தகை வழங்க உத்தேசிக்கப்பட்டுள்ளது.

(1) குவாரி குத்தகை வழங்க உத்தேசிக்கப்பட்டுள்ள குவாரிக்கு அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளியும், அரசு நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப்பணி செய்ய வேண்டும்.



(ii) அருகிலுள்ள கிராம சாலைகளுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும், இது நெடுஞ்சாலைகளுக்கு 50 பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப்பணி செய்யவேண்டும்.

2. எனவே கிருஷ்ணகிரி மாவட்டம் ஒசூர் வட்டம், தொரப்பள்ளி கிராமம் புல எண் 652 (பகுதி) ல் 2.20.0 செறக்டேர் பரப்பளவில் புல வரைபடத்தில் குறிப்பிட்டுள்ள பகுதியில் குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றும் நாளிலிருந்து ஐந்து ஆண்டுகளுக்கு சாதாரண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை வழங்குதல் தொடர்பாக தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் விதி 41 மற்றும் 42ன் ஆகியவற்றில் கண்டுள்ள காவரையறைக்குள் அங்கீகரிக்கப்பட்ட கரங்கத்திட்டம், தமிழ்நாடு சுற்றுச் சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் இசைவு மற்றும் தமிழ்நாடு மாகக் கட்டுப்பாட்டு வாரியத்தின் இசைவு ஆகியவற்றை சமர்ப்பிக்க வேண்டும் என தி/ள் ஏ.வி.எஸ்.டெக் பில்லாங் செலுஸன் இந்தியா பிரைவேட் லிட் நிறுவனத்தாருக்கு தெரிவிக்கப்படுகிறது.

3. உரிய காலத்தில் மேற்கண்ட ஆவணங்களை சமர்ப்பிக்க தவறினால் விதிகளின்படி உரிய நடவடிக்கை எடுக்கப்படும் எனவும், தெரிவிக்கப்படுகிறது.

4. மேற்கூறிய ஆவணங்களை சமர்ப்பித்த பின்பு குவாரி குத்தகை வழங்கப்பட்டு குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றிய பின்பே மேற்கண்ட புலத்தில் குவாரிப்பணிகளை தொடங்கவேண்டும். தவறினால் தமிழ்நாடு சிறுகனிமச் சலுகை விதிகள் 1959ன் விதி 36 (அ)ன்படி உரிய நடவடிக்கை எடுக்கப்படும் எனவும் தெரிவிக்கப்படுகிறது.

இணைப்பு : புல வரைபடம்

/உண்மை நகல்/

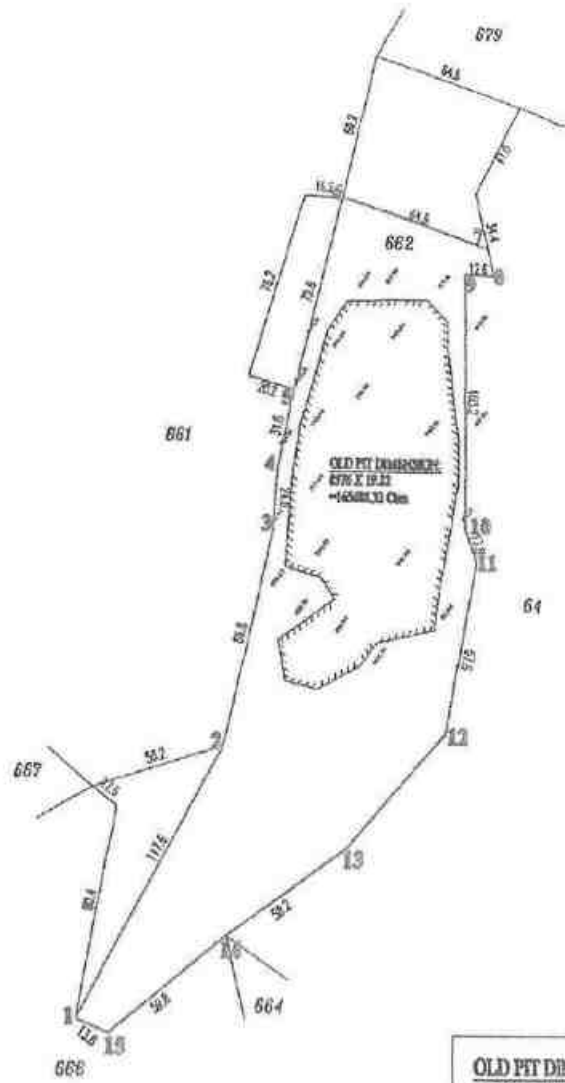
ஓம்/எஸ்.பிரபாகர்,
மாவட்ட ஆட்சியர்,
கிருஷ்ணகிரி.

மாவட்ட ஆட்சியருக்காக,
கிருஷ்ணகிரி.
13/6/19

பெறுநர்:-

தி/ள். ஏ.வி.எஸ்.டெக் பில்லாங் செலுஸன்ஸ் இந்தியா பிரைவேட் லிட்,
292 சிப்காட் வீட்டு வசதி வாரியம் காலனி,
மூக்காண்டப்பள்ளி,
ஒசூர்,
கிருஷ்ணகிரி மாவட்டம்.

DISTRICT : KRISHNAGIRI
 TALUK : HOSUR
 VILLAGE : THORAPALLI AGAHARAM
 SURVEY NO: 662
 EXTENT : 2.90.00 Hect



S.NO	LATITUDE	LONGITUDE
1	12° 41' 36.7050" N	77° 54' 8.9941" E
2	12° 41' 40.0124" N	77° 54' 10.9683" E
3	12° 41' 42.7549" N	77° 54' 11.6446" E
4	12° 41' 43.5302" N	77° 54' 11.7017" E
5	12° 41' 44.3904" N	77° 54' 11.9266" E
6	12° 41' 47.0496" N	77° 54' 12.6494" E
7	12° 41' 46.5113" N	77° 54' 14.6340" E
8	12° 41' 45.9895" N	77° 54' 14.9313" E
9	12° 41' 45.8639" N	77° 54' 14.5207" E
10	12° 41' 42.7277" N	77° 54' 14.5314" E
11	12° 41' 42.2559" N	77° 54' 14.6185" E
12	12° 41' 40.0615" N	77° 54' 14.1781" E
13	12° 41' 38.5568" N	77° 54' 12.7425" E
14	12° 41' 37.4795" N	77° 54' 11.0854" E
15	12° 41' 36.3449" N	77° 54' 9.5196" E

OLD PIT DIMENSION:
 8576 X 19.32
 =165688.32 Cms

Proposed Lease Area:
 662 = EXTENT 2.20.00 Ha

LEGEND
 PROPOSED FOR TOWN AREA (---)
 OLD TOWN (---)



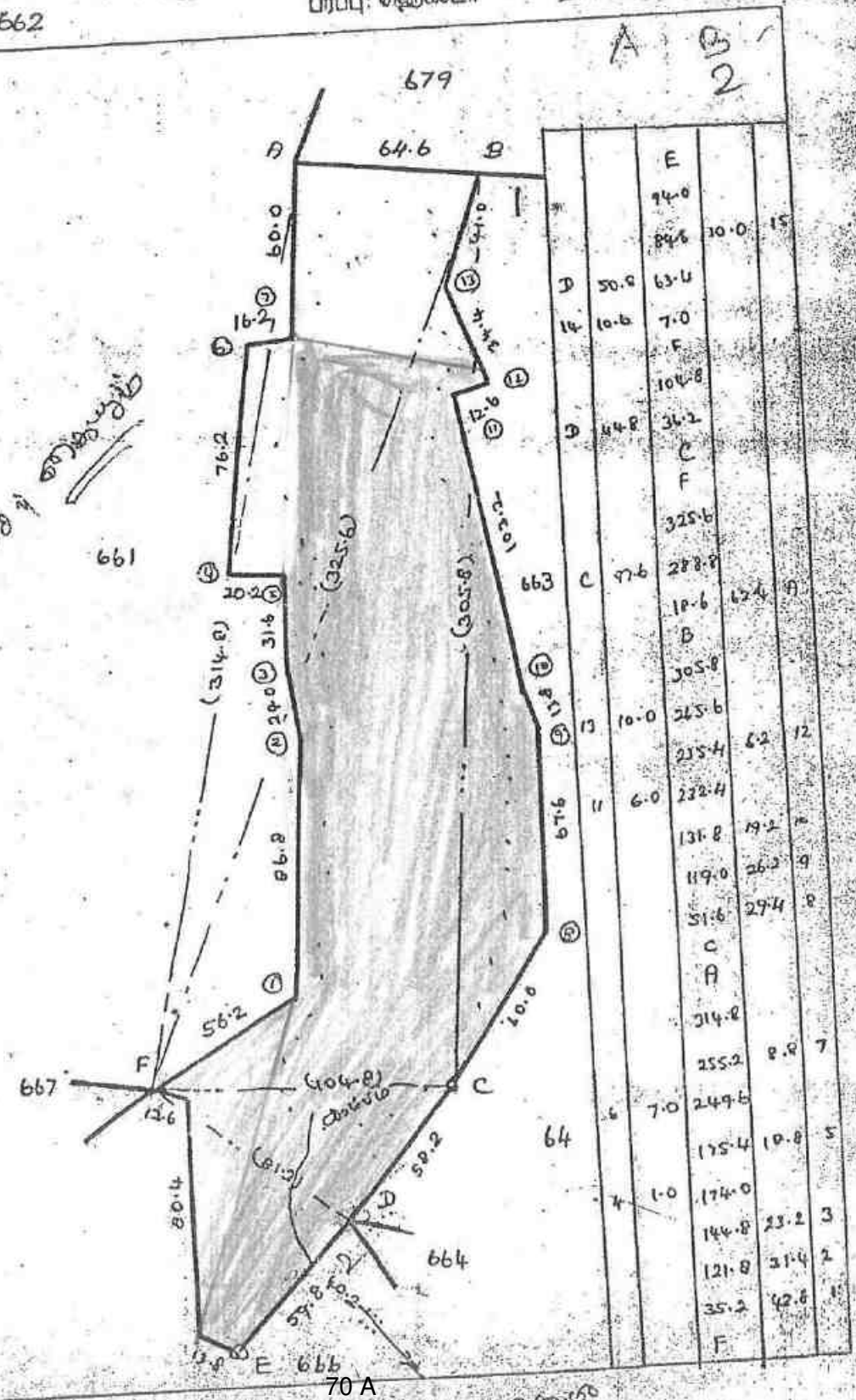
அளவைப்படிவ. எண் 23

எண். 104
கிராமம் { பெரியகுடிமாவட்டம் தர்மசேனாபுரம்

புள்ளி எண். 662

பரப்ப: 2 ஏ. 90.0

சென்னை மாநகராட்சி



679	64.6	60.0	16.2	76.2	30.2	20.2	31.6	86.2	56.2	12.6	80.4	13.8	57.8	10.2	59.2	10.0	67.6	13	10.0	25.6	235.4	6.2	12	6.0	232.4	131.8	19.2	119.0	26.2	9	31.6	27.4	8	C	A	314.8	255.2	8.8	7	6	7.0	249.6	175.4	10.8	5	4	1.0	174.0	144.8	23.2	3	121.8	31.4	2	35.2	42.8	1	F
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70 A

1:1000 = 20000 sq. ft

LEASE APPLIED AREA

ANNEXURE



மாவட்டம் : கிழக்கு கரிகாலி
வட்டம் : ஓசூர்

கூட்டு வரைபடம்

கிராமம்

சண்முகம்

பெயர் : குதாப்பள்ளி அப்பாண்டி



LEASE APPLIED AREA



172

இ. என். 104. தொரப்பள்ளி அகரஹாரம்

	2	3	4	5	6	7	8	9	10	
661	(2) 661-2	ர	ய	...	8-5	7	1 09	4 05.5	4 41	311 அ. செட்டிமான் சாப்.
								4 72.0	5 13	
662	... 662	அ	க. ர. உ.	...	...	...	...	2 90.0	...	.....
663	(1) 663-1	ர	ய	...	8-5	7	1 09	5 02.0	5 45	312 அ. செட்டிமான் சாப்.
	(2) -2	ர	ய	...	8-5	7	1 09	0 92.0	1 01	35 பா. அப்துல் ரஹிமான்.
								5 94.0	6 46	
664	1 664-1	ர	ய	...	8-5	7	1 09	0 65.5	0 71	60 செ. இப்ராஹிம்.
	2 -2	ர	ய	...	8-5	7	1 09	0 85.0	0 92	373 ந. சையத்புடன் சாப்.
	3 -3	ர	ய	...	8-5	7	1 09	0 90.0	0 98	374 ந. சையத்காரிம் சாப்.
	(4) -4	ர	ய	...	8-5	7	1 09	2 22.5	2 42	594 அ. மாஸிக்காப்.
								4 63.0	5 03	
665	(1) 665-1	ர	ய	...	8-5	7	1 09	2 56.0	2 78	594 அ. மாஸிக்காப்.
	2 -2	அ	ய. ப.	...	...	...	...	0 16.0	...	.....
	3 -3	ர	ய	...	8-5	7	1 09	0 75.0	0 81	36 அசென்கான் மனைவி அமினாபி.
								3 47.0	3 59	
666	(1) 666-1	ர	ய	...	8-5	7	1 09	0 57.5	0 63	310 சஸாக் சாப் மனைவியெரிப்பி.
	2 -2	அ	ய	...	8-5	7	1 09	3 11.5	3 39	.....
	3 -3	அ	ய. ப.	...	...	...	...	0 05.5	...	.....
								3 74.5	4 02	
67	1 667-1	ர	ய	...	8-5	7	1 09	0 76.0	0 83	850 அரஹிம் சாப் மனைவி ரோசலிபி.
	2A -2பா	ர	ய	...	8-5	7	1 09	1 58.5	1 72	37 ம. அப்துல் கான்.
	2B -2பா	ர	ய	...	8-5	7	1 09	0 29.0	0 32	1205 சை. சையத் உசைன் (1), சை. சையத் மாய்யுப் (2), சை. சையத் இப்ராஹிம் (3).

665/10
10

663/10
10

66

61

6.

6

1

ple. see page - 59

Village Administrative Office
104, Thorappalli Agraharam
Hosur Taluk

Zonal Deputy Tahsildar,
HOSUR.

Village Administrative Office
104, Thorappalli Agraharam Village
Hosur Taluk

73 A

21 JUN 2019

தமிழ்நாடு அரசு
2019



கிருஷ்ணகிரி மாவட்ட அரசிதழ்

சிறப்பு வெளியீடு

ஆணையின்படி வெளியிடப்பட்டது

கிருஷ்ணகிரி, பிப்ரவரி 21, 2019
[விளம்பி, மாசி 9 - திருவள்ளூர் ஆண்டு 2050]

[எண் 7

மாவட்ட ஆட்சியர் அறிவிக்கை

(ந.க.எண். 1609/2019/கனிமம் நாள்: 21-02-2019)

சாதாரண கற்குவாரி ஒப்பந்தப்புள்ளி (டெண்டர்) மற்றும் ஏலம் குறித்த அறிவிப்பு

டெண்டர் விண்ணப்பங்கள் பெற கடைசி நாள் : 07-03-2019

பொது ஏலம் நடத்துதல் மற்றும் டெண்டர் விண்ணப்பங்கள் பிரித்து பிரிச்சிக்கும் நாள் : 08-03-2019

1. கிருஷ்ணகிரி மாவட்டத்தில் அரசு புறம்போக்கு நிலங்களில் அமைந்துள்ள சாதாரண கற்குவாரிகளிலிருந்து சாதாரண பொது உபயோக சிறுகனிமங்களுக்கான சாதாரணகற்களை வெட்டியெடுத்துச் செல்வதற்கு தனிநபர் மற்றும் தனியார் திருகளைக் குகுவாரி குத்தகை உரிமம் வழங்க மூடி முத்திரையிடப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் வரவேற்கும் மற்றும் ஏலம் அறிவிப்பு.

2. 1959 ஆம் ஆண்டு தமிழ்நாடு சிறுகனிமச் சலுகை விதிகளின் விதி 8-ன்படி கிருஷ்ணகிரி மாவட்டத்தில் இத்துடன் இணைக்கப்பட்ட ஆட்சிமையின் குறிப்பிடப்பட்டுள்ள அரசு புறம்போக்கு நிலங்களில் அமைந்துள்ள சாதாரண கற்குவாரிகளிலிருந்து சாதாரணகற்களை குவாரி செய்து எடுத்துச் செல்ல டெண்டருடன் இணைந்த ஏல முறையில் குவாரி குத்தகை உரிமம் வழங்க மூடி முத்திரையிடப்பட்ட டெண்டர் விண்ணப்பங்கள் 3 பிரதிகளில் கிருஷ்ணகிரி மாவட்ட ஆட்சியரால் வரவேற்கப்படுகின்றன.

3. இந்த அறிவிக்கையின்படி விண்ணப்பிக்கப்படும் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பம் 1959 ஆம் ஆண்டு தமிழ்நாடு சிறுகனிமச் சலுகை விதிகளின் பின்இணைப்பு VI-ல் குறிப்பிடப்பட்டுள்ள மடிவத்தில் இடக்க வெளும்பு மாடிக் விண்ணப்பப்படுகின்ற மாவட்ட அரசிதழ் சிறப்பு வெளியீட்டின் இணைப்பில் பிரசுரிக்கப்பட்டுள்ளது. இணைப்பில் பிரசுரிக்கப்பட்டுள்ள அடிமல் 18-ன்படி பூர்த்தி செய்து அனுப்பப்படாத விண்ணப்பங்கள் ஏற்றுக் கொள்ளப்படமாட்டாது.

4. ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களுடன் இணைத்து அனுப்பப்பட வேண்டிய இணைப்புகளின் விவரங்கள் மற்றும் குத்தகை நிபந்தனைகள் பற்றிய விவரங்கள் குறிப்பிடப்பட்டுள்ள அரசிதழ் கிருஷ்ணகிரி மாவட்ட ஆட்சியர் அலுவலகம் கிருஷ்ணகிரி புலியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநர் அலுவலகம், கிருஷ்ணகிரி மாவட்டத்திலும் ஆணைத்துறை ஆட்சியர்/வருவாய் கோட்டாட்சியர், வட்டாட்சியர் மற்றும் ஊராட்சி ஒன்றிய ஆணையர் அலுவலகங்களின் தகவல் பலகையில் விளங்கும் செய்யப்பட்டுள்ளது.

5. அட்டவணையில் குறிப்பிட்டுள்ள குவாரிகளின் குத்தகை காலம் குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றப்பட்ட நாளிலிருந்து ஏற்கனவே குவாரி குத்தகை வழங்கப்பட்டு குத்தகை காலம் முடிவற்ற சாதாரண கற்குவாரிகளுக்கு 5 ஆண்டுகளும் (புதியதாக சேர்க்கப்பட்டுள்ள சாதாரண கற்குவாரிகளுக்கு 10 ஆண்டுகளும் ஆகும்.

6. ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பதாரர் தனது விண்ணப்பத்தில் குவாரியின் மொத்த குத்தகை காலத்திற்குமான ஒரே தரவணையில் செலுத்தத்தக்க குத்தகை தொகையை உரிய இடத்தில் எண்ணிலும் எழுத்திலும் தெளிவாக குறிப்பிட வேண்டும்.

7. மாவட்ட ஆட்சியர், சார் ஆட்சியர் / வருவாய் கோட்டாட்சியர், வருவாய் வட்டாட்சியர், ஊராட்சி ஒன்றிய ஆணையர், துணை இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை) அலுவலக தகவல் பலகைகளில் அறிவிப்பு செய்யப்பட்டுள்ள அரசிதழில் கண்டுள்ள நிபந்தனைகளின்படி பூர்த்தி செய்யப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களை அனைத்து இணைப்புகளுடன் கவரில் வைத்து மூடி முத்திரை இட்டு மாவட்ட ஆட்சித்தலைவர் கிருஷ்ணகிரி என்ற விவாகரத்து நேரிலோ அல்லது ஒப்பந்தக பெறத்தக்க பதிவஞ்சல் மூலமாகவோ மாவட்ட ஆட்சியர் அலுவலக வளாக தளத்தளத்தில் ஆறை எண்.30ல் உள்ள புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அலுவலகத்தில் 2019ம் ஆண்டு மார்ச் திங்கள் 7-ம் நாள் மாலை 5.45 மணிக்குள் கிடைக்கும்படி அனுப்பப்பட வேண்டும். கவரின் மீது விண்ணப்பிக்கும் குவாரியின் விவரம் மற்றும் அட்டவணையில் குறிப்பிட்டுள்ள குவாரியின் வரிசை எண் போன்றவற்றை தவறாமல் குறிப்பிட வேண்டும்.

8. மேலே குறிப்பிட்ட காலக்கெடுவிற்குள் வரப்பெற்ற விண்ணப்பங்கள் மட்டும் மாவட்ட ஆட்சியரால் அல்லது அவரது அங்கீகாரம் பெற்ற அலுவலரால் கிருஷ்ணகிரி மாவட்ட ஆட்சியர் அலுவலக வளாகத்தில் 2019ம் ஆண்டு மார்ச் திங்கள் 8-ம் நாள்ன்று முற்பகல் 11.00 மணிக்கு ஆஜராகியிருக்கும் சம்பந்தப்பட்ட குவாரிக்கு விண்ணப்பித்துள்ள விண்ணப்பதாரர்கள் மற்றும் பொது ஏலத்தில் கலந்து கொள்பவர்கள் முன்னிலையில் அட்டவணைகளில் உள்ள குவாரிகளின் வரிசை கிரமமாக முதலில் பொது ஏலமும் பின்னர் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திற்ப்பும் மேற்கொள்ளப்படும்.

9. மேலே குறிப்பிட்ட நாளில் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திறப்பதற்கு முன்னர் ஒவ்வொரு குவாரிக்கும் தனித்தனியே பொது ஏலம் விடப்படும். ஏல நடவடிக்கை முடிவு பெற்ற பின்பு சம்பந்தப்பட்ட குவாரிக்கு வரப்பெற்ற டெண்டர் விண்ணப்பங்கள் பிரித்து பரிசீலிக்கப்படும். டெண்டர் விண்ணப்பம் மூலம் கோரப்பட்டுள்ள உயர்ந்தபட்ச டெண்டர் தொகை அல்லது ஏலம் மூலம் கோரப்பட்ட உயர்ந்தபட்ச குத்தகை தொகை இதில் எது அதிகமோ அத்தொகையே சம்பந்தப்பட்ட குவாரிக்கான உயர்ந்தபட்ச குத்தகை தொகையாக எடுத்துக்கொள்ளப்பட்டு குவாரி குத்தகை உரிமம் வழங்குதல் சம்பந்தமாக நடவடிக்கைகள் மேற்கொள்ளப்படும்.

10. மேற்கண்டபடி வரப்பெறும் டெண்டர் / ஏல விண்ணப்பங்கள், 1959ஆம் ஆண்டு தகவீநாடு சிறுகனிமச் சலுகை விதிகள், சுரங்கங்கள் மற்றும் கனிமங்கள் (மேம்படுத்துதல் மற்றும் மூலாற்படுத்ததல்) சட்டம் 1957 மற்றும் இந்த ஏல அறிவிப்பில் குறிப்பிட்டுள்ள முக்கிய நிபந்தனைகளின்படி பரிசீலிக்கப்பட்டு அவற்றின்படி மாவட்ட ஆட்சியரால் தக்க ஆணைகள் பிறப்பிக்கப்படும்.

11. இந்த மாவட்ட அரசிதழ் அறிவிக்கை பிரசுரிக்கப்பட்ட பின்னரோ, குத்தகை உறவு ஆணை பிறப்பிக்கப்பட்டு முன்னரோ, நிபந்தனைகளை மாற்றவோ அல்லது ரத்து செய்யவோ மற்றும் பட்டியலில் கண்டுள்ள எல்லா குவாரிகளின் குத்தகை உரிமம் காலம் ஒப்பந்தப்புள்ளி மனுக்களை எக்காரணமும் கூறாமல் ரத்து செய்யவோ அல்லது மேற்படி மனுக்களை மூடி முத்திரையிடப்பட்ட உறைகளை திறக்கும் நாள் நேரம் மற்றும் ஏலம் நடக்கும் நாள் மற்றும் நேரம் ஆகியவைகளை தள்ளிவைக்கவோ நிறுத்திவைக்கவோ மாவட்ட ஆட்சியருக்கு முழு அதிகாரம் உண்டு. ஏதாவது காரணத்தினால் ஒத்திவைக்க நேர்ந்தால் அதற்கு மனுதாரர்கள் யாருக்கும் நட்ட ஈடு கேட்க உரிமை இல்லை.

12. விண்ணப்பதாரர் ஒவ்வொரு குவாரிக்கும் தனித்தனியே ஒரு ஒப்பந்தப்புள்ளி விண்ணப்பத்தை உரிய இணைப்புகளோடு அனுப்ப வேண்டும். ஒரே விண்ணப்பத்தில் ஒரு குவாரிக்கு மேல் பல குவாரிகளை குறிப்பிட்டு அனுப்பும் விண்ணப்பம் நிராகரிக்கப்படும்.

13. ஒப்பந்தப்புள்ளி விண்ணப்பம் அனுப்புவதற்கு முன்/ ஏலத்தில் கலந்து கொள்வதற்கு முன் இம்மாவட்ட அரசிதழ் அறிவிக்கையுடன் இணைக்கப்பட்டுள்ள பட்டியலில் கண்ட சம்பந்தப்பட்ட குவாரியை / குவாரிகளை விண்ணப்பதாரர் தனது சொந்த செலவிலேயே நேரில் பார்வையிட்டு பாறை வசதி கனிமத்தின் தரம் மற்றும் கனிமத்தின் இருப்பு ஆகியவற்றை ஆராய்ந்து பின்னர் குத்தகை உரிமம் கோரி விண்ணப்பிக்க வேண்டும் மற்றும் ஏலத்தில் கலந்து கொள்ளவேண்டும். ஆணை வழங்கப்பட்ட பின் குவாரி அமைந்துள்ள புல எண், பரப்பு, குவாரிகளின் நான்கு எல்லைகள், பாறை வசதி, கனிமத்தின் தரம் கனிமத்தின் இருப்புக்குறித்து எல்வித தாவரமும் செய்ய குத்தகைதாரருக்கு உரிமை கிடையாது.

14. 1959ஆம் ஆண்டு தமிழ்நாடு சிறுகனிமச் சலுகை விதிகளில் கண்டுள்ள அனைத்து சார்புக்களையும் மாவட்ட அரசிதழில் உள்ள அனைத்து நிபந்தனைகளையும் நன்கு தெரிந்து கொண்டபின் ஒப்பந்தப்புள்ளி விண்ணப்பங்களை உரிய இணைப்புகளோடு அனுப்பவேண்டும். விண்ணப்பம் அனுப்பிய பிறகு விதிகள் மற்றும் குத்தகை நிபந்தனைகள் பற்றி சரியாக தெரியாது என மனுதாரர் வாதிட்டால் அது ஏற்றுக்கொள்ளப்பட மாட்டாது.



15. ஒப்பந்தப்புள்ளி (டெண்டர்) மற்றும் ஏல நிபந்தனைகள் :

1) ஒவ்வொரு குவாரிக்கும் இந்த அரசிதழின் பிற்சேர்க்கையில் பிரசுரிக்கப்பட்டுள்ள இணைப்பு VI-ல் காணும் மாதிரி விண்ணப்ப படிவத்தின்படி தனித்தனி விண்ணப்பங்களில் விண்ணப்பிக்க வேண்டும்.

2) நடப்பில் ஒரு நபருக்கு இரண்டு குவாரிகளுக்கு மட்டும்தான் குத்தகை உரிமம் வழங்கப்படும்.

3) இந்த அரசிதழின் அட்டவணையில் குறிப்பிட்டுள்ள குவாரிகளின் குத்தகை காலம் குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றப்பட்ட நாளிலிருந்து ஏற்கனவே குவாரி குத்தகை வழங்கப்பட்டு குத்தகை காலம் முடிவற்ற சாதாரண கற்குவாரிகளுக்கு 5 ஆண்டுகளும் புதியதாக சேர்க்கப்பட்டுள்ள சாதாரண கற்குவாரிகளுக்கு 10 ஆண்டுகளும் ஆகும். குத்தகை ஒப்பந்தப்பத்திரத்தில் குறிப்பிடப்படும் இறுதி நாளில் குத்தகை காலம் முடிவடையும், குத்தகை காலம் எக்காரணத்தைக்கொண்டும் நீடிக்கப்பட மாட்டாது.

4) ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்துடன் கீழ்க்கண்டவற்றை இணைத்து அனுப்ப வேண்டும்.

(அ) திரும்ப வழங்க இயலாத விண்ணப்பக் கட்டணமாக ரூ.1500/-க்கான கேட்பு வரைவோலையை (டிமாண்ட் டிராப்ட்) ஏதேனும் ஒரு தேசிய மயமாக்கப்பட்ட வங்கியில் மாவட்ட ஆட்சியர் கிருஷ்ணகிரி மாவட்டம் அவர்களின் பதவியின் பெயரில் பெற்று இணைக்க வேண்டும்.

(ஆ) பிணை வைப்புத்தொகை (Earnest money deposit) ரூ.25000/- (ரூபாய் இருபத்தைந்தாயிரம் மட்டும்)க்கான கேட்பு வரைவோலை ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் மாவட்ட ஆட்சியர் கிருஷ்ணகிரி மாவட்டம் அவர்களின் பதவியின் பெயரில் பெற்று இணைக்க வேண்டும். குத்தகை உரிமம் வழங்கப்படுபவர் செலுத்த வேண்டிய டெண்டர்/ஏலத் தொகையில் இந்த தொகை பின்னர் சரி செய்து கொள்ளப்படும்.

(இ) ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்தில் குறித்துள்ள மொத்த குத்தகை தொகையில் 10 சதவீதத் தொகைக்கான கேட்பு வரைவோலை (டிமாண்ட் டிராப்ட்டை) மாவட்ட ஆட்சியர் கிருஷ்ணகிரி மாவட்டம் அவர்களின் பதவியின் பெயரில் ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் பெற்று இணைக்க வேண்டும்.

ஈ) மாவட்ட வாரியாக கனிம வாரியாக விண்ணப்பதாரர் / ஏலதாரர் நேரடியாகவோ அல்லது பங்குதாரராகவோ தொடர்புள்ள குவாரிகள் பற்றிய கீழ்க்கண்ட விவரங்களை ஆணை உறுதி வாக்குமூலம் (அபிடவிட்) மூலம் தெரிவிக்க வேண்டும்.

- அனுபவத்திலிருக்கும் குவாரி குத்தகை அனுமதி பற்றி விவரம்
- ஏற்கனவே விண்ணப்பித்து இதுவரை அனுமதி வழங்கப்படாத குவாரி குத்தகை அனுமதி பற்றி விவரம்.
- தற்போது உடனிகழ்வாக விண்ணப்பிக்கும் குவாரி குத்தகை அனுமதி விவரம்.
- விண்ணப்பதாரருக்கு கனிம குத்தகையுள்ள மாவட்ட ஆட்சியரால் வழங்கப்பட்ட செல்லத்தக்க சுரங்கவரி நிலுவை இல்லா சான்றிதழ் அல்லது சுரங்கவரி நிலுவை இல்லை என்பதற்கான ஆணையறுதி வாக்குமூலம் இணைக்கப்படவேண்டும்.
- வருமான வரி செலுத்திய சான்றிதழ் அல்லது வருமானவரி பாக்கியில்லை என்பதற்கான ஆணையறுதி வாக்குமூலம் இணைக்கப்படவேண்டும்.

5) ஏலத்தில் நேரடியாக கலந்து கொள்பவர்கள் ஸூர்த்தி செய்யப்பட்ட விண்ணப்பப்படிவம், திருப்பித்தரப்படாத விண்ணப்பக்கட்டணம் ரூ.1500/- மற்றும் பிணை வைப்புத்தொகை ரூ.25000/- ஆகியவற்றிற்கான கேட்பு வரைவோலைகள் (டிமாண்ட் டிராப்ட்) மாவட்ட ஆட்சியர் கிருஷ்ணகிரி மாவட்டம் அவர்களின் பதவியின் பெயரில் ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் பெற்று ஏலத்தில் நேரடியாக கலந்து கொள்வதற்கு முன்னர் ஏலம் நடத்தும் அலுவலரிடம் சமர்ப்பிக்க வேண்டும். மேலும் ஏலம் மூலம் கோரப்பட்ட உயர்ந்தபட்ச தொகை டெண்டர் மூலம் கோரப்பட்ட உயர்ந்த பட்ச தொகையைவிட அதிகமாக இருந்தால் ஏலத்தொகையில் 10 சதவீதத் தொகையை உடன் ஏலம் நடத்தும் அலுவலரிடம் தேசிய மயமாக்கப்பட்ட ஏதேனும் ஒரு வங்கியில் பெறப்பட்ட கேட்பு வரைவோலையாகவோ அல்லது ரொக்க தொகையாகவோ செலுத்தி தக்க இரசீதுகள் பெற்றுக் கொள்ள வேண்டும்.

6) ஒப்பந்தப்புள்ளி(டெண்டர்) விண்ணப்பங்கள் மேற்கூறிய இணைப்புகளுடன் நேரிலோ அல்லது ஒப்புரை பெறத்தக்க பதிவஞ்சல் மூலமாகவோ மாவட்ட ஆட்சியர் அலுவலக கட்டிடத்தில், தரைதளத்தில் அறை எண்.30ல் இயங்கும் கிருஷ்ணகிரி புலியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநர் அலுவலகத்தில் 2019ஆம் ஆண்டு மார்ச் திங்கள் 7-ஆம் நாள் மாலை 5.45 மணிக்குள் கிடைக்கும்படி செய்ய வேண்டும். நேரில் விண்ணப்பங்கள் அளித்தால் அதைப்பெற்றுக்கொண்டதற்கான ஒப்புதல் கடிதம் அன்றைய தினமே வழங்கப்படும். தபால் மூலம் பெறப்படும் விண்ணப்பத்திற்கு ஒப்புதல் கடிதம் மூன்று தினங்களுக்குள் தபாலில் அனுப்பி வைக்கப்படும் டெண்டர் விண்ணப்பங்கள் மூடி முத்திரையிடப்பட்ட கவர்களில் மட்டுமே அனுப்பி வைக்கப்பட வேண்டும். கவரின் மேல்புறத்தில் விண்ணப்பதாரரின் பெயர் மற்றும் விலாசம் தெளிவாக குறிப்பிடப்பட வேண்டும். கவரின் இடது மூலையில் கனிமத்தின் பெயர் குவாரி அமைந்துள்ள கிராமம், புல எண், பரப்பு அரசிதழின் இணைப்பில் பிரசுரிக்கப்பட்டுள்ள குவாரிகளின் பட்டியலில் உள்ள வரிசை எண் ஆகியவற்றை தவறாமல் குறிப்பிடவேண்டும்.

7) மாவட்ட ஆட்சியரால்/அல்லது அவரால் அங்கீகாரம் வழங்கப்பட்ட அலுவலரிடம் உள்ள வருகை பதிவேட்டில் விண்ணப்பதாரர்கள் / ஏலதாரர்கள் கையொப்பப்பட்ட பின்னரே ஏல அறைக்குள் அனுமதிக்கப்படுவார்கள்.

8) குறிப்பிட்ட காலகெடுவிற்குள் வரப்பெற்ற விண்ணப்பங்கள் மாவட்ட ஆட்சியர் அல்லது அவரால் அங்கீகாரம் வழங்கப்பட்டுள்ள அலுவலரால் மாவட்ட ஆட்சியர் அலுவலகத்தில் 2019ம் ஆண்டு மார்ச் திங்கள் 8-ம் நாள் முற்பகல் 11.00 மணிக்கு வருகை தந்திருக்கும் தொடர்புள்ள குவாரிக்கு விண்ணப்பித்துள்ள விண்ணப்பதாரர்கள் மற்றும் ஏலம் கோர வந்திருக்கும் நபர்களின் முன்னிலையில் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திறக்கப்படுவதற்கு முன்னர் குவாரிப் பட்டியலில் கண்டுள்ள வரிசைப்படி ஏலம் நடத்தப்படும். ஏலத்தில் கலந்து கொள்ள விரும்புவோர் பிணை வைப்புத்தொகை ரூ.25000/-க்கான கேட்பு வரைவோலை மற்றும் விண்ணப்பக்கட்டணம் ரூ.1500/-க்கான கேட்பு வரைவோலை, சுரங்க நிலுவையில்லாத் சான்று அல்லது உறுதிமொழி ஆவணம், ஏலதாரர் நேரிடையாகவோ பங்குதாரராகவோ உள்ள குவாரிகள் தொடர்பான உறுதிமொழி ஆவணம், வருமானவரி நிலுவையில்லாசான்றிதழ் அல்லது உறுதிமொழி ஆவணம், முதலிய ஆவணங்களை ரூ.20/- மதிப்புள்ள முத்திரைத்தாளில் சான்று உறுதி அலுவலரிடம் (Notary Public) கையொப்பம் பெற்று பூர்த்தி செய்யப்பட்ட விண்ணப்பத்துடன் ஏலம் நடைபெறுவதற்கு முன் ஆண்படுத்த வேண்டும். ஏலம் மற்றும் ஒப்பந்தப்புள்ளி (டெண்டர்) கலந்து கொள்பவர் செலுத்தும் விண்ணப்பக்கட்டணத் தொகை ரூ.1500/- திருப்பித்தரப்படமாட்டாது. ஏலத்தில் நேரிடையாக பங்குபெறுபவர்கள் கொடுக்கும் விண்ணப்பத்தில் குத்தகை தொகையை குறிப்பிட தேவையில்லை. ஏற்கனவே டெண்டர் விண்ணப்பம் கொடுத்தவர்கள் ஏலத்தில் கலந்துகொள்ள முடியாவிடில் அவருக்குப்பதிலாக அவரால் நியமிக்கப்பட்ட வேறு ஒரு நபர் மட்டுமே நோட்டரிப்பளிக் முன்பு விண்ணப்பதாரர் மற்றும் நியமிக்கப்பட்ட நபர் கையொழுத்துக்கள் சான்றுபெறப்பட்ட உறுதிமொழி ஆவணம் (அபிடலிட்) தாக்கல் செய்வதின் பேரில் ஏலத்தில் கலந்து கொள்ள அனுமதிக்கப்படுவார்கள்.

9) ஒப்பந்தப்புள்ளி விண்ணப்பப்படிவத்தில் மனு செய்யும் நபர்கள் தாங்கள் மனு செய்யும் குவாரிக்கு குத்தகை தொகையாக செலுத்த விரும்பும் தொகையை விண்ணப்பத்தில் குறிப்பிடாமல் இருந்தாலோ அல்லது விண்ணப்ப கட்டணம், பிணைவைப்புத் தொகை, அதிகபட்சம் குறிப்பிடும் குத்தகை தொகையின் 10%தொகை ஆகியவற்றிற்கான வங்கி வரைவோலைகளை விண்ணப்பத்துடன் இணைக்காமல் இருந்தாலோ, விண்ணப்பத்தாளில் விண்ணப்பதாரர் தன் கையொப்பம் செய்யாமல் இருந்தாலோ 1959ம் ஆண்டு துழிநாடு சிறுகணி சலுகை விதிகளில் கூறப்பட்ட சுரங்கவரி பாக்கியின்மை சான்றிதழ், வருமானவரி பாக்கியின்மை சான்றிதழ் அல்லது இவைகளுக்காக வழங்கப்படும் ஆணை உறுதி ஆவணம் மற்றும் ஏற்கனவே மனுதாரர் நேரிடையாகவோ பங்குதாரராகவோ உள்ள குவாரிகள் தொடர்பான உறுதிமொழி ஆவணம் ஆகியவற்றை இணைக்கப்படாமல் இருந்தாலோ மேற்படி ஒப்பந்தப்புள்ளி விண்ணப்பம் மாவட்ட ஆட்சியரால் அல்லது அவரால் அங்கீகரிக்கப்பட்ட அலுவலரால் நிராகரிக்கப்படும். மேற்குறிப்பிட்டவாறு விண்ணப்பம் நிராகரிக்கப்பட்ட ஒப்பந்தப்புள்ளி விண்ணப்பதாரர்களுக்கு ஒப்பந்த புள்ளிகள் திறக்கும் சமயத்தில் விண்ணப்பதாரர் ஆஜரில் இருந்தால் மட்டும் மாவட்ட ஆட்சியர் அல்லது அவரது அங்கீகாரம் பெற்ற அலுவலரால் விண்ணப்பதாரரிடம் தக்க ஒப்புதல் பெற்று வங்கிவரைவோலை திருப்பி வழங்கப்படும். ஒப்பந்தப்புள்ளி திறக்கும் சமயத்தில் ஆஜரில் இல்லாத நபருக்கு பதிவஞ்சல் மூலம் வங்கி வரைவோலைகள் தனியே அனுப்பி வைக்கப்படும்.

10) ஒவ்வொரு குவாரிக்கும் பொது ஏலம் நடத்தி முடித்தபின்னர் சம்பந்தப்பட்ட குவாரிக்கான டெண்டர் விண்ணப்பங்கள் வருகை தந்திருக்கும் சம்பந்தப்பட்ட டெண்டர் விண்ணப்பதாரர்கள் மற்றும் ஏலதாரர்கள் அல்லது அவர்களது அதிகாரம் பெற்ற நபர்கள் முன்னிலையில் சம்பந்தப்பட்ட அதிகாரிகளால் திறக்கப்படும். ஒப்பந்தப்புள்ளி (டெண்டர்) திறக்கும் நேரத்தில் விண்ணப்பதாரர் அல்லது ஏலதாரர் அல்லது அங்கீகாரம் பெற்ற நபர் ஆஜரில் இல்லாததற்கு மாவட்ட நிர்வாகம் பொறுப்பு அல்ல. மேலும் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பம் திறப்பதோ ஏலம் நடத்துவதோ நிறுத்தி வைக்கப்படமாட்டாது.

11) மாவட்ட ஆட்சியர் அல்லது அவரது அங்கீகாரம் பெற்ற அலுவலர் மேற்கண்ட குவாரிக்கு வரப்பெற்ற மொத்த செலுத்தக்க விண்ணப்பங்கள், விண்ணப்பதாரர்களின் பெயர்கள் ஒவ்வொரு விண்ணப்பதாரராலும் குறிப்பிடப்பட்ட அதிகபட்ச டெண்டர் தொகை ஆகியவற்றையும் அதிகபட்ச தொகைக்கு ஏலம் கேட்ட நபர் பெயர் மற்றும் அதிகபட்ச ஏலத்தொகை, ஆகியவற்றையும் ஏலம் முடிவடைந்தவுடன் அறிவிப்பார். ஏலத்தொகை, ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்தில் குறிப்பிடப்பட்டுள்ள குத்தகை (டெண்டர்) தொகையை விடகுறைவாக இருந்து ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் மூலமாக கோரப்படும் குத்தகை தொகைகள் ஒன்றுக்கும் மேற்பட்ட விண்ணப்பதாரர்களால் ஒரே யாதிரியாக குறிப்பிடப்பட்டிருந்தால் மாவட்ட ஆட்சியர் அல்லது அவரால் அங்கீகாரம் பெற்ற நபர் ஆஜரில் இல்லாததற்கு மாவட்ட நிர்வாகம் பொறுப்பு அல்ல. மேலும் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பம் குவாரிக்கு மட்டும் மறுகேட்பு மூலம் உயர் குத்தகை தொகை பெற நடவடிக்கை எடுக்கப்படும். அதிகபட்ச குத்தகைத்தொகை கோரும் நபர் அதிகபட்ச ஏலத்தொகை கோரிய நபராக அறிவிக்கப்படுவார். ஒவ்வொரு குவாரிக்கும் பெறப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களில் குறிப்பிடப்பட்டுள்ள அதிகபட்ச குத்தகைத்தொகை அல்லது பொது ஏலத்தின் மூலம் கேட்கப்படும் அதிகபட்ச குத்தகைத் தொகையை இவற்றில் எது அதிகமோ அந்த தொகை மேற்கண்ட குவாரிக்கு கோரப்பட்ட அதிகபட்ச குத்தகை தொகை என அறிவிக்கப்பட்டு அதிகபட்ச குத்தகைத் தொகை குறிப்பிட்டவராக அறிவிக்கப்படுவார். அதிகபட்சத் தொகைக்கு டெண்டர்/ஏலம் மூலம் கேட்ட நபர் என மாவட்ட ஆட்சியர் அல்லது அவரால் அங்கீகாரம் பெற்ற நபர் மூலம் உறுதிசெய்யப்பட்டவுடன், டெண்டர்/ஏலம்கேட்ட நபர் அவரால் அதிகபட்சமாக கோரப்பட்ட தொகையில் பத்து சதவிகித தொகையினை கேட்பு வரைவோலையாகவோ / பணமாகவோ உடனடியாக செலுத்திடவேண்டும். அவ்வாறு செலுத்தத் தவறும் பட்சத்தில் அவரது ஏலம் / டெண்டர் ரத்து செய்யப்பட்டு அவருக்கு அடுத்தபடியாக அதிகபட்சத்தொகை கேட்ட நபருக்கு வாய்ப்பளிக்கப்படும். அவரும் பத்து சதவிகிதத்தொகையினை செலுத்த தவறும் பட்சத்தில் இதே நடைமுறையை தொடர்ந்து நடத்துவது அல்லது மறு ஏலம் விட ஆணையிடுவது போன்றவை மாவட்ட ஆட்சியரின் இறுதி



முடிவு மற்றும் அதிகார வரம்பிற்கு உட்பட்டதாகும். அதிகப்பட்ச ஏலம் / டெண்டர் கேட்ட நபரை தவிர மற்றவர்களுக்கு அவர் தாம் செலுத்திய பிணைவைப்புத்தொகை திரும்ப தரப்படும். ஏலம் / டெண்டர் உறுதி செய்யப்பட்ட நபர் மீதமுள்ள 90 சதவீத தொகையினை ஏழு தினங்களுக்குள் செலுத்திவிட வேண்டும், தவறும் பட்சத்தில் ஏலம் / டெண்டர் ரத்துசெய்யப்பட்டு அவர்செலுத்திய அனைத்து தொகைகளும் பறிமுதல் செய்யு அரக கணக்கில் சேர்க்கப்படும்.

12) (அ) சிறப்பு நிபந்தனைகள்:

(i) இந்த டெண்டர் மற்றும் ஏலமுறையில் கலந்து கொள்ளும் விண்ணப்பதாரர்கள் அனைவரும் இந்திய அரசின் வருமான வரித்துறையினரால் வழங்கப்படும் நிரந்தர கணக்கு எண் (PAN - CARD) அட்டையை பெற்றிருக்கவேண்டும்.

(ii) இந்த நிரந்தர கணக்கு எண்ணை சமர்ப்பித்து டெண்டர் மற்றும் ஏலம் கோரும் தொகைக்கு 2.00 சதவீத வருமான வரியை கிருஷ்ணகிரி மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அவர்களுக்கு வருமான வரித்துறையினரால் அளிக்கப்பட்டுள்ள TAN.No.CHE05905E-ன் கீழ் உரிய வருமானவரித்துறை செலுத்துச்சீட்டில் மூலம் செலுத்தவேண்டும்.

(iii) மேலும் குத்தகை உரிமம் பெற்ற பின்னர் கனிமங்களை எடுத்துச் செல்ல போக்குவரத்து அனுமதி சீட்டுபெற ஒவ்வொருமுறையும் செலுத்துகின்ற சீனியரேஜ் தொகையின் மீது 2.00 சதவீத வருமான வரி தொகை செலுத்தவேண்டும்.

(iv) மேலும் குத்தகை உரிமம் பெற்ற பின்னர் கனிமங்களை எடுத்துச் செல்ல போக்குவரத்து அனுமதி சீட்டு பெற ஒவ்வொருமுறையும் செலுத்துகின்ற சீனியரேஜ் தொகையின் மீது 10 சதவீத தொகையை கிருஷ்ணகிரி மாவட்ட கனிம அறக்கட்டளை நிதியாக கிருஷ்ணகிரி பாரத மாநில வங்கி (State Bank of India) கணக்கு எண்.37243080996-ல் செலவன் மூலம் செலுத்த வேண்டும்.

13). ஒரு குவாரிக்கு ஒரு டெண்டர் விண்ணப்பம் மட்டும் வரப்பெற்று ஏலம் கேட்க யாரும் முன்வரவில்லை எனில் அந்த ஒரு விண்ணப்பதாரர் குறிப்பிட்ட தொகை நியாயமானது என்றும் கனிம அபிவிருத்திக்கு உகந்தது என்றும் மாவட்ட ஆட்சியரால் சுருதப்பட்டால் அவருக்கு மாவட்ட ஆட்சியரால் குத்தகை உரிமம் வழங்கப்படும். அந்த ஒரு விண்ணப்பதாரரால் குறிப்பிடப்பட்ட தொகை நியாயமானது அல்ல என்றும் அவருக்கு உரிமம் வழங்குவது கனிம அபிவிருத்திக்கு உகந்ததல்ல என்றும் மாவட்ட ஆட்சியர் கருதினால், அவருடைய விண்ணப்பம் மாவட்ட ஆட்சியரால் நிராகரிக்கப்படும். ஒரு குவாரிக்கு ஒன்றுக்கு மேற்பட்ட விண்ணப்பங்கள் வரப்பெறின் அதிகப்பட்ச ஏலத்தொகை / டெண்டர் தொகை நியாயமானது எனக் கருதப்படும் பட்சத்தில் குவாரி குத்தகை வழங்க நடவடிக்கை எடுக்கப்படும். ஒரு குவாரிக்கு பெறப்பட்ட அதிகப்பட்ச ஏல தொகை / டெண்டர் தொகை நியாயமானது அல்ல மற்றும் கனிம அபிவிருத்திக்கு உகந்ததல்ல என மாவட்ட ஆட்சியர் கருதும் பட்சத்தில் அதனை ஏற்காமல் நிராகரித்து ஏலத்தொகை / டெண்டர் தொகையில் 10% தொகையை பெற மறுத்து மறு ஏலம் மற்றும் டெண்டருக்கு கொண்டு வர நடவடிக்கை மேற்கொள்ளப்படும்.

14) மாண்புமிகு இந்திய உச்சநீதிமன்றம் வழக்கு எண் ஐ.ஏ 12-13/2012 எஸ்.எல்.பி (சி) எண்.19628 - 19629/2009 ஆகியவற்றின் மீது 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, அரசாணை எண். (எம்எஸ்)எண். 79, தொழில் (எம்எம்சி1)துறை நாள் 06.04.2015ன்படி 1959ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் திருத்தம் செய்யப்பட்டு சேர்க்கப்பட்ட விதிகள் எண். 41 மற்றும் 42-ன் படியும் அனைத்து சிறுகனிம குவாரிகளுக்கும் குவாரி குத்தகை வழங்குமுறைப் அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம், கிருஷ்ணகிரி மாவட்ட சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் / தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் / இந்திய அரசு சுற்றுச்சூழல் மற்றும் வனத்துறையின் தடையின்மை சான்று, மற்றும் தமிழ்நாடு மாக கட்டுப்பாட்டு வாரியத்தின் இசைவு ஆகியவற்றை பெற்று சமர்ப்பித்த பின்பு மட்டுமே குவாரி குத்தகை வழங்க முடியும்.

15). அதிகப்பட்ச தொகை கேட்ட நபருக்கு குவாரி குத்தகை உரிமம் உறுதிசெய்யப்படுமாயின் அவருக்கு குவாரி குத்தகை உரிமம் வழங்கப்பட்டவுள்ள குவாரியின் புல எண், பரப்பளவு, ஆகிய விவரங்கள் அடல்கிய அறிவிக்கை வழங்கப்பட்டு அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம், கிருஷ்ணகிரி மாவட்ட சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் / தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் / இந்திய அரசு சுற்றுச்சூழல் மற்றும் வனத்துறையின் தடையின்மை சான்று, மற்றும் தமிழ்நாடு மாக கட்டுப்பாட்டு வாரியத்தின் இசைவு ஆகியவற்றை உரிய காலத்திற்குள் சமர்ப்பிக்குமாறு தெரிவிக்கப்பட்டு.

(அ) மேற்கண்ட அறிவிக்கை பெற்றுக்கொண்ட மனுதாரர் சுரங்கத்திட்டத்தை தகுதி வாய்ந்த நபர் (O1) மூலம் அரசு தெரிவித்துள்ள விதிகள் மற்றும் வழிகாட்டுதலின் படி தயாரித்து அறிவிக்கை பெறப்பட்ட நாளிலிருந்து மூன்று மாத காலத்திற்குள் கிருஷ்ணகிரி புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநரிடம் அங்கீகாரம் பெற சமர்ப்பிக்க வேண்டும்.

(ஆ) மேற்கண்ட மனுதாரர் கிருஷ்ணகிரி புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநரால் அங்கீகாரம் வழங்கப்பட்ட சுரங்கத்திட்டத்தை கிருஷ்ணகிரி மாவட்ட சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் / தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு

மதிப்பீட்டு ஆணையத்தின்/இந்திய அரசு சுற்றுச்சூழல் மற்றும் வனத்துறையின் முன்பு சமர்ப்பித்து தடையின்மை சான்று கோரி விண்ணப்பித்து தடையின்மை சான்று மற்றும் தமிழ்நாடு மாசுக்கட்டுப்பாட்டு வாரிய இசைவு ஆகியவற்றை பெற்று சமர்ப்பிக்க வேண்டும்.

(இ) இரு மாநில எல்லையிலிருந்து ஐந்து கிலோமீட்டர் தொலைவிற்குள்ளும் வனவிலங்கு சரணாலயத்திலிருந்து பத்து கிலோமீட்டர் தொலைவிற்குள்ளும் அமைந்துள்ள குவாரிகளுக்கு மத்திய அரசு சுற்றுச்சூழல் ஆணையத்தின் முன் அனுமதி பெற்று சமர்ப்பிக்க வேண்டும்.

(ஈ) தேசிய பூங்கா/வனவிலங்கு சரணாலயத்திலிருந்து பத்து கிலோமீட்டர் தொலைவிற்குள் அமைந்துள்ள குவாரிகளுக்கு வனவிலங்கு தேசிய வாரிய நிலைக்குழுவிடமிருந்து (Standing Committee of National Board of Wildlife) தடையின்மை சான்று பெற்று சமர்ப்பிக்க வேண்டும்.

(உ) அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் முதல் ஐந்து ஆண்டு காலத்திற்கு மட்டுமே செல்லத்தக்கதாகும்.

(ஊ) மேற்கண்ட ஆவணங்களை சமர்ப்பிப்பதில்பு மனுதாரருக்கு குவாரி குத்தகை வழங்கி மாவட்ட ஆட்சியரால் ஆணையிடப்படும். அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் கிருஷ்ணகிரி மாவட்ட சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின்/தமிழ்நாடு மாநில சுற்றுச்சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின்/இந்திய அரசு சுற்றுச்சூழல் மற்றும் வனத்துறையின் தடையின்மை சான்று ஆகியவற்றை குறிப்பிட்ட காலக்கெடுவிற்குள் சமர்ப்பிக்க தவறினால் மாவட்ட ஆட்சியர் அவர்களால் மனுதாரருக்கு மாவட்ட ஆட்சியர் முன்பு விசாரணைக்கு ஆஜராக வாய்ப்பித்து விசாரணை நடத்தப்பட்டு ஏற்கனவே வழங்கப்பட்ட உத்தரவு ரத்து செய்யப்படும்.

16) மேற்கூறிய உத்தரவு மாவட்ட ஆட்சியரிடமிருந்து கிடைக்கப்பெற்றவுடன் விண்ணப்பதாரர் மாவட்ட ஆட்சியரின் ஆணையில் குறிப்பிடப்பட்ட காலக்கெடுவிற்குள் கீழ்க்கண்ட ஆவணங்களை குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றுவது தொடர்பாக மாவட்ட ஆட்சியருக்கு சமர்ப்பிக்க வேண்டும்.

(அ) விண்ணப்பதாரரின் கையொப்பமிட்ட வரைவு குத்தகை ஒப்பந்தப்பத்திரம் மற்றும் வரைபடம்.

(ஆ) அசல் குத்தகை ஒப்பந்தப்பத்திரம் தயார் செய்வதற்கு தேவையான நீதித்துறை சாரா முத்திரைத்தாள்.

(இ) காப்புத்தொகைக்காக ஏலம் / டெண்டர் தொகையில் இருபது சதவீதம் அல்லது ரூ.10,000/-ம் இதில் எது அதிகமோ அதை செலுத்தியதற்கான அசல் செலுத்துச்சீட்டு (சலான்).

(ஈ) மாவட்ட ஆட்சியர் ஆணையில் குறிப்பிட்டுள்ள மொத்த குத்தகை பரப்பிற்கான பரப்புவரி செலுத்தியதற்கான அசல் சலான்.

17) அவ்வாறு குறிப்பிட்ட காலத்திற்குள் மேற்கண்ட ஆவணங்களை மாவட்ட ஆட்சியரிடம் சமர்ப்பிக்க தவறினால் மாவட்ட ஆட்சியரால் வழங்கப்பட்ட குத்தகை உரிமம் ரத்து செய்யப்பட்டு அவர் செலுத்திய அனைத்து தொகைகளும் அரசுக்கு ஆதாயம் செய்து அரசு கணக்கில் சேர்க்கப்படும்.

18) மேற்கண்ட ஆவணங்களை ஒப்படைத்து குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றிய பின்பே குவாரிப்பணியை தொடங்க வேண்டும். குவாரி குத்தகை ஆவணம் நிறைவேற்றுமுன் குவாரிப்பணி செய்வது கண்டறியப்பட்டால் அது அனுமதியின்றி கனிமம் வெட்டியெடுத்ததாக கருதப்பட்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959-ன் விதி 36-அ-ன்படி உரிய நடவடிக்கை எடுக்கப்படுவதுடன் குற்றவியல் நடவடிக்கையும் எடுக்கப்படும்.

19) குவாரி குத்தகைக்காக கோரப்பட்ட மொத்த குத்தகை காலத்திற்குமான ஒரே தடையில் மொத்தமாக செலுத்தப்படும் குத்தகைத்தொகை நிங்கலாக குத்தகைதாரர் மேற்படி குவாரியில் இருந்து எடுத்துச்செல்ல உத்தேசிக்கும் சிறுகனிமத்திற்கு 1959ம் ஆண்டைய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின் அட்டவணை 2ல் குறிப்பிடப்பட்டுள்ள விகிதாச்சாரப்படி சீனியரேஜ் கட்டணத்தை செலுத்தி மொத்த இசைவாணைச்சீட்டு மற்றும் அனுப்புணைச் சீட்டு பெற்றுதான் சிறுகனிமத்தினை எடுத்துச் செல்ல வேண்டும். மேலும் அரசால் அல்லப்போது திருத்தி நிர்ணயிக்கப்படும் சீனியரேஜ் தொகையை செலுத்தி அனுமதிச்சீட்டுப்பெற வேண்டும். மேலும் கனிமங்களை வெளியில் எடுத்துச் செல்ல போக்குவரத்து அனுமதி சீட்டு பெற ஒவ்வொருமுறையும் செலுத்துகின்ற சீனியரேஜ் தொகையின் மீது 10 சதவீத தொகையை கிருஷ்ணகிரி மாவட்ட கனிம அறக்கட்டளை நிதியாக கிருஷ்ணகிரி பாரத மாநில வங்கி (State Bank of India) கணக்கு எண்.37243080996-ல் செலான் மூலம் செலுத்த வேண்டும்.

20) குத்தகைதாரர் ஒவ்வொரு மாதமும் குவாரிப்பணி செய்த தொழிலாளர்கள், குவாரி செய்த கனிமத்தின் அளவிற்குரிய கணக்குகளை பிரதி மாதம் ஐந்தாம் நாளுக்குள் துணை இயக்குநர் புலியியல் மற்றும் சுரங்கத்துறை, கிருஷ்ணகிரி அவர்களுக்கு தணிக்கைக்கு ஆஜர் செய்ய வேண்டும்.

21) குவாரிகளுக்கு அருகில் உள்ள போக்குவரத்து சாலைகள், கிராம சாலைகள் குடியிருப்பு பகுதிகள் வீடுகள்,



வண்டிப்பாதைகள், மின் மற்றும் தொலைபேசி கம்பிகள், டிரான்ஸ்பார்மர்கள், ரயில்பாதைகள் பொதுப்பணித்துறை, வாய்க்கால், மதசம்பந்தமான வழிபாட்டுத்தலங்கள் மற்றும் இதர நிலையான அமைப்புகள் இவற்றிலிருந்து 1959ம் ஆண்டைய தமிழ்நாடு சிறுகனிம சலுகை விதிகளின் படி பாதுகாப்பு இடைவெளி விட்டு மீதமுள்ள இடத்திற்குள் தான் குவாரிப்பணி செய்யவேண்டும். பொதுமக்கள் உபயோகிக்கும் இடங்கள் குடியிருப்புக்கள் பட்டா நிலங்கள் அல்லது பொதுச்சொத்துக்கள் ஆகியவற்றிற்கு சேதம் ஏதும் ஏற்படாமல் குவாரிப்பணி செய்யவேண்டும். குவாரி பணியால் சேதம் ஏதும் ஏற்பட்டால் அதற்கு குத்தகைதாரரே முழு பொறுப்பேற்று அதில் ஏற்படும் நட்டத்தை ஈடு செய்து தரவேண்டும்.

22) குத்தகைதாரரை மேற்குறிப்பிட்ட நிபந்தனைகள் அல்லாமல் 1959ம் ஆண்டைய தமிழ்நாடு சிறுகனிம சலுகை விதிகள், கனிமங்கள் மற்றும் சுரங்கங்கள் (மேம்படுத்துதல் மற்றும் முறைப்படுத்துதல்) சட்டம் 1957 மற்றும் இந்த அரசிதழில் குறிப்பிடப்பட்டுள்ள சிறப்பு நிபந்தனைகள் மற்றும் அரசால் அல்லவோ பொதுக் கொண்டு வரப்படும் ஆணைகளும் விதிகளும் கட்டுப்படுத்தும்.

23) இவ்விதிகளின் கீழ் வழங்கப்படும் குவாரிகளின் குத்தகை காலம் எக்காரணத்தைக் கொண்டும் குத்தகை வழங்கப்பட்ட காலத்திற்கு மேல் நீட்டிக்கப்படவோ அல்லது குத்தகை காலம் புதுப்பிக்கப்படவோ மாட்டாது. குத்தகை காலம் முடிந்தபின் குத்தகைதாரர்கள் குத்தகைக்கு விடப்பட்ட பகுதிகளில் எவ்விதமான உரிமையும் கொண்டாடக்கூடாது.

24) 14 வயதுக்குட்பட்ட குழந்தை தொழிலாளர்களை குவாரிப்பணியில் ஈடுபடுத்தக்கூடாது.

25) இந்த அரசிதழில் குவாரி குத்தகை உரிமத்திற்காக அறிவிக்கப்பட்டிருக்கும் பட்டியலில் உள்ள குத்தகை விடப்படும் குவாரிகளை டெண்டர் / ஏலம் நடைபெறுவதற்கு முன்பாக நிறுத்தி வைக்கவோ, நீக்கவோ, புதியதாக சேர்க்கவோ குவாரி பரப்பளவை மாற்றவோ, மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.

26) நிர்வாக சூழல் காரணமாக டெண்டர் மற்றும் ஏலத்தை ரத்து செய்ய மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.

27) செய்தித்தாள் மூலமாகவோ, மாவட்ட அரசிதழ் மூலமாகவோ, அறிவிப்பு செய்யப்படாத குவாரிகளுக்கு ஏதாவது ஒப்பந்தப்புள்ளி விண்ணப்பங்கள் கிடைக்கப் பெற்றால் அவையாவும் முதிர்ச்சி அடையாத விண்ணப்பமாக கருதப்பட்டு மாவட்ட ஆட்சியரால் உடனடியாக நிராகரிக்கப்படும். குறித்த காலக்கெடுவிற்குள் வந்து சேராத விண்ணப்பங்கள் காலவரையறை கடந்த விண்ணப்பமாக கருதப்பட்டு அவையாவும் மாவட்ட ஆட்சியரால் நிராகரிக்கப்படும், நிராகரிக்கப்பட்ட விண்ணப்பங்களின் வங்கி வரைவோலைகள் மட்டும் விண்ணப்பதாரருக்கு திரும்ப அனுப்பி வைக்கப்படும்.

28) 1959ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் அட்டவணைப் படிவம்-1ல் கண்ட ஒப்பந்தப்பத்திரத்தில் தேவையான அளவிற்கு நிபந்தனைகளை புதியதாக சேர்க்கவோ, நீக்கவோ மாற்றி அமைக்கவோ மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு, குத்தகை பத்திரம் ஏற்படுத்தியபின் புல எண் மற்றும் குவாரி செய்ய ஒதுக்கப்பட்ட பரப்புக்குறித்து எவ்வித தாவாவும் செய்ய குத்தகைதாரருக்கு உரிமை கிடையாது.

29) குத்தகை ஒப்பந்தப்பத்திரத்தை புலவரைபடத்துடன் சொத்து மாற்றுக்கைச் சட்டம் 1882ன் பிரிவு 107ன் கீழ் குத்தகைதாரர் தனது சொந்த செலவில் பதிவுசெய்து பதிவுசெய்த ஒப்பந்தப்பத்திரத்தினை கிருஷ்ணகிரி புவியியல் மற்றும் சுரங்கத்துறை துணை இயக்குநர் அலுவலகத்தில் உடன் ஒப்படைக்க வேண்டும்.

30) தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் விதி 36(1)ல் வரையறுக்கப்பட்டுள்ளவாறு அருகிலுள்ள குடியிருப்புகளுக்கு பாதுகாப்பு இடைவெளியாக 300 மீட்டரும் கிராம சாலைகளுக்கு 10 மீட்டரும் இதர சாலைகள் கட்டிடங்கள், வழிபாட்டு தலங்கள், மின்கம்பி பாதைகள், தொலைபேசி பாதைகள், புகைவண்டிப்பாதைகள், டிரான்ஸ்பார்மர்கள், ஆறு, ஏரி, குளம், குட்டை மற்றும் இதர பொது சொத்துக்கள் ஆகியவற்றிற்கு பாதுகாப்பு இடைவெளியாக 50 மீட்டரும் விட்டு மீதமுள்ள இடத்திற்குள் தான் குவாரிப்பணி செய்யப்படவேண்டும். புராதன சின்னங்களுக்கு தொல்லியல் துறையால் வரையறுக்கப்பட்டுள்ள பாதுகாப்பு இடைவெளி விட்டும் குவாரிப்பணி செய்யவேண்டும். பொதுமக்கள் உபயோகிக்கும் இடங்களான குடியிருப்புக்கள் பட்டா நிலங்கள் மற்றும் இதர பொதுச்சொத்துக்கள் ஆகியவற்றிற்கு சேதம் ஏதும் நேரிட்டால் அதற்கு குத்தகைதாரரே முழுபொறுப்பேற்று அதில் ஏற்படும் நட்டத்தை ஈடுசெய்து தரவேண்டும்.

31) நிர்வாக காரணம் மற்றும் பொது நலனை கருத்தில் கொண்டு குத்தகைக்கு விடப்பட்ட பரப்பினை பின்னர் குறைத்து நிர்ணயிக்கவும், குவாரி குத்தகையை ரத்து செய்யவும் மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு.

32) குத்தகைதாரர் 1959ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளின் படியும் மாவட்ட அரசிதழில் கண்டுள்ள நிபந்தனைகளின்படியும் ஒப்பந்தப்பத்திர நிபந்தனைகளின்படியும் நடந்து கொள்ள கடமைப்பட்டவராவார். குத்தகைகாலத்தில் சட்டத்தீடங்கள் மற்றும் குவாரி குத்தகை நிபந்தனைகளுக்கு ஒப்பந்த விதிகளுக்கு முரண்பட்டு குத்தகைதாரர் நடந்து கொண்டால் குத்தகை ரத்துச் செய்யப்படுவதுடன் காப்புத்தொகை மற்றும் அவர் செலுத்திய அனைத்து தொகைகளும் அரசுக்கு பரிமூலம் செய்யப்படும். அக்குவாரிக்கு மீண்டும் குவாரி குத்தகை வழங்க நடவடிக்கை மேற்கொள்ளப்படும்.

33) குவாரி குத்தகை வழங்கப்பட்ட இடத்தில் சாதாரண கற்களை குவாரி செய்வதில் ஏற்படக்கூடிய நஷ்டங்களுக்கு அரசால் எவ்வித நஷ்டமும் வழங்கப்பட மாட்டாது.

34) வழங்கப்பட்ட குத்தகை உரிமத்திற்கு பொதுமக்கள் மற்றும் அரசு துறை மூலம் கடுமையான ஆட்சேபம் இருப்பின் பொதுநன்மையை கருதி மாவட்ட ஆட்சியர் குத்தகையை ரத்துச்செய்ய நேரிட்டால் அதனால் ஏற்படும் இழப்பிற்கு ஈடுகோ குத்தகைதாரருக்கு உரிமை இல்லை.

35) குத்தகைதாரர் குவாரியை வேறு யாருக்கும் மாற்றவோ உள் குத்தகைக்கு விடவோ கூடாது. அப்படி ஏதாவது செய்திருப்பது தெரியவந்தால் மேற்படி குத்தகை ரத்துச்செய்யப்படுவதுடன் குத்தகைதாரர் செலுத்திய தொகையும் அரசுக்கு ஆதாயம் செய்யப்படும்.

36) குத்தகைதாரர், புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அலுவலகத்தில் அரசு குறிப்பிட்ட படிவத்தில் அனுப்புமுகச் சீட்டுக்களை அச்சிட்டு சமர்ப்பிக்க வேண்டும். குத்தகைதாரர் சிறுகனிமம் எடுத்து செல்லும் வாகனத்துடன் அனுப்புமுகச் சீட்டு கொடுத்து அனுப்ப வேண்டும். இந்நடைச்சீட்டை இரு பிரதிகள் அச்சிட்டு வரிசை எண்ணிட்டு தாங்கள் உத்தேசமாக எடுக்க இருக்கும் லோடுகளுக்கு லோடு ஒன்றுக்கு ஒரு சீட்டு வீதம் கணக்கிட்டு அதற்குரிய சீரியரேஜ் தொகையினை செலுத்திய பின்னர், கிருஷ்ணகிரி புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநரிடம் அனுப்புமுகச்சீட்டு மற்றும் மொத்த இசைவாணைச் சீட்டு ஆகியவற்றில் உரிய முத்திரையும் கையொப்பமும் பெற்றபின்பே பயன்படுத்த வேண்டும்.

37) ஒப்பதல் பெறப்படாத அனுப்புமுகச்சீட்டுடன் கனிமம் கொண்டு செல்லும் வாகனங்கள் அதிலுள்ள சிறுகனிமத்தை முறையற்ற வகையில் எடுத்துச்செல்வதாக கருதப்பட்டு உரிய சட்டத்தின்படி உரிய அலுவலர்களால் கைப்பற்றப்பட்டு அபராதம் விதிக்கப்படும்.

38) புவியியல் மற்றும் சுரங்கத்துறை அலுவலர்கள் அல்லது வருவாய்த்துறை அலுவலர்கள் முதலாளனோர் தணிக்கை செய்யப்போது உரிய கணக்குகள் மற்றும் அனுப்புமுகச் சீட்டு முதலாளனைகளை குவாரி குத்தகை உரிமம் பெற்ற குத்தகைதாரர் காண்பிக்கவேண்டும்.

39) அரசு அலுவலர்கள் தணிக்கை செய்யும் போது சிறுகனிமங்கள் கொண்டு செல்லும் வாகனங்களை தணிக்கைக்கு உட்படுத்த வாகன ஓட்டுனர்களை குத்தகைதாரர்கள் அறிவுறுத்த வேண்டும்.

40) அனுப்புமுகச்சீட்டில் உள்ள கண்கள் பூர்த்தி செய்யப்படாமலோ அல்லது தவறாக எழுதப்பட்டு வாகனங்களுக்கு கொடுக்கப்பட்டிருந்தாலோ சிறுகனிமம் கொண்டு செல்லும் வாகன உரிமையாளருக்கு அபராதம் விதித்து வசூல் செய்யப்படும் மற்றும் குவாரி குத்தகையை ரத்து செய்ய நடவடிக்கை மேற்கொள்ளப்படும்.

41) குத்தகைதாரர் ஒவ்வொரு நாளும் குவாரியில் எவ்வளவு திறுகனிமத்தை எடுத்து எடுக்கப்பட்டது என்பதையும் எந்த அளவு கனிமங்கள் லாரி, வண்டி மூலம் வெளியே அனுப்பப்பட்டது என்ற விவரத்தையும் காட்டும் பதிவேடு பராமரிக்க வேண்டும். குவாரி குத்தகை சம்பந்தமான இதர பதிவேடுகளை பராமரிக்க வேண்டும்.

42) அரசு மற்றும் மாவட்ட ஆட்சியரால் குவாரி குத்தகை உரிமம் சம்பந்தமாக ஏற்படுத்தப்பட்டுள்ள மற்றும் அளவப்போது ஏற்படுத்தப்படும் சட்ட திட்டங்களுக்கும், நியந்தனைகளுக்கும் குத்தகைதாரர் கட்டுப்பட்டு நடக்க வேண்டும். குத்தகை காலத்திலோ அல்லது அதற்குப்பின்னரோ கிராம தவறி குத்தகையை பயன்படுத்தியதினால் ஏற்படும் சகல நடவடிக்கைகளுக்கும் குத்தகைதாரர்கள் பொறுப்பேற்க வேண்டும். இதற்காக விதிக்கப்படும் அபராதத்தையும் செலுத்தவேண்டும்.

43) குத்தகை நிபந்தனை மீறப்பட்டால் குத்தகையை ரத்துச் செய்யவோ செய்யப்பட்ட தவறுகளுக்கு குத்தகைதாரருக்கு தண்டனை விதிக்கவோ கிராமியல் வழக்குதொடரவோ மாவட்ட ஆட்சியருக்கு அதிகாரம் உண்டு. குத்தகை ரத்துச் செய்யப்பட்டால் காப்புத்தொகை உள்பட அனைத்து தொகைகளும் அரசுக்கு ஆதாயம் செய்யப்படும். மாவட்ட ஆட்சியர் எக்காரணத்திற்காவது குவாரி குத்தகையை ரத்துச்செய்யும் பட்சத்தில் அதனால் ஏற்படும் எவ்வித நடவடிக்கைகளுக்கும் அரசு பொறுப்பில்லை. குத்தகை எடுத்தவர் எந்த காரணத்தை முன்னிட்டும் தனக்கு இழப்பு ஏற்பட்டால் நஷ்டஈடு கேட்கக்கூடாது.

44) குத்தகை எடுத்தவர் குத்தகையை அனுபவிக்காமல் விட்டாலும், செலுத்தப்பட்ட குத்தகை தொகை எக்காரணத்தை முன்னிட்டும் திரும்ப வழங்கப்படமாட்டாது.

45) குவாரிகளின் எல்லைகள் பற்றி பிரச்சினைகள் ஏற்பட்டால் மாவட்ட ஆட்சியரின் தீர்்ப்பே இறுதியானது.

46) கற்குவாரி குத்தகை உரிமம் வழங்கப்பட்ட பின்னர் அக்கற்குவாரியின் ஏதாவது ஒரு பகுதியில் வரலாற்று முக்கியத்துவம் வாய்ந்த புராதனக்கால கல்வெட்டுக்கள், சிற்ப வடிவவழிப்புகள் போன்றவைகள் காணப்பட்டால் அது குறித்து அரசுக்கு தகவல் தரவேண்டும். மேலும், அப்பகுதியில் கற்கள் உடைப்பது நிறுத்தப்பட்டு அப்புராதன சின்னங்கள் பாதுகாக்கப்பட வேண்டும்.

47) டெண்டரில் கோரப்படும் புல எண்களின் பேரில் எவைபேனும் நீதிமன்றத்தின் ஆணை / தடையாணை முதலானவை நீதிமன்றத்தில் பெறப்பட்டதாக தெரியவந்தால் அவைகள் மீது குத்தகை உரிமம் வழங்குவதில் மாவட்ட ஆட்சியரின் முடிவே இறுதியானது.



48) குத்தகைதாரர் குத்தகை வழங்கப்பட்ட குவாரி முகப்பில் குவாரியின் புல எண் பரப்பு குத்தகைதாரர் பெயர் குத்தகை வழங்கப்பட்ட மாவட்ட ஆட்சியர் செயல்முறை எண் குத்தகை தொகை, குத்தகை காலம் போன்ற விவரங்கள் குறிக்கப்பட்ட தகவல் பலகையை தளது சொந்த செலவில் வைத்து குத்தகை காலம் முழுதும் பராமரிக்கவேண்டும்.

49) குத்தகைதாரர் குவாரியின் எல்லைகளை தெளிவாக தெரியும்படி வரலாற்றுடன் எல்லைக்கற்கள் ஊன்றி அடையாளமிட்ட பின்பே குவாரிசெய்ய வேண்டும். எல்லைகற்களை குத்தகை காலம் முழுதும் தளது சொந்த செலவில் நன்கு பராமரிக்கவேண்டும்.

50) குத்தகைக்கு வழங்கப்பட்ட கல்குவாரிகளில் சாதாரண கற்கள், கட்டுக்கல், சக்கை கற்கள், ஜலிகற்கள் ஆகியவைகளை மட்டுமே குவாரி செய்ய வேண்டும். அயல் நாட்டிற்கு ஏற்றுமதி செய்வதற்கும் பெருகு ஏற்றுமதிக்கும் பயன்படும் வடிவமைக்கப்பட்ட கற்களை உற்பத்தி செய்யக்கூடாது.

51) குவாரியில் வெடி வைத்து கற்களை உடைக்க அங்கீகாரம் பெற்ற வெடிபொருள் விற்பனையாளரிடம் (Licenced Explosive Dealer) வெடிபொருட்களை கொள்முதல் செய்து சான்று பெற்ற வெடி வெடிப்பவரைக் (Licenced shot Firer) கொண்டு அனைத்து பாதுகாப்பு நிபந்தனைகளையும் கடைபிடித்து வெடிகளை வெடிக்க வைக்க வேண்டும்.

52) குவாரியில் சாதாரண ஏர் கம்பர்சர்களை கொண்டு துளையிட்டு வெடிவைக்க வேண்டும். ஆயுதத்தை கிணறு உபகரணங்களை (Rig Bore) கொண்டு துளையிட்டு வெடிவைக்கக்கூடாது. அருகிலுள்ள விலகாய நிலங்கள், பொதுச்சொத்துக்கள் மற்றும் பொதுமக்கள் ஆகியோருக்கு எவ்வித பாதிப்பும் ஏற்படாமல் வெடி வைக்க வேண்டும்.

53) அரசு ஆணையர் புவியியல் மற்றும் சுரங்கத்துறை மற்றும் மாவட்ட ஆட்சியரால் இது தொடர்பாக ஏற்படுத்தப்பட்டுள்ள மற்றும் அவ்வப்போது ஏற்படுத்தப்படும் சட்டதிட்டங்களுக்கும் நிபந்தனைகளுக்கும் குத்தகைதாரர் கட்டுப்பட்டு நடக்க வேண்டும்.

54) 1961ம் ஆண்டின் மெட்டாலிபெரஸ் மைன்ஸ் ரெகுலேஷன்ஸ், 1936 ஆம் ஆண்டின் சம்பளம் வழங்குதல் சட்டம், 1984 ஆம் ஆண்டின் இந்திய வெடிபொருட்கள் சட்டம், 1864 ஆம் ஆண்டு குறைந்தபட்ச ஊதியச்சட்டம் ஆகியவற்றிற்கு உட்பட்டு குத்தகைதாரர் கனிமங்கள் வெட்டி எடுத்து வெளியேற்ற வேண்டும்.

55) குவாரியில் வேலை செய்யும் தொழிலாளர்கள் மற்றும் இதர நபர்களுக்கு விபத்து ஏற்படின் அதற்கான முழுப் பொறுப்பையும் குத்தகைதாரரே ஏற்க வேண்டும். அதற்கு எவ்வகையிலும் அரசு பொறுப்பாகாது.

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 அனைத்து கற்களையும் வெளியில் எடுத்துச் செல்லக் கூடாது.

58) குவாரி தொடர்பான அனைத்து பணிகளும் மாலை 6.00 மணி முதல் காலை 6.00 மணி வரை நிறுத்தப்பட வேண்டும்.

59) குவாரி குத்தகை வழங்கப்படும் பகுதியை சுற்றி குறைந்த மீட்டர் 100 மரக்கன்றுகளாவது நடவுசெய்து பாதுகாத்து பராமரித்து பசுமை வளையம் அமைக்கப்பட வேண்டும்.

60) அங்கீகரிக்கப்பட்ட சுரங்க திட்டத்தின்படி குவாரி பணி செய்யப்பட வேண்டும். குத்தகை காலத்தில் அங்கீகரிக்கப்பட்ட சுரங்க திட்டத்தில் குறிப்பிட்ட அளவை விட அதிகமான கனிமத்தை குவாரி செய்ய வேண்டியிருப்பின், திருத்தப்பட்ட சுரங்க திட்டம் சமர்ப்பித்து அங்கீகாரம் பெற்று அதற்கான சுற்றுச் சூழல் தடையின்மை சான்று சமர்ப்பித்த பின்பே அதனை செய்ய வேண்டும்.

61) குத்தகை கிடைக்கப்பெற்றவுடன், இவ்வலுவலக ந.க.எண்:54/2014/கனிமம்-1 நாள்:14.06.2016 எண்ணிட்ட சுடித்திற்கு எடுக்கப்படும் முடிவினை ஏற்றுக்கொள்வதாக ரூ.20/- முத்திரைதாளில் அபிடாஸிட் தயார் செய்து தர வேண்டும்.

62) குவாரி ஆரம்பிப்பது தொடர்பான அறிவிப்பை (Notice of opening) இந்திய அரசு பெங்களூரு மண்டல சுரங்க பாதுகாப்பு துறை இயக்குநர் அவர்களுக்கு சமர்ப்பிக்க 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 குத்தகைதாரரே முழு பொறுப்பாவார்.

அட்டவணை -1

சாதாரண கற்குவாரி பட்டியல்.

(i.) கிருஷ்ணகிரி வருவாய் கோட்டம்.

பர்கூர் வட்டம்

வ. எண்	கிராமம்	ச.எண்	மொத்த பரப்பு	குவாரி குத்தகை வழங்கும் பரப்பு	வகைப்பாடு (5)	குத்தகை காலம் (வருடங்கள்)
(1)	(2)	(3)	(4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	(6)	(7)
1	பர்கூர்	63/2 (பகுதி)	9.35.50	3.35.0	தீ.ஏ.த. கல்லாங்குத்து	5
2	சிகரலப்பள்ளி	284 (பகுதி-1)	7.59.0	2.50.0	அரக புறம்போக்கு -காடு	10

ஊத்துங்கரை வட்டம்

வ. எண்	கிராமம்	ச.எண்	மொத்த பரப்பு	குவாரி குத்தகை வழங்கும் பரப்பு	வகைப்பாடு (6)	குத்தகை காலம் (வருடங்கள்)
(1)	(2)	(3)	(4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	(6)	(7)
3	வெப்பாலம்பட்டி	7/1 (பகுதி), 7/4 மற்றும் 8/3	3.12.0	1.11.5	தீ.ஏ.த. கல்லாங்குத்து	10

(ii.) ஓசூர் வருவாய் கோட்டம்.

ஓசூர் வட்டம்

வ. எண்	கிராமம்	ச.எண்	மொத்த பரப்பு	குவாரி குத்தகை வழங்கும் பரப்பு	வகைப்பாடு (6)	குத்தகை காலம் (வருடங்கள்)
(1)	(2)	(3)	(4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	(6)	(7)
4	பஞ்சாட்சிபுரம்	755 (பகுதி)	13.69.0	2.00.0	தீ.ஏ.த. கல்லாங்குத்து	10
5	பஞ்சாட்சிபுரம்	583/1	2.16.50	2.16.50	தீ.ஏ.த. கல்லாங்குத்து	10
6	ஆலூர்	209 (பகுதி)	8.82.5	4.50.0	தீ.ஏ.த.	10
7	தொரப்பள்ளி அக்ரஹாரம்	652	2.90.0	2.20.0	தீ.ஏ.த. கல்லாங்குத்து	5
8	தொரப்பள்ளி அக்ரஹாரம்	486/1 (பகுதி)	1.74.0	1.00.0	தீ.ஏ.த. கல்லாங்குத்து	10
9	அச்செட்டிப்பள்ளி	886 & 887 (பகுதி)	8.78.5	3.50.0	தீ.ஏ.த.	10



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குளகிரி வட்டம்

வ. எண்	கிராமம்	ச.எண்	மொத்த பரப்பு	குவாரி குத்தகை வழங்கும் பரப்பு	வகைப்பாடு	குத்தகை காலம் (வருடங்கள்)
(1)	(2)	(3)	(4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	(6)	(7)
10	முகலூர்	232/2 (பகுதி)	15.86.5	2.40.0	தீ.ஏ.த	10
11	அத்திமுகம்	303 (பகுதி-1)	8.58.0	2.00.0	பாறை	10
12	அத்திமுகம்	303 (பகுதி-2)	8.58.0	2.00.0	பாறை	10
13	பண்ணப்பள்ளி	306 (பகுதி)	3.56.0	1.56.0	தீ.ஏ.த பாறை	10
14	பண்ணப்பள்ளி	306 (பகுதி)	3.56.0	2.00.0	தீ.ஏ.த பாறை	10
15	காமன்தொட்டி	178/1 (ம) 181 (பகுதி-1)	8.63.0	3.00.0	தீ.ஏ.த தரிக	10
16	காமன்தொட்டி	178/1 (ம) 181 (பகுதி 2)	8.63.0	2.00.0	தீ.ஏ.த தரிக	10
17	காமன்தொட்டி	653 (பகுதி)	7.56.0	3.35.0	தீ.ஏ.த தரிக	5
18	தியானதூர்கம்	940/1 (பகுதி-1)	102.76.5	4.02.0	அரசு புறம்போக்கு (மலை)	10
19	தியானதூர்கம்	940/1 (பகுதி-2)	102.76.5	4.24.5	அரசு புறம்போக்கு (மலை)	10
20	துப்புகானப்பள்ளி	420 (பகுதி)	46.61.0	4.90.0	தீ.ஏ.த (கரடு)	5
21	துப்புகானப்பள்ளி மற்றும் அகரம் அக்ரஹாரம்	637(பகுதி) (ம)	25.27.0 (ம)	2.00.0	தீ.ஏ.த புறம்போக்கு	10
22	பேரிகை	4 (பகுதி)	2.55.0	0.95.0	தீ.ஏ.த பாறை	10
23	வெங்கடேசுரம்	316/1 (பகுதி)	3.35.5	2.20.0	தீ.ஏ.த பாறை	10
24	சாணமாவு	288 (பகுதி)	5.00.0	3.00.0	கரடு	5
		964(ப)	12.60.0	3.30.0	தீ.ஏ.த பாறை	10

தேன்கனிக்கோட்டை வட்டம்

வ. எண்	கிராமம்	ச.எண்	மொத்த பரப்பு	குவாரி குத்தகை வழங்கும் பரப்பு	வகைப்பாடு	குத்தகை காலம் (வருடங்கள்)
(1)	(2)	(3)	(4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	(6)	(7)
25	நாகமங்கலம்	629 (பகுதி-3)	188.50.0	3.20.5	தீ.ஏ.த. கல்லாங்குத்து	10
26	நாகமங்கலம்	560 (ம)	113.36.0	2.00.0	தீ.ஏ.த கரடு	10
		563 (பகுதி)				

கிருஷ்ணகிரி,
21-02-2019.

க. பிரபாகர்,
மாவட்ட ஆட்சியர்,
கிருஷ்ணகிரி மாவட்டம்.

இணைப்பு- I

பின் இணைப்பு VI

டெண்டர் விண்ணப்பம் / குவாரி குத்தகை உரிமம் வழங்குவதற்கான விண்ணப்பம்

(மூன்று பிரதிகளில் சமர்ப்பிக்கப்பட வேண்டும்)

விடுநர்

பெறுநர்

மாவட்ட ஆட்சித்தலைவர்,
கிருஷ்ணகிரி.

அய்யா,

கிருஷ்ணகிரி மாவட்ட அரசிதழ் (சிறப்பு வெளியீடு)எண். நாள் 2016 திசைசரியில் வெளியிட்ட நாள் 2016ன் படி இத்துடன் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி 8ன் கீழ் எனது / எங்களது விண்ணப்பத்தினை சமர்ப்பிக்கின்றேன் / சமர்ப்பிக்கின்றோம்.

தமிழ்நாடு சிறு கனிம சலுகை விதிகள் 1959 விதி 8ன் கீழ் குவாரி குத்தகை உரிமம் வழங்கும் படி நாள் கேட்டுக்கொள்கின்றேன் / நாங்கள் கேட்டுக்கொள்கிறோம்.

தேவையான விபரங்கள் கீழே கொடுக்கப்பட்டுள்ளது

1) விண்ணப்பதாரர் பெயர் மற்றும் முழு முகவரி :

2) விண்ணப்பதாரர்

அ) 1) தனிநபரா ? :

2) தனிப்பட்ட நிறுவனமா ? :

3) நிறுவனமா அல்லது கழகமா :

ஆ) தனிநபரானால் விண்ணப்பதாரர்

எந்த நாட்டைச் சார்ந்தவர் :

இ) தனிப்பட்ட நிறுவனமானால்/

கழகமானால் மேற்கண்ட

நிறுவனத்தின் / கழகத்தின்

இயக்குநர்களின் தாய் நாட்டை பற்றிய

விவரம் (எழுத்துப் பூர்வ ஆதாரங்கள்)

இணைக்கப்பட வேண்டும்)



- 3) பிணை வைப்புத்தொகை செலுத்திய விவரம் கேட்பு வரைவோலையின் எண் மற்றும் நாள் / வங்கி வரைவோலை இணைக்கப்பட வேண்டும் : ரூ.
- 4) விண்ணப்பதாரரால் கீழ்க்கண்ட இனங்களுக்கு ஆணை உறுதி ஆவணம் (அபிடவிட்) இணைக்கப்பட்டுள்ளதா? :
- 5) விண்ணப்பதாரர் குவாரி செய்ய விரும்பும் சிறுகனிமத்தின் பெயர் மற்றும் விபரம் :
- 6) குவாரி குத்தகை உரிமம் கோரும் காவம் :
- 7) விண்ணப்பிக்கும் இடத்தின் மொத்த பரப்பளவு :
- 8) டெண்டர் விண்ணப்பம் அல்லது விண்ணப்பம் செய்யப்படும் இடத்தின் விபரம் :
- மாவட்டம் :
வட்டம் :
கிராமம் :
புல எண் :
பரப்பளவு (ஹெக்டேரில்) :
- 9) குத்தகை உரிமம் பெறுவதற்கு விண்ணப்பதாரரால் செலுத்தப்படவுள்ள அதிக பட்ச ஒரு தடவை குவாரி குத்தகை தொகை (எண்ணாலும் எழுத்தாலும் எழுத்தப்பட வேண்டும்) :
- 10) ஏற்கனவே தமிழ்நாட்டில் குவாரி குத்தகை உரிமம் பெற்ற இடத்தின் விபரம் :
- 11) (அ) குவாரிகளுக்கு உரிய நிலுவை செலுத்துதல் தொடர்பாக கரங்க நிலுவை இல்லா சான்று இணைக்கப்பட்டுள்ளதா? :
(ஆ) விண்ணப்பிக்கும் நாளில் குத்தகை உரிமம் ஏதும் விண்ணப்பதாரருக்கு இல்லை எனில் அதற்கு உண்டான ஆணை உறுதி ஆவணம் இணைக்கப்பட்டுள்ளதா? :
- 12) விண்ணப்பதாரரால் அளிக்கப்படும் வேறு ஏதேனும் கூடுதல் விவரங்கள் :

என்னால் / எங்களால் மேலே கொடுக்கப்பட்ட விபரங்கள் அனைத்தும் உண்மை, நான்/நாங்கள் அரசு / மாவட்ட ஆட்சித்தலைவர், மாவட்ட வன அலுவலர் ஆகியவர்களால் கேட்கப்படும் இதர விவரங்கள் மற்றும் பிணை வைப்பு தொகைபிணை அளிக்க சம்மதிக்கின்றேன் / சம்மதிக்கிறோம். தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் கீழ் குத்தகை உரிமம் வழங்க உள்ள விதிகள் மற்றும் குவாரி செய்ய கொடுக்கப்பட்ட இதர நிபந்தனைகள் அனைத்தையும் தெரிந்து கொண்டேன் / கொண்டோம் என உறுதி அளிக்கின்றேன் / அளிக்கின்றோம். மேலும் எந்த சூழ்நிலையிலும் மேற்கண்ட குத்தகை உரிம இடத்திலிருந்து ஏற்றுமதிக்கு ஏற்ற அல்லது அறுத்து மெருகேற்றுவதற்கு (Polish) உகந்த பரிமாணமுள்ள கற்கள் (Dimension stone) மற்றும் பலகை கற்கள் (Slabs) வெட்டியெடுக்க மாட்டேன் / மாட்டோம் என உறுதி அளிக்கின்றேன் / அளிக்கின்றோம்.

நாள் :
இடம் :

தங்கள் உண்மையுள்ள.

விண்ணப்பதாரரின் கையொப்பம்



INCOPORATED UNDER THE INDIAN COMPANIES ACT, 2013
(Private Company Limited by Shares)
MEMORANDUM OF ASSOCIATON
of
AVS TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED

- I. The name of the Company is **AVS TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED**
- II. The Registered Office of the Company will be situated in the state of **Tamilnadu** under the jurisdiction of Registrar of Companies, **Tamilnadu, Coimbatore**.
- III. The Objects for which the Company is established are:

(A) THE OBJECTS TO BE PURSUED BY THE COMPANY ON ITS INCORPORATION ARE.

1. To carry on the business of planning, designing, construction, reconstruction, erection, renovation, repairing, alteration, decoration, furnishing, developing and promoting of all types and descriptions of buildings, structures, roads, bridges, flyovers, subways and the like by applying the Innovative Technologies or otherwise in Construction and Architecture in India and abroad. To manufacture, produce, process, export, import, sell, buy, prepare, supply, distribute, stock, maintain, transport and otherwise deal in ready mix concrete, concrete structures in all forms and types.
2. To carrying on the business of buying, selling, lease-holding, exchanging, hiring or otherwise, lands, buildings, flats both residential and commercial, agricultural farms and other immovable properties and property of any tenure or any interest in the same, real estate, consultancy and services in the field of real estate, collect rent and income thereof, to convert, appropriate and promote any such lands into layouts, colony, gated communities, townships, provide for and set up roads, streets, lightings, electricity, water and drainage facilities, squares, gardens and other conveniences, needy infrastructure and generally to deal with and improve the Company or any other property, either individually or through joint ventures in India and abroad.

(B) MATTERS WHICH ARE NECESSARY FOR FURTHERENCE OF THE OBJECTS SPECIFIED IN CLAUSE III(A) ARE :

1. To apply for, purchase or otherwise acquire any trademarks, patents, licenses, concessions and the like, concerning any exclusive or non-exclusive or limited right of any kind which may appear to be necessary or convenient for the business of the Company and to purchase or otherwise acquire any secret or other information as to any invention which may seem capable of being used for any of the purposes of the Company.

2. To amalgamate with any company or companies. To enter into partnership or into any arrangements. To purchase or otherwise acquire and undertake the whole or any part of the business, property and liabilities of any person, firm or company carrying on any business which this Company is authorised to carry on, or possessed of property or rights suitable for any of the purposes of the Company. To manage land, buildings and other properties situated anywhere in India whether owned by the company or otherwise. To let out on lease or otherwise deal with the whole or any part of the assets of the Company.
3. To establish and maintain offices at any place or places in the world for the conduct of the business of the Company and for the purpose of sale, either for ready or future delivery, of any merchandise, commodities, goods, wares, materials, produce, products, articles and things required for, dealt in or manufactured by or at the disposal of the Company and to transact all kinds of agency business.
4. To enter into agreements and contracts with Indian or foreign individuals, firms or companies for technical, financial or other assistance or collaboration for carrying on all or any of the objects of the Company. To canvass, bid for, liaise, represent, secure and meet orders for products of the Company, anywhere in the world.
5. To provide for the welfare of the employees (including directors) or ex-employees of the Company and wives and families or the dependents or relations of such persons by building or contributing to the building of houses, dwellings or quarters or by grant of money, gratuities, pensions, allowances, bonus or any other payments or by creating and subscribing or contributing to provident and other funds, associations, institutions, profit sharing or other schemes or trusts and by providing or subscribing or contributing towards places of instruction and recreation, hospitals and dispensaries.
6. To pay the costs, charges and expenses which are preliminary and incidental to the promotion, formation, establishment and registration of the Company, including the registration fees and stamp duty.
7. To invest any money of the Company, not for the time being required, for any of the purposes of the Company in such investments as may be thought proper and to hold, sell or otherwise deal with such investments subject to the provisions of the Companies Act, 2013.
8. To open account or accounts with any bank or banks in the name of the Company in India or anywhere in the world (with the approval of the appropriate government authorities) and to operate upon the same.
9. To create any depreciation fund, sinking fund, insurance fund, reserve fund or any special or other funds, whether for depreciation or for repairing, improving, extending or maintaining any of the property of the Company or for redemption of any redeemable preference shares or for any purposes, whatsoever, in the interests of the Company.



10. To make, draw, accept, endorse, execute, discount, negotiate and issue cheques, promissory notes, bills of exchange, bills of lading, railway receipts, debentures and other negotiable or transferable instruments subject to the Banking Regulation Act, 1949.
11. To establish, provide, maintain and conduct or otherwise subsidise research laboratories, testing laboratories, power units and experimental workshops for scientific and technical research and experiments, to undertake and carry on scientific and technical investigations and inventions by providing, subsidising, endowing or assisting laboratories, workshops, libraries, meetings and conferences of scientific or technical persons and by providing for financial assistance in the form of scholarships, prizes, grants and loans to students or others, allowances to scientific or technical professors or teachers or experts or institutions and generally to encourage, promote and reward studies, research, experiments, tests and inventions of any kind that may be considered likely to assist in any business which the Company is entitled to carry on.
12. To sell, mortgage, assign, lease, pledge, dispose off or in any other manner deal with all or any part of the undertaking, property and assets of the Company for such consideration as the Company may think fit and in particular for shares, debentures or other securities of any company having objects altogether or in part similar to those of this Company.
13. Subject to the provisions of the Companies Act, 2013, to contribute or otherwise assist or guarantee money to charitable, benevolent, religious, scientific or national institutions or objects or any public, general or useful objects.
14. To adopt such means for making known the activities and products of the Company as may seem expedient and in particular by advertising in the press, by circulars, by purchase and exhibition of works of art or interest, by publication of books, articles, magazines, newspapers and periodicals or by making and exhibiting films and/or by granting prizes, awards and donations. To carry on the business of business processing, knowledge processing, liasoning, documentation, database management, information resources, quality testing and other related services in construction, real estate, allied industries.
15. To enter into agreements or arrangements with any Government or other authority, municipal, local or otherwise, that may seem conducive to the Company's objects or any of them and obtain from any such Government or authority such rights, privileges and concessions which may seem conducive to the Company's objects or any of them.
16. Subject to the provisions of the Companies Act, 2013, to receive money, on deposit or loan or borrow or raise money from banks, Government and other financial institutions, Indian or foreign, or from any person, firm or company in such manner as the Company shall think fit and in particular by the issue of debentures or bonds and to secure the payment of any money borrowed, raised or owing, or by mortgage, charge or lien upon all or any of the property and rights of the Company including its uncalled capital or without any such security and to purchase redeem or pay of any

such securities upon such terms as to priority or otherwise as the Company shall think fit. The Company shall not, however, do banking business as defined in the Banking Regulation Act, 1949. The acceptance of the deposits shall be subject to the provisions of the Companies Act, 2013, and the rules framed there under.

17. To employ or pay experts, foreign consultants, management consultants and others in connection with the prospecting, planning, execution and development of all or any of the business which the Company is entitled to carry on. To advice, assist, underake, carry on or execute all kinds of project and consultancy services.
 18. To promote any other company or companies for the purpose of acquiring all or any of the property of the Company or advancing directly or indirectly the objects or interests thereof and to take or otherwise acquire and hold shares in any such company or companies.
 19. To appoint sole or regional selling agents or distributors for the products of the Company and also buying agents for the raw materials or other products required for the Company subject to the provisions of the Companies Act, 2013 and also to open depots for effecting such sales or purchases. To do the business of transport operators in support of the main objects of the company.
 20. To carry on the business as developers, designers, importer and exporters, agents, dealers, distributors of all kinds of electronic and electrical equipments, network and communication devices, data transfer, memory devices, media devices, computers, computer software, other electronic devices, equipment, appliances, accessories, spares and components energy saving and regulating devices, electrical and/or electronic fittings, appliances, plants and devices for solar power, other renewable energy and other new inventions of power generation and distribution and consumption, fire fighting equipments, devices, refrigerators and cool storage units, and such other goods that may conveniently be dealt with while pursuing the main objects of the company.
- IV. The Liability of the member(s) is limited and this liability is limited to the amount unpaid, if any, on the shares held by them.
- V. The Authorized Share Capital of the Company is Rs.10,00,000/- (Rupees Ten Lakhs only) divided into 1,00,000 (One Lakh only) equity shares of Rs.10/- each (Rupees Ten each) and the company shall have power to increase and reduce the capital and will be at liberty to issue any shares including preference shares or any other kind of shares with special rights and privileges, as to voting, dividend, capital or otherwise or to subject the same to any restrictions, limitations or conditions as the company deems fit in accordance with the provisions of the Companies Act, 2013.



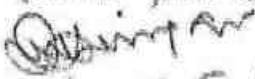
We the several persons, whose names and addresses are subscribed, are desirous of being formed into a company in pursuance of this Memorandum of Association, and we respectively agree to take the number of shares in the capital of the Company set opposite to our respective names.

Sl no	Name, Address and description and occupation of subscriber	No of equity shares taken by each subscriber	Photo and Signature
1	SUNPRAJAH SRINIVASAN S/O SUBRAMNIYAM, SUNPRAJAH Age: 38 years No: 388 15TH CROSS STRMAIN HSR LAYOUT SECTOR-6 BANGALORE - 560034 KARNATAKA - INDIA OCCUPATION: BUSINESS	8600 (EIGHT THOUSAND SIX HUNDRED ONLY)	 Sunprajah
2	SWAPNA RAMAPPA D/O RAMAPPA Age: 33 years No. 388, 15TH CROSS, 6TH MAIN, HSR LAYOUT, SECTOR - 6, BANGALORE - 560034 KARNATAKA, INDIA OCCUPATION: BUSINESS.	1400 (one thousand Four hundred only)	 Swapna R.
		10000 (Ten thousand only)	

Dated at Hosur on this the 22nd Day of January, 2015.

Witness to the above signature with full address:

SIGNATURE : I witness to the subscribers who have
NAME IN CAPITALS : subscribed and signed in my presence
OCCUPATION : at Hosur on this 22nd day of Jan 2015
FATHER'S NAME : Further I have verified the identity details for
ADDRESS : their identification and satisfied myself of their
identification particulars as filled in


CA K. T. Kuthalingam
Chartered Accountant
S/O K N THIRUMALAIAPPAN
110 NED LA Ganapathi Nagar
Thalaya road Hosur - 635109
M NO. 022960



Government of India
Form GST REG-06
[See Rule 10(1)]



Registration Certificate

Registration Number :33AANCA2107N1ZP

1.	Legal Name	AVS TECH BUILDING SOLUTIONS INDIA PRIVATE			
2.	Trade Name, if any	AVS TECH BUILDING SOLUTIONS INDIA PRIVATE			
3.	Constitution of Business	Private Limited Company			
4.	Address of Principal Place of Business	1ST FLOOR, 298, AVS HOSUR, NEAR SBI, MOOKANDAPALLI, HOSUR, Krishnagiri, Tamil Nadu, 635126			
5.	Date of Liability	01/07/2017			
6.	Period of Validity	From	01/07/2017	To	NA
7.	Type of Registration	Regular			
8.	Particulars of Approving Authority				
Signature					
Name					
Designation					
Jurisdictional Office					
9.	Date of issue of Certificate	20/09/2017			
Note: The registration certificate is required to be prominently displayed at all places of business in the State.					

This is a system generated digitally signed Registration Certificate issued based on the deemed approval of the application for registration



सत्यमेव जयते



GSTIN 33AANCA2107N1ZP
Legal Name AVS TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED
Trade Name, if any AVS TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED

Details of Additional Places of Business

Total Number of Additional Places of Business in the State 1

Sr. No.	Address
1	661/2, AVS TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED, THORAPPALLI AGRAHARAM, THORAPPALLI VILLAGE POST, HOSUR, Krishnagiri, Tamil Nadu, 635109



सत्यमेव जयते



GSTIN 33AANCA2107N1ZP
Legal Name AVS TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED
Trade Name, if any AVS TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED

Details of Managing / Whole-time Directors and Key Managerial Persons

1		Name	SUNDARAIYAH SRINIVASAN
		Designation/Status	MANAGING DIRECTOR
		Resident of State	Karnataka
2		Name	RAMAPPA SWAPNA
		Designation/Status	DIRECTOR
		Resident of State	Karnataka



AVS Tech Building Solutions India Private Limited

"AVS House"
Plot No. 298, Sipeet Staff Housing Colony,
Mookandapurli, Sipeet-1, Hosur - 635 128
CIN: U45200TZ2015PTC021105

Tel. : +91 8244 274 444 / 91 8244 274 442
E-mail: avstech@avsgroup.com



ANNEXURE - 1x

AUTHORIZATION LETTER

This is to authorize Mr. C.Srinivasan to present and act on behalf M/s. AVS TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED, to decision making, including signing all the documents relating to quarry Mining and EC meeting and execute the same.

Any acts carried out by Mr.S.Srinivasan on behalf of the said firm will be binding on us and also his specimen signature is attested below.

For AVS TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED

S. Srinivasan
Managing Director

Name : S.Srinivasan
Signature of Managing Director

For AVS TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED

S. Swapna
Managing Director
Name : S.Swapna
Signature of Director

Name : C.Srinivasan
Signature of Manager

For AVS TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED

S. Srinivasan
Managing Director

Name : S.Srinivasan
Signature of Managing Director

For AVS TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED

S. Swapna
Managing Director
Name : S.Swapna
Signature of Director



வளம் பெறலாம்

தமிழ்நாடுவனத்துறை

அனுப்புதல்

திரு. தீபக் எஸ். பில்கி, இ.வ.ப.,
வனஉயிரினகாப்பாளர்,
ஓசூர் கால்நடைபண்ணை அஞ்சல்,
மத்திகிரி, ஓசூர் - 635 110.
தொலைபேசி எண். 04344-262259.

பெறுதல்

மாவட்ட ஆட்சித் தலைவர்,
கிருஷ்ணகிரிமாவட்டம்,
கிருஷ்ணகிரி.

ந.க.எண்.153/2019-எல் நாள். 30.01.2019
(ஸ்ரீ வினாயி வரும், மத 16, திருவள்ளூர் ஆண்டு 2019)

அய்யா,

பொருள் : கனிமங்களும் குவாரிகளும் - சிறுகனிமம் -சாதாரணகற்கள் - கிருஷ்ணகிரி மாவட்டத்தில் உள்ள அரசு ஸ்தலங்களுக்கு நிலங்களில் உள்ள சாதாரண கற்கள் வெட்டியெடுக்க டெண்டருடன் இணைந்த ஏலமுறையில் குவாரி குத்தகை வழங்குதல் வனத்துறை சார்பாக பரிந்துரை செய்யக் கோரியது-வனத்துறை நோக்கிலான கருத்து தெரிவித்தல்-தொடர்பாக.

பார்வை : 1. மாவட்ட ஆட்சித் தலைவர், கிருஷ்ணகிரி மாவட்டம் ந.க.எண்.1609/2018(கனிமம்) நாள்.29.12.2018 மற்றும் 04.01.2019.
2. வனச்சரக அலுவலர், ஓசூர் சரகம் ந.க.எண்.02/2019 நாள்.23.01.2019.

பார்வை 1-ல் கண்ட கிருஷ்ணகிரி மாவட்ட ஆட்சித் தலைவர் அவர்களது கடிதத்தில், கிருஷ்ணகிரி மாவட்டத்தில் உள்ள அரசு ஸ்தலங்களுக்கு நிலங்களில் சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலம் மூலம் குத்தகைக்கு வழங்க, வனத்துறை நோக்கிலான கருத்து மற்றும் வனத்துறையின் தடையின்றி சான்று வழங்கவேண்டி கேட்கப்பட்டுள்ளது.

மேற்படி மனு மீது நடவடிக்கை எடுக்கும் பொருட்டு, ஓசூர் சரக வனச்சரக அலுவலர் மற்றும் சரக பணியாளர்களுடன் 21.01.2019 அன்று தணிக்கை மேற்கொண்டு அறிக்கை சமர்ப்பித்துள்ளார்.

ஓசூர் வனச்சரக அலுவலர் அறிக்கையின் அடிப்படையில், வன உயிரின காப்பாளரால், ஓசூர் சரக பணியாளர்களுடன் தணிக்கை செய்யப்பட்டதில், கீழ்க்கண்ட அட்டவணையில் உள்ள குவாரிப் பகுதிகளுக்கு சாதாரண கற்கள் வெட்டி எடுக்க டெண்டர் / பொது ஏலத்தில் குத்தகைக்குவிட கீழ்க்கண்டவாறு வனத்துறையின் கருத்து தெரிவிக்கப்படுகிறது.



- i) சாதாரண கற்குவாரி குத்தகை வழங்க ஒப்பந்தம் செய்வதற்கு (Lease deed agreement) முன்பு ஒவ்வொரு குவாரிப் பகுதிக்கும் தனித்தனியாக வளத்துறையின் நிபந்தனையுடன் முன் அனுமதி பெற்றப்பின் 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 பிரேரிக்கப்பட்டு ஆணை எடுக்கப்பட்டுள்ள சூழலில், காவேரி வடக்கு வன உயிரின சரணாலய எல்லையிலிருந்து 10 கிமீ-க்குள் அமைந்திருப்பின் தேசிய வன உயிரின வாரியத்தின் முன் அனுமதி (National Board for Wildlife) பெறப்பட வேண்டும்.
- iii) மலைதள பாதுகாப்பு பரிந்துரை குழு (Hill Area Conservation Authority)-ன்படி அறிவிக்கை செய்வப்பட்ட கிராம எல்லைக்குள் கற்குவாரி பணி செய்ய அனுமதி கோரியுள்ள புலங்கள் அமைந்திருப்பின், மலைதள பாதுகாப்பு பரிந்துரை குழு (Hill Area Conservation Authority)-ன் கீழ் முன் அனுமதி பெறப்படவேண்டும்.
- iv) உத்தேச கற்குவாரி செய்யும் புலங்கள் வருவாய்த்துறை ஆலணங்களில் "காடு" என வகைப்படுத்தப்பட்ட புலங்களில் கற்குவாரிப் பணிசெய்ய அனுமதிக்கக் கூடாது.
- v) உத்தேச கற்குவாரி செய்யும் புலங்கள்துமிற்றாடு வனச்சட்டம் 1882-ன் பிரிவு 4 மற்றும் 16-ன் கீழ்காப்பு நிலம் / காப்புக்காடு என அறிவிக்கை செய்யப்பட்ட புலங்களாக இருத்தல் கூடாது.
- vi) உத்தேச கற்குவாரி செய்யும் புலங்கள் துமிற்றாடு வனச்சட்டம் 1882-ன் பிரிவு 26-ன் கீழ் அறிவிக்கை செய்யப்பட்ட புலங்களாக இருத்தல்கூடாது.
- vii) உத்தேச கற்குவாரி செய்யும் புலங்கள் காப்புக்காட்டின் எல்லைக்கு அருகில் அமைந்திருப்பின், Standing Orders of the Board of Revenue- volume - 1 Section III, Sub-Section 38 (III) வருவாய் வாரிய நிலை ஆணை தொகுப்பு 1, பிரிவு 3, உப்பிரிவு 38 (III)-ன்படி காப்புக்காட்டிற்கு அருகில் உள்ள நிலத்தில் இதர பயன்பாட்டிற்கு உட்படுத்த நடவடிக்கை மேற்கொள்ளப்படும் போது காப்புக் காட்டின் எல்லையிலிருந்து குறைந்தபட்சம் 60 மீட்டர் (3 Chain) தொலைவிற்கு அப்பாற்பட்டிருக்க வேண்டும் என்ற நிபந்தனையை கடைபிடிக்கப்பட வேண்டும்.
- viii) அரசாணை (நிலை) எண்.79 தொழில் (கனிமம்) துறை நாள்.06.04.2015-ல் குறிப்பிட்டுள்ள நிபந்தனைகளை மாவட்ட நிர்வாகம் / கனிம வளத்துறை கவனத்தில் கொள்ளவேண்டும்.



சாதாரண கற்கள் வெட்டி எடுக்க வெள்ளாடுகள் இணைந்த ஏலமுறை வழங்க பரிந்துரை செய்யப்படும் குவாரிப் பகுதிகள் விபரம்

Shoolagiri Taluk

Sl. No.	Taluk / village	S.F.No.	Total Extent	Extent Proposed for Quarry Lease	Classification	Lease Period in years	Coordinates	
							Latitude	Longitude
1	Shoolagiri / Kamandoddi	178/1 & 181 (Part-1)	8.63.0	3.00.0	UAW-Tharisu	10	12° 41' 31.22"N	77° 56' 14.63"E
2	Shoolagiri / Kamandoddi	178/1 & 181 (Part-2)	8.63.0	2.00.0	UAW-Tharisu	10	12° 41' 31.11"N	77° 56' 24.56"E
3	Shoolagiri / Thiyarandurgam	940/1 (Part-I)	102.76.5	4.02.0	Malai-Poramb	10	12° 36' 17.17"N	77° 53' 57.68"E
4	Shoolagiri / Thiyarandurgam	940/1 (Part-II)	102.76.5	4.24.5	Malai-Poramb	10	12° 36' 14.63"N	77° 54' 06.51"E

Hosur Taluk

Sl. No.	Taluk / village	S.F.No.	Total Extent	Extent Proposed for Quarry Lease	Classification	Lease Period in years	Coordinates	
							Latitude	Longitude
5	Hosur / Panchasipuram	755 (Part)	13.69.0	2.00.0	UAW	10	12° 35' 17.41"N	77° 47' 45.28"E
6	Hosur / Panchasipuram	583/1	2.16.50	2.16.50	UAW	10	12° 35' 54.75"N	77° 47' 09.63"E
7	Hosur / Mugalur	232/2 (Part)	15.86.0	4.00.0	UAW	10	12° 37' 19.03"N	77° 48' 56.57"E
8	Hosur / Mugalur	270 (Pt) & 271	5.54.00.36.5	3.15.5 0.36.5	Malai	5	12° 37' 04.83"N	77° 48' 57.06"E
9	Hosur / Sanamavu	964 (Part)	12.60.0	4.50.0	UAW-Paerai	5	12° 39' 47.41"N	77° 53' 54.10"E
10	Hosur / Thorapalli Agraharam	662	2.90.0	2.20.0	UAW-KallanKuthu	5	12° 41' 48.94"N	77° 54' 13.29"E
11	Hosur / Thorapalli Agraharam	486/1 (Part)	1.74.0	1.00.0	UAW-KallanKuthu	10	12° 40' 23.75"N	77° 52' 58.68"E



12	Hosur / Thorapalli Agraharam	503 (Part-1)	3.96.0	2.00.0	UAW-KallanKuthu	5	12°40' 20.84"N	77°53' 19.37"E
13	Hosur / Thorapalli Agraharam	503 (Part-2)	3.96.0	1.40.0	UAW-KallanKuthu	5	12°40' 17.05"N	77°53' 20.41"E

Denkanikottai Taluk

Sl. No.	Taluk / village	S.F.No.	Total Extent	Extent Proposed for Quarry Lease	Classification	Lease Period in years	Coordinates	
							Latitude	Longitude
14	Denkanikottai/ Mallasandiram	771(PART)	2.79.5	2.15.0	UAW-Kallangudu	5	12° 33' 11.84"N	77° 47' 28.38"E
15	Denkanikottai/ Mallasandiram	887(PART I)	6.82.5	3.00.0	UAW-Kallangudu	10	12° 33' 12.22"N	77° 47' 20.48"E
16	Denkanikottai/ Mallasandiram	887(PART-II)	6.82.5	2.47.5	UAW-Kallangudu	10	12° 33' 12.37"N	77° 47' 24.63"E
17	Denkanikottai/ Nagamangalam	629 (PART-III)	188.50.0	3.20.5	UAW-Kallangudu	10	12° 34' 26.36"N	77° 54' 50.72"E
18	Denkanikottai/ Nagamangalam	560-& 563A (Part)	113.36.0	2.00.0	UAW-karadu	10	12° 35' 23.34"N	77° 54' 39.45"E

பேற்கண்ட இணங்களுக்கு டெண்டர் / பொது ஏலத்தில் குத்தகைக்குவிடமட்டுமே வனத்துறையின் தடையில்லாச் சான்று தற்போது அளிக்கப்படுகிறது. ஒவ்வொரு குவாரியி் பகுதிகளுக்கும் வனத்துறையின் மூலம் தனித்தனியாக தணிக்கை மேற்கொண்டு, அதற்கேற்ப சட்ட திட்டங்களுக்கு உட்பட்டு, மாண்புமிகு உச்சநீதி மன்ற ஆணைகளை கடைபிடிக்க (Compensatory plating), மனித - வன விலங்கு மோதல்கள் மற்றும் மாசு கட்டுப்பாடு போன்றவற்றை கருத்தில் கொண்டு வனத்துறையின் கருத்துகள் மற்றும் நிபந்தனைகளை பெற ஒவ்வொரு குத்தகைக்கும் தனித்தனியாக விண்ணப்பிக்க வேண்டும் என்பதை அன்புடன் தெரிவித்துக்கொள்கிறேன்.

தங்கள் அன்புள்ள,

(Signature)
வனஉயிரினகாப்பாளர்,
ஓசூர் வனக்கோட்டம்.



இந்திய அரசாங்கம்
Union Identification Authority of India
Government of India

உள்ளே/Enrolment No.: 2043/50511/21431

Digitally signed by Srinivasan Sundarab
DN: cn=Srinivasan Sundarab, o=Government of India, ou=Ministry of Information and Public Relations, email=sundarab@nic.gov.in, c=IN

Signature valid




இந்திய அரசாங்கம்
Union Identification Authority of India
Government of India

உள்ளே/Enrolment No.: 2043/50511/21431

Digitally signed by Srinivasan Sundarab
DN: cn=Srinivasan Sundarab, o=Government of India, ou=Ministry of Information and Public Relations, email=sundarab@nic.gov.in, c=IN

Signature valid



உங்கள் அடையாள எண் / Your Aardhar No. :
4975 0010 1479
UID : 9126 7211 8350 1985

எனது ஆதார எனது அடையாளம்

உங்கள் அடையாள எண் / Your Aardhar No. :
4975 0010 1479
UID : 9126 7211 8350 1985

எனது ஆதார எனது அடையாளம்

இந்திய அரசாங்கம்
Government of India

Digitally signed by Srinivasan Sundarab
DN: cn=Srinivasan Sundarab, o=Government of India, ou=Ministry of Information and Public Relations, email=sundarab@nic.gov.in, c=IN

Signature valid



இந்திய அரசாங்கம்
Government of India

Digitally signed by Srinivasan Sundarab
DN: cn=Srinivasan Sundarab, o=Government of India, ou=Ministry of Information and Public Relations, email=sundarab@nic.gov.in, c=IN

Signature valid





212/1010

சென்னை பல்கலைக் கழகம்

University of Madras

அறிவியல் புலம்

FACULTY OF SCIENCE

சென்னைப் பல்கலைக் கழகப் பேரவை..... 1994 ஆம் ஆண்டு..... ஏப்ரல்..... மாதம் 16-ந் தேதி..... கனிமவியல்..... தோல்வியில்..... வி. தங்கராஜன்..... என்பவர்..... முதல்..... வகுப்பில்..... தேர்ச்சி பெற்றார் என்று தக்க தோல்வானார்கள் சான்றளித்தபடி அறிவியல் நிறைஞர் எனலும் பட்டத்தை அவருக்குப் பல்கலைக் கழக இலாச்சனையின் வழங்குகிறது.

The Senate of the UNIVERSITY OF MADRAS hereby makes known that..... P. Thangaraju..... has been admitted to the Degree of Master of Science, he/she having been certified by duly appointed Examiners to be qualified to receive the same in..... Geology..... and was placed in the..... First..... Class, at the Examination held in April 1994.

Given under the seal of the University



செயலகம், Chepauk,
சென்னை, Madras
நாள்: Dated: 25-01-1999

101 A

பதிவாளர்
Registrar

P.T. Jambur
துணை வேலை
Vice-Chancellor



GOVERNMENT OF INDIA
MINISTRY OF LABOUR AND REHABILITATION
OFFICE OF THE DIRECTOR GENERAL OF MINES SAFETY

Certificate of Practical experience granted by the Manager to a candidate for a Manager's / Surveyor's / Foreman's / Over man's / Sidar's / Mate's / Short firer's/ Blaster's Certificate of competency (Restricted) examination under the Metalliferous Mines Regulations 1961.

I T.VENKATARAJAGOPALAN being the Mines Agent of M/S.LIMENAPI CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Thenmali Limestone Mine) do hereby certify that Thiru. P.THANGARAJU, son of S.PERIASAMY (whose signature is appended) worked as a Geologist in the above mine from 02.05.1994 to 30.12.1999. During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved continuous attendance at the mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper candidate to be examined for Certificate of Competency.

THEMMAI LIME STONE MINES

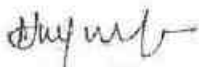
(Signature with date and official Seal)
[T.VENKATARAJAGOPALAN]

Mines Agent:

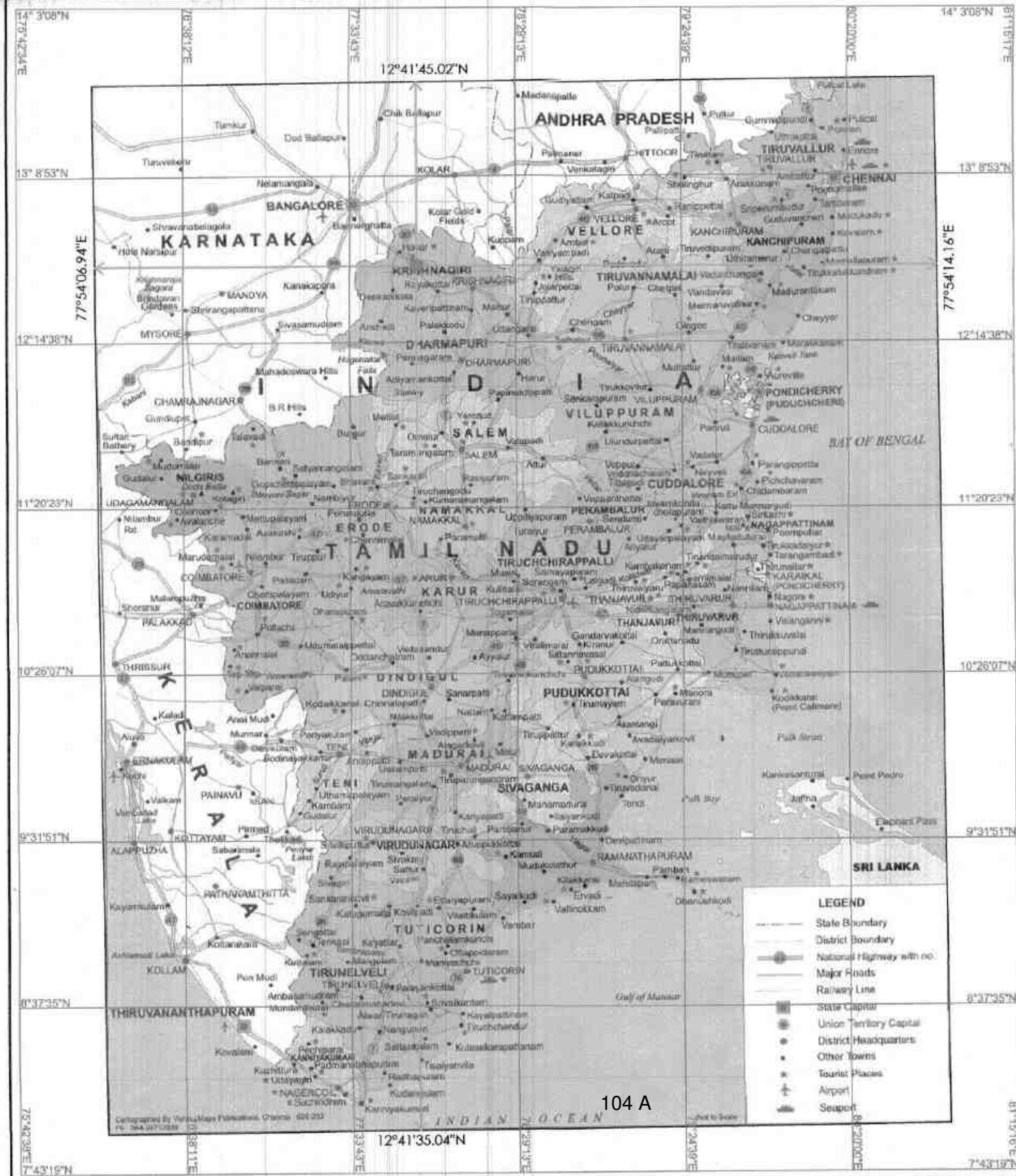
P.O. : ARUKANGULAM

District : TIRUNELVELI

State : TAMIL NADU


(Signature of Candidate)

(State name of Mineral) : LIMESTONE



INDEX

Q.L.APPLIED AREA : ●
 TOPO SHEET NO. : 57 H/14

LATITUDE : 12°41'35.04"N to 12°41'45.02"N
 LONGITUDE : 77°54'06.94"E to 77°54'14.16"E

APPLICANT :

Tvl. A.V.S. TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED,
 No. 292, SIPCOT HOUSING BOARD COLONY,
 MOOKANDAPALLI,
 HOSUR TALUK,
 KRISHNAGIRI DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.No : 662 (Part)
 EXTENT : 2.20.0 Ha.
 VILLAGE : THORAPALLI AGRAHARAM,
 TALUK : HOSUR,
 DISTRICT : KRISHNAGIRI,
 STATE : TAMIL NADU.

PLATE NO - I

DATE OF SURVEY : 15.06.2019

LOCATION PLAN

SCALE. 1:24,00,000

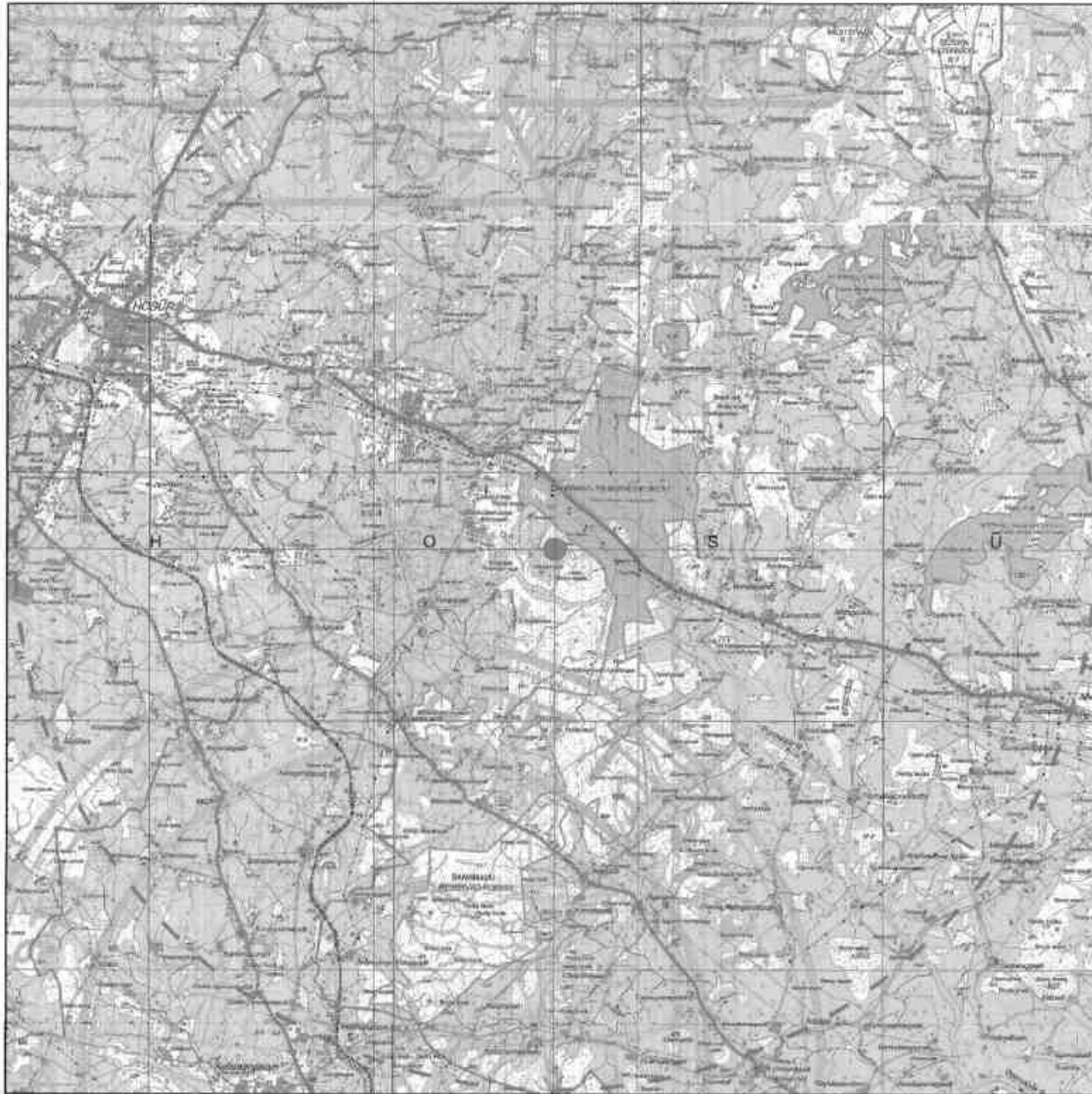
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

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



12° 47' 10.14"N



77° 48' 35.87"E

77° 59' 45.30"E

12° 36' 09.92"N

Express highway: with toll; with bridge; with distance stone.....	
Roads metalled: according to importance.....	
Roads, double carriageway; according to importance.....	
Unmetalled road. Cart-track. Pack-track with pass. Foot-path.....	
Streams: with track in bed; undefined. Canal.....	
Dams: masonry or rock-filled; earthwork. Weir.....	
River; dry with water channel; with island & rocks. Tidal river.....	
Submerged rocks. Shoal. Swamp. Reeds.....	
Wells: lined; unlined. Tubewell. Spring. Tanks: perennial; dry.....	
Embankments: road or rail; tank. Broken ground.....	
Railways, broad gauge: double: single with station; under construction.....	
Railways, other gauges: double: single with distance stone; do.....	
Mineral line or tramway. Kiln. Cutting with tunnel.....	
Contours with sub-features. Rocky slopes. Cliffs.....	
Sand features: (1)flat. (2)sand-hills(permanent). (3)dunes(shifting).....	
Towns or Villages: inhabited; deserted. Fort.....	
Huts: permanent; temporary. Tower. Antiquities.....	
Temple. Chhatra. Church. Mosque. Idgah. Tomb. Graves.....	
Lighthouse. Lightship. Buoys: lighted; unlighted. Anchorage.....	
Mine. Vine on trellis. Grass. Scrub.....	
Palms: palmyra; other. Plantain. Conifer. Bamboo. Other trees.....	
Areas: cultivated; Wooded. Surveyed trees.....	
Boundary, international.....	
Boundary, state: demarcated; undemarcated.....	
Boundary, district; subdivision; tahsil or taluk; forest.....	
Boundary pillars: surveyed; unlocated.....	
Heights, triangulated: station: point; approximate.....	
Bench-mark: geodetic; tertiary; canal.....	
Post office. Telegraph office. Overhead tank.....	
Rest house or inspection bungalow. Circuit house. Police station.....	
Camping Ground. Forest: reserved; protected.....	
Spaces names: administrative; locality or tribal.....	
Hospital. Dispensary. Veterinary: Hospital/Dispensary.....	
Aerodrome. Helipad. Tourist site.....	
Powerline: with pylons surveyed; with poles unsurveyed.....	



APPLICANT :

M. A.V.S. TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED,
No. 292, SIPCOT HOUSING BOARD COLONY,
MOOKANDAPALLI,
HOSUR TALUK, KRISHNAGIRI DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.No : 662 (Part)
EXTENT : 2.20.0 Ha.
VILLAGE : THORAPALLI AGRAHARAM,
TALUK : HOSUR,
DISTRICT : KRISHNAGIRI,
STATE : TAMIL NADU.

PLATE NO - I-A

DATE OF SURVEY : 15.06.2019

TOPO SKETCH OF QUARRY LEASE APPLIED AREA FOR 10Km RADIUS

SCALE. 1:1,00,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

Ammy Wil

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

TOPO SHEET NO. : 57 H/14

LATITUDE : 12°41'35.04"N to 12°41'45.02"N
LONGITUDE : 77°54'06.94"E to 77°54'14.16"E

10km RADIUS : 105'A

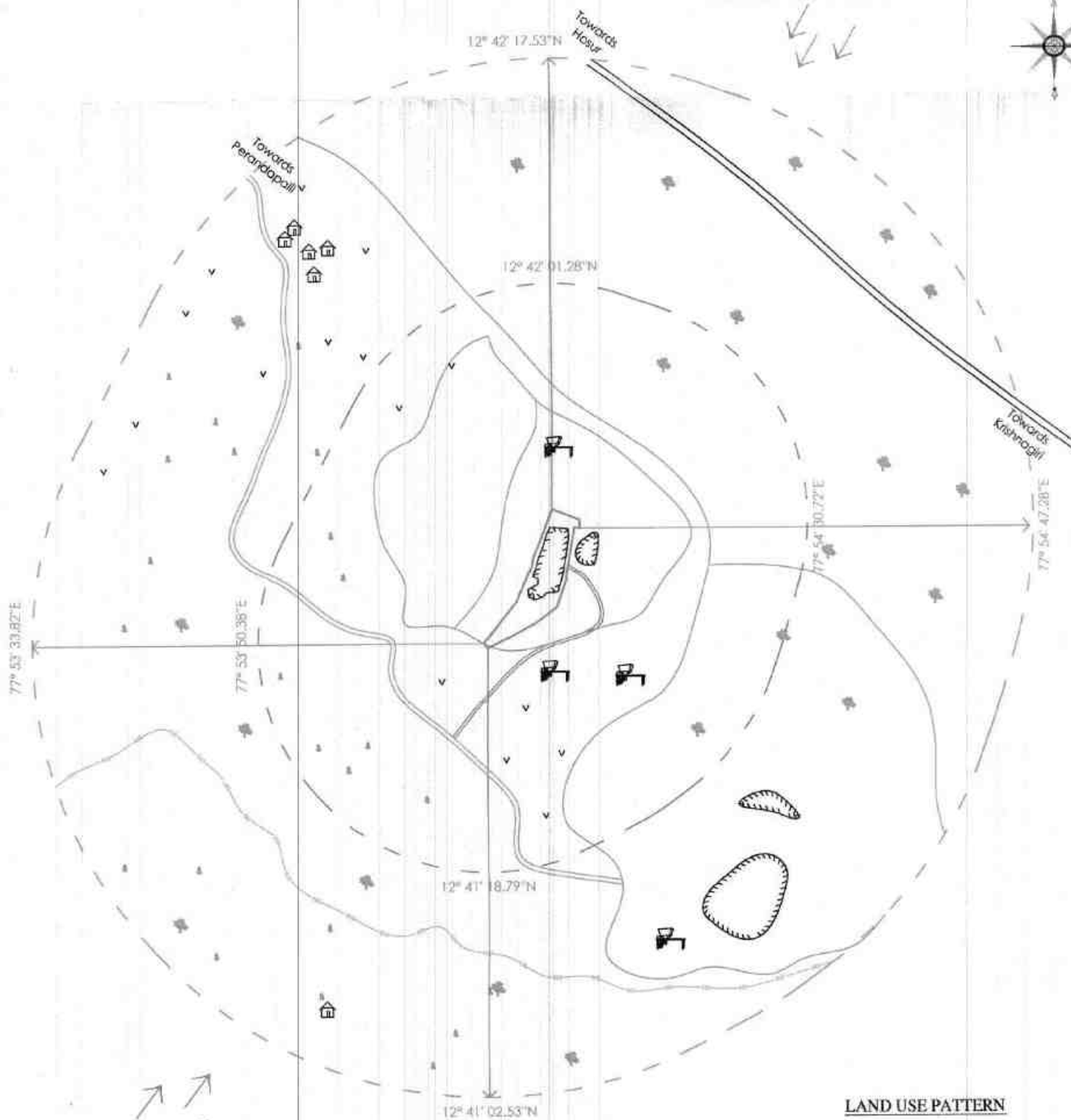
Q.L. APPLIED AREA :

OCTOBER TO DECEMBER






INDEX

-  Q.L. APPLIED AREA
-  1 Km RADIUS
-  500m RADIUS
-  SEASONAL AGRICULTURE LAND
-  TREES
-  HABITATION
-  WIND DIRECTION
-  NATIONAL HIGHWAY
-  PANCHAYAT ROAD
-  APPROACH ROAD
-  BARREN LAND
-  QUARRY PIT
-  CRUSHER UNIT
-  ELEVATED AREA
-  ODAI



JULY TO SEPTEMBER

LAND USE PATTERN

DESCRIPTION	PERCENTAGE	INDEX
SEASONAL AGRI LAND	(23%)	
BARREN LAND	(15%)	
ROADS & ODAI	(07%)	
TREES	(03%)	
HABITATION	(04%)	
QUARRY PIT & CRUSHER	(05%)	
ELEVATED AREA	(43%)	
TOTAL	100%	

TOPO SHEET NO. : 57 H/14

LATITUDE : 12°41'35.04"N to 12°41'45.02"N
LONGITUDE : 77°54'06.94"E to 77°54'14.16"E

APPLICANT :

Tvl. A.V.S. TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED,
No. 292, SIPCOT HOUSING BOARD COLONY,
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KRISHNAGIRI DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.No : 662 (Part)
EXTENT : 2.20.0 Ha.
VILLAGE : THORAPALLI AGRAHARAM,
TALUK : HOSUR,
DISTRICT : KRISHNAGIRI,
STATE : TAMIL NADU.

PLATE NO - I-B

DATE OF SURVEY : 15.06.2019

ENVIRONMENTAL & LAND USE PLAN

SCALE: 1:10,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

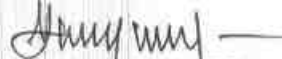
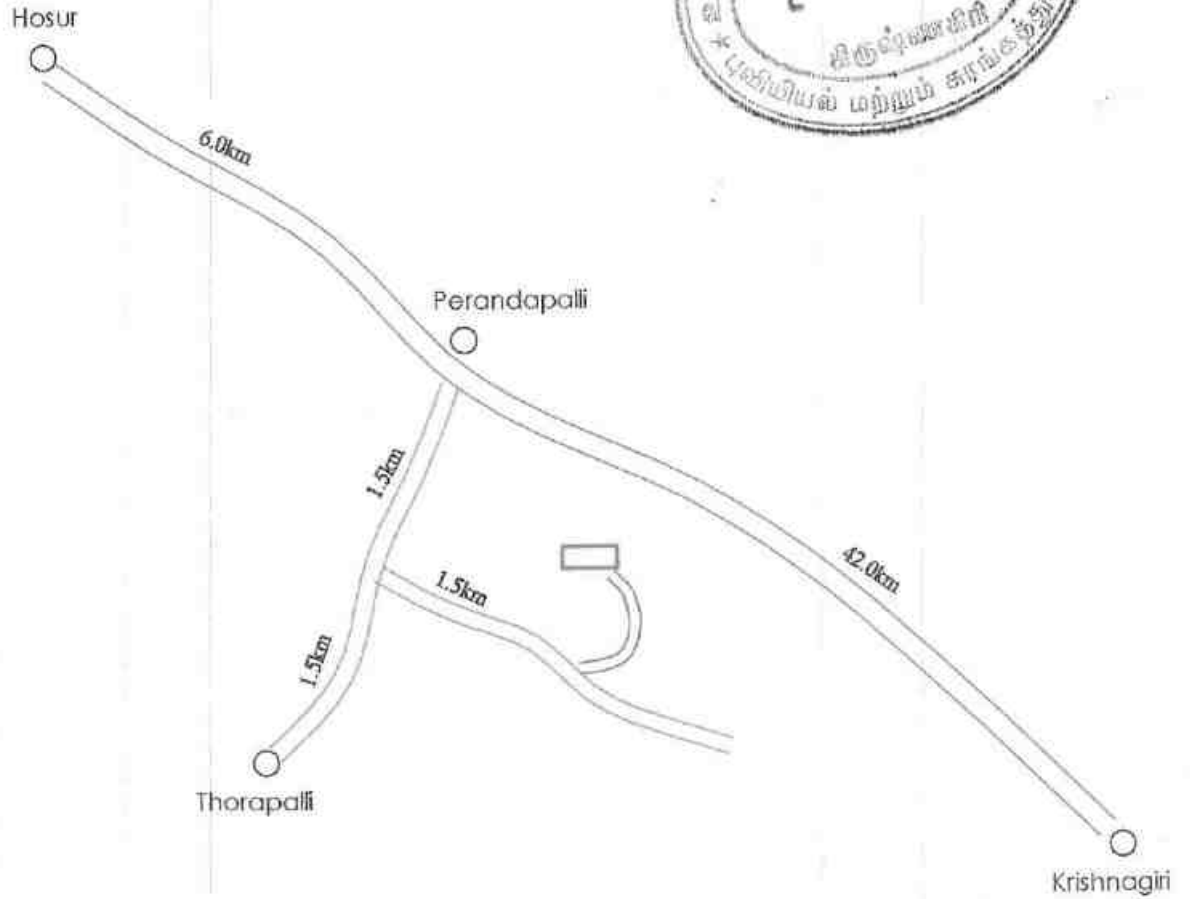





Dr. P. THANGARAJU, M.Sc., Ph.D.,
QUALIFIED PERSON

PLATE NO : I-C
ROUTE MAP



<p style="text-align: center;"><u>INDEX</u></p> <p>LEASE APPLIED AREA </p> <p>NATIONAL HIGHWAY </p> <p>VILLAGE ROAD </p> <p>APPROACH ROAD </p>	<p><u>APPLICANT :</u> M. A.V.S. TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED, No. 292, SIPCOT HOUSING BOARD COLONY, MOOKANDAPALLI, HOSUR TALUK, KRISHNAGIRI DISTRICT.</p> <p><u>LOCATION OF Q.L.A AREA:</u> S.F.No : 662 (Part) EXTENT : 2.20.0 Ha. VILLAGE : THORAPALLI AGRAHARAM, TALUK : HOSUR, DISTRICT : KRISHNAGIRI, STATE : TAMIL NADU.</p>	<p><u>SCALE :</u> NOT TO SCALE</p> <p><u>PREPARED BY:</u> THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT</p> <p style="text-align: center;"><i>Amey M</i> Dr. P. THANGARAJU, M.Sc., Ph.D., QUALIFIED PERSON</p>
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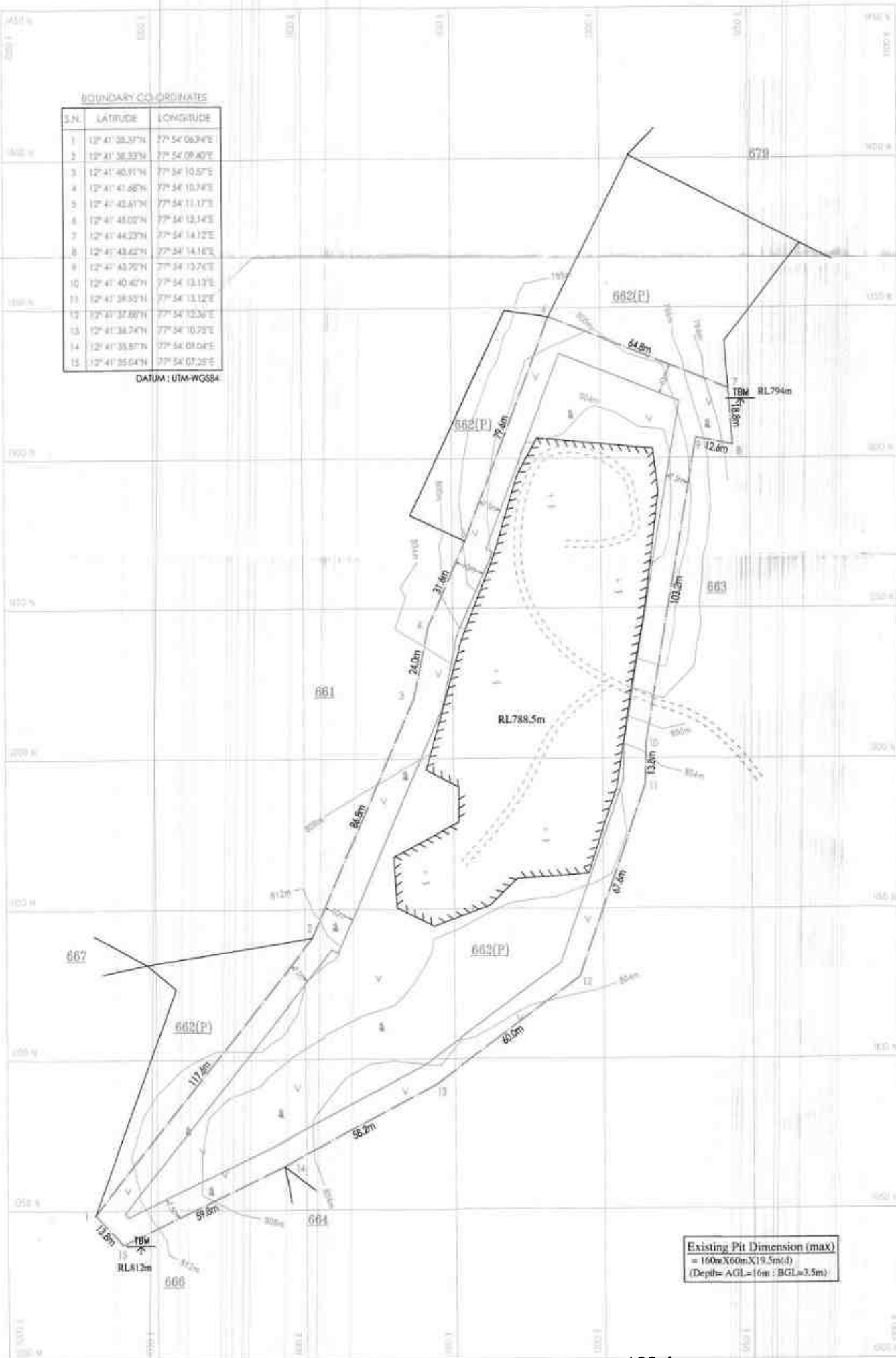
107 A



BOUNDARY COORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 41' 35.57"N	77° 54' 06.94"E
2	12° 41' 36.33"N	77° 54' 09.40"E
3	12° 41' 40.91"N	77° 54' 10.57"E
4	12° 41' 41.68"N	77° 54' 10.74"E
5	12° 41' 43.61"N	77° 54' 11.17"E
6	12° 41' 48.02"N	77° 54' 13.14"E
7	12° 41' 44.23"N	77° 54' 14.12"E
8	12° 41' 43.62"N	77° 54' 14.18"E
9	12° 41' 43.70"N	77° 54' 13.76"E
10	12° 41' 40.40"N	77° 54' 13.13"E
11	12° 41' 38.95"N	77° 54' 13.12"E
12	12° 41' 37.89"N	77° 54' 13.36"E
13	12° 41' 38.74"N	77° 54' 13.29"E
14	12° 41' 35.87"N	77° 54' 09.04"E
15	12° 41' 35.04"N	77° 54' 07.25"E

DATUM : UTM-WGS84



Existing Pit Dimension (max)
= 160mX60mX19.5m(d)
(Depth= AGL=16m : BGL=3.5m)

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 10m & 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- TOP SOIL
- ROUGHSTONE
- QUARRY PIT
- CONTOUR
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD

APPLICANT :

Tvl. A. V.S. TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED,
No. 292, SIFCOT HOUSING BOARD COLONY,
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HOSUR TALUK,
KRISHNAGIRI DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.No : 662 (Part)
EXTENT : 2.20.0 Ha.
VILLAGE : THORAPALLI AGRAHARAM,
TALUK : HOSUR,
DISTRICT : KRISHNAGIRI,
STATE : TAMIL NADU.

PLATE NO - II

DATE OF SURVEY : 15.06.2019

QUARRY LEASE PLAN &
SURFACE PLAN

SCALE: 1:1000

PREPARED BY :

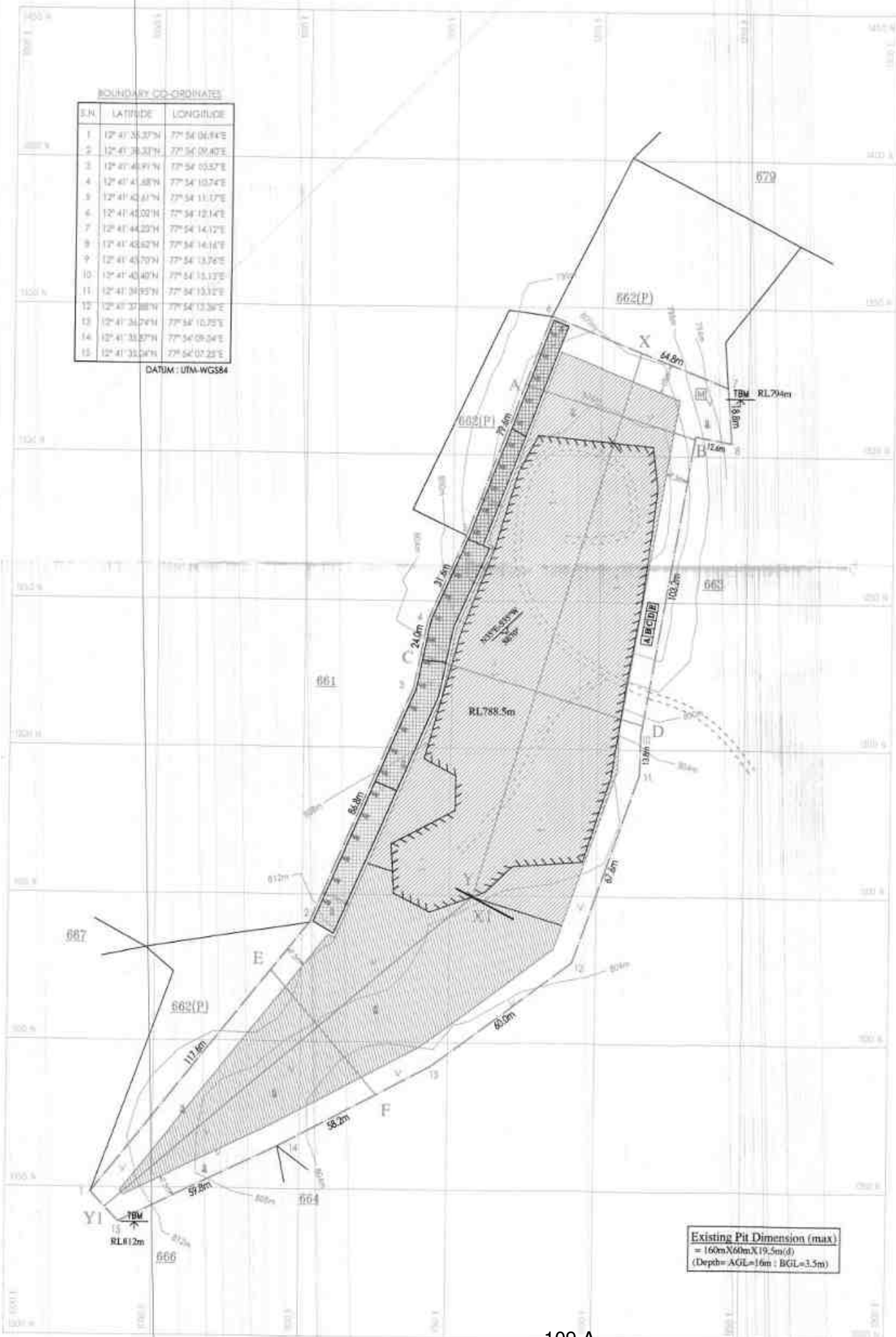
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEAST MAP
AUTHENTICATED BY STATE GOVERNMENT

Dr. P. SHANGARAJ M.Sc., Ph.D.,
QUALIFIED PERSON

BOUNDARY CO-ORDINATES

S.N	LATITUDE	LONGITUDE
1	12° 41' 30.37"N	77° 54' 04.94"E
2	12° 41' 39.31"N	77° 54' 05.82"E
3	12° 41' 46.91"N	77° 54' 05.57"E
4	12° 41' 43.88"N	77° 54' 10.74"E
5	12° 41' 42.61"N	77° 54' 11.17"E
6	12° 41' 43.02"N	77° 54' 12.14"E
7	12° 41' 44.23"N	77° 54' 14.12"E
8	12° 41' 43.62"N	77° 54' 14.16"E
9	12° 41' 43.70"N	77° 54' 13.76"E
10	12° 41' 40.40"N	77° 54' 13.12"E
11	12° 41' 39.93"N	77° 54' 13.12"E
12	12° 41' 37.88"N	77° 54' 13.36"E
13	12° 41' 34.74"N	77° 54' 10.75"E
14	12° 41' 33.57"N	77° 54' 09.04"E
15	12° 41' 33.54"N	77° 54' 07.23"E

DATUM : UTM-WGS84



Existing Pit Dimension (max)
= 160m X 60m X 19.5m (d)
(Depth = AGL = 16m ; BGL = 3.5m)

SITE SERVICES (Proposed)
A - OFFICE
B - STORE ROOM
C - FIRST AID ROOM
D - REST SHEDS
E - TOILET
F - MESSHALL

I - yr Proposed area to be Quarried
II - yr Proposed area to be Quarried
III - yr Proposed area to be Quarried
IV - yr Proposed area to be Quarried
V - yr Proposed area to be Quarried

I - yr Proposed area to be Planted
II - yr Proposed area to be Planted
III - yr Proposed area to be Planted
IV - yr Proposed area to be Planted
V - yr Proposed area to be Planted

INDEX

	Q.L. APPLIED AREA BOUNDARY
	10m & 7.5m SAFETY DISTANCE
	TEMPORARY BENCH MARK
	TOP SOIL
	ROUGHSTONE
	STRIKE & DIP
	QUARRY PIT
	CONTOUR
	SHRUBS
	QUARRY HAUL ROAD
	APPROACH ROAD

APPLICANT :
TVI, A.V.S. TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED,
No. 292, SIPCOT HOUSING BOARD COLONY, MOOKANDAPALLI, HOSUR TALUK, KRISHNAGIRI DISTRICT.

LOCATION OF Q.L.A AREA:
S.F.No : 662 (Part)
EXTENT : 2.20.0 Ha.
VILLAGE : THORAPALLI AGRAHARAM,
TALUK : HOSUR,
DISTRICT : KRISHNAGIRI,
STATE : TAMIL NADU.

PLATE NO - III
DATE OF SURVEY : 15.06.2019

**TOPOGRAPHY, GEOLOGICAL PLAN
YEARWISE DEVELOPMENT &
PRODUCTION PLAN**
SCALE : 1 : 1000

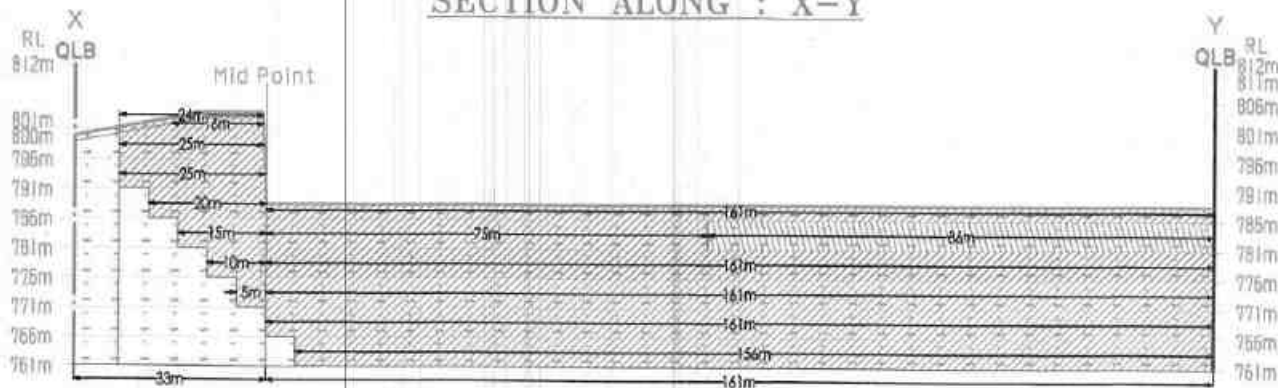
PREPARED BY :
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

S.P. THANGARAJU, S.C. P.H.D., QUALIFIED PERSON



SECTION ALONG : X-Y

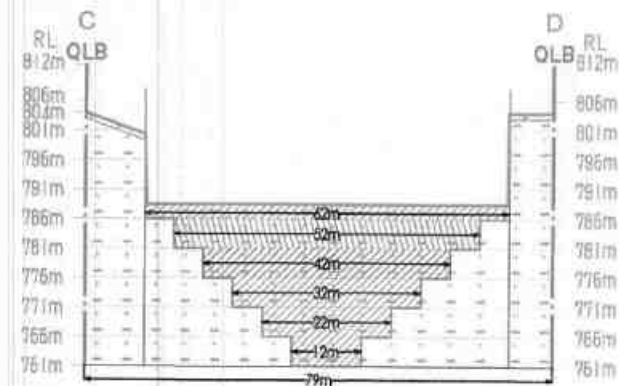
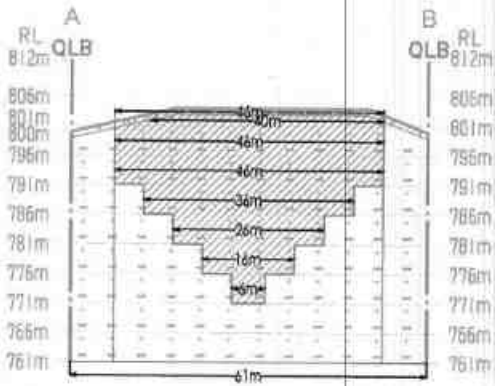
Ground level= 796 m



- Q.L. APPLIED AREA BOUNDARY
- 10m & 7.5m SAFETY DISTANCE
- TOP SOIL
- ROUGHSTONE
- D.O.E DEPTH OF ESTIMATION

SECTION ALONG : A-B

SECTION ALONG : C-D



- I - yr Proposed area to be Quarried
- II - yr Proposed area to be Quarried
- III - yr Proposed area to be Quarried
- IV - yr Proposed area to be Quarried
- V - yr Proposed area to be Quarried

APPLICANT :

M. A.V.S. TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED,
No. 292, SIPCOT HOUSING BOARD COLONY, MOOKANDAPALLI, HOSUR TALUK, KRISHNAGIRI DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.No : 662 (Part)
EXTENT : 2.20.0 Ha.
VILLAGE : THORAPALLI AGRAHARAM,
TALUK : HOSUR,
DISTRICT : KRISHNAGIRI,
STATE : TAMIL NADU.

SECTION ALONG : X1-Y1

SECTION ALONG : E-F

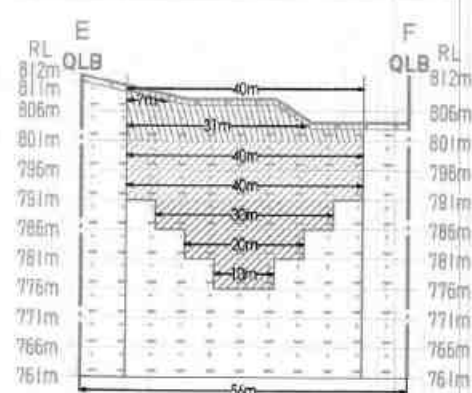
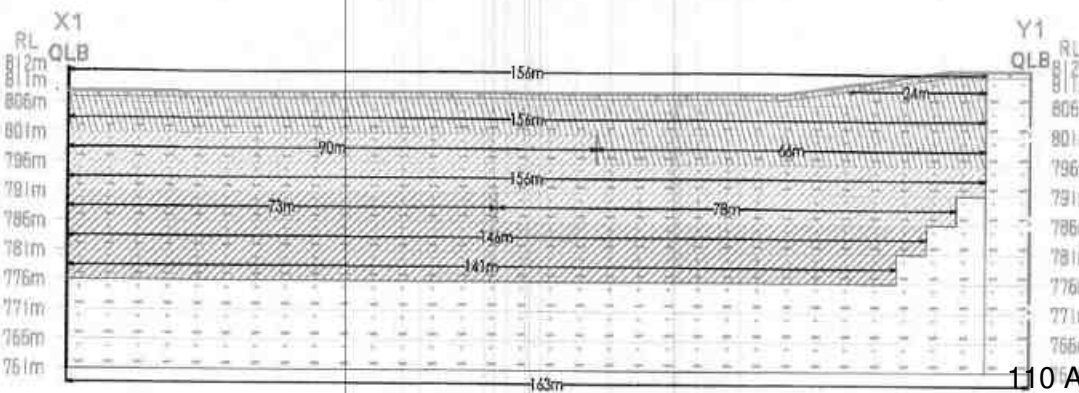


PLATE NO - III-A

DATE OF SURVEY : 15.06.2019

**TOPOGRAPHY, GEOLOGICAL SECTIONS
YEARWISE DEVELOPMENT &
PRODUCTION SECTIONS**

SCALE :- 1 : 1000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

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



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 41' 35.37"N	77° 54' 06.84"E
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12	12° 41' 37.88"N	77° 54' 12.34"E
13	12° 41' 36.74"N	77° 54' 10.75"E
14	12° 41' 35.87"N	77° 54' 09.04"E
15	12° 41' 35.04"N	77° 54' 07.25"E

DATUM : UTM-WGS84

SITE SERVICES

- H- OFFICE
- B- STORE ROOM
- C- FIRST AID ROOM
- D- REST SHED
- E- SHED
- M- MAGAZINE

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 10m & 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- TOP SOIL
- ROUGHSTONE
- STRIKE & DIP
- QUARRY PIT
- CONTOUR
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- VI-X Yr PLANTATION
- BARBED WIRE FENCING
- REHABILITATED LAND FORM
- PROPOSED GARLAND DRAIN
- RAIN WATER STORAGE

APPLICANT:
 TVI, A.V.S. TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED,
 No. 292, SIPCOT HOUSING BOARD COLONY, MOOKANDAPALLI, HOSUR TALUK, KRISHNAGIRI DISTRICT.

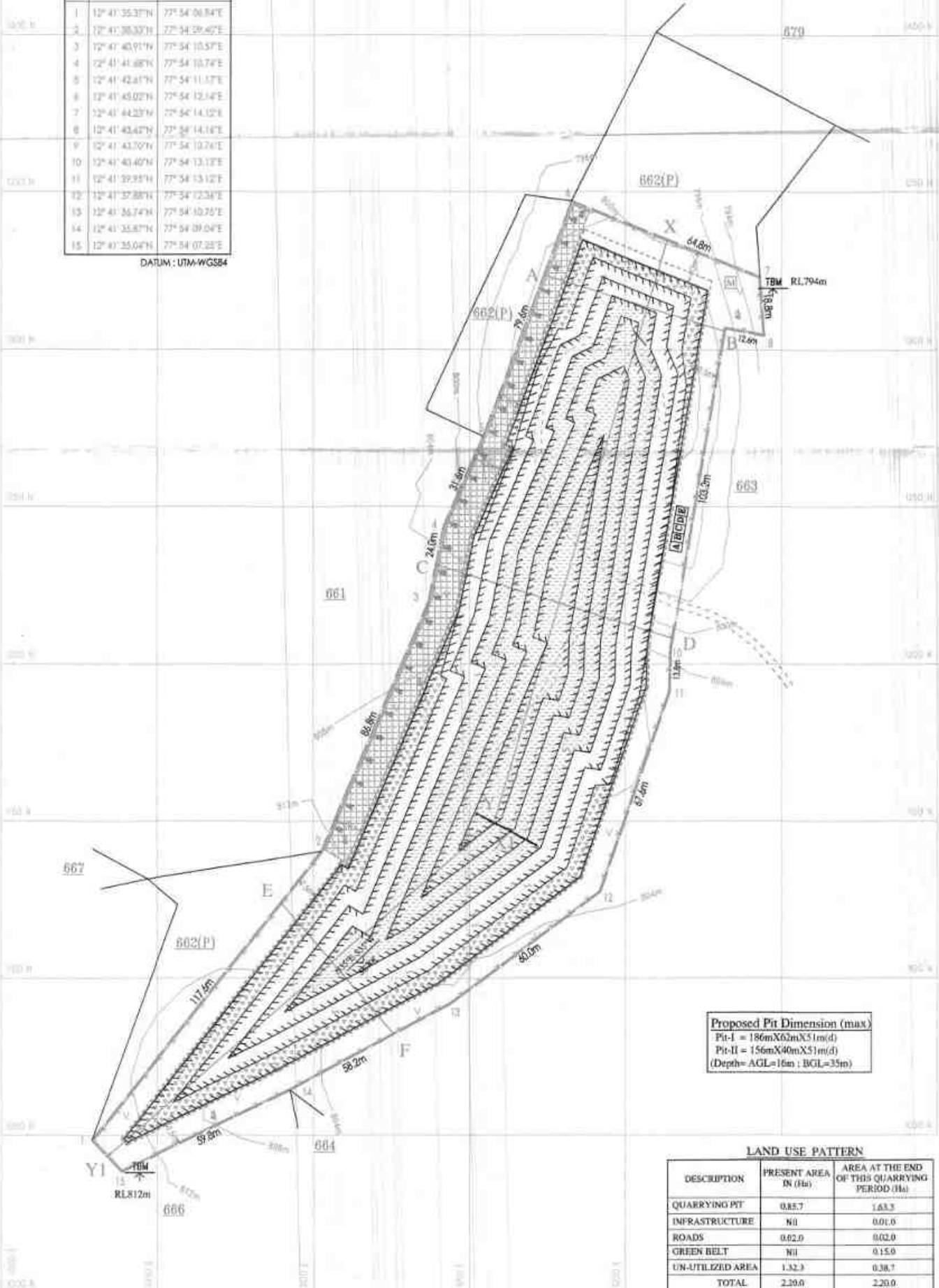
LOCATION OF Q.L.A. AREA:
 S.F.No : 662 (Part)
 EXTENT : 2.20.0 Ha.
 VILLAGE : THORAPALLI AGRAHARAM,
 TALUK : HOSUR,
 DISTRICT : KRISHNAGIRI,
 STATE : TAMIL NADU.

PLATE NO - IV
 DATE OF SURVEY : 15.06.2019

PROGRESSIVE QUARRY CLOSURE PLAN
 SCALE: 1:1000

PREPARED BY:
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEAST MAP AUTHENTICATED BY STATE GOVERNMENT

 S.P. THANGARAJAN, P.L.D., QUALIFIED PERSON



Proposed Pit Dimension (max)

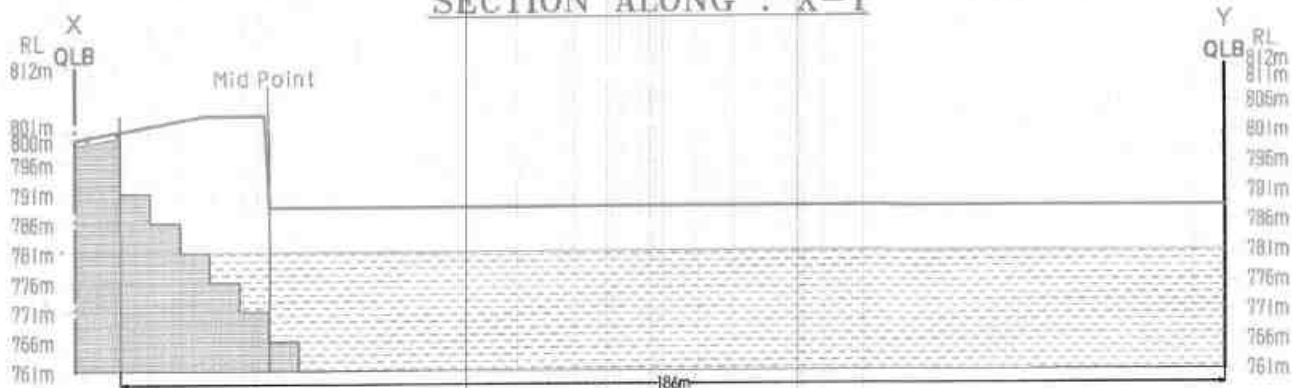
Pit-I = 186mX62mX51m(d)
 Pit-II = 156mX40mX51m(d)
 (Depth= AGL=16m ; BGL=35m)

LAND USE PATTERN

DESCRIPTION	PRESENT AREA IN (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
QUARRYING PIT	0.85.7	1.63.3
INFRASTRUCTURE	Nil	0.01.0
ROADS	0.02.0	0.02.0
GREEN BELT	Nil	0.15.0
UN-UTILIZED AREA	1.32.3	0.38.7
TOTAL	2.20.0	2.20.0

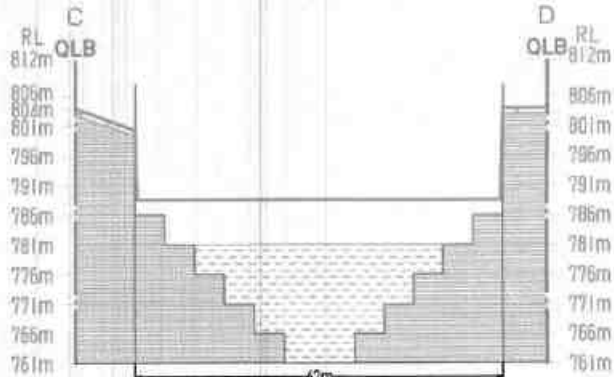
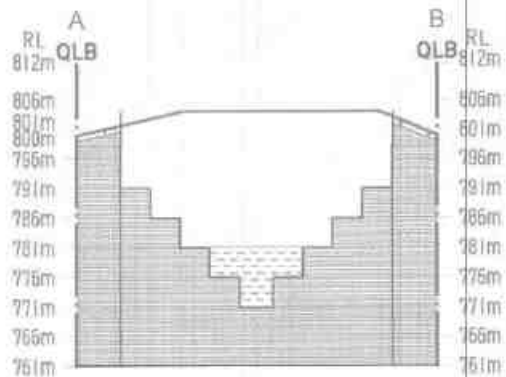
SECTION ALONG : X-Y

Ground level= 796 m



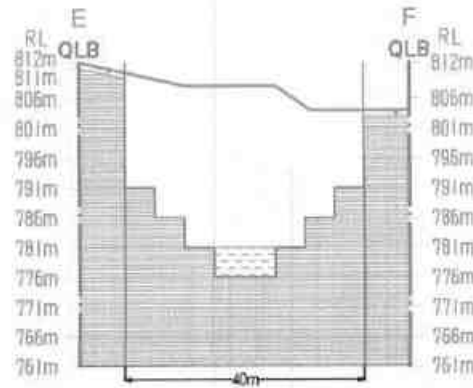
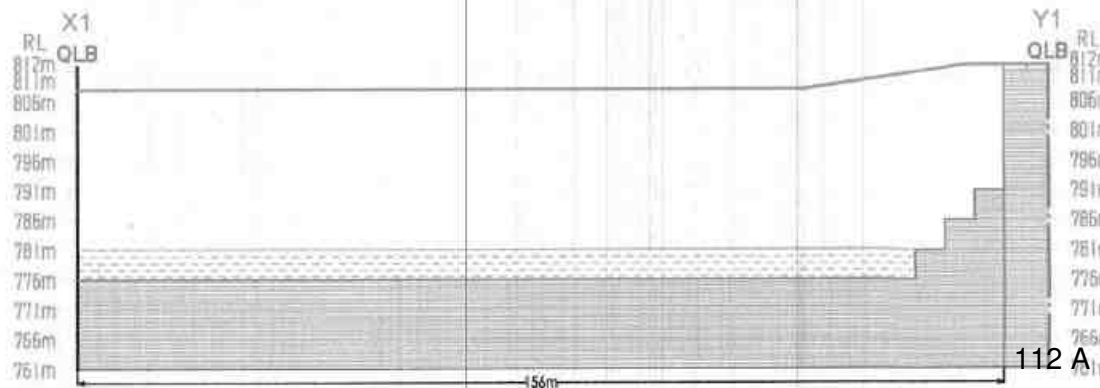
SECTION ALONG : A-B

SECTION ALONG : C-D



SECTION ALONG : X1-Y1

SECTION ALONG : E-F



INDEX

- Q.L. APPLIED AREA BOUNDARY
- 10m & 7.5m SAFETY DISTANCE
- TOP SOIL
- ROUGHSTONE
- EXISTING LAND FORM
- SOIL LAYER
- OLD SURFACE LEVEL
- FINISHED SURFACE LEVEL
- RAIN WATER STORAGE



APPLICANT :

M. A.V.S. TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED,
No. 292, SIPCOT HOUSING BOARD COLONY,
MOOKANDAPALLI,
HOSUR TALUK,
KRISHNAGIRI DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.No : 662 (Part)
EXTENT : 2.20.0 Ha.
VILLAGE : THORAPALLI AGRAHARAM,
TALUK : HOSUR,
DISTRICT : KRISHNAGIRI,
STATE : TAMIL NADU.

PLATE NO - IV-A

DATE OF SURVEY : 15.06.2019

PROGRESSIVE QUARRY CLOSURE SECTIONS

SCALE. 1:1000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

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



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	12° 41' 35.37" N	77° 54' 06.94" E
2	12° 41' 36.32" N	77° 54' 09.62" E
3	12° 41' 40.91" N	77° 54' 10.57" E
4	12° 41' 41.86" N	77° 54' 10.74" E
5	12° 41' 42.61" N	77° 54' 11.77" E
6	12° 41' 46.02" N	77° 54' 12.14" E
7	12° 41' 44.22" N	77° 54' 14.12" E
8	12° 41' 43.62" N	77° 54' 14.16" E
9	12° 41' 43.39" N	77° 54' 13.50" E
10	12° 41' 40.47" N	77° 54' 13.13" E
11	12° 41' 39.15" N	77° 54' 13.12" E
12	12° 41' 37.88" N	77° 54' 12.30" E
13	12° 41' 36.76" N	77° 54' 10.25" E
14	12° 41' 35.67" N	77° 54' 09.04" E
15	12° 41' 35.04" N	77° 54' 07.35" E

DATUM : UTM-WGS84

SITE SERVICES

- A - OFFICE
- B - STORE ROOM
- C - FIRST AID ROOM
- D - REST AND/TER
- E - TOILET
- M - MAGAZINE



INDEX

- Q.L. APPLIED AREA BOUNDARY
- 10m & 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- TOP SOIL
- ROUGHSTONE
- STRIKE & DIP
- QUARRY PIT
- CONTOUR
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- VI-X Yr PLANTATION

APPLICANT :
 TVL A.V.S. TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED,
 No. 292, SPICOT HOUSING BOARD COLONY, MOOKANDAPALLI, HOSUR TALUK, KRISHNAGIRI DISTRICT.

LOCATION OF Q.L.A. AREA:
 S.F.No : 662 (Part)
 EXTENT : 2.20.0 Ha.
 VILLAGE : THORAPALLI AGRAHARAM, TALUK : HOSUR, DISTRICT : KRISHNAGIRI, STATE : TAMIL NADU.

PLATE NO - V
 DATE OF SURVEY : 15.06.2019

CONCEPTUAL PLAN
 SCALE :- 1 : 1000

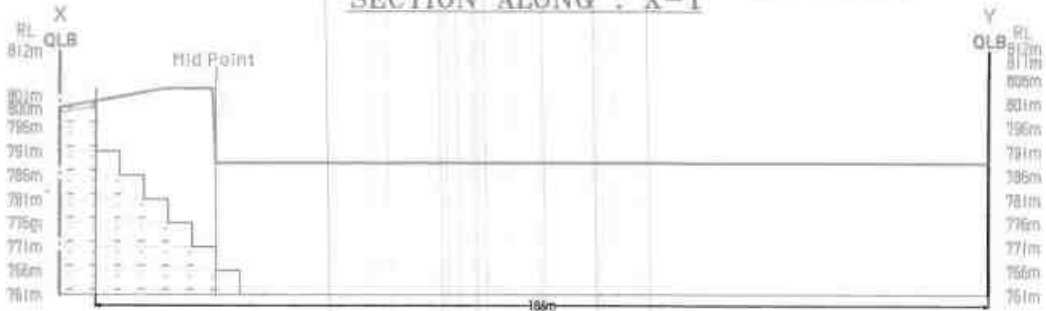
PREPARED BY :
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT.

 Dr. P. THANGARAJ, M.Sc., Ph.D., QUALIFIED PERSON

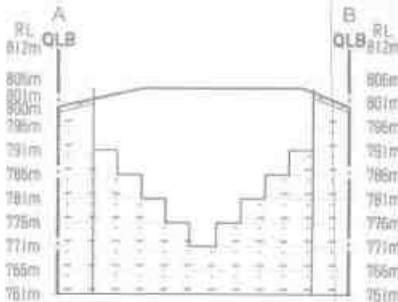
Ultimate Pit Dimension (max)
 Pit-I = 186mX62mX51m(d)
 Pit-II = 156mX40mX51m(d)
 (Depth = AGL=16m ; BGL=35m)

SECTION ALONG : X-Y

Ground level= 796 m



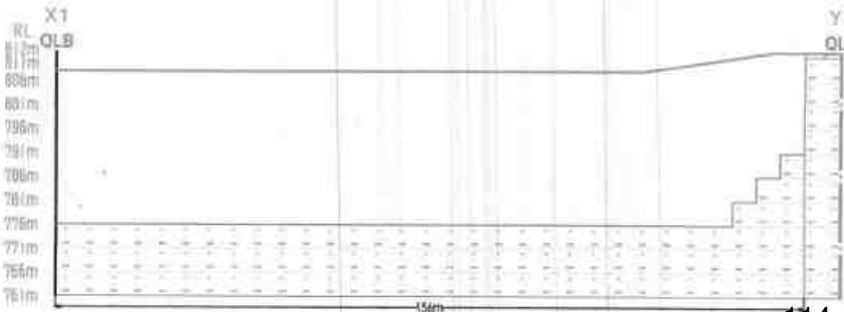
SECTION ALONG : A-B



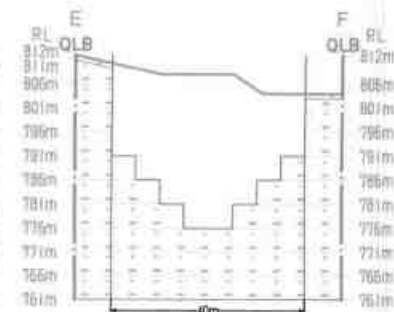
SECTION ALONG : C-D



SECTION ALONG : X1-Y1



SECTION ALONG : E-F



T14 A



INDEX

- Q.L. APPLIED AREA BOUNDARY
- 10m & 7.5m SAFETY DISTANCE
- TOP SOIL
- ROUGHSTONE
- D.O.E DEPTH OF ESTIMATION

APPLICANT:

TVI, A.V.S. TECH BUILDING SOLUTIONS INDIA PRIVATE LIMITED,
No. 292, SIPCOT HOUSING BOARD COLONY,
MOOKANDAPALLI
HOSUR TALUK,
KRISHNAGIRI DISTRICT.

LOCATION OF Q.L.A AREA:

S.F.No : 662 (Part)
EXTENT : 2.20.0 Ha.
VILLAGE : THORAPALLI AGRAHARAM,
TALUK : HOSUR,
DISTRICT : KRISHNAGIRI,
STATE : TAMIL NADU.

PLATE NO - V-A

DATE OF SURVEY : 15.06.2019

CONCEPTUAL SECTIONS

SCALE : 1 : 1000

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

[Signature]

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

**TOPOGRAPHICAL VIEW OF THORAPALLI AGRAHARAM ROUGH STONE
QUARRY LEASE APPLIED AREA**



Name of the Applicant : **M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,**
Address : No.292, Sipcot Housing Board Colony,
Mookandapalli, Hosur Taluk,
Krishnagiri District - 635 109.

LOCATION DETAILS

Extent : 2.20.0 Ha
S.F.No. : 662 (P)
Village : Thorapalli Agraharam
Taluk : Hosur
District : Krishnagiri
State : Tamil Nadu

Signature of the applicant

For M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,

S.Srinivasan

(Managing Director)

(Village Administrative Officer)
Village Administrative Office,
104, Thorapalli Agraharam
Attestation
Hosur Taluk

ಸಾರಾಂಶ

ಕಿರುಬೆಳೆಗಾರಿಕೆ ಮತ್ತು ಮತ್ಸ್ಯ ಇಲಾಖೆ
ಮತ್ತಿತರ ಉದ್ಯಮಗಳಿಗೆ ಅನುಮೋದನೆ
ಅನುಮೋದನೆ 4ನೇ ಸಂಖ್ಯೆ 662 (ಸಿ.472)
ಕ್ರ. 3.3. 2.90.0 ಸಾರಾಂಶ ದಿನಾಂಕ 30.06
ಸಿಬ್ಬಂದಿಯನ್ನು ವ್ಯವಹಾರಕ್ಕೆ, ಅನುಮೋದನೆ,
ಪಾಲನೆ ಮತ್ತು ಇತರ ವಿಷಯಗಳನ್ನು
ಈಗಲೇ ಅನುಮೋದನೆ ಸಲ್ಲಿಸಿ ಸೇರಿಸಿ ಕೊಡುವುದು.


Village Administrative Office
104, Thorapalli Agraharam
Hosur Taluk

SHRI S.RATHINAVEL EXPLOSIVES

Mallapuram 1. Explosive License Copy.
Somanahallj -P.O., Indur (Via),
Nallampalli-Tk., Dharmapuri-Dt. PIN : 636 803

Mobile : 99654 94172
Office : 04342 - 242526
E-mail : srathinavel145@gmail.com

Date-14/06/2021

To:

M/S.AVS Tech Building Solutions India Pvt Ltd ,
292 Sipcot Housing Board Colony,
Mookandapalli,
Hosur Taluk,
Krishnagiri District.

Sub: Willingness to do Explosives Blasting Works regarding/-

Dear Sir,

I have Respect To The Above Subject, We Would Like To Introduce Our Self As The
EXPLOSIVES BLASTING CONTRACTORS, For Which Our Form 22 (LE-3) Magazine Is Situated
In SF.No: 119/1B Of Nekkundhi Village, Nallampalli Taluk Dharmapuri District Of
Tamilnadu.

Details of our Explosives Licences are as below.

1. E/HQ/TN/22/406 (E77451)

We are engaged in Professional Blasting Contract works with all all facilities and Licence Holders to
carry out blasting works in specified time and period covered under Explosives Rules, 2008.

We kindly request yourself to engage us to do Explosives Blasting works in Your Quarry Situated
at SF.Nos:662 (Comprising 2.20.0 Hectares) Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri
District.

SERVING BEST AT ALL TIMES

Thanking you

For S.RATHINAVEL EXPLOSIVES.



Authorized Signatory

Enclosure

1. Explosive License Copy.

अनुज्ञप्ति प्ररूप एल. क्र. 3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)
(See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)

(ग) उपयोग के लिए एक समय पर वर्ग 1,2,3,4,5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने के लिए अनुज्ञप्ति

Licence to possess : (c) for use explosives of class 1, 2,3,4,5,6 or 7 in a maga

अनुज्ञप्ति सं. (Licence No.): E/HQ/TN/22/406(E77451)
वार्षिक फीस रुपए (Annual Fee Rs): 25000/-



1. Licence is hereby granted to

Shri S. Rathinavel S/o. Subramani Mallapuram (अधिगोमी / Occupier : Shri S. Rathinavel S/o. Subramani), Door No. 99/3, Mallapuram, P.O. Somenahalli, Indur (Via), Town/Village - Dharmapuri, District-DHARMAPURI, State-Tamil Nadu, Pincode - 636803

को अनुज्ञप्ति अनुदत्त की जाती है।

2. अनुज्ञप्तिधारी की प्रास्थिति | Status of licensee : Individual

3. अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमान्य है। Licence is valid only for the following purpose. possess for use of Nitrate Mixture, Safety Fuse, Detonating Fuse, Electric and/or Ordinary Detonators, - के उपयोग के लिए

4. अनुज्ञप्ति विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमान्य है।

Licence is valid for the following kinds and quantity of explosives: - (क) (a)

क्र. Sr. No.	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1.	Nitrate Mixture	2,0	0	22500 Kg.
2.	Safety Fuse	6,1	0	25000 Mtrs
3.	Detonating Fuse	6,2	0	90000 Mtrs
4.	Electric and/or Ordinary Detonators	6,3	0	44000 Nos.

(ख) किसी एक कलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा [अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञप्ति के लिए] 20 times as above.

(b) Quantity of explosives to be purchased in a calendar month [applicable for licence under article 3(b) and (c)] :

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञप्ति परिसर की पुष्टि होती है। रेखाचित्र क्र. (Drawing No.) E/HQ/TN/22/406(E77451) दिनांक (Dated) 30/05/2014
The licensed premises shall conform to the following drawing(s) :-

6. अनुज्ञप्ति परिसर निम्नलिखित पते पर स्थित हैं। The licensed premises are situated at following address:

Survey No. 149/LB, ग्राम (Town/Village) : Nekkundhi, Indur (Via), तालुका (Taluk) : Pennagaram, तालुका स्टेशन (Taluk Station) : Pennagaram
जिला (District) DHARMAPURI राज्य (State) Tamil Nadu पिनकोड (Pincode) 636803
दूरभाष (Phone) 9965494172 ई.मेल (E-Mail) srathinavel45@gmail.com फैक्स (Fax)

7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं। a main high explosives magazine storage room, a lobby & a detonators storage room
The licensed premises consist of following facilities.

8. अनुज्ञप्ति समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपाबंधों के अधीन रहते हुए अनुदत्त की जाती है।
The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there-under and the conditions, additional conditions and the following Annexures.

1. उपर्युक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए)। Drawings (showing site, constructional and other details) as stated in serial No. 5 above.
2. अनुज्ञप्ति प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञप्ति की शर्तों और अतिरिक्त शर्तों। Conditions and Additional Conditions of this licence signed by the licensing authority.
3. दूरी प्ररूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञप्ति तारीख 31 मार्च 2019 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2019.

यह अनुज्ञप्ति, अधिनियम, या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञप्ति की शर्तों का अधिकरण करने या यदि अनुज्ञप्ति परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहत की जा सकती है, जहां वह लागू हो।

This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

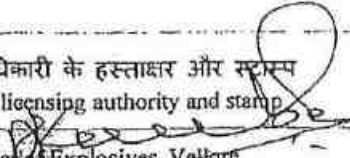
तारीख | The Date - 30/05/2014.

118 A

मुख्य विस्फोटक नियंत्रक | Chief Controller of Explosives

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 25/08/2014
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 08/10/2014

नवीनीकरण के पृष्ठांकन के लिए स्थान
Space for Endorsement of Renewal

नवीकरण की तारीख Date of Renewal	समाप्ति की तारीख Date of Expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प Signature of licensing authority and stamp
29/01/2019	31/03/2024	 Controller of Explosives, Vellore विस्फोटक नियंत्रक, वेल्लूर Controller of Explosives, Vellore

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चलाने या उनका दुरुपयोग विधि के अधीन गंभीर दंडित अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.



KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0322/TR/N-66		Report Date : 08.03 2022	
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P),Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District,Extent: 2.20.0 Ha	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-66
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	02.03.2022
Sample Description	Ambient Noise	Noise Level Received On	02.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	08.03.2022

Location		N1 - Project Area			N2 - Islampuram			N3 -Thorapalli Agraharam		
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)
01.	06:00-07:00	40.9	49.5	47.1	39.8	49.6	47.0	39.6	47.7	45.3
02.	07:00-08:00	41.1	50.2	47.7	40.7	51.1	48.5	40.1	49.5	47.0
03.	08:00-09:00	42.2	51.8	49.2	41.5	52.7	50.0	41.9	50.7	48.2
04.	09:00-10:00	42.9	53.1	50.5	42.2	52.7	50.1	42.7	51.5	49.0
05.	10:00-11:00	43.9	54.7	52.0	43.7	53.2	50.7	43.5	54.6	51.9
06.	11:00-12:00	44.1	55.2	52.5	44.5	55.1	52.5	44.4	55.1	52.4
07.	12:00-13:00	43.6	54.7	52.0	45.1	56.7	54.0	43.9	54.6	51.9
08.	13:00-14:00	42.1	52.9	50.2	43.7	54.2	51.6	45.1	55.9	53.2
09.	14:00-15:00	44.5	55.7	53.0	43.1	54.4	51.7	46.6	57.1	54.5
10.	15:00-16:00	45.7	56.1	53.5	44.5	54.4	51.8	46.2	57.8	55.1
11.	16:00-17:00	44.8	55.7	53.0	45.7	54.9	52.4	43.5	54.2	51.5
12.	17:00-18:00	43.1	54.4	51.7	43.5	54.4	51.7	42.1	53.5	50.8
13.	18:00-19:00	43.9	53.2	50.7	42.7	53.1	50.5	43.5	54.7	52.0
14.	19:00-20:00	43.7	54.4	51.7	41.2	50.7	48.2	43.1	54.6	51.9
15.	20:00-21:00	42.5	53.7	51.0	40.6	49.4	46.9	40.2	51.1	48.4

.....Continue Report.....



Authorized Signatory

Note: 1. Test Results shown in this report relate only to the items tested. 2. This test report shall not be reproduced anywhere except in full and same format without the approval of the laboratory. 3. Unless informed by the customer the test items will not be retained for more than 10 days from the date of issue of test report.



KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0322/TR/N-66

Report Date : 08.03.2022

Client Name & Address:

M/s. A.V.S. Tech Building Solutions India Pvt Ltd.,
No.292, Sipcot Housing Board Colony,
Mookandapalli, Hosur Taluk,
Krishnagiri District - 635 126.

Site Location:

M/s. A.V.S. Tech Building Solutions Rough Stone
Quarry Project
S.F.No. 662 (P),Thorapalli Agraharam Village,
Hosur Taluk, Krishnagiri District,Extent: 2.20.0 Ha

Discipline	Chemical	Sample Reference ID	KGS/0322/N-66
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	02.03.2022
Sample Description	Ambient Noise	Noise Level Received On	02.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	08.03.2022

Location		N1 - Project Area			N2 - Islampuram			N3 -Thorapalli Agraharam			
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	
16.	21:00-22:00	41.9	52.7	50.0	40.1	49.9	47.3	39.5	47.5	45.1	
17.	22:00-23:00	40.7	51.1	48.5	39.7	48.9	46.4	38.7	46.9	44.5	
18.	23:00-00:00	40.1	50.5	47.9	37.5	47.1	44.5	37.4	45.8	43.4	
19.	00:00-01:00	39.6	49.9	47.3	36.2	45.5	43.0	36.6	46.9	44.3	
20.	01:00-02:00	37.5	47.3	44.7	34.1	46.2	43.4	35.5	46.7	44.0	
21.	02:00-03:00	36.6	44.4	42.1	35.1	46.8	44.1	34.9	43.4	41.0	
22.	03:00-04:00	35.5	45.4	42.8	35.8	46.2	43.6	35.3	46.3	43.6	
23.	04:00-05:00	34.9	43.7	41.2	34.5	45.1	42.5	34.9	43.7	41.2	
24.	05:00-06:00	34.1	43.7	41.1	34.2	43.7	41.2	34.1	43.2	40.7	
Day Mean dB(A)				50.8	Day Mean dB(A)			50.1	Day Mean dB(A)		50.2
Night Mean dB(A)				43.9	Night Mean dB(A)			43.2	Night Mean dB(A)		42.6

.....End of Report.....



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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0322/TR/N-67

Report Date : 08.03.2022

Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P),Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District,Extent: 2.20.0 Ha	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-67
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	02.03.2022
Sample Description	Ambient Noise	Noise Level Received On	02.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	08.03.2022

Location		N4 -Thotapalli			N5 - Kadirapalli			N6 - Gobasandiram		
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)
1.	06:00-07:00	38.8	49.6	46.9	41.9	52.5	49.9	39.5	50.2	47.5
2.	07:00-08:00	39.9	50.1	47.5	42.5	53.2	50.5	40.2	51.1	48.4
3.	08:00-09:00	40.2	49.6	47.1	42.9	54.1	51.4	41.5	52.8	50.1
4.	09:00-10:00	42.8	51.4	49.0	43.2	55.2	52.5	42.7	53.3	50.7
5.	10:00-11:00	43.7	54.5	51.8	45.1	56.9	54.2	43.6	54.7	52.0
6.	11:00-12:00	44.9	55.5	52.9	45.9	56.7	54.0	44.1	55.1	52.4
7.	12:00-13:00	45.1	56.4	53.7	45.8	57.6	54.9	45.8	56.2	53.6
8.	13:00-14:00	46.5	57.1	54.5	46.1	57.2	54.5	45.6	55.9	53.3
9.	14:00-15:00	44.2	55.8	53.1	45.2	56.3	53.6	43.5	56.8	54.0
10.	15:00-16:00	44.5	54.6	52.0	42.9	53.7	51.0	44.4	57.1	54.3
11.	16:00-17:00	43.7	55.1	52.4	41.7	52.2	49.6	43.1	52.9	50.3
12.	17:00-18:00	42.2	53.2	50.5	40.5	51.2	48.5	41.9	51.8	49.2
13.	18:00-19:00	41.1	52.8	50.1	39.5	50.7	48.0	43.5	50.3	48.1
14.	19:00-20:00	40.8	49.3	46.9	40.8	50.2	47.7	40.8	49.9	47.4
15.	20:00-21:00	39.6	48.8	46.3	38.8	49.8	47.1	40.1	48.5	46.1

.....Continue Report.....



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No.16, F1, Bharathi Flats, Bharathiyar Street, Cholambedu Main Road, Thirumullaivoyal, Chennai - 600 062.

Ph.: 044-2637 1925 | Email: kgslabs@gmail.com | www.kgslabs.com



KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0322/TR/N-67		Report Date :08.03.2022	
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P),Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District,Extent: 2.20.0 Ha	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-67
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	02.03.2022
Sample Description	Ambient Noise	Noise Level Received On	02.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	08.03.2022

Location		N4 -Thotapalli			N5 - Kadirapalli			N6 - Gobasandiram		
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)
16.	21:00-22:00	38.8	47.1	44.7	36.6	46.1	43.6	38.9	46.1	43.8
17.	22:00-23:00	37.6	46.6	44.1	34.9	43.2	40.8	37.1	48.9	46.2
18.	23:00-00:00	36.5	45.7	43.2	35.8	43.9	41.5	35.5	44.1	41.7
19.	00:00-01:00	40.1	47.2	45.0	33.6	42.7	40.2	34.5	43.5	41.0
20.	01:00-02:00	37.5	46.7	44.2	34.7	43.2	40.8	33.9	42.5	40.1
21.	02:00-03:00	36.9	40.8	39.3	35.5	43.9	41.5	34.5	44.1	41.5
22.	03:00-04:00	35.1	40.2	38.4	35.1	44.4	41.9	34.9	42.9	40.5
23.	04:00-05:00	34.4	39.5	37.7	34.6	43.7	41.2	33.1	40.2	38.0
24.	05:00-06:00	36.6	38.8	37.8	35.7	44.1	41.7	34.7	39.9	38.0
Day Mean dB(A)				49.6	Day Mean dB(A)		50.1	Day Mean dB(A)		49.8
Night Mean dB(A)				40.8	Night Mean dB(A)		41.2	Night Mean dB(A)		40.1

.....End of Report.....




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TEST REPORT

Test Report No:KGS/0322/TR/N-68		Report Date :08.03.2022	
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P),Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District,Extent: 2.20.0 Ha	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-68
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	02.03.2022
Sample Description	Ambient Noise	Noise Level Received On	02.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	08.03.2022

Location		N7 -Addakurukki			N8 -Bukkasagaram		
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)
1.	06:00-07:00	40.5	51.1	48.5	39.6	50.2	47.6
2.	07:00-08:00	41.1	52.5	49.8	40.5	51.8	49.1
3.	08:00-09:00	42.5	53.9	51.2	42.7	53.1	50.5
4.	09:00-10:00	43.2	54.7	52.0	43.1	54.6	51.9
5.	10:00-11:00	45.5	56.3	53.6	44.5	55.7	53.0
6.	11:00-12:00	46.9	57.1	54.5	45.5	56.6	53.9
7.	12:00-13:00	44.1	56.4	53.6	46.7	57.1	54.5
8.	13:00-14:00	43.1	54.9	52.2	45.1	56.6	53.9
9.	14:00-15:00	42.8	53.7	51.0	44.7	55.2	52.6
10.	15:00-16:00	41.7	52.1	49.5	43.5	54.5	51.8
11.	16:00-17:00	40.5	42.5	41.6	42.9	53.7	51.0
12.	17:00-18:00	41.8	51.9	49.3	42.5	53.8	51.1
13.	18:00-19:00	40.1	50.7	48.1	41.7	52.9	50.2
14.	19:00-20:00	39.6	50.1	47.5	40.5	51.1	48.5
15.	20:00-21:00	38.5	49.7	47.0	40.9	50.6	48.0

.....Continue Report.....




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NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0322/TR/N-68		Report Date : 08.03.2022	
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipeot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	Sample Reference ID	KGS/0322/N-68
Group	Atmospheric Pollution	Noise Level Monitored By	Chemist
Sample Matrix	Noise	Noise Level Monitored On	02.03.2022
Sample Description	Ambient Noise	Noise Level Received On	02.03.2022
General Sampling Procedure	IS 9989 Methods	Noise Level Calculated On	08.03.2022

Location		N7 -Addakurukki			N8 -Bukkasagaram			
S.No	Time (Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)	Min dB(A)	Max dB(A)	Leq dB(A)	
16.	21:00-22:00	36.3	47.8	45.1	39.8	50.1	47.5	
17.	22:00-23:00	35.7	43.6	41.2	36.7	48.8	46.0	
18.	23:00-00:00	33.1	44.3	41.6	37.1	46.6	44.1	
19.	00:00-01:00	33.9	43.9	41.3	35.7	47.2	44.5	
20.	01:00-02:00	35.5	43.6	41.2	35.1	46.3	43.6	
21.	02:00-03:00	36.3	41.1	39.3	36.9	47.2	44.6	
22.	03:00-04:00	35.7	44.5	42.0	35.8	44.1	41.7	
23.	04:00-05:00	34.2	42.1	39.7	36.1	45.5	43.0	
24.	05:00-06:00	34.9	43.5	41.1	34.6	45.1	42.5	
Day Mean dB(A)				49.2	Day Mean dB(A)			50.6
Night Mean dB(A)				40.9	Night Mean dB(A)			43.4

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TEST REPORT

Test Report No.: KGS/0322/TR\S- 69

Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S1	
Sample Description	SOIL	Sample Reference	KGS/0322/S-69
Sample Mark	Project Area	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	7.74
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff : 2016)	405
03.	Texture	%	Gravimetric Method	Clay Loam
04.	Sand	%		32.0
05.	Silt	%		33.0
06.	Clay	%		35
07.	Water Holding Capacity	%	By Gravimetric Method	37.6
08.	Bulk Density	g/cm ³	By Cylindrical Method	1.22
09.	Porosity	%	By Gravimetric Method	25
10.	Exchangeable Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	136
11.	Exchangeable Magnesium as Mg	mg/kg		19.1
12.	Exchangeable Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	28.4
13.	Exchangeable Zinc as Zn	mg/kg		0.25
14	Available Boron as B	mg/kg		0.85

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/S- 69			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S1	
Sample Description	SOIL	Sample Reference	KGS/0322/S-69
Sample Mark	Project Area	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result	
15.	Soluble Chloride as Cl ⁻	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	140	
16.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	98	
17.	Available Potassium as K	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	40.6	
18.	Available Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	1.03	
19.	Available Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	116	
20.	Cadmium as Cd	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL(DL:0.003)	
21.	Chromium as Cr	mg/kg		BDL (DL:0.05)	
22.	Copper as Cu	mg/kg		BDL(DL:0.05)	
23.	Lead as Pb	mg/kg		0.61	
24.	Total Iron as Fe	mg/kg		1.10	
25.	Organic Matter	%		IS : 2720 Part 22: 1972 (Reaff: 2015)	1.68
26.	Organic Carbon	%			0.97
27.	Cation Exchange Capacity	meq/100g of soil	USEPA 9080 – 1986	31.5	

.....End of Report.....



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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No.: KGS/0322/TR/S- 70			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S2	
Sample Description	SOIL	Sample Reference	KGS/0322/S-70
Sample Mark	Islampuram	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	8.15
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff : 2016)	345
03.	Texture	%	Gravimetric Method	Clay Loam
04.	Sand	%		34
05.	Silt	%		37
06.	Clay	%		29
07.	Water Holding Capacity	%	By Gravimetric Method	40.5
08.	Bulk Density	g/cm ³	By Cylindrical Method	1.08
09.	Porosity	%	By Gravimetric Method	27.5
10.	Exchangeable Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	125
11.	Exchangeable Magnesium as Mg	mg/kg		22.8
12.	Exchangeable Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	32.2
13.	Exchangeable Zinc as Zn	mg/kg		0.76
14	Available Boron as B	mg/kg		0.62

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/S- 70			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S2	
Sample Description	SOIL	Sample Reference	KGS/0322/S-70
Sample Mark	Islampuram	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result	
15.	Soluble Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	118	
16.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	126	
17.	Available Potassium as K	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	41.2	
18.	Available Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	1.12	
19.	Available Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	185	
20.	Cadmium as Cd	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL:0.003)	
21.	Chromium as Cr	mg/kg		BDL (DL:0.05)	
22.	Copper as Cu	mg/kg		BDL (DL:0.05)	
23.	Lead as Pb	mg/kg		1.15	
24.	Total Iron as Fe	mg/kg		1.74	
25.	Organic Matter	%		IS : 2720 Part 22: 1972 (Reaff: 2015)	2.01
26.	Organic Carbon	%			1.16
27.	Cation Exchange Capacity	meq/100g of soil	USEPA 9080 – 1986	39.6	

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR\S- 71			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S3	
Sample Description	SOIL	Sample Reference	KGS/0322/S-71
Sample Mark	Thorapalli Agraharam	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	8.03
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff: 2016)	410
03.	Texture	%	Gravimetric Method	Clay Loam
04.	Sand	%		30.0
05.	Silt	%		35.0
06.	Clay	%		35.0
07.	Water Holding Capacity	%	By Gravimetric Method	41.6
08.	Bulk Density	g/cm ³	By Cylindrical Method	1.05
09.	Porosity	%	By Gravimetric Method	27
10.	Exchangeable Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	142
11.	Exchangeable Magnesium as Mg	mg/kg		30.2
12.	Exchangeable Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	31.6
13.	Exchangeable Zinc as Zn	mg/kg		1.08
14.	Available Boron as B	mg/kg		0.75

.....Continue Report.....




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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/S- 71			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S3	
Sample Description	SOIL	Sample Reference	KGS/0322/S-71
Sample Mark	Thorapalli Agraharam	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
15.	Soluble Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	132
16.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	112
17.	Available Potassium as K	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	38.5
18.	Available Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	0.87
19.	Available Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	136
20.	Cadmium as Cd	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL (DL:0.003)
21.	Chromium as Cr	mg/kg		BDL (DL:0.05)
22.	Copper as Cu	mg/kg		BDL (DL:0.05)
23.	Lead as Pb	mg/kg		0.92
24.	Total Iron as Fe	mg/kg		2.13
25.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.27
26.	Organic Carbon	%		0.73
27.	Cation Exchange Capacity	meq/100g of soil	USEPA 9080 – 1986	36.5

.....End of Report.....




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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR\S- 72			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipeot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S4	
Sample Description	SOIL	Sample Reference	KGS/0322/S-72
Sample Mark	Addakurukki	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	7.57
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff : 2016)	295
03.	Texture	%	Gravimetric Method	Clay Loam
04.	Sand	%		33.6
05.	Silt	%		34.1
06.	Clay	%		32.3
07.	Water Holding Capacity	%	By Gravimetric Method	44.8
08.	Bulk Density	g/cm ³	By Cylindrical Method	1.14
09.	Porosity	%	By Gravimetric Method	30.8
10.	Exchangeable Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	150
11.	Exchangeable Magnesium as Mg	mg/kg		32.6
12.	Exchangeable Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	34.4
13.	Exchangeable Zinc as Zn	mg/kg		0.58
14	Available Boron as B	mg/kg		0.92

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR\S- 72			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S4	
Sample Description	SOIL	Sample Reference	KGS/0322/S-72
Sample Mark	Addakurukki	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
15.	Soluble Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	154
16.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	135
17.	Available Potassium as K	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	41.8
18.	Available Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	1.45
19.	Available Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	172.5
20.	Cadmium as Cd	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	BDL (DL:0.003)
21.	Chromium as Cr	mg/kg		BDL (DL:0.05)
22.	Copper as Cu	mg/kg		BDL (DL:0.05)
23.	Lead as Pb	mg/kg		0.74
24.	Total Iron as Fe	mg/kg		2.02
25.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.65
26.	Organic Carbon	%		0.95
27.	Cation Exchange Capacity	meq/100g of soil	USEPA 9080 - 1986	44.2

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No.: KGS/0322/TR\S- 73			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S5	
Sample Description	SOIL	Sample Reference	KGS/0322/S-73
Sample Mark	Bukkasagaram	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	7.98
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff : 2016)	375
03.	Texture	%	Gravimetric Method	Clay Loam
04.	Sand	%		35.0
05.	Silt	%		33.8
06.	Clay	%		31.2
07.	Water Holding Capacity	%	By Gravimetric Method	42.4
08.	Bulk Density	g/cm ³	By Cylindrical Method	1.09
09.	Porosity	%	By Gravimetric Method	29.6
10.	Exchangeable Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	150
11.	Exchangeable Magnesium as Mg	mg/kg		32.4
12.	Exchangeable Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	28.0
13.	Exchangeable Zinc as Zn	mg/kg		1.32
14.	Available Boron as B	mg/kg		1.16

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/S- 73			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipeot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S5	
Sample Description	SOIL	Sample Reference	KGS/0322/S-73
Sample Mark	Bukkasagaram	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
15.	Soluble Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	160
16.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	144
17.	Available Potassium as K	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	40.9
18.	Available Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	1.16
19.	Available Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	180
20.	Cadmium as Cd	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	BDL (DL:0.003)
21.	Chromium as Cr	mg/kg		BDL (DL:0.05)
22.	Copper as Cu	mg/kg		BDL (DL:0.05)
23.	Lead as Pb	mg/kg		1.11
24.	Total Iron as Fe	mg/kg		1.35
25.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.69
26.	Organic Carbon	%		0.98
27.	Cation Exchange Capacity	meq/100g of soil	USEPA 9080 - 1986	34.6

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/S- 74			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipeot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S6	
Sample Description	SOIL	Sample Reference	KGS/0322/S-74
Sample Mark	Athalavadi	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
01.	pH @ 25°C	-	IS 2720 Part 26 - 1987 (Reaff:2016)	7.85
02.	Conductivity @ 25°C	µmhos/cm	IS 14767 - 2000 (Reaff: 2016)	382
03.	Texture	%	Gravimetric Method	Clay Loam
04.	Sand	%		33.0
05.	Silt	%		35.0
06.	Clay	%		32
07.	Water Holding Capacity	%	By Gravimetric Method	35.6
08.	Bulk Density	g/cm ³	By Cylindrical Method	1.19
09.	Porosity	%	By Gravimetric Method	25
10.	Exchangeable Calcium as Ca	mg/kg	Food and Agriculture organization of the united Nation Rome 2007 : 2018	117
11.	Exchangeable Magnesium as Mg	mg/kg		18.3
12.	Exchangeable Manganese as Mn	mg/kg	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	28.7
13.	Exchangeable Zinc as Zn	mg/kg		0.60
14	Available Boron as B	mg/kg		0.82

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR\S- 74			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Code :		S6	
Sample Description	SOIL	Sample Reference	KGS/0322/S-74
Sample Mark	Athalavadi	Sample Drawn by	Chemist
Sample Quantity	2.0 Kg	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S. No	Parameters	Units	Test Methods	Result
15.	Soluble Chloride as Cl	mg/kg	APHA 23 rd Edn 2019 4500 Cl B	132
16.	Soluble Sulphate as SO ₄	%	IS 2720 Part 27 : 1977 (Reaff:2015)	96
17.	Available Potassium as K	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	39.8
18.	Available Phosphorus as P	mg/kg	IS 10158 : 1982 (Reaff: 2019)	1.14
19.	Available Nitrogen as N	mg/kg	IS 14684 : 1999 (Reaff:2019)	110
20.	Cadmium as Cd	mg/kg	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	BDL(DL:0.003)
21.	Chromium as Cr	mg/kg		BDL (DL:0.05)
22.	Copper as Cu	mg/kg		BDL (DL:0.05)
23.	Lead as Pb	mg/kg		0.64
24.	Total Iron as Fe	mg/kg		1.15
25.	Organic Matter	%	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.72
26.	Organic Carbon	%		0.98
27.	Cation Exchange Capacity	meq/100g of soil	USEPA 9080 – 1986	29.8

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No.: KGS/0322/TR/W-75			
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd, No.292, Sipeot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	Pit Water	Sample Reference	KGS/0322/W-75
Sample Mark	Project Area	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4 :1983	5
2	Odour	-	IS 3025 Part 5 :1983	Agreeable
3	pH@ 25°C	-	IS 3025 Part 11 :1983	7.25
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14 :1984	695
5	Turbidity	NTU	IS 3025 Part 10 :1984	4.5
6	Total Dissolved Solids	mg/l	IS 3025 Part 17 :1984	446
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21 :2009	135.0
8	Calcium as Ca	mg/l	IS 3025 Part 40 :1991	35.0
9	Magnesium as Mg	mg/l	IS 3025 Part 46 :1994	11.5
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23 :1984	148
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32 :1988	86.2
12	Sulphate as SO ₄ ²⁻	mg/l	IS 3025 Part 24 :1986	28.4
13	Iron as Fe	mg/l	IS 3025 Part 53 :2003	0.12
14	Free Residual Chlorine	mg/l	IS 3025 Part 26 :1986	BDL(DL: 2.0)
15	Fluoride as F	mg/l	IS 3025 Part 60 :2008	0.18
16	Nitrates as NO ₃	mg/l	IS 3025 Part 34 :1988	8.4

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No.: KGS/0322/TR/W-75			
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	Pit Water	Sample Reference	KGS/0322/W-75
Sample Mark	Project Area	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
17	Copper as Cu	mg/l	IS 3025 Part 65:2014	BDL (DL:0.01)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014	BDL (DL:0.02)
19	Mercury as Hg	mg/l	USEPA 200.8	BDL (DL:0.0005)
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014	BDL (DL:0.001)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014	BDL (DL:0.005)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014	BDL (DL:0.005)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014	BDL (DL:0.005)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014	BDL (DL : 0.05)
25	Total Chromium	mg/l	IS 3025 Part 65:2014	BDL (DL : 0.02)
26	Boron as B	mg/l	IS 3025 Part 65:2014	BDL (DL : 0.05)
27	Mineral Oil	mg/l	IS 3025 Part 39-1991	BDL (DL : 0.01)
28	Phenolic Compunds as C ₆ H ₅ OH	mg/l	IS 3025 Part 43-1992	BDL (DL:0.0005)
29	Anionic Detergents as MBAS	mg/l	IS 13428 - 2005	BDL (DL:0.01)
30	Cynaide as CN	mg/l	IS 3025 Part 27-1986	BDL (DL:0.01)
31	Biological Oxygen Demand,	mg/l	IS 3025 Part 44:1993	8.9
32	Chemical Oxygen Demand	mg/l	IS 3025 Part 58:2006	28

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KGS ENVIRO LABORATORY PVT LTD

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TEST REPORT

Test Report No.: KGS/0322/TR/W-75

Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	Pit Water	Sample Reference	KGS/0322/W-75
Sample Mark	Project Area	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
33	Dissolved Oxygen	mg/l	IS 3025 Part 38:1989	6.0
34	Total Coliform	Per 100ml	IS 1622 : 1981	present
35	E-Coli	Per 100ml	IS 1622 : 1981	present
36	Barium as Ba	mg/l	IS 3025 Part 65:2014	BDL (DL:0.5)
37	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 34-1988	1.7
38	Sulphide as H ₂ S	mg/l	IS 3025 Part 29-1986	BDL (DL:0.05)
39	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014	BDL (DL:0.5)
40	Total Arsenic as As	mg/l	IS 3025 Part 65:2014	BDL (DL:0.01)
41	Total Suspended Solids	mg/l	IS 3025 Part 17 -1984	10.5

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-76			
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District. Extent: 2.20.0 Ha	
Sample Description	SW-1	Sample Reference	KGS/0322/W-76
Sample Mark	Thorapalli Agraharam	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4 :1983	10
2	Odour	-	IS 3025 Part 5 :1983	Agreeable
3	pH@ 25°C	-	IS 3025 Part 11 :1983	7.52
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14 :1984	785
5	Turbidity	NTU	IS 3025 Part 10 :1984	7.5
6	Total Dissolved Solids	mg /l	IS 3025 Part 17 :1984	504
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21: 2009	173.0
8	Calcium as Ca	mg/l	IS 3025 Part 40 :1991	42.6
9	Magnesium as Mg	mg/l	IS 3025 Part 46 :1994	16.1
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23 :1984	180
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32 :1988	104.8
12	Sulphate as SO ₄ ²⁻	mg/l	IS 3025 Part 24:1986	19.3
13	Iron as Fe	mg/l	IS 3025 Part 53 :2003	0.15
14	Free Residual Chlorine	mg/l	IS 3025 Part 26: 1986	BDL(DL: 2.0)
15	Fluoride as F ⁻	mg/l	IS 3025 Part 60 : 2008	0.22
16	Nitrates as NO ₃ ⁻	mg/l	IS 3025 Part 34: 1988	9.2

.....Continue Report.....



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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-76			
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	SW-1	Sample Reference	KGS/0322/W-76
Sample Mark	Thorapalli Agraharam	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
17	Copper as Cu	mg/l	IS 3025 Part 65:2014	BDL (DL:0.01)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014	BDL (DL:0.02)
19	Mercury as Hg	mg/l	USEPA 200.8	BDL (DL:0.0005)
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014	BDL (DL:0.001)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014	BDL (DL:0.005)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014	BDL (DL:0.005)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014	BDL (DL:0.005)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014	BDL(DL : 0.05)
25	Total Chromium	mg/l	IS 3025 Part 65:2014	BDL(DL : 0.02)
26	Boron as B	mg/l	IS 3025 Part 65:2014	BDL(DL : 0.05)
27	Mineral Oil	mg/l	IS 3025 Part 39-1991	BDL(DL : 0.01)
28	Phenolic Compunds as C ₆ H ₅ OH	mg/l	IS 3025 Part 43-1992	BDL (DL:0.0005)
29	Anionic Detergents as MBAS	mg/l	IS 13428 - 2005	BDL (DL:0.01)
30	Cynaide as CN	mg/l	IS 3025 Part 27-1986	BDL (DL:0.01)
31	Biological Oxygen Demand.	mg/l	IS 3025 Part 44:1993	10.9
32	Chemical Oxygen Demand	mg/l	IS 3025 Part 58:2006	34

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-76			
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipecot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	SW-1	Sample Reference	KGS/0322/W-76
Sample Mark	Thorapalli Agraharam	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
33	Dissolved Oxygen	mg/l	IS 3025 Part 38:1989	5.4
34	Total Coliform	Per 100ml	IS 1622 : 1981	Present
35	E-Coli	Per 100ml	IS 1622 : 1981	Present
36	Barium as Ba	mg/l	IS 3025 Part 65:2014	BDL (DL:0.5)
37	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 34-1988	2.3
38	Sulphide as H ₂ S	mg/l	IS 3025 Part 29-1986	BDL (DL:0.05)
39	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014	BDL (DL:0.5)
40	Total Arsenic as As	mg/l	IS 3025 Part 65:2014	BDL (DL:0.01)
41	Total Suspended Solids	mg/l	IS 3025 Part 17 -1984	15.6

.....End of Report.....




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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-77			
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	SW-2	Sample Reference	KGS/0322/W-77
Sample Mark	Thotapalli	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4 :1983	5
2	Odour	-	IS 3025 Part 5 :1983	Agreeable
3	pH@ 25°C	-	IS 3025 Part 11 :1983	7.34
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14 :1984	756
5	Turbidity	NTU	IS 3025 Part 10 :1984	3.3
6	Total Dissolved Solids	mg/l	IS 3025 Part 17 :1984	488
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21: 2009	160.9
8	Calcium as Ca	mg/l	IS 3025 Part 40 :1991	40.8
9	Magnesium as Mg	mg/l	IS 3025 Part 46 :1994	14.3
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23 :1984	175
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32 :1988	92.5
12	Sulphate as SO ₄ ⁻	mg/l	IS 3025 Part 24:1986	26.6
13	Iron as Fe	mg/l	IS 3025 Part 53 :2003	0.12
14	Free Residual Chlorine	mg/l	IS 3025 Part 26: 1986	BDL(DL: 2.0)
15	Fluoride as F ⁻	mg/l	IS 3025 Part 60 : 2008	0.18
16	Nitrates as NO ₃	mg/l	IS 3025 Part 34: 1988	7.5

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NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-77

Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	SW-2	Sample Reference	KGS/0322/W-77
Sample Mark	Thotapalli	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
17	Copper as Cu	mg/l	IS 3025 Part 65:2014	BDL (DL:0.01)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014	BDL (DL:0.02)
19	Mercury as Hg	mg/l	USEPA 200.8	BDL (DL:0.0005)
20	Cadmium as Cd	mg/l	IS 3025 Part 65:2014	BDL (DL:0.001)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014	BDL (DL:0.005)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014	BDL (DL:0.005)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014	BDL (DL:0.005)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014	BDL(DL : 0.05)
25	Total Chromium	mg/l	IS 3025 Part 65:2014	BDL(DL : 0.02)
26	Boron as B	mg/l	IS 3025 Part 65:2014	BDL(DL : 0.05)
27	Mineral Oil	mg/l	IS 3025 Part 39-1991	BDL(DL : 0.01)
28	Phenolic Compunds as C ₆ H ₅ OH	mg/l	IS 3025 Part 43-1992	BDL (DL:0.0005)
29	Anionic Detergents as MBAS	mg/l	IS 13428 - 2005	BDL (DL:0.01)
30	Cynaide as CN	mg/l	IS 3025 Part 27-1986	BDL (DL:0.01)
31	Biological Oxygen Demand,	mg/l	IS 3025 Part 44:1993	7.6
32	Chemical Oxygen Demand	mg/l	IS 3025 Part 58:2006	26

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-77			
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	SW-2	Sample Reference	KGS/0322/W-77
Sample Mark	Thotapalli	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
33	Dissolved Oxygen	mg/l	IS 3025 Part 38:1989	6.2
34	Total Coliform	Per 100ml	IS 1622 : 1981	Present
35	E-Coli	Per 100ml	IS 1622 : 1981	Present
36	Barium as Ba	mg/l	IS 3025 Part 65:2014	BDL (DL:0.5)
37	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 34-1988	1.9
38	Sulphide as H ₂ S	mg/l	IS 3025 Part 29-1986	BDL (DL:0.05)
39	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014	BDL (DL:0.5)
40	Total Arsenic as As	mg/l	IS 3025 Part 65:2014	BDL (DL:0.01)
41	Total Suspended Solids	mg/l	IS 3025 Part 17 -1984	11.8

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-79

Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	(WW-1)	Sample Reference	KGS/0322/W-79
Sample Mark	Kadirapalli	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4:1983 (Reaff:2017)	< 5
2	Odour	-	IS 3025 Part 5:2018	Agreeable
3	pH@ 25°C	-	IS 3025 Part 11:1983 (Reaff:2017)	7.35
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14:2013 (Reaff:2019)	805
5	Turbidity	NTU	IS 3025 Part 10:1984 (Reaff:2017)	< 1
6	Total Dissolved Solids	mg/l	IS 3025 Part 16:1984 (Reaff:2017)	513
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21:2009 (Reaff:2019)	161
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991 (Reaff:2019)	35.6
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994 (Reaff:2019)	17.6
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23:1986 (Reaff:2019)	158
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32:1988 (Reaff:2019)	78.6
12	Sulphate as SO ₄ ²⁻	mg/l	IS 3025 Part 24:1986 (Reaff:2019)	31.6
13	Iron as Fe	mg/l	IS 3025 Part 53:2003 (Reaff:2019)	0.10
14	Free Residual Chlorine	mg/l	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL: 2.0)
15	Fluoride as F	mg/l	APHA 23 rd Edn. 2017 4500 F.D	0.3
16	Nitrates as NO ₃	mg/l	IS 3025 Part 34:1988 (Reaff:2019)	11.5
17	Copper as Cu	mg/l	IS 3025 Part 4:1983 (Reaff:2017)	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
19	Mercury as Hg	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	(BDL (DL: 0.0005)

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-79			
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	(WW-1)	Sample Reference	KGS/0322/W-79
Sample Mark	Kadirapalli	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
20	Cadmium as Cd	mg/l	USEPA 200.8	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.05)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.03)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.05)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:1.0)
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 Part 39-1991 (Reaff. 2019)	Absent
29	Anionic Detergents as MBAS	mg/l	IS 3025 Part 43-1992(Reaff. 2019)	BDL (DL:0.1)
30	Cynaide as CN	mg/l	IS 13428 – 2005 (Reaff.2019) (Annex K)	Absent
31	Total Coliform	Per 100ml	IS 1622 : 1981	<2
32	E-Coli	Per 100ml	IS 1622 : 1981	<2
33	Barium as Ba	mg/l	IS 3025 Part 44:1993 (Reaff 2019)	BDL (DL:0.5)
34	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.1)
35	Sulphide as H ₂ S	mg/l	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.05)
36	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff 2019)	BDL (DL:0.5)
37	Total Arsenic as As	mg/l	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.01)
38	Total Suspended Solids	mg/l	IS 3025 Part 29-1986 (Reaff: 2019)	BDL(DL:2)

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-78

Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	BW-1	Sample Reference	KGS/0322/W-78
Sample Mark	Islamapuram	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4:1983 (Reaff:2017)	< 5
2	Odour	-	IS 3025 Part 5:2018	Agreeable
3	pH@ 25°C	-	IS 3025 Part 11:1983 (Reaff:2017)	6.91
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14:2013 (Reaff:2019)	695
5	Turbidity	NTU	IS 3025 Part 10:1984 (Reaff:2017)	< 1
6	Total Dissolved Solids	mg/l	IS 3025 Part 16:1984 (Reaff:2017)	445
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21:2009 (Reaff:2019)	132
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991 (Reaff:2019)	28.2
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994 (Reaff:2019)	15.0
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23:1986 (Reaff:2019)	140
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32:1988 (Reaff:2019)	59.2
12	Sulphate as SO ₄ ²⁻	mg/l	IS 3025 Part 24:1986 (Reaff:2019)	30.5
13	Iron as Fe	mg/l	IS 3025 Part 53:2003 (Reaff:2019)	0.2
14	Free Residual Chlorine	mg/l	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL: 2.0)
15	Fluoride as F ⁻	mg/l	APHA 23 ^d Edn. 2017 4500 F.D	0.4
16	Nitrates as NO ₃	mg/l	IS 3025 Part 34:1988 (Reaff:2019)	8.6
17	Copper as Cu	mg/l	IS 3025 Part 4:1983 (Reaff:2017)	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
19	Mercury as Hg	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	(BDL (DL: 0.0005)

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-78

Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipecot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	BW-1	Sample Reference	KGS/0322/W-78
Sample Mark	Islamapuram	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
20	Cadmium as Cd	mg/l	USEPA 200.8	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.05)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.03)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.05)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:1.0)
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 Part 39-1991 (Reaff. 2019)	Absent
29	Anionic Detergents as MBAS	mg/l	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.1)
30	Cynaide as CN	mg/l	IS 13428 – 2005 (Reaff.2019) (Annex K)	Absent
31	Total Coliform	Per 100ml	IS 1622 : 1981	< 2
32	E-Coli	Per 100ml	IS 1622 : 1981	< 2
33	Barium as Ba	mg/l	IS 3025 Part 44:1993 (Reaff:2019)	BDL (DL:0.5)
34	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.1)
35	Sulphide as H ₂ S	mg/l	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.05)
36	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
37	Total Arsenic as As	mg/l	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.01)
38	Total Suspended Solids	mg/l	IS 3025 Part 29-1986 (Reaff: 2019)	BDL(DL:2)

.....End of Report.....



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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-80			
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	(WW-2)	Sample Reference	KGS/0322/W-80
Sample Mark	Gobasandiram	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4:1983 (Reaff:2017)	< 5
2	Odour	-	IS 3025 Part 5:2018	Agreeable
3	pH@ 25°C	-	IS 3025 Part 11:1983 (Reaff:2017)	7.69
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14:2013 (Reaff:2019)	615
5	Turbidity	NTU	IS 3025 Part 10:1984 (Reaff:2017)	< 1.0
6	Total Dissolved Solids	mg/l	IS 3025 Part 16:1984 (Reaff:2017)	387
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21:2009 (Reaff:2019)	138
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991 (Reaff:2019)	39.5
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994 (Reaff:2019)	9.6
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23:1986 (Reaff:2019)	146
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32:1988 (Reaff:2019)	70.2
12	Sulphate as SO ₄ ⁻	mg/l	IS 3025 Part 24:1986 (Reaff:2019)	26.1
13	Iron as Fe	mg/l	IS 3025 Part 53:2003 (Reaff:2019)	0.24
14	Free Residual Chlorine	mg/l	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL: 2.0)
15	Fluoride as F	mg/l	APHA 23 rd Edn. 2017:4500 F.D	0.21
16	Nitrates as NO ₃	mg/l	IS 3025 Part 34:1988 (Reaff:2019)	13.2
17	Copper as Cu	mg/l	IS 3025 Part 4:1983 (Reaff:2017)	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
19	Mercury as Hg	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	(BDL (DL: 0.0005)

.....Continue Report.....



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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-80			
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	(WW-2)	Sample Reference	KGS/0322/W-80
Sample Mark	Gobasandiram	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
20	Cadmium as Cd	mg/l	USEPA 200.8	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.05)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.03)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.05)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:1.0)
28	Phenolic Compunds as C ₆ H ₅ OH	mg/l	IS 3025 Part 39-1991 (Reaff. 2019)	Absent
29	Anionic Detergents as MBAS	mg/l	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.1)
30	Cynaide as CN	mg/l	IS 13428 – 2005 (Reaff:2019) (Annex K)	Absent
31	Total Coliform	Per 100ml	IS 1622 : 1981	< 2
32	E-Coli	Per 100ml	IS 1622 : 1981	< 2
33	Barium as Ba	mg/l	IS 3025 Part 44:1993 (Reaff:2019)	BDL (DL:0.5)
34	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.1)
35	Sulphide as H ₂ S	mg/l	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.05)
36	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
37	Total Arsenic as As	mg/l	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.01)
38	Total Suspended Solids	mg/l	IS 3025 Part 29-1986 (Reaff: 2019)	BDL(DL:2)

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-81			
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District. Extent: 2.20.0 Ha	
Sample Description	BW-2	Sample Reference	KGS/0322/W-81
Sample Mark	Addakurukki	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
1	Color	Hazen	IS 3025 Part 4:1983 (Reaff:2017)	< 5
2	Odour	-	IS 3025 Part 5:2018	Agreeable
3	pH@ 25°C	-	IS 3025 Part 11:1983 (Reaff:2017)	7.85
4	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14:2013 (Reaff:2019)	745
5	Turbidity	NTU	IS 3025 Part 10:1984 (Reaff:2017)	< 1
6	Total Dissolved Solids	mg/l	IS 3025 Part 16:1984 (Reaff:2017)	476
7	Total Hardness as CaCO ₃	mg/l	IS 3025 Part 21:2009 (Reaff:2019)	157
8	Calcium as Ca	mg/l	IS 3025 Part 40:1991 (Reaff:2019)	36.8
9	Magnesium as Mg	mg/l	IS 3025 Part 46:1994 (Reaff:2019)	15.8
10	Total Alkalinity as CaCO ₃	mg/l	IS 3025 Part 23:1986 (Reaff:2019)	151
11	Chloride as Cl ⁻	mg/l	IS 3025 Part 32:1988 (Reaff:2019)	89.5
12	Sulphate as SO ₄ ⁻	mg/l	IS 3025 Part 24:1986 (Reaff:2019)	39.8
13	Iron as Fe	mg/l	IS 3025 Part 53:2003 (Reaff:2019)	0.17
14	Free Residual Chlorine	mg/l	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL: 2.0)
15	Fluoride as F	mg/l	APHA 23 rd Edn. 2017:4500 F.D	0.12
16	Nitrates as NO ₃	mg/l	IS 3025 Part 34:1988 (Reaff:2019)	10.4
17	Copper as Cu	mg/l	IS 3025 Part 4:1983 (Reaff:2017)	BDL (DL:0.2)
18	Manganese as Mn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.05)
19	Mercury as Hg	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	(BDL (DL: 0.0005))

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No.: KGS/0322/TR/W-81			
Client Name & Address:		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipecot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location:		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Sample Description	BW-2	Sample Reference	KGS/0322/W-81
Sample Mark	Addakurukki	Sample Drawn by	Chemist
Sample Quantity	2.0ltr	Sample Collected on	03.03.2022
Sample Received on	04.03.2022	Test Commenced on	04.03.2022
Test Completed on	08.03.2022	Test Reported on	09.03.2022

S.No.	Parameters	Units	Test Methods	Result
20	Cadmium as Cd	mg/l	USEPA 200.8	BDL (DL:0.01)
21	Selenium as Se	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.05)
22	Aluminium as Al	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.03)
23	Lead as Pb	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01)
24	Zinc as Zn	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02)
25	Total Chromium	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL: 0.05)
26	Boron as B	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.1)
27	Mineral Oil	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:1.0)
28	Phenolic Compounds as C ₆ H ₅ OH	mg/l	IS 3025 Part 39-1991 (Reaff. 2019)	Absent
29	Anionic Detergents as MBAS	mg/l	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.1)
30	Cynaide as CN	mg/l	IS 13428 – 2005 (Reaff:2019) (Annex K)	Absent
31	Total Coliform	Per 100ml	IS 1622 : 1981	< 2
32	E-Coli	Per 100ml	IS 1622 : 1981	< 2
33	Barium as Ba	mg/l	IS 3025 Part 44:1993 (Reaff:2019)	BDL (DL:0.5)
34	Ammonia (as Total Ammonia-N)	mg/l	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.1)
35	Sulphide as H ₂ S	mg/l	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.05)
36	Molybdenum as Mo	mg/l	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.5)
37	Total Arsenic as As	mg/l	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.01)
38	Total Suspended Solids	mg/l	IS 3025 Part 29-1986 (Reaff. 2019)	BDL(DL:2)

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-117			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-117
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ1- Project Area

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO mg/m ³	Pb, µg/m ³	As, µg/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	23.5	45.3	8.5	23.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	22.6	43.5	7.3	22.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
07.03.2022	21.3	44.7	7.9	21.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	21.8	42.6	9.0	21.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
14.03.2022	22.9	43.8	8.4	22.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	21.2	44.9	8.3	21.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
21.03.2022	22.1	42.6	7.4	22.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	23.0	44.0	7.6	23.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
28.04.2022	21.7	42.5	8.4	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	22.6	43.6	8.9	22.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.04.2022	21.7	43.8	7.4	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	22.5	45.0	7.1	22.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.04.2022	21.7	44.2	8.4	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	22.6	44.8	8.7	22.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-117

Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-117
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ1- Project Area

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
18.04.2022	21.0	43.6	7.6	21.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
19.04.2022	22.6	43.6	7.7	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.04.2022	21.8	44.8	8.1	19.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	22.3	43.6	7.8	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.05.2022	21.0	42.9	8.6	20.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	22.8	44.9	8.4	21.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.05.2022	21.6	42.0	7.5	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	21.4	44.6	7.9	19.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.05.2022	22.9	43.9	8.1	18.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	23.0	43.2	8.6	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.05.2022	21.3	44.1	7.8	21.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	21.6	42.7	9.0	19.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.05.2022	22.2	44.6	8.6	20.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
31.05.2022	21.7	43.6	7.6	21.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009.

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-118

Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipecot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-118
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ2-Islampuram

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO, mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	21.2	42.6	7.6	19.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	22.6	43.8	7.1	20.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
07.03.2022	21.7	43.7	8.6	18.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	21.8	44.0	8.9	21.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
14.03.2022	22.1	44.8	7.0	20.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	23.0	42.3	7.5	19.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
21.03.2022	21.6	43.6	8.4	20.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	21.8	44.8	8.1	21.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
28.04.2022	22.7	42.3	8.6	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	21.3	44.6	7.7	21.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.04.2022	21.7	45.0	7.3	20.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	22.3	44.1	8.6	19.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.04.2022	22.8	44.5	9.0	19.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	21.5	43.8	8.1	18.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-118			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-118
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ2-Islampuram

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO, mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
18.04.2022	22.9	43.8	8.6	19.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
19.04.2022	21.6	42.6	7.3	21.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.04.2022	22.0	43.9	7.4	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	22.6	42.1	8.6	21.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.05.2022	21.0	42.6	7.9	19.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	22.6	44.2	8.2	18.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.05.2022	22.9	42.9	8.8	20.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	21.1	44.7	7.6	21.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.05.2022	22.5	43.8	7.1	18.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	21.8	44.1	7.9	19.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.05.2022	22.4	43.8	7.5	19.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	21.9	42.9	8.1	20.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.05.2022	22.4	43.7	8.8	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
31.05.2022	22.1	44.9	8.3	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009.

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-119			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 4
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-119
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ3-Thorapalli Agraharam

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO, mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	21.6	43.6	7.5	19.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	22.8	42.8	7.1	20.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
07.03.2022	21.9	44.6	8.6	21.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	22.7	45.0	8.8	22.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
14.03.2022	21.3	42.6	8.1	21.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	23.0	44.6	8.7	19.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
21.03.2022	22.9	43.7	7.6	18.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	21.7	43.1	7.9	20.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
28.04.2022	22.3	42.7	8.0	20.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	22.8	44.1	7.6	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.04.2022	21.5	43.7	7.4	21.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	21.9	44.8	7.1	19.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.04.2022	21.0	43.9	7.6	18.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	21.9	44.7	8.3	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-119			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5 & Part 14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-119
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ3-Thorapalli Agraharam

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
18.04.2022	21.2	42.9	8.7	19.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
19.04.2022	22.6	43.7	9.0	20.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.04.2022	22.1	42.6	7.4	21.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	21.4	42.1	7.3	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.05.2022	21.9	44.8	8.4	21.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	21.0	45.0	8.1	20.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.05.2022	22.3	42.8	7.7	19.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	22.9	43.6	7.4	18.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.05.2022	21.5	44.5	8.6	20.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	21.1	42.7	8.1	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.05.2022	23.0	43.6	8.4	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	22.6	44.8	8.6	19.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.05.2022	22.1	43.7	9.0	21.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
31.05.2022	21.8	42.5	7.6	20.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009.

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-120

Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-120
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ4-Thotapalli

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	21.7	43.7	7.6	19.2	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	22.6	42.1	7.1	20.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
07.03.2022	21.1	44.9	8.6	18.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	21.9	43.8	8.1	20.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
14.03.2022	22.6	42.6	7.3	21.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	22.4	43.1	7.9	21.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
21.03.2022	23.0	44.8	8.7	20.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	22.4	45.0	8.1	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
28.04.2022	21.9	44.6	9.0	19.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	22.5	43.8	7.3	19.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.04.2022	21.7	44.8	7.7	18.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	21.5	43.2	8.6	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.04.2022	21.3	42.6	8.1	20.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	22.0	42.1	8.9	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-120			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P),Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District,Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-120
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ4 -Thotapalli

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
18.04.2022	22.9	44.8	7.6	18.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
19.04.2022	22.6	45.0	7.1	19.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.04.2022	21.4	43.7	8.9	19.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	21.8	44.6	7.2	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.05.2022	21.1	42.7	7.7	21.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	22.0	43.6	8.6	20.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.05.2022	22.9	44.8	8.3	19.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	23.0	44.1	7.6	21.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.05.2022	22.6	42.6	7.1	21.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	21.3	43.7	8.8	20.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.05.2022	22.1	44.1	7.6	19.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	22.8	43.6	7.1	21.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.05.2022	22.4	42.7	8.0	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
31.05.2022	21.8	42.2	8.6	19.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009.

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-121

Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipeot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-121
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ5-Kadirapalli

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO, mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	22.7	43.7	7.6	19.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	21.6	44.8	7.1	20.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
07.03.2022	23.0	45.0	8.9	21.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	22.6	42.6	8.4	21.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
14.03.2022	21.8	42.7	8.5	19.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	21.1	44.6	9.0	18.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
21.03.2022	22.0	42.8	7.2	20.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	21.4	42.1	7.6	21.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
28.04.2022	22.3	43.6	8.1	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	22.1	44.0	8.7	21.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.04.2022	21.8	44.8	7.1	20.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	21.4	45.0	7.6	19.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.04.2022	22.3	44.1	8.4	18.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	23.0	43.6	8.3	19.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-121

Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-121
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ5-Kadirapalli

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms^a	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
18.04.2022	22.3	43.8	7.9	20.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
19.04.2022	21.7	42.6	7.2	21.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.04.2022	21.2	42.1	9.0	22.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	22.6	42.8	8.2	21.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.05.2022	22.3	43.6	7.6	18.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	21.4	43.1	7.2	19.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.05.2022	21.9	44.9	8.3	20.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	22.8	44.3	8.0	21.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.05.2022	21.4	43.9	8.3	21.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	22.0	42.8	7.9	19.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.05.2022	21.7	43.7	7.5	18.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	23.0	44.5	8.3	20.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.05.2022	21.8	42.6	8.9	19.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
31.05.2022	22.6	43.7	9.0	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

*NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009.

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-122

Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-122
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ6 -Gobasandiram

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	O ₃ µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	21.3	43.6	7.4	19.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	22.6	44.8	7.1	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
07.03.2022	22.7	45.0	8.6	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	23.0	42.8	8.8	18.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
14.03.2022	22.3	43.6	8.0	19.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	21.7	42.7	7.3	19.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
21.03.2022	21.0	44.8	7.1	21.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	22.6	43.6	8.6	21.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
28.04.2022	22.8	42.3	8.4	19.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	21.3	43.9	7.9	18.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.04.2022	21.7	42.0	7.7	19.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	22.1	42.6	9.0	20.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.04.2022	22.6	44.5	8.8	21.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	22.0	45.0	8.1	20.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-122			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipecot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-122
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ6 -Gobasandiram

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
18.04.2022	21.3	44.6	7.4	20.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
19.04.2022	21.8	44.1	7.1	19.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.04.2022	21.7	43.8	8.0	21.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	23.0	42.5	8.3	21.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.05.2022	22.6	42.9	7.4	19.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	22.1	43.6	7.5	18.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.05.2022	21.5	44.8	8.6	20.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	21.2	44.1	8.8	21.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.05.2022	21.9	43.6	9.0	21.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	22.6	42.1	7.1	19.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.05.2022	23.0	42.5	7.7	18.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	22.6	44.7	8.6	20.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.05.2022	21.8	45.0	8.1	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
31.05.2022	22.6	44.2	7.3	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009.

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-123

Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipecot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-123
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ7-Addakurukki

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO, mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	21.3	43.6	7.6	19.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	22.6	44.8	7.1	20.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
07.03.2022	21.8	42.5	8.2	18.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	23.0	43.6	8.8	20.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
14.03.2022	22.7	45.0	9.0	19.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	21.3	44.9	8.4	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
21.03.2022	21.9	44.1	7.6	21.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	21.7	43.6	7.1	21.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
28.04.2022	22.9	42.8	8.0	20.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	22.1	44.6	8.8	18.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.04.2022	21.4	45.0	7.4	19.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	21.8	43.6	7.7	19.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.04.2022	22.6	42.8	8.5	21.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	22.8	44.6	9.0	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

.....Continue Report.....



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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-123			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-123
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ7-Addakurukki

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
18.04.2022	21.7	43.7	8.6	19.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
19.04.2022	21.0	42.1	8.1	18.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.04.2022	22.6	44.0	7.4	21.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	21.7	43.8	7.2	20.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.05.2022	21.1	43.2	7.7	19.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	22.3	42.3	8.0	20.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.05.2022	22.6	43.6	8.3	18.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	23.0	44.7	7.6	20.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.05.2022	21.4	43.2	7.2	21.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	21.9	42.9	7.7	21.9	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.05.2022	22.5	43.5	8.4	20.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	21.4	44.9	9.0	19.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.05.2022	21.9	45.0	8.6	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
31.05.2022	22.3	43.8	7.4	20.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009.

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-124			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipeot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part 14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-124
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ8- Bukkasagaram

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO, mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
01.03.2022	21.8	43.7	7.6	19.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.03.2022	22.6	45.0	8.1	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
07.03.2022	22.1	44.8	8.8	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
08.03.2022	21.4	42.1	7.4	18.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
14.03.2022	23.0	42.7	7.0	20.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
15.03.2022	21.9	44.1	8.6	21.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
21.03.2022	22.3	43.7	8.9	19.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
22.03.2022	22.7	42.0	7.4	21.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
28.04.2022	21.0	44.8	7.8	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
29.04.2022	21.6	43.6	8.0	19.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
04.04.2022	22.8	42.7	8.5	19.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
05.04.2022	23.0	43.6	9.0	21.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
11.04.2022	21.3	44.9	7.6	22.0	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
12.04.2022	22.1	45.0	7.2	20.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

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KGS ENVIRO LABORATORY PVT LTD

NABL Accredited Testing Laboratory (ISO/IEC 17025:2017)



TEST REPORT

Test Report No:KGS/0522/TR/A-124			
Client Name & Address		M/s. A.V.S. Tech Building Solutions India Pvt Ltd., No.292, Sipcot Housing Board Colony, Mookandapalli, Hosur Taluk, Krishnagiri District - 635 126.	
Site Location		M/s. A.V.S. Tech Building Solutions Rough Stone Quarry Project S.F.No. 662 (P), Thorapalli Agraharam Village, Hosur Taluk, Krishnagiri District, Extent: 2.20.0 Ha	
Discipline	Chemical	General Sampling Procedure	IS 5182 Part 5&Part14
Group	Atmospheric Pollution	Sample Reference Id	KGS/0522/A-124
Sample Matrix	AAQ	Sample Collected By	Chemist
Sample Description	Ambient Air Quality	Sample Collected On	March 2022 - May 2022
Sample Mark	AAQ	Sampling Time	24 Hours
Sample Received Condition	Good/PVC Container	Sample Code / Location	AAQ8- Bulkkasagaram

Monitoring Date	Particulates		Gaseous Pollutants					Other Pollutants (Particulate Phase)				
	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ , µg/m ³	NO ₂ , µg/m ³	NH ₃ , µg/m ³	O ₃ , µg/m ³	CO mg/m ³	Pb, µg/m ³	As, ng/m ³	Ni, ng/m ³	C ₆ H ₆ , µg/m ³	BaP, ng/m ³
NAAQ Norms*	60 (24 hrs.)	100 (24 hrs.)	80 (24 hrs.)	80 (24 hrs.)	400 (24 hrs.)	100 (8 hrs.)	2.0 (8hrs.)	1.0 (24 hrs.)	6.0 (annual)	20 (annual)	5.0 (annual)	1.0 (annual)
18.04.2022	22.8	42.6	8.4	21.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
19.04.2022	21.6	43.7	8.9	19.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
25.04.2022	21.3	44.9	8.1	18.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
26.04.2022	22.8	44.1	7.6	21.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
02.05.2022	22.4	43.6	7.8	19.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
03.05.2022	22.1	42.7	8.0	21.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
09.05.2022	23.0	42.2	8.6	18.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
10.05.2022	21.6	43.6	8.1	20.4	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
16.05.2022	22.8	44.8	7.6	21.3	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
17.05.2022	21.4	45.0	7.2	19.8	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
23.05.2022	21.1	44.2	7.0	18.6	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
24.05.2022	22.5	42.6	8.2	20.5	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
30.05.2022	22.7	43.7	8.8	21.7	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0
31.05.2022	21.3	44.6	8.2	20.1	<5.0	<5.0	<1.0	<0.01	<5.0	<3.0	<1.0	<3.0

* NAAQS-National Ambient Air Quality Standards Issued by CPCB (Central Pollution Control Board) in 2009.

.....End of Report.....



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National Accreditation Board for Education and Training



Certificate of Accreditation

Geo Exploration & Mining Solutions, Salem

No. 17, Advaita Ashram Road, Fairlands, Salem – 636 004, Tamilnadu, India.

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S.No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals opencast only	1	1 (a) (i)	A
2	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	B
3	Building and construction projects	38	8(a)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Jan 06, 2023 and posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2684 dated Feb 20, 2023. The accreditation needs to be renewed before the expiry date by Geo Exploration & Mining Solutions, Salem following due process of assessment.

Sr. Director, NABET
Dated: Feb 20, 2023

Certificate No.
NABET/EIA/2225/RA 0276

Valid up to
August 06, 2025

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to the QCI-NABET website.





National Accreditation Board for
Testing and Calibration Laboratories

CERTIFICATE OF ACCREDITATION

KGS ENVIRO LABORATORY PRIVATE LIMITED

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

**"General Requirements for the Competence of Testing &
Calibration Laboratories"**

for its facilities at

NO 16, F1 , BHARATHI FLATS, BHARATHIYAR STREET, SENTHIL NAGAR, CHOLAMBEDU MAIN ROAD,
THIRUMULLAIVOIL, CHENNAI, THIRUVALLUR, TAMIL NADU, INDIA

in the field of

TESTING

Certificate Number: TC-8599

Issue Date: 31/07/2019

Valid Until: 30/07/2021*

*The validity is extended for one year up to 30.07.2022

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Identity : KGS ENVIRO LABORATORY PRIVATE LIMITED

Signed for and on behalf of NABL



N. Venkateswaran
Chief Executive Officer