

# DRAFT ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENT MANAGEMENT PLAN

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

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

**TOTAL EXTENT OF CLUSTER – 8.29.0HA**

**M/S. APPLE GRANITES MULTI COLOUR GRANITE QUARRY**

At

**Project Proponent**  
**M/s. Apple Granites,**  
No. 95/2, Perur Udaiyappatty,  
Gudalur Village, Kulithalai Taluk,  
Karur District.  
Tamil Nadu – 639 120

PROJECT LOCATION	PROPOSED PRODUCTION
299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P)  Extent: 2.97.0 ha  Kallai Village, Kulithalai Taluk, Karur District, Tamil Nadu State.	Reserves: 38,898m <sup>3</sup> of ROM (Granite Recovery @ 50% is 19,449m <sup>3</sup> )  Annual Peak Production Capacity - 7,794.3m <sup>3</sup> of ROM  Ultimate Depth = 23m BGL (2m Topsoil + 1m Weathered rock + 20m Multi Colour Granite)

Complied as per ToR Obtained Vide

**Lr No.SEIAA-TN/F.No.10261/SEAC/ToR-1562/2023 Dated:27.09.2023**

Environmental Consultant	Laboratory
 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/RA0276 Phone: 0427-2431989, Email: ifthiahmed@gmail.com, geothangam@gmail.com Web: <a href="http://www.gemssalem.com">www.gemssalem.com</a>	<b>Laboratory</b>  GLOBAL LAB AND CONSULTANCY SERVICES Approved by ISO:9001:2015, NABL, FSSAI, Experts in QHSE S.F No:92/3A2, Geetha Nagar, Alagapuram Pudur, Salem-636016.

**Baseline Monitoring Period: Oct 2023 to Dec 2023**

**JANUARY 2025**

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## **UNDERTAKING**

I M/s. Apple Granites given undertaking that this Draft EIA & EMP report prepared for our Multi Colour Granite Quarry situated in S.F.No 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) over an extent of 2.97.0Ha in Kallai Village, Kulithalai Taluk, Karur District, Tamil Nadu State based on the Transfer in ToR obtained vide issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide Lr No.SEIAA-TN/F.No.10261/SEAC/ToR-1562/2023 Dated:27.09.2023.

I hereby assured that the Data's submitted and information given by me is true and correct to the best of my knowledge.

Signature of the Project Proponent

M/s. Apple Granites



Managing Partner

Place : Karur

Dated : 17.01.2025

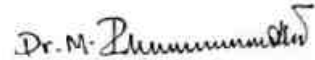
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## **DECLARATION**

I Dr. M. Ifthikhar Ahmed– EIA Co Ordinator declare that the Draft EIA & EMP report for the Multi Colour Granite quarry in S.F.No 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) over an extent of 2.97.0Ha in Kallai Village, Kulithalai Taluk, Karur District, Tamil Nadu State has been prepared by Geo Exploration and Mining Solutions, Salem, Tamil Nadu.

The Data's provided in the EIA report are true and correct to the best of my knowledge.

Signature of the EIA Co Ordinator



Dr. M. Ifthikhar Ahmed

**EIA Coordinator**

**M/s. Geo Exploration and Mining Solutions**

Place: Salem

Dated: 17.01.2025

- For easy representation of Proposed Applied Quarry and Nearby Proposed Quarries in the Cluster are given unique codes and identifies and studied in this Draft EIA/EMP Report.

<b>PROPOSED QUARRY</b>				
<b>CODE</b>	<b>Name of the Owner</b>	<b>S.F. Nos</b>	<b>Extent</b>	<b>Status</b>
<b>P-1</b>	<b>M/s. Apple Granites</b> S.F.No. 299/1, 2 Kallai Village, Kulithalai Taluk, Karur District	299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P)	<b>2.97.0Ha</b>	Obtained ToR vide Lr No.SEIAA- TN/F.No.10261/SEAC/ ToR-1562/2023 Dated:27.09.2023
		<b>Total</b>	<b>2.97.0Ha</b>	
<b>EXISTING QUARRIES</b>				
E-1	M/s. V.B.S. Exports	349/part 303/2A(P) 302/1(P)	2.80.5Ha	21.02.2018 to 20.02.2038 (Last permit obtained on 21.07.2022)
E-2	Thiru. K. Sakthivel	351	2.51.5Ha	05.09.2017 to 04.09.2037 (Last permit obtained on 22.03.2022)
		<b>Total</b>	<b>5.32.0Ha</b>	
<b>TOTAL CLUSTER EXTENT</b>			<b>8.29.0Ha</b>	

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



## TERMS OF REFERENCE (ToR) COMPLIANCE

**M/s. Apple Granites,**

**“ToR issued vide Lr No.SEIAA-TN/F.No.1026/SEAC/ToR-1562/2023 Dated:27.09.2023”**

<b>ADDITIONAL CONDITIONS</b>																				
1	The proponent shall give an Affidavit before the issuance of ToR from SEIAA-TN stating that the mining operations will remain suspended from the date of publication of MoEF &CC OM F.No. IA3-22/11/2023-IA.III(E-208230), dated. 28.04.2023 till they obtain the EC granted by the SEIAA after the reappraisal process for carrying out remedial actions subsequently.	<p><b>Noted and agreed.</b> Affidavit will be submitted in final EIA.</p> <p>EC Granted on 18.01.2018 for the Mining plan period of (2018-19 to 2022-23)</p> <p>EC Valid up to: 17.01.2024 (Including COVID extension)</p> <p>Validity mentioned in EC: Environmental Clearance Granted for First Five years only</p> <p>The quarry was stopped in <b>27.06.2022.</b></p>																		
2	<p>For the existing quarry, the PP shall obtain a letter from the concerned AD (Mines) which shall stipulate the following information:</p> <p>(i) Original pit dimension</p> <p>(ii) Quantity achieved Vs EC Approved Quantity</p> <p>(iii) Balance Quantity as per Mineable Reserve calculated.</p> <p>(iv) Mined out Depth as on date Vs EC Permitted depth</p> <p>(v) Details of illegal/illicit mining</p> <p>(vi) Non -compliance/ Violation in the quarry during the past working</p> <p>(vii) Quantity of material mined out outside the mine lease area</p> <p>(viii) Existing condition of Safety zone benches</p> <p>(ix) Details of penalties levied on the PP for any violation in the quarry operation</p>	<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 15%;">Pit</th> <th style="width: 10%;">RL</th> <th style="width: 10%;">Ex Pit RL</th> <th style="width: 15%;">Area in m<sup>2</sup></th> <th style="width: 10%;">Total Depth (m)</th> </tr> </thead> <tbody> <tr> <td>Depth – 1</td> <td>117</td> <td>107</td> <td>1276</td> <td>10</td> </tr> <tr> <td>Depth – 2</td> <td>117</td> <td>111</td> <td>204</td> <td>6</td> </tr> </tbody> </table>	Pit	RL	Ex Pit RL	Area in m <sup>2</sup>	Total Depth (m)	Depth – 1	117	107	1276	10	Depth – 2	117	111	204	6	<p>EC approved quantity – 19,449 m<sup>3</sup> of Multi Colour Granite</p> <p>Achieved quantity – 947m<sup>3</sup> of Multi Colour Granite</p> <p>EC approved Depth – 13m BGL</p> <p>Achieved Depth – 10m BGL</p> <p>No Illegal and violation activity in mines</p>		
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Depth – 1	117	107	1276	10																
Depth – 2	117	111	204	6																
3	The PP shall furnish mitigation measures/remedial action plan for the non-compliance stated in the Certified Compliance report (CCR) obtained from IRO(SZ), MoEF&CC.	<p><b>Noted and agreed.</b> CCR Letter No: EP/12.1/2023-24/SEIAA/57/TN/913 date 28.07.2023 Non-compliance will be compiled and the report will be submitted in the final EIA</p>																		
4	The study on impact of the proposed quarrying operations on the surrounding environment which includes water bodies. etc.	<p><b>Noted and agreed.</b> Impact on water bodies and its mitigation measures are discussed in Chapter 4</p>																		
5	The Project Proponent shall furnish the revised EMP based on the study carried out on impact of the dust & other environmental impacts due to proposed quarrying operations on the nearby agricultural lands for remaining life of the mine in the format prescribed by the SEAC considering the cluster situation.	<p><b>Noted and agreed.</b> The EMP budget given in chapter 10, Table No.10.3 along with mitigation measures.</p>																		
6	The Proponent shall furnish a comprehensive plan for green belt plantation and stacking the waste blockage of granite produced from the proposed quarrying operation to ensure sustainable environment.	<p><b>Noted and agreed.</b> In green belt 1490 trees will be proposed to plant. In safety barrier can plant 880 Nos of trees and 610 Nos of trees plant on the Village roads.</p>																		

**Annexure-1**

1	<p>In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:</p> <p>(i) Original pit dimension</p> <p>(ii) Quantity achieved Vs EC Approved Quantity</p> <p>(iii) Balance Quantity as per Mineable Reserve calculated.</p> <p>(iv) Mined out Depth as on date Vs EC Permitted depth</p> <p>(v) Details of illegal/illicit mining</p> <p>(vi) Violation in the quarry during the past working.</p> <p>(vii) Quantity of material mined out outside the mine lease area</p> <p>(viii) Condition of Safety zone benches</p> <p>(ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.</p>	<table border="1"> <thead> <tr> <th>Pit</th> <th>RL</th> <th>Ex Pit RL</th> <th>Area in m<sup>2</sup></th> <th>Total Depth (m)</th> </tr> </thead> <tbody> <tr> <td>Depth – 1</td> <td>117</td> <td>107</td> <td>1276</td> <td>10</td> </tr> <tr> <td>Depth – 2</td> <td>117</td> <td>111</td> <td>204</td> <td>6</td> </tr> </tbody> </table>	Pit	RL	Ex Pit RL	Area in m <sup>2</sup>	Total Depth (m)	Depth – 1	117	107	1276	10	Depth – 2	117	111	204	6
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2	<p>Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.</p>	<p><b>Noted and agreed.</b></p> <p>There is no approved habitation within 300m radius from the lease area. PP obtained the VAO letter stating the details of structures is enclosed in Annexure.</p>															
3	<p>The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.</p>	<p><b>Noted and agreed.</b></p> <p>Structure Map and its Enumeration of Structures from 0 - 300m Radius are given in 3 chapter. Page no.90</p>															
4	<p>The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the Waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.</p>	<p><b>Noted and agreed.</b></p> <p>The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 4</p>															
5	<p>The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.</p>	<p><b>Noted and agreed.</b></p> <p>Biodiversity study has been carried out by Functional Area Expert by the NABET accredited consultant.</p> <p>The detailed study is given in the Chapter No.3. Page No.69</p>															
6	<p>The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.</p>	<p><b>Noted and agreed</b></p>															
7	<p>In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the pp shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining &amp; Fuel</p>	<p><b>Noted and agreed.</b></p> <p>It is an existing quarry.</p> <p>The existing depth is 10m BGL</p> <p>The proposed depth is 23m BGL</p> <p>It is ensured that the slope stability study will be carried out after 30m bgl.</p>															

	Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.											
8	However, in case of the fresh/virgin quarries, The Proponent shall submit a conceptual 'Slope Stability Assessment' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the proposed working is extended beyond 30 m below ground level.	<b>Noted and agreed.</b> It is ensured that the slope stability will be carried out after 30m bgl.										
9	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	<b>Noted and agreed</b> PP furnished the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961										
10	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	<b>Noted and agreed</b>										
11	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	<b>Noted and agreed.</b>										
12	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines	<b>Noted and agreed.</b> Previous Mining plan period – 2018 -19 to 2022 – 23 EC.No: Lr. No. DEIAA-DIA/TN/MIN/9629/2017-KRR/EC.No.88/201/Mines Dated: 18.01.2018 CCR Letter No: EP/12.1/2023-24/SEIAA/57/TN/913 date 28.07.2023										
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	EC Granted on 18.01.2018 for the Mining plan period of (2018-19 to 2022-23)  EC Valid up to : 17.01.2024 (Including COVID extension)  Validity mentioned in EC : Environmental Clearance Granted for First Five years only  The quarry was stopped in <b>27.06.2022.</b>										
14	Quantify of minerals mined out <ul style="list-style-type: none"> <li>Highest production achieved in any one year</li> <li>Detail of approved depth of mining.</li> <li>Actual depth of the mining achieved earlier.</li> <li>Name of the person already mined in that leases area.</li> <li>If EC and CTO already obtained, the copy of the same shall be submitted.</li> </ul>	38,898m <sup>3</sup> of ROM (Granite Recovery @ 50% is 19,449m <sup>3</sup> ) Annual Peak Production Capacity 7,794.3m <sup>3</sup> of ROM  <table border="1"> <thead> <tr> <th>Pit</th> <th>RL</th> <th>Ex Pit RL</th> <th>Area in m<sup>2</sup></th> <th>Total Depth (m)</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Pit	RL	Ex Pit RL	Area in m <sup>2</sup>	Total Depth (m)					
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	<ul style="list-style-type: none"> <li>Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.</li> </ul>	<table border="1"> <tr> <td>Depth – 1</td> <td>117</td> <td>107</td> <td>1276</td> <td>10</td> </tr> <tr> <td>Depth – 2</td> <td>117</td> <td>111</td> <td>204</td> <td>6</td> </tr> </table> <p>Proposed Depth = 23m (2m Topsoil + 1m Weathered rock + 20m Multi Colour Granite) Existing Pit Dimension:</p> <p>Ultimate Pit Dimension 153m(L) x 98m (W) x 23m (D)</p> <p>EC Granted on 18.01.2018 for the Mining plan period of (2018-19 to 2022-23) EC Valid up to: 17.01.2024 (Including COVID extension) Validity mentioned in EC : Environmental Clearance Granted for First Five years only</p>	Depth – 1	117	107	1276	10	Depth – 2	117	111	204	6
Depth – 1	117	107	1276	10								
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15	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet. Topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	<p><b>Noted and agreed.</b></p> <p>Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2, Figure No.2.3, , Page No.14.</p> <p>Geomorphology of the area is given in Chapter No 2, Figure No.2.8, Page No.23</p> <p>Land use pattern of the project area is tabulated in the Chapter No.2. Table no 2.3, Pg.No.19</p>										
16	The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc..	<b>Noted and agreed</b>										
17	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	<p><b>Noted and agreed.</b></p> <p>The area has been fenced and plantation activities will have carried out within the project site.</p>										
18	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.	<p><b>Noted and agreed.</b></p> <p>The details of mineral reserves have been provided in Chapter No 1,</p> <p>Total Mineable Reserves ROM - 1,47,068m<sup>3</sup> Granite Recovery – 73,534m<sup>3</sup></p> <p>Production for first five years MP period ROM - 38,898m<sup>3</sup> Granite Recovery - 19,449m<sup>3</sup> Peak production - 7,794.3m<sup>3</sup> of ROM</p>										
19	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	<p><b>Noted and agreed.</b></p> <p>Total Employment is 48 Nos inclusive of Competent persons.</p> <p>Mines Manager &amp; Foreman</p> <p>Details are given in the Chapter No.2. Page No.30</p>										
20	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as	<p><b>Noted and agreed.</b></p> <p>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.</p>										

	to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	
21	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic vehicular movement study.	<b>Noted and agreed.</b> Baseline Data were collected for One Season (Post Monsoon) Oct to Dec 2023 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3
22	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts- Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	<b>Noted and agreed.</b> The Cumulative impact study due to mining operations is explained in chapter - 7
23	Rain water harvesting management with recharging details along with water balance (both) monsoon & non-monsoon) be submitted.	<b>Noted and agreed</b>
24	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and Other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	<b>Noted and agreed.</b> Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2
25	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use. R&R issues, if any. should be provided.	<b>Noted and agreed.</b> The details of Dump and disposal of Granite waste is discussed in the Chapter No.4
26	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required. clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	<b>Not Applicable.</b> Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
27	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	<b>Noted and agreed.</b> Part of the working pit will be allowed to collect rain water during the spell of rain will be used for greenbelt 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.
28	Impact on local transport infrastructure due to the Project should be indicated.	<b>Noted and agreed.</b> Transportation details mentioned in Chapter -2
29	A tree survey study shall be carried out (nos., name of the species, age, diameter etc..) both	<b>Noted and agreed.</b>

	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.
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	<b>Noted and agreed.</b> After the completion of mining operation, the part of the quarried-out land will be utilized as temporary storage reservoir. The details are given in the Chapter No.4
31	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	<b>Noted and agreed</b>
32	The purpose of green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the Appendix-I in consultation with the DFO, & Tamil Nadu 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.	<b>Noted &amp; agreed.</b> It is proposed to plant a 1490nos of trees in the 7.5m safety barrier and village roads.
33	Taller/one-year-old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	It is an Existing Lease. During the course of mining operation it is proposed to plant 1490 Nos of trees will be plant in the safety barrier(880) and Village roads(610)
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	<b>Noted and agreed.</b> Disaster management Plan details in Chapter-7
35	A Risk Assessment and management Plan shall be prepared and included in the ELA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	<b>Noted and agreed.</b> A Risk Assessment and management Plan Chapter- 7
36	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	<b>Noted and agreed.</b> Occupational Health impacts chapter- 10
37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	<b>Noted and agreed.</b> No Public Health Implications anticipated due to this project. Details of CER are discussed under Chapter 8.
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic	<b>Noted and agreed.</b> It is explained in Chapter -3

	significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	
39	Details of litigation pending against the project, if any, with direction /Order passed by any Court of Law against the Project should be given.	<b>Not Applicable</b> No, Litigation is pending against this project
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	<b>Noted and agreed.</b> Benefits of the project discussed in chapter 8
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC. Regional Office, Chennai (or) the concerned DEE/TNPCB.	<b>Noted &amp; Agreed</b> EC Granted on 18.01.2018 for the Mining plan period of (2018-19 to 2022-23) EC Valid up to: 17.01.2024 (Including COVID extension Validity mentioned in EC: Environmental Clearance Granted for First Five years only
42	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	<b>Noted and agreed.</b> PP Prepared the EMP for the entire life of mine and discussed in chapter 10.
43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	<b>Complied.</b>
<b>NORMAL CONDITIONS-Annexure-B</b>		
<b><i>Cluster Management committee</i></b>		
1.	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	<b>Noted and agreed.</b> Cluster management committee has been formed with mutual agreement with the proponents including Existing and Proposed quarry at present are framed.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc..	<b>Noted and agreed.</b> As per the committee agreement proponents will co-ordinates for the Greenbelt development, Water sprinkling and tree plantation activities combined.
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	<b>Noted and agreed.</b> The formation of committee with list of members has been submitted to the AD mines office, Karur and the same will be update in every year
4	Detailed operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	<b>Noted and agreed.</b> As per the committee agreement the blasting frequency will be discussed and carryout by the Mines Manager appointed by the proponents and the same will be updated in the committee minutes.  Transport details in chapter-2
5	The committee shall deliberate on risk management plan pertaining to the cluster in a	<b>Noted &amp; Agreed.</b>

	holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	The risk management plan and disaster management plan will be followed as per the EIA report.
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	<b>Noted &amp; Agreed.</b> Environmental policy is described in the EIA report Chapter 6 and the same will be followed.
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	<b>Noted &amp; Agreed.</b> After completion of the quarry as per the mine closure plan the quarried out pit will be convert as temporary reservoir.
8	The committee shall furnish the Emergency Management plan within the cluster.	<b>Noted &amp; Agreed.</b> The committee prepared the emergency management plan to the respective authority in the stipulated time period.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	<b>Noted &amp; Agreed.</b> The information on the health of the workers and the local people will be updated periodically.
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	<b>Noted &amp; Agreed.</b> A proper action plan with reference to water, sanitation & safety will be devised and submitted by the committee to the respective authority.
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	<b>Noted &amp; Agreed.</b> The fire safety and evacuation plan will be carried out by as per the respective quarry mines managers.
<b>Impact study of mining</b>		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health. e) Agriculture, Forestry & Traditional practices. f) Hydrothermal/Geothermal effect due to destruction in the Environment. g) Bio-geochemical processes and its foot prints including environmental stress. h) Sediment geochemistry in the surface steams.	<b>Noted &amp; Agreed.</b> Details of Soil health is given in Chapter No 3 and biodiversity is given in Chapter No 3. The project will not cause any significant changes in the climate Climatic changes and GHG are described in Chapter No 4. Details of water contamination and impact on aquatic ecosystem is given in Chapter No 4. Hydrothermal/ Geothermal effects due to destruction in the environment, Bio geochemical process and sediment geo chemistry given in the Chapter No 7.
<b>Agriculture &amp; Agro-Biodiversity</b>		
13	Impact on surrounding agricultural fields around the proposed mining Area.	<b>Noted &amp; Agreed.</b> As the proposed lease area is dominantly surrounded by barren land, fallow land and quarry lands, the impact on the surrounding agricultural fields if present will be low. With proper mitigation measures, the project will be carried out to reduce the impact further to the level of negligence.



14	Impact on soil flora & vegetation around the project site.	<b>Noted &amp; Agreed.</b> The vegetation details have been provided in chapter 3. There is no schedule I species of animals observed within study area as per Wildlife Protection Act, 1972 and no species falls in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.
15	Details of type of vegetation's including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation's all along the boundary of the proposed mining area shall committed mentioned in EMP.	<b>Noted &amp; Agreed.</b> The vegetation details have been provided in chapter 3. There is no schedule I species of animals observed within study area as per Wildlife Protection Act, 1972 and no species falls in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora. fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	<b>Noted &amp; Agreed.</b> Details are discussed in Chapter 3.
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	<b>Noted &amp; Agreed.</b> The Eco System of the area will be retained during the mining operation by the way of planting trees in the boundary barrier and un utilized areas. After completion of mining operation, the quarried-out pit will be facilitated to collect the rainwater to pit act as temporary reservoir
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	<b>Noted &amp; Agreed.</b> The mining operation will be carried out using the opencast method. As there are no prominent agricultural lands in the vicinity of the project site, only seasonal agriculture is practiced. The potential impacts on agricultural lands and livestock have been assessed and are presented in Chapter 4 of this report.
<b>Forest</b>		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	<b>Noted and agreed.</b> Nearest Reserve Forest is Viramalai R.F. 10.67 Km – South West
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	<b>Noted &amp; Agreed.</b> There is no forest/wildlife within 10km radius, Chapter 3 details of Ecology and Biodiversity, and endemic vulnerable and endangered indigenous flora and fauna.
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	<b>Noted &amp; Agreed.</b> Details are discussed in the Chapter 3
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	<b>Noted &amp; agreed.</b> Kadavur Slender Loris Sanctuary - 30.0 km – South West
<b>Water Environment</b>		
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks. canals, ponds	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on

	etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	the water bodies around the project area. Details are discussed under Chapter No. 3.
24	Erosion Control measures.	Noted & agreed
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby villages, water-bodies/ Rivers. & any ecological fragile areas.	<b>Noted &amp; Agreed.</b> Details in Chapter 3
26	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	<b>Noted &amp; Agreed.</b> Food webs describe who eats whom in an ecological community. Made of interconnected food chains, food webs help us understand how changes to ecosystems say, removing a top predator or adding nutrients affect many different species, both directly and indirectly.
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment by the activities.	<b>Noted &amp; Agreed.</b> Details are given in the Chapter 4
28	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	<b>Noted &amp; Agreed.</b> Details in Chapter 4 impact of bio diversity
29	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil, physical, chemical components and microbial components.	<b>Noted &amp; Agreed.</b> Details of impact on soil environment is detailed in Chapter 4
30	The Environmental Impact Assessment should study on wetlands, water bodies, rivers, streams, lakes and farmer sites.	<b>Noted &amp; Agreed.</b> There is, National Parks, Eco sensitive areas, Wild life sanctuaries within the radius of 10km. An ecological survey of the study area was conducted particularly with reference to the listing of species and assessment of the existing baseline ecological (terrestrial) condition in the study area. Ecological Environment is discussed under Chapter 3.
<b>Energy</b>		
31	The measures taken to control Noise. Air, Water. Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.	<b>Noted &amp; Agreed.</b> It is explained in Chapter 4
<b>Climate Change</b>		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	<b>Noted &amp; Agreed.</b> A greenhouse gas (GHG) is a gas that absorbs and emits radiant energy within the thermal infrared range, causing the greenhouse effect. The primary greenhouse gases in Earth's atmosphere are carbon dioxide (CO <sub>2</sub> ), methane (CH <sub>4</sub> ), nitrous oxide (N <sub>2</sub> O), and ozone (O <sub>3</sub> ) Carbon dioxide (CO <sub>2</sub> ): Carbon dioxide enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees and other biological materials. Carbon dioxide is removed

		<p>from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.</p> <p>Methane (CH<sub>4</sub>): Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices, land use and by the decay of organic waste in municipal solid waste landfills.</p> <p>Nitrous oxide (N<sub>2</sub>O): Nitrous oxide is emitted during agricultural, land use, and industrial activities; combustion of fossil fuels and solid waste; as well as during treatment of wastewater</p>
33	The Environmental impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	<b>Noted &amp; Agreed.</b> Detailed discussed in Chapter 4
<b>Mine Closure Plan</b>		
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	<b>Noted &amp; Agreed.</b> Progressive Mine closure plan has been prepared considering the entire lease period in the mining plan and the same has been approved.
<b>EMP</b>		
35	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	<b>Noted &amp; Agreed.</b> Detailed discussed in Chapter 10
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	<b>Noted &amp; Agreed.</b> Project Cost = Rs 2,64,79,000/-  CER Cost = Rs 5,00,000/  Disaster Management plan & mine closure plan is discussed in chapter no.4 & 7
<b>Risk Assessment</b>		
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	<b>Noted &amp; Agreed.</b> A Risk Assessment and management Plan Chapter 7
<b>Disaster Management Plan</b>		
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	<b>Noted &amp; Agreed.</b> Details in Study 7.3 Disaster Management Plan in Chapter -7
<b>Others</b>		
39	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures. railway lines, roads. Water bodies such as streams, odai, vaari, canal, channel. river, lake pond, tank etc.	<b>Noted &amp; Agreed.</b> Letter obtained from the VAO regarding surface features within 300m radius

40	As per the MoEF& CC office memorandum F.No.22-65/2017-1A.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	<b>Noted &amp; Agreed.</b>
41	The project proponent shall study and furnish the possible pollution due to plastic and micro plastic on the environment. The ecological risks and impacts of plastic & micro plastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	<b>Noted &amp; Agreed.</b> Plastic waste management in the project area detailed in Chapter 7

#### 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.	<b>Not applicable.</b> 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.	<b>Noted &amp; Agreed.</b> The applied land for quarrying is a lease deed registered – Patta land.  Document is enclosed along with Approved scheme of Mining Plan as Annexure
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.	<b>Noted &amp; agreed.</b>
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).	<b>Noted &amp; Agreed.</b> 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.	<b>Noted &amp; Agreed.</b> Map showing – chapter-2 Geology map of the project area covering 10km radius Geomorphology Map of the Study Area covering 10 km radius

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.	<b>Noted &amp; Agreed.</b> The applied area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.
7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	<b>Noted &amp; Agreed.</b> The proponent has framed their Environmental Policy and the same is discussed in the Chapter No 10.1.
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	<b>Noted &amp; Agreed.</b> It is an opencast quarrying operation proposed to operate in Mechanized method. The Granite formation is a hard, compact and homogeneous body.  The height and width of the bench will be maintained as 5m with 90 <sup>0</sup> bench angles.  Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc., should be for the life of the mine / lease period.	<b>Noted &amp; Agreed.</b> Noted & agreed. The study area considered for this study is 10 km radius and all data contained in the EIA report such as waste generation etc., is for the Life of the Mine / lease period.
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	<b>Noted &amp; Agreed.</b> Land use and land cover of the study area is discussed in Chapter No. 3.  Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3.
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	<b>Not Applicable.</b>  There is no waste anticipated during this quarry operation. The entire quarried out Granite will be transported to the needy customers.  No Dumps is proposed outside the lease area.

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.	<b>Not Applicable.</b> There is no Forest Land involved in the proposed project area. The proposed project area is a patta land. Viramalai R.F. 10.67 Km – South West from the Study Area.
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.	<b>Not Applicable.</b> Viramalai R.F. 10.67 Km – South West from the Study Area.
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.	<b>Not Applicable.</b> 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.	<b>Noted &amp; Agreed.</b> Viramalai R.F. 10.67 Km – South West from 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.	<b>Not Applicable.</b>
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.	<b>Not Applicable.</b> There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area. Kadavur Slender Loris Sanctuary - 30.0 km – South West
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	<b>Noted &amp; Agreed.</b> Detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] was carried out and discussed under Chapter No. 3. There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.

	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 '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.	<b>Not Applicable.</b> Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range'.
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	<b>Not Applicable.</b> The project doesn't attract The C. R. Z. Notification, 2018.
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	<b>Not Applicable.</b> There are no approved habitations within a radius of 300 meters. Therefore, R&R Plan / Compensation details for the Project Affected People (PAP) is not anticipated and Not Applicable for this project.
22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations 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	<b>Noted &amp; Agreed.</b> Baseline Data were collected for One Season Post monsoon) Oct– Dec2023 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.

	mineralogical composition of PM10, particularly for free silica, should be given.	
23	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing predominant wind direction may also be indicated on the map.	<p><b>Noted &amp; Agreed.</b> Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD view.</p> <p>Details in Chapter No. 4.</p>
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.	<p><b>Noted &amp; Agreed.</b> Total Water Requirement: 1.8 KLD</p> <p>Discussed under Chapter 2, Table No 2.15 .</p>
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	<p><b>Not Applicable.</b></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	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.	<p><b>Noted &amp; Agreed.</b></p> <p>Part of the working pit will be allowed to collect rain water during the spell of rain will be used for greenbelt development and dust suppression.</p> <p>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.</p>
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.	<p><b>Noted &amp; Agreed.</b></p> <p>Impact Studies and Mitigation Measures of Water Environment including Surface Water and Ground Water are discussed in Chapter 4.</p>
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.	<p><b>Not Applicable.</b></p> <p>The ground water table</p> <p>The Ground water depth occurrence in this area is 59-64m below ground level.</p> <p>The ultimate depth of quarry is 23mBGL.</p> <p>This proposal of 23m below ground level will not intersect the ground water table, which is inferred from the hydro-geological carried out at the project site.</p> <p>Discussed under Chapter 3.</p>



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	<b>Noted and agreed.</b> Tank-80m_SW Nallur Tank-2.5Km_NE Canal-2.8Km_E Odai-3Km_NW Gudalur Lake-3km_SW Tank-4Km_SE Kavalaivaari Canal-6.2Km_NE Kalugur Eri-7.8Km SW
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.	<b>Noted and agreed.</b> Highest elevation of the project area is 116m – 122m AMSL. Ultimate depth of the mine is 23m BGL Water level of the area is 59m -64m BGL
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The 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.	<b>Noted and agreed.</b> Greenbelt Development Plan is discussed under Chapter 4
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.	<b>Noted and agreed.</b> 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.	<b>Noted and agreed.</b> 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.	<b>Noted and agreed.</b> Discussed under Chapter 2. Mine Closure Plan is a part of scheme of Mining Plan enclosed as Annexure
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	<b>Noted and agreed.</b> Occupational Health Impacts of the project and preventive measures are detailed under Chapter 4,

	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.	<b>Noted and agreed.</b> No Public Health Implications anticipated due to this project. Details of CER 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.	<b>Noted and agreed.</b> 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 48 people directly and 80 people indirectly. Details in Chapter 3 and Benefits of the project discussed in chapter-8
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.	<b>Noted and agreed.</b> 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.	<b>Noted and agreed.</b> 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.	<b>Noted and agreed.</b> Project Cost is Rs. 2,64,79,000/- CER Cost is Rs 5,00,000/-
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	<b>Noted and agreed.</b> Disaster management Plan prepared and discussed with 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.	<b>Noted and agreed.</b> The Benefits of the Project discussed in chapter 8.
44	<b>Besides the above, the below mentioned general points are also to be followed: -</b>	
a	Executive Summary of the EIA/EMP Report	Given in this EIA Report (Page No a to s)
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	List of Tables and source of the data collected are given properly.

	data were collected and the sources should be indicated.	
d	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project	Baseline monitoring reports are enclosed with as annexure
e	Where the documents provided are in a language other than English, an English translation should be provided.	Not Applicable.
f	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Questionnaire of the project is enclosed with Annexure.
g	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA. II(I) Dated: 4th August, 2009, which are available on the website of this Ministry, should be followed.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) Dated: 4th August, 2009 are followed.
h	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	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.	<b>Noted and agreed.</b> Detailed Chapter-2 Lease plan & Geological plan and Year wise production plan

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**TABLE OF CONTENTS**


---

<b>CHAPTER – 1: INTRODUCTION.....</b>	<b>1</b>
1.0 Preamble .....	1
1.2 Identification of Project and Project Proponent.....	4
1.3 Brief Description of the Project .....	4
1.3 BRIEF DESCRIPTION OF THE PROJECT .....	5
1.4 Environmental Clearance.....	9
1.5 Post Environment Clearance Monitoring.....	9
1.6 Generic Structure of EIA Document.....	9
<b>2. PROJECT DESCRIPTION .....</b>	<b>12</b>
2.0 General.....	12
2.1 Description of the Project .....	12
2.2 Location of the Project.....	12
2.3 GEOLOGY.....	20
2.4 Resources and Reserves.....	26
2.5 Method of Mining .....	27
2.6 General Features.....	28
2.7 Project Requirement.....	29
2.8 Employment Requirement:.....	30
2.9 Project Implementation Schedule .....	30
<b>3. DESCRIPTION OF ENVIRONMENT .....</b>	<b>31</b>
3.0 General.....	31
3.1 Land Environment.....	32
3.1.2 OBJECTIVE .....	33
3.1.3 METHODOLOGY .....	33
3.1.4 Interpretation .....	38
3.1.5 TOPOGRAPHY.....	38
3.2 Water Environment .....	44
3.3 Air Environment.....	56
3.4 Noise Environment.....	65
3.5 Biological Environment.....	69
Ipomoea cornea .....	74
Reference: Studies on the Abundance and Distribution of Birds in Three Different Habitats of Karur District, South India.....	79
Reference: Ali, S. (2002). The Book of Indian Birds (13th revised edition). Oxford University Press, New Delhi. 326pp.....	79
3.8 Socio Economic Environment .....	83
<b>4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES .....</b>	<b>92</b>
4.0 General.....	92
4.1 Land Environment.....	92
4.1.1.2 Soil Environment.....	93
4.2 Water Environment (Impact & Mitigation Measures).....	93
4.3 Air Environment (Impact & Mitigation Measures) .....	94
4.4 Noise Environment.....	100
4.5 Biological Environment.....	102

---

4.7	Occupational Health and Safety.....	106
4.8	Mine Closure.....	108
<b>5.</b>	<b>ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE).....</b>	<b>109</b>
5.1	Introduction.....	109
<b>6.</b>	<b>ENVIRONMENTAL MONITORING PROGRAMME.....</b>	<b>110</b>
6.0	General.....	110
6.1	Methodology of Monitoring Mechanism.....	110
6.2	Implementation Schedule of Mitigation Measures.....	110
6.3	Monitoring Schedule and Frequency.....	111
6.4	Budgetary Provision for EMP.....	112
6.5	Reporting Schedules of Monitored Data.....	112
<b>CHAPTER – 7:</b>	<b>ADDITIONAL STUDIES.....</b>	<b>113</b>
7.0	General.....	113
7.1	Public Consultation:.....	113
7.2	Risk Assessment.....	113
7.3	Disaster Management Plan.....	115
7.4	Cumulative Impact Study.....	118
7.5	Cluster Management Committee.....	123
<b>CHAPTER – 8:</b>	<b>PROJECT BENEFITS.....</b>	<b>128</b>
8.0	General.....	128
8.1	Employment Potential.....	128
8.2	Socio-Economic Welfare Measures Proposed.....	128
8.3	Improvement in Physical Infrastructure.....	128
8.4	Improvement in Social Infrastructure.....	128
8.5	Other Tangible Benefits.....	128
<b>CHAPTER – 9:</b>	<b>ENVIRONMENTAL COST BENEFIT ANALYSIS.....</b>	<b>130</b>
<b>CHAPTER - 10:</b>	<b>ENVIRONMENTAL MANAGEMENT PLAN- M/S. APPLE GRANITES.....</b>	<b>131</b>
10.0	General.....	131
10.1	Environmental Policy.....	131
10.2	Land Environment Management –.....	132
10.3	Soil Management.....	132
10.4	Water Management.....	133
10.5	Air Quality Management.....	134
10.6	Noise Management.....	135
10.7	Ground Vibration and Fly Rock Control.....	135
10.8	Biological Environment Management.....	136
10.9	Occupational Safety & Health Management.....	137
<b>CHAPTER – 11:</b>	<b>SUMMARY AND CONCLUSIONS.....</b>	<b>145</b>
<b>12.</b>	<b>DISCLOSURE OF CONSULTANTS.....</b>	<b>146</b>

---



---

**LIST OF TABLES**

TABLE 1.3: DETAILS OF PROJECT PROPONENT .....	4
Table 1.4: Resources and Reserves of Project .....	4
Table 1.5: Salient Features of the Proposed Projects.....	4
TABLE 1.6 – STRUCTURE OF THE EIA REPORT .....	9
TABLE 1.7 – ENVIRONMENT ATTRIBUTES.....	10
Table 2.1: Site Connectivity to the Project Area .....	12
Table 2.2: Boundary Co-Ordinates of Proposed Project .....	13
Table 2.3: Land Use Pattern of Proposed Project .....	19
Table 2.4: Operational Details .....	19
Table 2.5 Resources, Reserves .....	26
Table 2.6 Year wise Production for Five years plan.....	26
Table 2.7 Ultimate Pit Dimension .....	26
Table 2.8: Machinery Details Proposed.....	27
Table.2.9: Traffic Survey Locations .....	28
Table 2.10: Existing Traffic Volume .....	28
Table 2.11: Granite Hourly Transportation Requirement.....	29
Table 2.12: Summary of Traffic Volume .....	29
Table 2.13 Water Requirement for the Project .....	29
Table 2.14: Employment Potential .....	30
Table 2.15 Expected time Schedule.....	30
Table 2.16 Capital Cost Estimation .....	30
Table 3.1: Monitoring Attributes and Frequency of Monitoring.....	32
TABLE 3.2: Resourcesat1-LISSIII SENSOR characteristics .....	33
TABLE: 3.3 LAND USE / LAND COVER DETAILS OF STUDY AREA.....	34
Table 3.3: Details of Environment Sensitivity around the Cluster .....	39
Table 3.4: Soil Sampling Locations.....	39

Table 3.5: Methodology of Sampling Collection .....	40
Table 3.6: Soil Quality of the Study Area .....	43
Table 3.7: Water Bodies in the Buffer Zone.....	44
Table 3.8: Water Sampling Locations .....	45
Table 3.9: Ground Water Sampling Results .....	48
Table 3.10: Surface Water Sampling Results .....	49
Table 3.11: Details of Borewell & Water Level in 1km Radius.....	51
Table 3.12: Details of Open well & Water Level in 1km Radius.....	51
Table 3.13: Rainfall Data.....	56
Table 3.14: Meteorological Data Recorded at Site.....	57
Table 3.15: National Ambient Air Quality Standards .....	58
Table 3.16: Ambient Air Quality (AAQ) Monitoring Locations AAQ1-AAQ7.....	59
Table 3.25: Abstract of Ambient Air Quality Data .....	61
Table 3.26: Summary of Ambient Air Quality Data (AAQ1-AAQ7).....	61
Table 3.29: Details of Noise Monitoring Locations .....	65
Table 3.30: Ambient Noise Quality Result.....	68
Table 3.38: Population Characteristics - Kallai Village,Kulithalai Taluk, Karur District.....	84
Table 3.39: Population Characteristics Around 10km Radius.....	84
Table 3.40: Occupational Characteristics Around 10km Radius.....	84
Table 3.41: Population projection.....	85
Table 3.42: Population Characteristics Core and Buffer zone around 10km Radius .....	86
Table 3.43: Occupational Characteristics Core and Buffer zone around 10km Radius .....	87
Table 4.1 Water Requirement for the Project .....	94
Table 4.2: Estimated Emission Rate for Quarry .....	95
Table 4.3: Incremental & Resultant GLC of Fugitive Dust.....	98
Table 4.4: Incremental & Resultant GLC OF PM <sub>10</sub> .....	98
Table 4.5: Incremental & Resultant GLC OF PM <sub>2.5</sub> .....	98

Table 4.6: Incremental & Resultant GLC OF SO <sub>2</sub> .....	98
Table 4.7: Incremental & Resultant GLC OF NO <sub>x</sub> .....	99
Table 4.8: Predicted Noise Incremental Values.....	100
TABLE 4.9: PREDICTED PPV VALUES DUE TO BLASTING .....	101
Table 4.13: Greenbelt development plan .....	105
Table 4.14: Preparation of green belt details .....	105
Table 4.15: Recommended Species to Plant in the Greenbelt .....	106
Table 6.1: Implementation Schedule .....	111
Table 6.2: Monitoring Schedule for the Project Area.....	111
Table 6.3: Environmental Monitoring Budget.....	112
Table 7.1 Risk Assessment .....	113
Table 7.2: Proposed Teams to Deal with Emergency Situation .....	116
Table 7.3: Proposed Type of Fire Extinguishers .....	117
Table 7.4: List of Quarries within 500 Meter Radius from this Proposal .....	118
Table 7.5: Salient Features of Proposed Projects “P1” .....	118
Table 7.6: Salient Features of Existing Quarry “E1” .....	119
Table 7.6: Salient Features of Existing Quarry “E2” .....	120
Table 7.7: Cumulative Production Load of Granite .....	121
Table 7.9: Emission Estimation from Quarries within 500 Meter Radius.....	121
Table 7.10: Incremental & Resultant GLC within Cluster .....	122
Table 7.11: Predicted Noise Incremental Values from Cluster .....	122
Table 7.12: Socio Economic Benefits from Quarries .....	123
Table 8.1: CER – Action Plan .....	129
Table 10.1: Proposed Controls for Land Environment.....	132
Table 10.2: Proposed Controls for Soil Management.....	132
Table 10.3: Proposed Controls for Water Environment .....	133
Table 10.4: Proposed Controls for Air Environment.....	134



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Table 10.5: Proposed Controls for Noise Environment.....	135
Table 10.6: Proposed Controls for Ground vibration & Fly rocks .....	135
Table 10.7: Recommended Species to Plant in the Greenbelt.....	136
Table 10.8: List of Periodical Trainings Proposed for employees .....	138
Table 10.9: Capital and Recurring Cost of EMP .....	139

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## LIST OF FIGURES

Figure 1.0: Cluster Quarries Map (500m Radius) .....	3
Figure 1.1: Key Map Showing the Location of the Project Site.....	6
Figure 1.2: Toposheet Map of the Study Area 10 Km Radius .....	7
Figure 1.3: Toposheet Map of the Study Area 2 Km Radius .....	8
Figure 2.1: Photographs of the Project Area.....	13
Figure 2.3: Google Image Showing Project Area.....	14
Figure 2.4: Quarry Lease Plan & Surface Plan.....	15
Figure 2.5: Image Showing Surface Features Around 10 Km Radius.....	16
Figure 2.6: Image Showing Surface Features Around 5km Radius .....	17
Figure 2.7: Image Showing Surface Features Around 1 Km Radius.....	18
Figure 2.7: Regional Geology Map .....	22
Figure 2.8: Geomorphology Map of The Study Area.....	23
Figure 2.9: GEOLOGICAL PLAN AND SECTION .....	24
Figure 2.10: Year-Wise Development Production Plan and Section.....	25
Figure. 2.11: Mineral Transportation Route Map.....	28
FIGURE 3.1: CHART SHOWING LANDUSE/LANDCOVER ANALYSIS USING LISS III Data.....	35
FIGURE 3.2: MAP SHOWING FALSE COLOR COMPOSITE (3,2,1) SATELLITE IMAGERY OF THE STUDY AREA .....	36
FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS.....	37
Figure 3.4: Soil Sampling Locations Around 10 Km Radius .....	41
Figure 3.5: Soil Map .....	42
FIGURE 3.7: SOIL SAMPLING COLLECTIONS .....	44
FIGURE 3.9: PHOTOGRAPHS OF WATER SAMPLING COLLECTIONS.....	45
Figure 3.6: Water Sampling Locations Around 10 Km Radius.....	47
Figure 3.7: Post Monsoon Water Level of Bore Well 1 Km Radius .....	52
Figure 3.8: Post Monsoon Water Level of Open Well 1 Km Radius .....	53

---



---

Figure 3.9: Drainage Map Around 10 Km Radius from Project Site .....	54
Figure 3.10: Ground Water Prospect Map.....	55
Figure 3.11: Windrose Diagram .....	57
Figure 3.12: Ambient Air Quality Locations Around 10 Km Radius .....	60
FIGURE 3.13: BAR DIAGRAM OF SUMMARY OF AIR QUALITY MODEL(AAQ1- AAQ7) .....	62
FIGURE 3.14 : BAR DIAGRAM OF PARTICULATE MATTER (PM <sub>2.5</sub> ) .....	63
FIGURE 3.15: BAR DIAGRAM OF PARTICULATE MATTER (PM <sub>10</sub> ).....	63
FIGURE 3.16: BAR DIAGRAM OF PARTICULATE MATTER (SO <sub>2</sub> ).....	64
FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER (NO <sub>x</sub> ).....	64
Figure 3.18: Noise Monitoring Stations Around 10 Km Radius .....	67
Figure 3.19: Day and Night Time Noise Levels In Core And Buffer .....	68
Figure 4.1: AERMOD Terrain Ma .....	96
Figure 4.2: Predicted Incremental Concentration of Fugitive Dus .....	96
Figure 4.3: Predicted Incremental Concentration of PM <sub>10</sub> .....	96
Figure No 4.4: Predicted Incremental Concentration Of PM <sub>2.5</sub> .....	97
Figure No 4.5: Predicted Incremental Concentration Of SO <sub>2</sub> .....	97
Figure No 4.6: Predicted Incremental Concentration of No <sub>x</sub> .....	97
Figure No 4.7: Ground Vibration Prediction .....	102

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## CHAPTER – 1: INTRODUCTION

### 1.0 Preamble

The project proponent M/s. Apple Granites, Multicolour Granite Quarry Extent 2.97.0Ha in S.F.No 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P), Kallai Village, Kulithalai Taluk, Karur District, Tamil Nadu State.

- Proponent applied for Multicolour Granite Quarry on 04.08.2014
- Lease granted vide G.O. Number G.O(3D). NO.3 Industries (MMB.2) Department Dated 25.01.2018 for a period of 20 years (21.02.2018 to 20.02.2038).
- The Mining plan was prepared for the period of 5 Years. The Mining Plan was approved by the Commissioner of Geology and Mining Department, Guindy, Chennai vide letter Rc.No. 269/MM2/2017 Dated 21.09.2017. The Mining plan period is 2018-19 to 2022-23.
- Scheme of Quarrying approved letter Rc.No. 8445/MM2/2022 dated 11.01.2023 for a period of five years.
- The Scheme of Mining plan has been approved for the quantity of 38,898m<sup>3</sup> of ROM (Granite Recovery @ 50% is 19,449m<sup>3</sup>) 3,009m<sup>3</sup> of Weathered Rock and 7,020m<sup>3</sup> of Topsoil up to the depth of 23m(2m Topsoil + 1m Weathered rock + 20m Multi Color Granite).

As per the EIA Notification, 2006 and subsequent amendments and OM The proposal falls in the B1 Category (cluster quarries - 1 proposed quarry and 2 existing quarries forming Cluster Category {Total Extent of the Cluster is 8.29.0Ha}- Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1<sup>st</sup> July 2016).

- Proponent applied for Terms of Reference vide Proposal No. SIA/TN/MIN/430899/2023, Dated:26.05.2023 and the ToR was granted vide Lr No.SEIAA-TN/F.No.10261/SEAC/ToR-1562/2023 Dated:27.09.2023.

Based on the ToR Baseline Monitoring study has been carried out for one season (**Post Monsoon**) i.e., **Oct – Dec2023** and this EIA and EMP report is prepared for considering cumulative impacts arising out of these projects, the Cumulative Environmental Impact Assessment study is undertaken, which is followed by preparation of a detailed Environmental Management Plan (EMP) to minimize those adverse impacts.

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

### 1.1 Purpose of the Report

The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14<sup>th</sup> September 2006 and its subsequent amendments as per Gazette Notification S.O. 1889 of 20<sup>th</sup> April 2022, Mining Projects are classified under two categories i.e. A (> 250 Ha) and B (≤ 250 Ha), and Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation in Appendix–XI.

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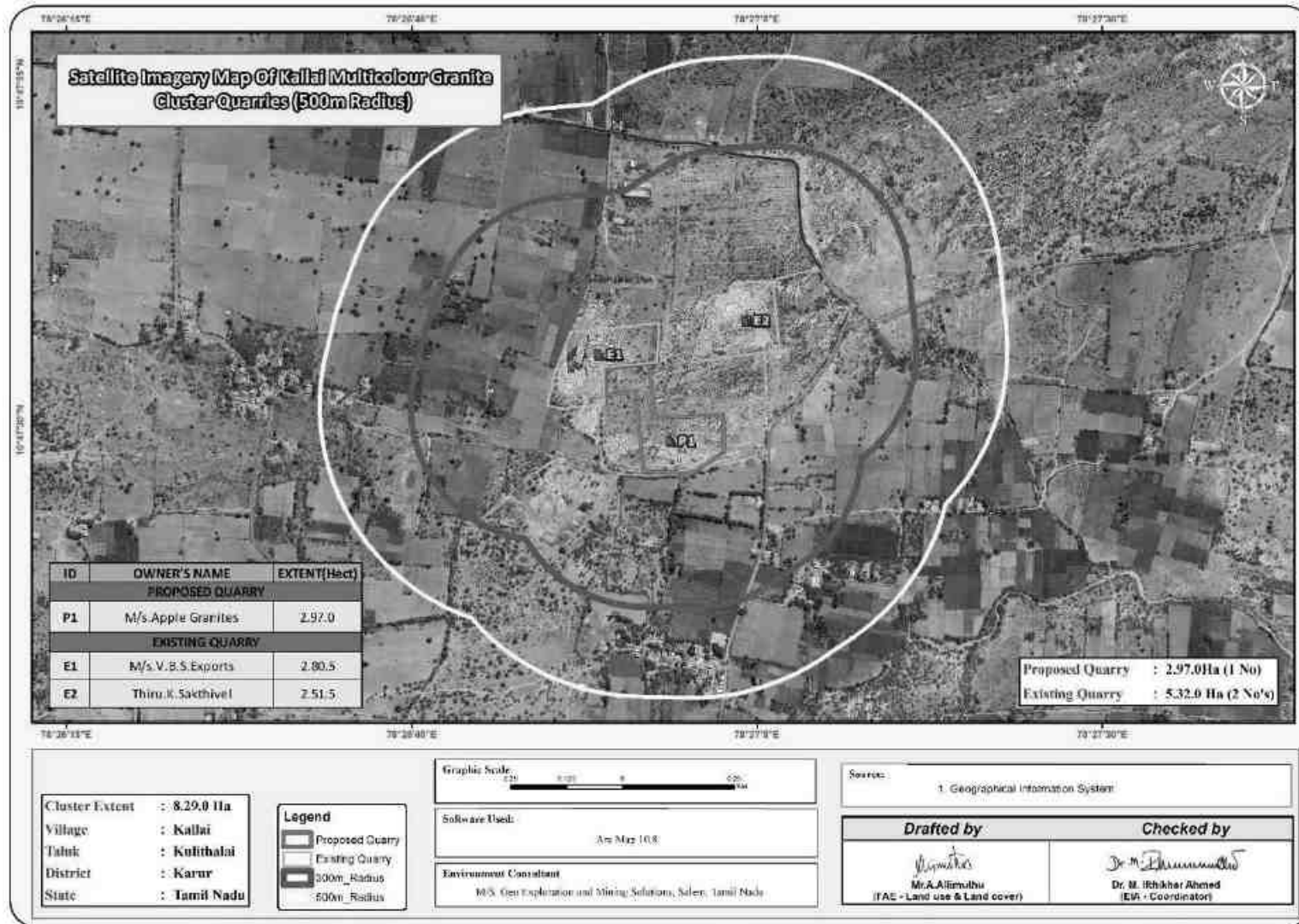
Now, as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018 clarified the requirement for EIA, EMP and therefore, Public Consultation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

The proposed 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.

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

**“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”**

Figure1.0: Cluster Quarries Map (500m Radius)



## 1.2 Identification of Project and Project Proponent

### 1.2.2 Identification of Project Proponent

**TABLE 1.3: DETAILS OF PROJECT PROPONENT**

<b>Name of the Project Proponent</b>	<b>M/s. Apple Granites</b> (Thiru. R. Subburaman - Managing Director)
<b>Address</b>	No. 95/2, Perur Udaiyappatty, Gudalur Village, Kulithalai Taluk, Karur District- 639 120
<b>Mobile</b>	+91 94430 5450
<b>E-Mail</b>	applegranites@yahoo.com
<b>Aadhar No</b>	8997 9055 5433
<b>Status</b>	Lease deed registered

Source: Approved Scheme of Mining Plan

## 1.3 Brief Description of the Project

### 1.3.1 Nature and Size of the Project

The quarrying operation is proposed to be carried out by Opencast Mechanized Mining method with 5.0m bench height and 5.0m bench width by deploying Hydraulic Excavator, Eco-friendly Diamond Wire Saw Cutting and minor amount of blasting only for removal of overburden and weathered portions.

On the basis of available reserves the life of the mine is computed and approved as 19 Years.

Proposed production for the Mining Plan Period (5 years) is described below–

#### Proposed Project

Total Mineable Recoverable Reserves of Granite @ 50%	=	73,534m <sup>3</sup>
Average Production per year @ 50%	=	19,449m <sup>3</sup> /5 Years = 3,890m <sup>3</sup>
Estimated Life of the quarry	=	73,534m <sup>3</sup> / 3,890m <sup>3</sup>
Life of the quarry	=	19 Years

**Table 1.4: Resources and Reserves of Project**

Description	ROM in m <sup>3</sup>	Granite recovery @50% in m <sup>3</sup>	Granite waste @50% recovery in m <sup>3</sup>	Weathered Rock in m <sup>3</sup>	Side Burden in m <sup>3</sup>	Top Soil in m <sup>3</sup>	Depth (m)
Geological Resources	2,02,268	1,01,134	1,01,134	25,096	3,19,708	50,192	23
Mineable Reserves	1,47,068	73,534	73,534	12,044	40,888	27,028	23
Year wise Production for Five years	38,898	19,449	19,449	3,009	-	7,020	23

Source: Scheme of approved mining plan.

**Table 1.5: Salient Features of the Proposed Projects**

Name of the Quarry	M/s. Apple Granites Multi Colour Granite quarry
SF.no	299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P)
Extent	2.97.0Ha
Village & Taluk	Kallai Village, Kulithalai Taluk
Lease period	20 years
Scheme of Mining Plan Period	5 Years
Life of the Mine	19 years
Existing Depth	10m
Previous History and CCR	Previous Mining plan period – 2018 -19 to 2022 – 23 EC.No: Lr. No. DEIAA-DIA/TN/MIN/9629/2017-KRR/EC.No.88/201/Mines Dated: 18.01.2018

	CCR Letter No: EP/12.1/2023-24/SEIAA/57/TN/913 date 28.07.2023				
TNPCB Clearance details	No.F.0848KAR/RS/DEE/TNPCB/KAR/W/2022 Dated: 16.02.2022				
Land use classification	It is a Patta land, Classified as Punjai and the entire land is covered by Granite boulders and sheet rock.				
Previous lease particulars	It is Patta land, registered in the name of Thiru. A. Meganathan, S/o. Angathevar, Thiru.R.Sudalaimuthu, S/o. S.Ramasamy, Thiru.K.Paramasivam, S/o. Krishnasamy and Thiru.R.Subburaman, S/o.Ramasamy vide patta no.1826. The Pattadhars has given consent letter to the company for quarrying operations for a period of 35 years				
Proposed Depth for five years plan period	23m(2m Topsoil + 1m Weathered rock + 20m Multi Colour Granite)				
Ultimate depth of Mining	23m(2m Topsoil + 1m Weathered rock + 20m Multi Colour Granite)				
Existing Pit Dimension	<b>Pit</b>	<b>RL</b>	<b>Ex Pit RL</b>	<b>Area in m<sup>2</sup></b>	<b>Total Depth (m)</b>
	Depth – 1	117	107	1276	10
	Depth - 2	117	111	204	6
Ultimate Pit Dimension	153m(L) x 98m (W) x 23m (D)				
Toposheet No	58-J/05				
Latitude between	10°47'26.9261''N to 10°47'34.8130''N				
Longitude between	78°26'54.0048''E to 78°27'02.6395''E				
Topography	The area is exhibits flat terrain. The gradient is gentle towards South side and altitude of the area is <b>116m to 122m above</b> from MSL. The Multi-Colour granite is covered with 2.0m thickness of soil and 1m weathered rock.				
Ground water level	The water level is found to occur at a depth of 64m in summer and 59m in rainy season below from the ground level.				
Machinery proposed	Jackhammer				4
	Compressor				1
	Crawler crane				1
	Excavator				2
	Tipper				1
	Diesel Generator				1
	Diamond wire saw				2
Proposed manpower deployment				48	
Project cost				Rs.2,64,79,000/-	
CER cost				Rs. 5,00,000/-	
Nearby Water Bodies	<ul style="list-style-type: none"> <li>• Tank-80m_SW</li> <li>• Nallur Tank-2.5Km_NE</li> <li>• Canal-2.8Km_E</li> <li>• Odai-3Km_NW</li> <li>• Gudalur Lake-3km_SW</li> <li>• Tank-4Km_SE</li> <li>• Kavalaivaari Canal-6.2Km_NE</li> <li>• Kalugur Eri-7.8Km SW</li> </ul>				
Nearest Habitation	360 m – South				
Nearest Reserve Forest	Viramalai R.F. 10.67 Km – South West				
Nearest Wild Life Sanctuary	Kadavur Slender Loris Santuary -30km-SW				

Source: Scheme of approved mining plan.

### 1.3 BRIEF DESCRIPTION OF THE PROJECT

#### 1.3.1 Nature and Size of the Project

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

The peak production of Multi –Colour granite is 7,794.3m<sup>3</sup> of ROM maximum in a year (26m<sup>3</sup> per day/ 2 Tippers per day considering 12m<sup>3</sup> per load). The depth of the mining is 23m Bgl.



### 1.3.2 Location of the Project

- The area is located in **S.F.Nos.** 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) **of Kallai Village, Kulithalai Taluk, Karur District, Tamilnadu.**
- The entire quarry lease area falls in the Patta land, the area is situated in almost flat terrain.
- The Altitude of the area is ranges from **116m to 122m above from MSL**
- The area is mentioned in GSI Topo sheet No. **58-J/ 05.**
- The Latitude between of **10°47'26.9261''N to 10°47'34.8130''N**
- The Longitude between of **78°26'54.0048''E to 78°27'02.6395''E**

**Figure 1.1: Key Map Showing the Location of the Project Site**

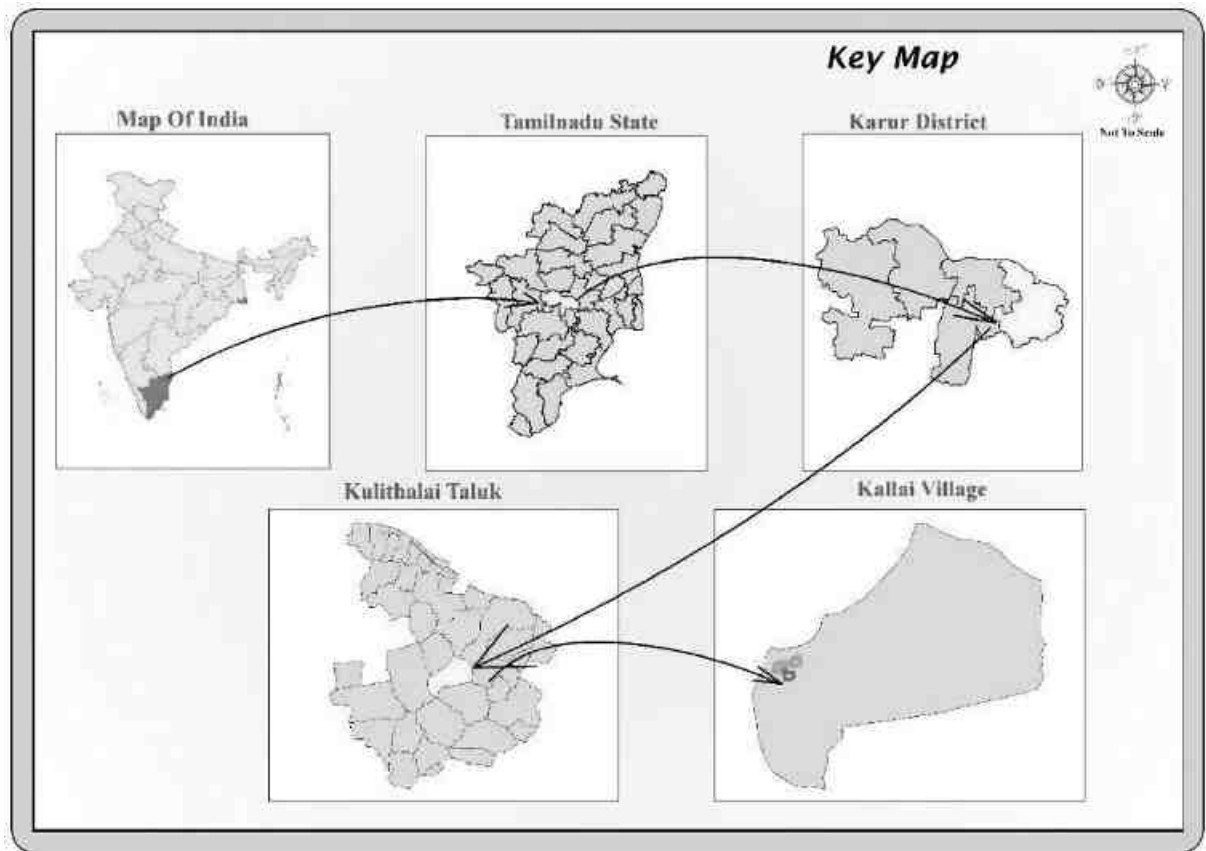
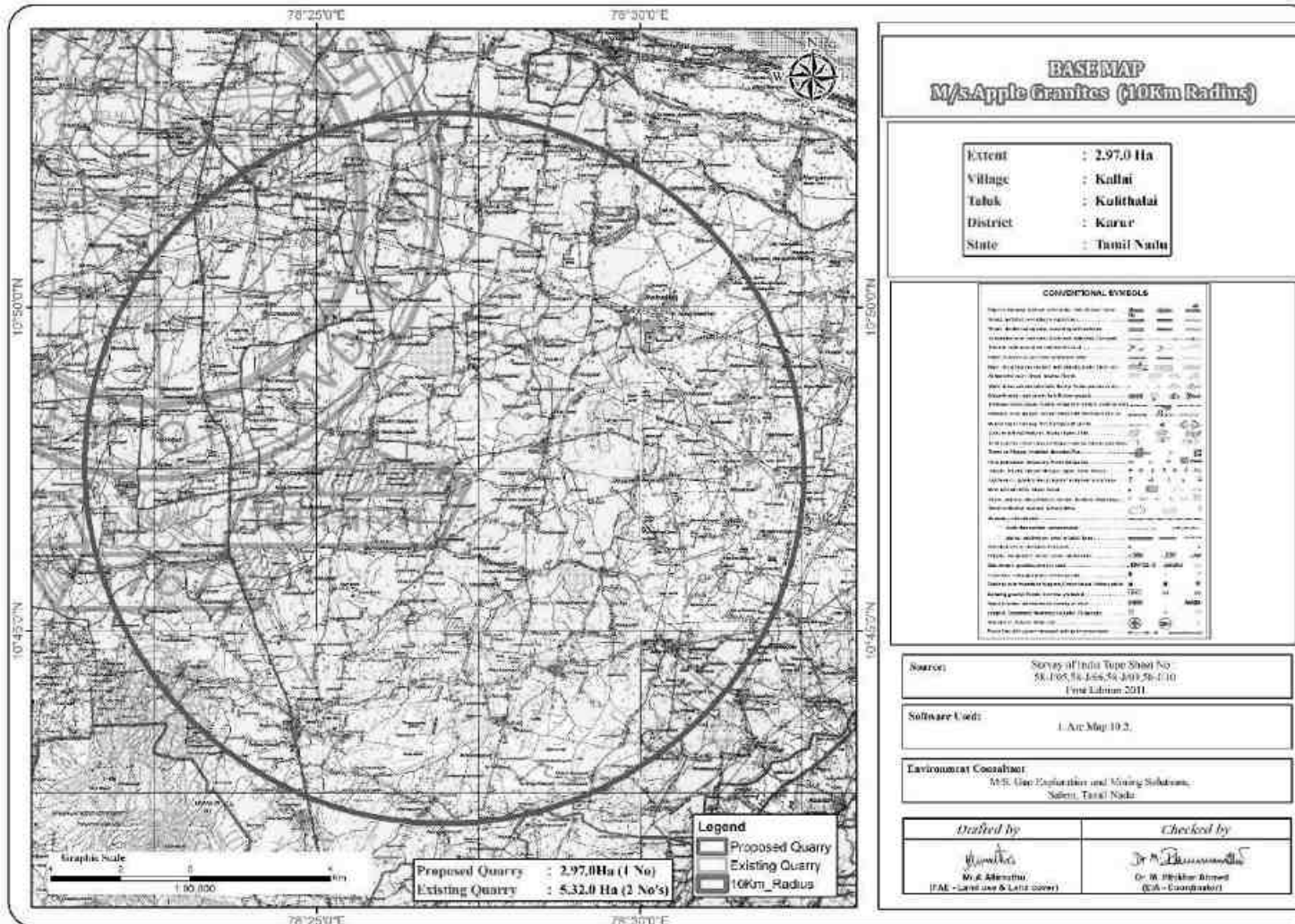


Figure 1.2: Toposheet Map of the Study Area 10 Km Radius





#### 1.4 Environmental Clearance

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

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

#### SCREENING

- ☞ Proponent applied for Multicolour Granite Quarry on 04.08.2014
- ☞ Lease granted vide G.O. Number G.O(3D). NO.3 Industries (MMB.2) Department Dated 25.01.2018 for a period of 20 years (21.02.2018 to 20.02.2038).
- ☞ The Mining plan was prepared for the period of 5 Years. The Mining Plan was approved by the Commissioner of Geology and Mining Department, Guindy, Chennai vide letter Rc.No. 269/MM2/2017 Dated 21.09.2017. The Mining plan period is 2018-19 to 2022-23.
- ☞ Scheme of Quarrying approved letter Rc.No. 8445/MM2/2022 dated 11.01.2023 for a period of five years.
- ☞ Proponent applied for Terms of Reference vide Proposal No.SIA/TN/MIN/430899/2023, Dated:26.05.2023

#### SCOPING

- The proposal was placed in 407<sup>th</sup> SEAC meeting held on 07.09.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 658<sup>th</sup> SEIAA meeting held on 26.09.2023 & 27.09.2023 and issued ToR vide Lr No.SEIAA-TN/F.No.10261/SEAC/ToR-1562/2023 Dated:27.09.2023.

#### PUBLIC CONSULTATION

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

#### APPRAISAL

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

The report has been prepared using the following references:

- Guidance Manual of Environmental Impact Assessment for Mining of Minerals, Ministry of Environment and Forests, February, 2010
- EIA Notification, 14<sup>th</sup> September, 2006  
ToR vide Lr.No. SEIAA-TN/F.No.10261/SEAC/ToR-1562/2023 Dated:27.09.2023
- Scheme of Approved Mining Plan of this project
- In addition, other relevant standards for individual activities such as Sampling and Testing of Environmental attributes have been followed

#### 1.5 Post Environment Clearance Monitoring

The proposed project proponent shall submit a half-yearly compliance report in respect of stipulated Environmental Clearance terms and conditions to MoEF & CC Regional Office & SEIAA after grant of EC on 1<sup>st</sup> June and 1<sup>st</sup> December of each calendar year as per MoEF & CC Notification S.O. 5845 (E) Dated: 26.11.2018.

#### 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. 1.6.

**TABLE 1.6 – 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 lease. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the Post Monsoon season Oct 2023 to Dec 2023 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project.

**TABLE 1.7 – ENVIRONMENT ATTRIBUTES**

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub>	24 hourly samples twice a week for three months at 7 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, Perambalur.

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 Multicolour granite quarry has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959
- ToR vide Lr No.SEIAA-TN/F.No.10261/SEAC/ToR-1562/2023 Dated:27.09.2023.

## 2. PROJECT DESCRIPTION

### 2.0 General

Applied Proposed Quarry in Kallai Village, Kulithalai Taluk, Karur District and Tamil Nadu State falls under Cluster Situation as per MoEF & CC Notification S.O. 2269(E) Dated 1<sup>st</sup> July 2016 and the total extent of cluster is 8.29.0ha consisting of three quarries. As the extent of cluster is more than 5 ha, the proposal falls under B1 Category as per the Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018, and requirement for EIA, EMP and Public Consultation for obtaining Environmental Clearance.

### 2.1 Description of the Project

The Proposed project is located in Kallai Village, Kulithalai Taluk, Karur District and Tamil Nadu State. 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 quarry.

MultiColour granite quarry operation will be carried out by opencast mechanized method involving Eco-friendly Diamond Wire Saw Cutting, Heavy earth moving machineries like Excavators Trucks for Granite exploitation. Shot hole drilling with controlled blasting using slurry explosives for removal of overburden and Weathered portions during initial stage of quarry operation.

### 2.2 Location of the Project

- The area is located in *S.F.Nos. 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) of Kallai Village, Kulithalai Taluk, Karur District, Tamilnadu.*
- The entire quarry lease area falls in the Patta land, the area is situated in almost flat terrain.
- The Altitude of the area is ranges from **116m to 122m above from MSL**
- The area is mentioned in GSI Topo sheet No. **58-J/ 05.**
- The Latitude between of **10°47'26.9261''N to 10°47'34.8130''N**
- The Longitude between of **78°26'54.0048''E to 78°27'02.6395''E**

**Table 2.1: Site Connectivity to the Project Area**

<b>Nearest Roadway</b>	NH81 - Trichy – Karur– 13.0km-NE SH-71 Musiri – Pudukkottai – 6.0km-West
<b>Nearest Village</b>	Kulanthaipatty – 360m - South
<b>Nearest Town</b>	Kulithalai- 14.0km - NE
<b>Nearest Railway Station</b>	Pettavaitalai Railway Station - 13.0km – NE
<b>Nearest Airport</b>	Trichy Airport - 29km- East
<b>Seaport</b>	Cuddalore-177km-NE
<b>Interstate Boundary</b>	139 km – NE – Karaikal Union Territory boundary

Source: Survey of India Toposheet

**Table 2.2: Boundary Co-Ordinates of Proposed Project**

Boundary Pillar No.	Latitude	Longitude
1	10°47'27.0034"N	78°26'56.8121"E
2	10°47'32.8020"N	78°26'56.2115"E
3	10°47'32.5283"N	78°26'54.0048"E
4	10°47'34.4795"N	78°26'54.0479"E"
5	10°47'34.8130"N	78°26'57.2477"E
6	10° 47'30.8576"N	78° 26'57.4769"E
7	10°47'30.9842"N	78°27'00.1057"E
8	10°47'31.1131"N	78°27'02.4841"E
9	10°47'30.2223"N	78°27'02.5972"E
10	10°47'28.4468"N	78°27'02.6395"E
11	10°47'26.9991"N	78°27'00.5332"E
12	10° 47'26.9261"N	78°27'00.3644"E

**Figure 2.1: Photographs of the Project Area**





Figure 2.3: Google Image Showing Project Area

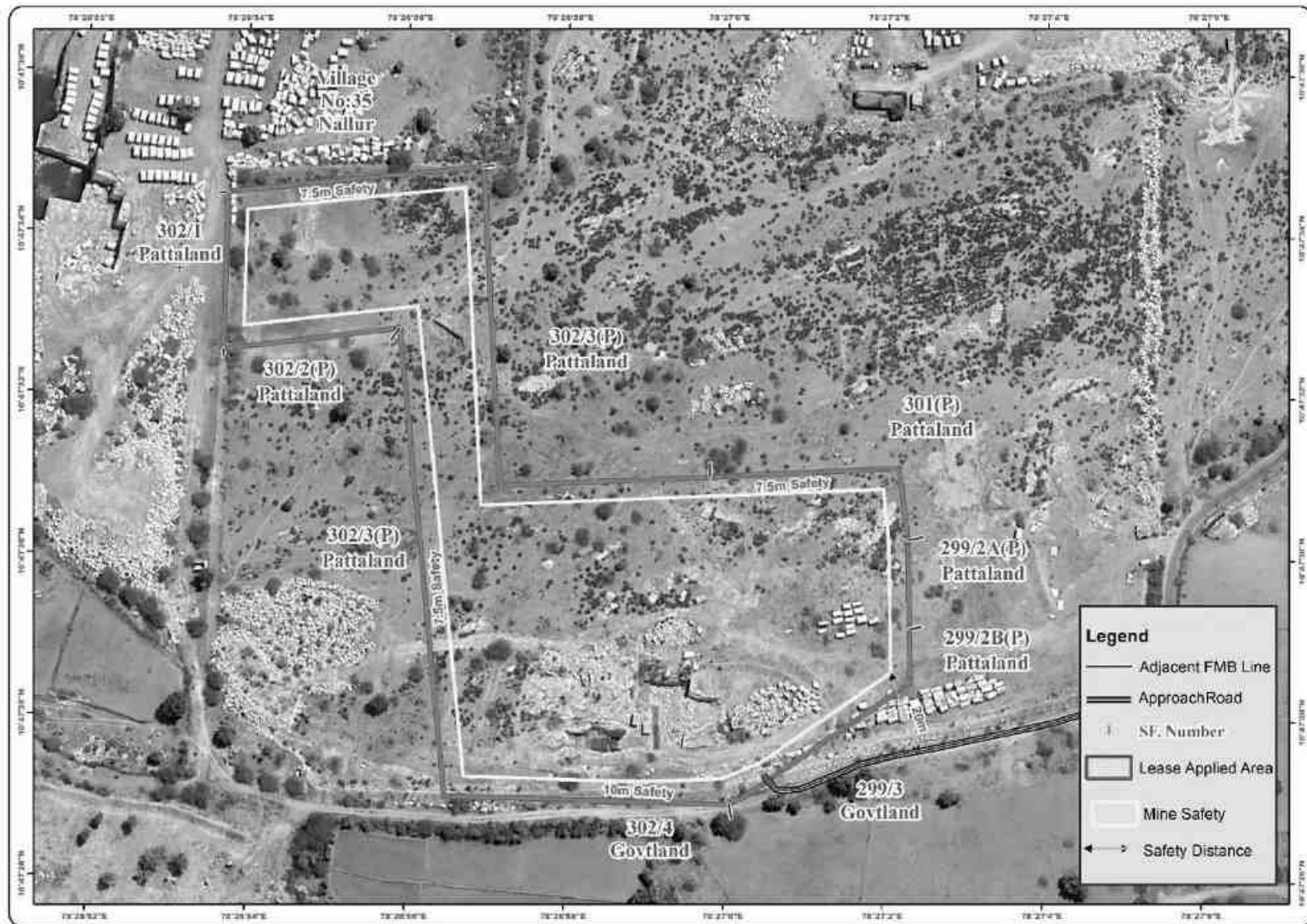


Figure 2.4: Quarry Lease Plan & Surface Plan

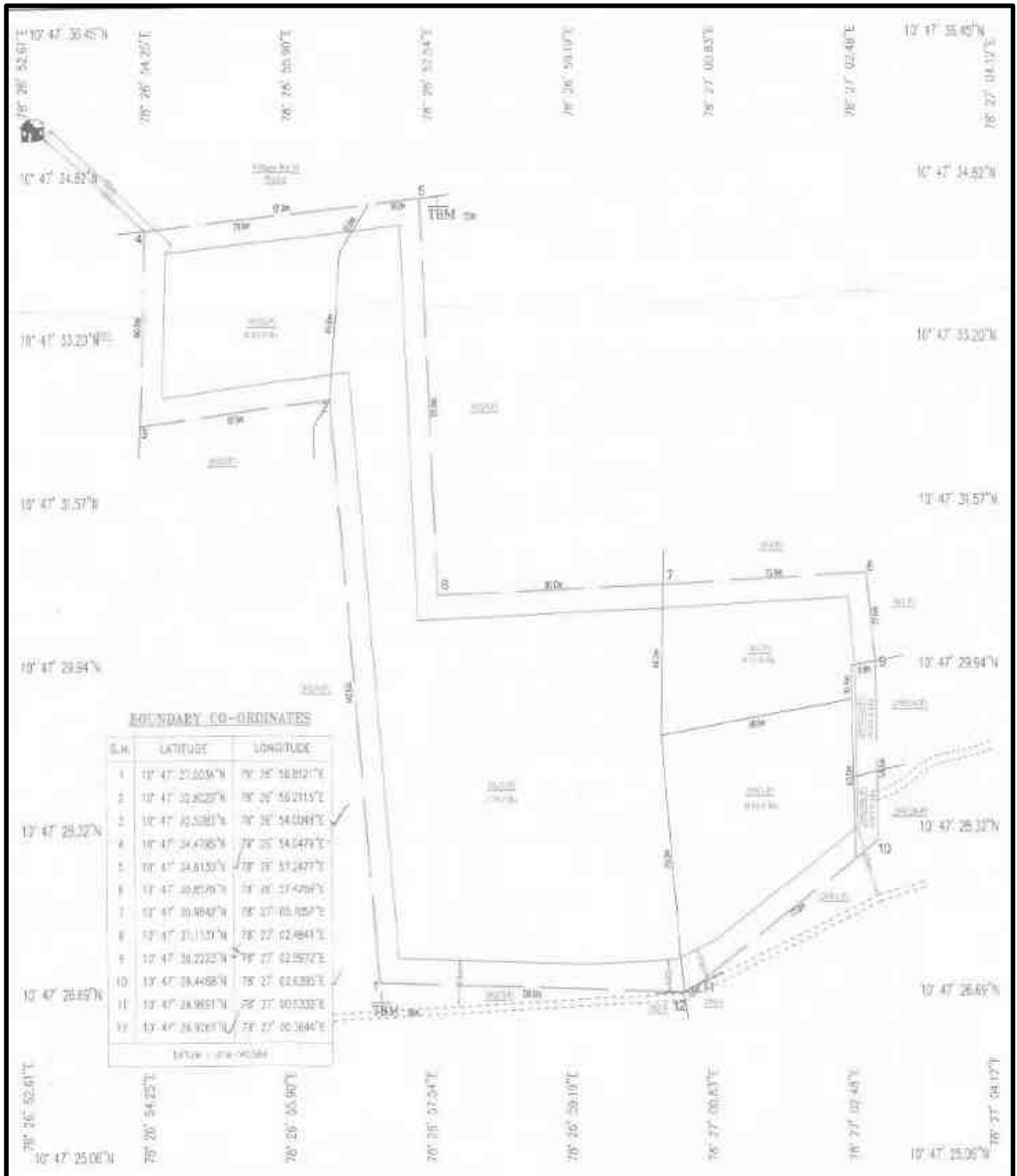


Figure 2.5: Image Showing Surface Features Around 10 Km Radius

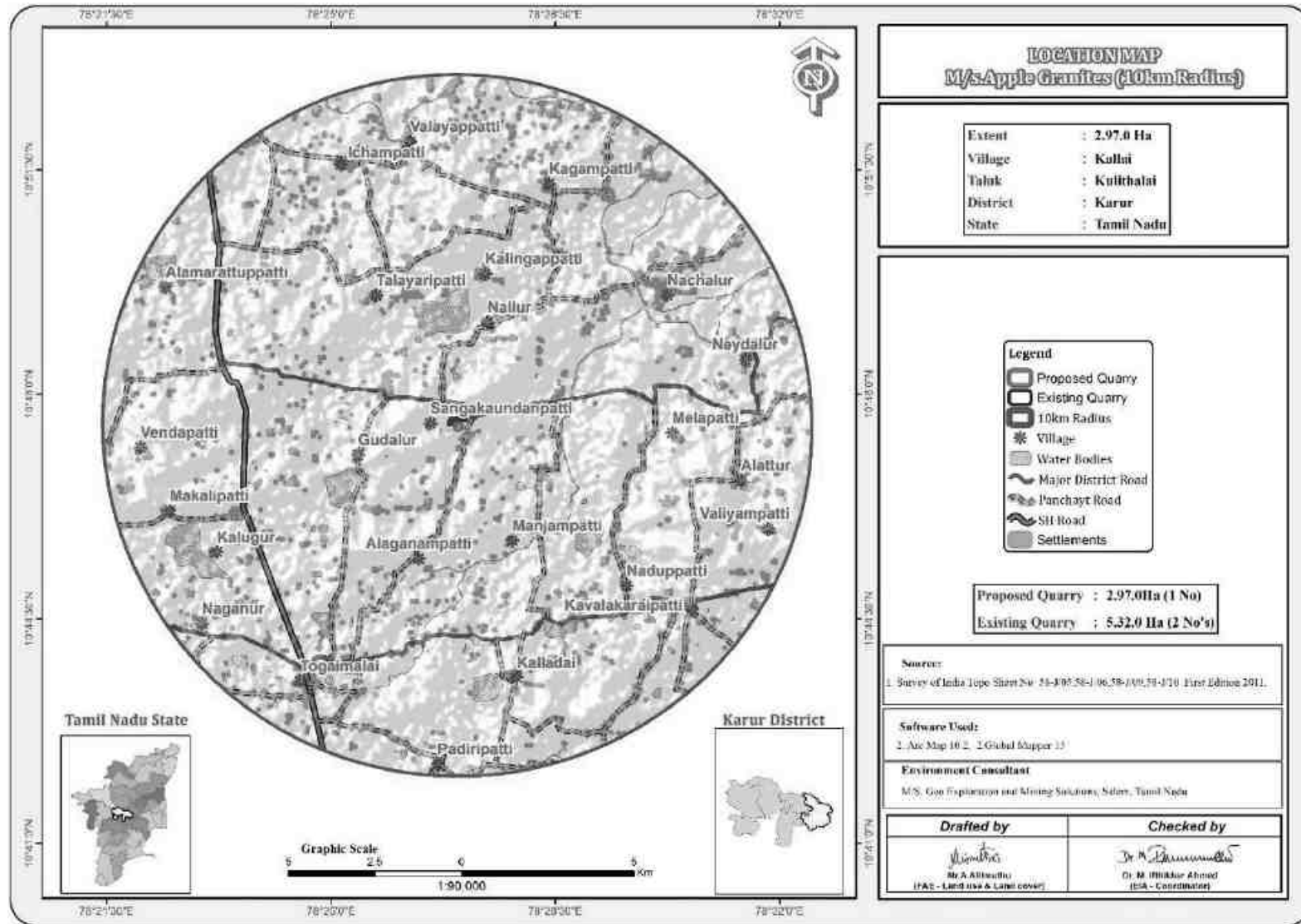


Figure 2.6: Image Showing Surface Features Around 5km Radius

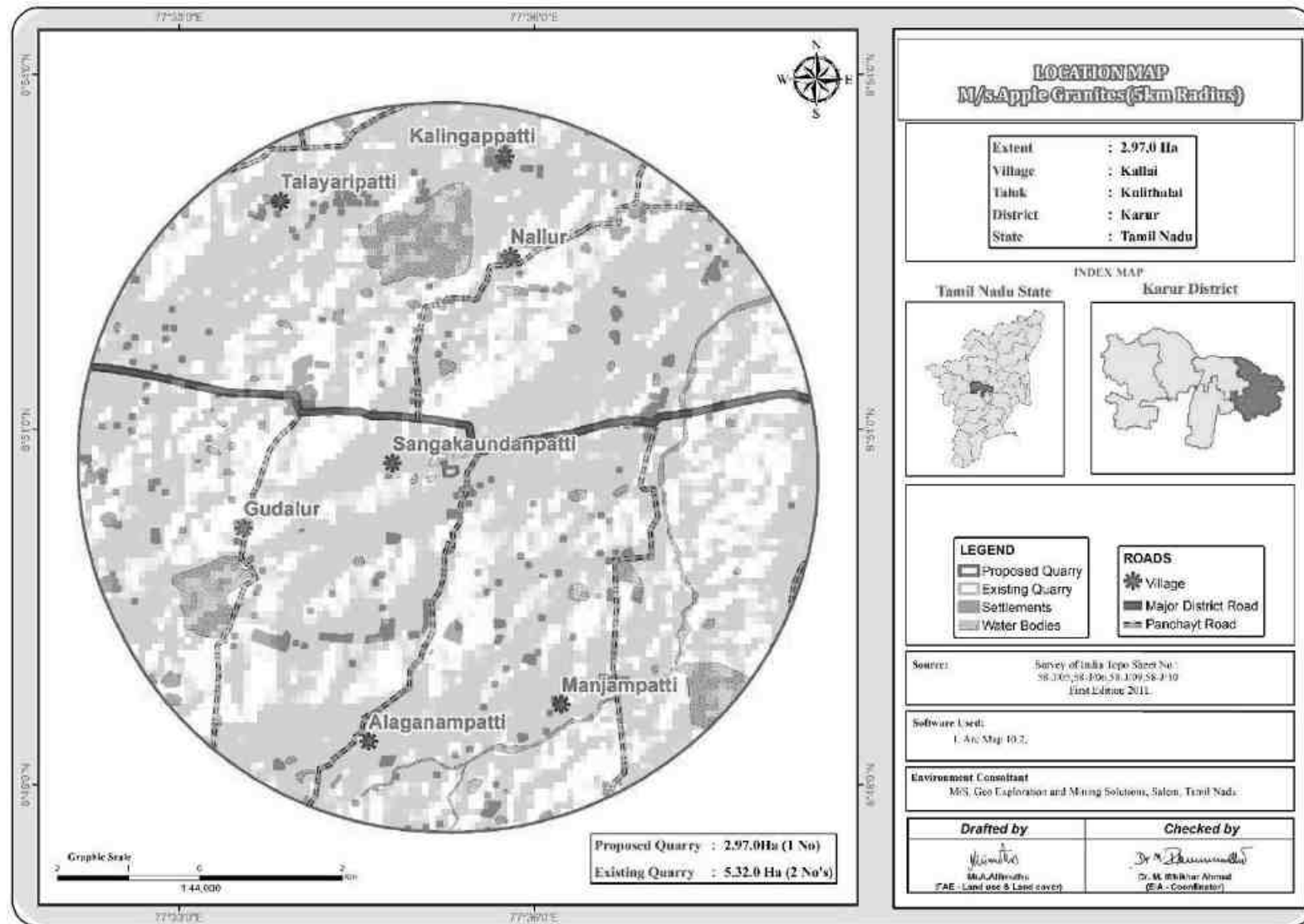
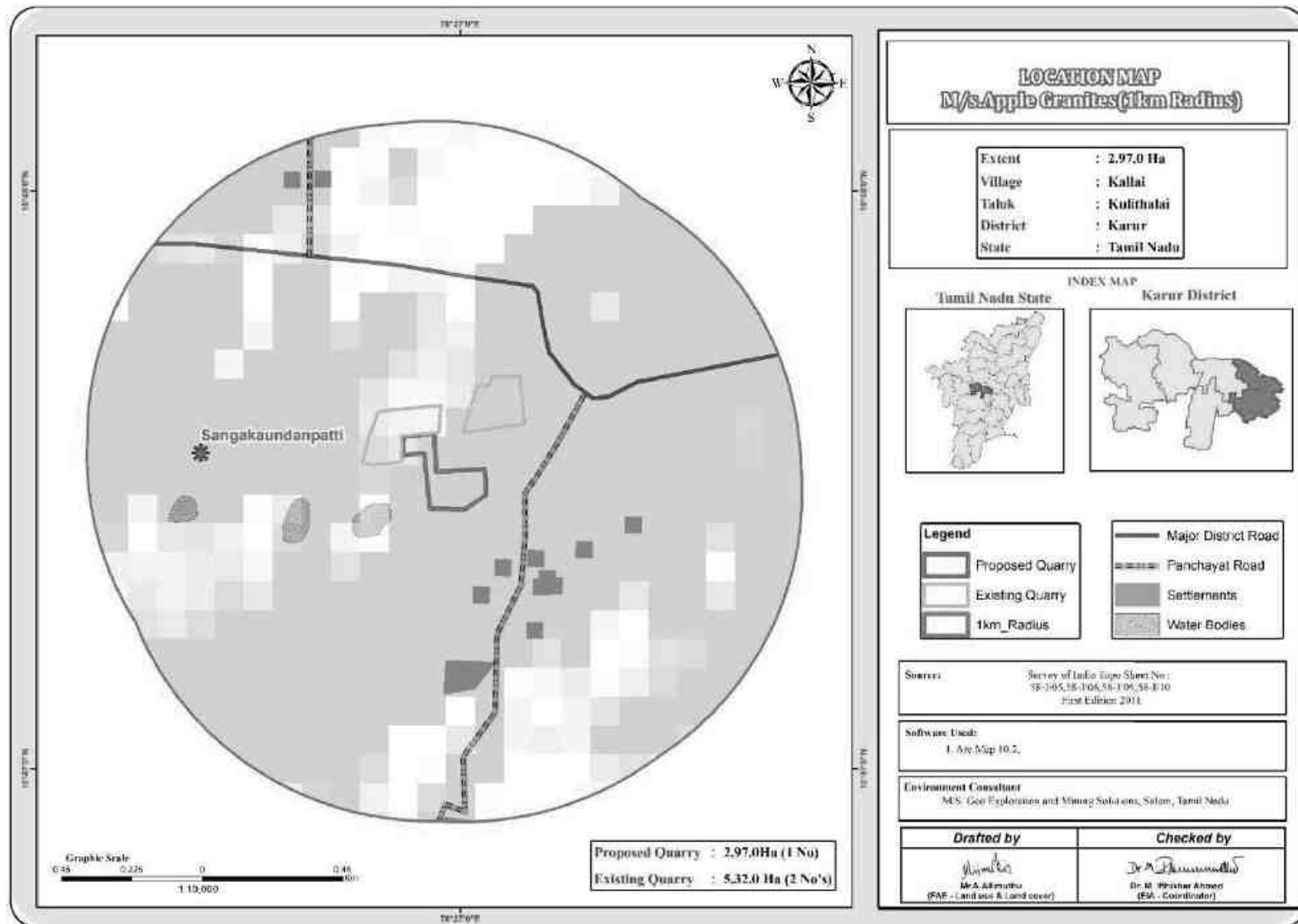


Figure 2.7: Image Showing Surface Features Around 1 Km Radius



### 2.2.1 Project Area

- The Topography of the Proposed Project is flat topography, with Granite outcrops, which is site specific, Non – Captive use, opencast Mechanized quarry.
- There is No beneficiation or processing proposed inside the project area.
- Elevation is 116 to 122m above from MSL, showing gentle gradient towards Southside.
- There is Viramalai R.F. 10.5 Km – South West, forest land involved in the proposed project area.

**Table 2.3: Land Use Pattern of Proposed Project**

<i>Description</i>	<i>Present Area (Ha)</i>	<i>Area required during this Scheme period (Ha)</i>	<i>Area at the end of quarry (Ha)</i>
Area under Quarry	0.14.7	0.36.6	1.34.7
Waste dump	0.56.4	Nil	Back Filking
Infrastructure	Nil	Nil	Nil
Roads	0.01.0	0.01.0	0.03.0
Green Belt	Nil	0.42.3	0.68.5
Stocking Blocks	2.24.9	1.45.0	0.90.8
<b>Grand Total</b>	<b>2.97.0</b>	<b>2.24.9</b>	<b>2.97.0</b>

Source: Schme of Approved mining plan

### 2.2.2 Size or Magnitude of Operation

**Table 2.4: Operational Details**

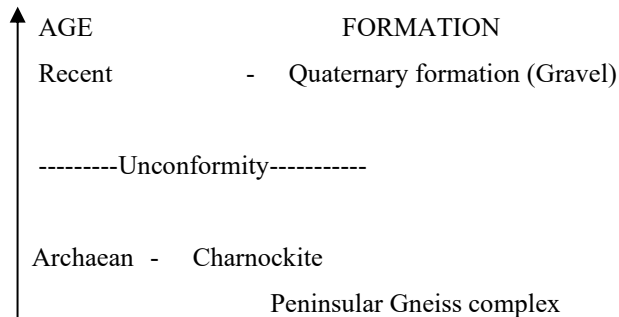
<b>Description</b>	<b>Details</b>
<b>Geological Resources ROM</b>	2,02,268
Granite Recovery (50% in m <sup>3</sup> )	1,01,134
Granite Waste (50% in m <sup>3</sup> )	1,01,134
Weathered rock(m <sup>3</sup> )	25,096
Side Burden(m <sup>3</sup> )	3,19,708
Top Soil in m <sup>3</sup>	50,192
<b>Mineable Reserves ROM</b>	1,47,068
Granite Recovery (50% in m <sup>3</sup> )	73,534
Granite Waste (50% in m <sup>3</sup> )	73,534
Weathered rock (m <sup>3</sup> )	12,044
Side Burden (m <sup>3</sup> )	40,888
Top Soil in m <sup>3</sup>	27,028
<b>Proposed Production for five years plan period ROM</b>	38,898
Granite Recovery (50% in m <sup>3</sup> )	19,449
Granite Waste (50 % in m <sup>3</sup> )	19,449
Weathered rock(m <sup>3</sup> )	3,009
Top Soil in m <sup>3</sup>	7,020
Number of Working Days	300
Production of ROM per day in five-year plan period	26
Production of Granite per day in m <sup>3</sup>	13
Total Waste per day (Granite waste)	13
No of Lorry Loads per day for Transportation to Granite cutting units in m <sup>3</sup>	1
No of Lorry loads for dump	1

Source: Scheme of Approved mining plan

**2.3 GEOLOGY**

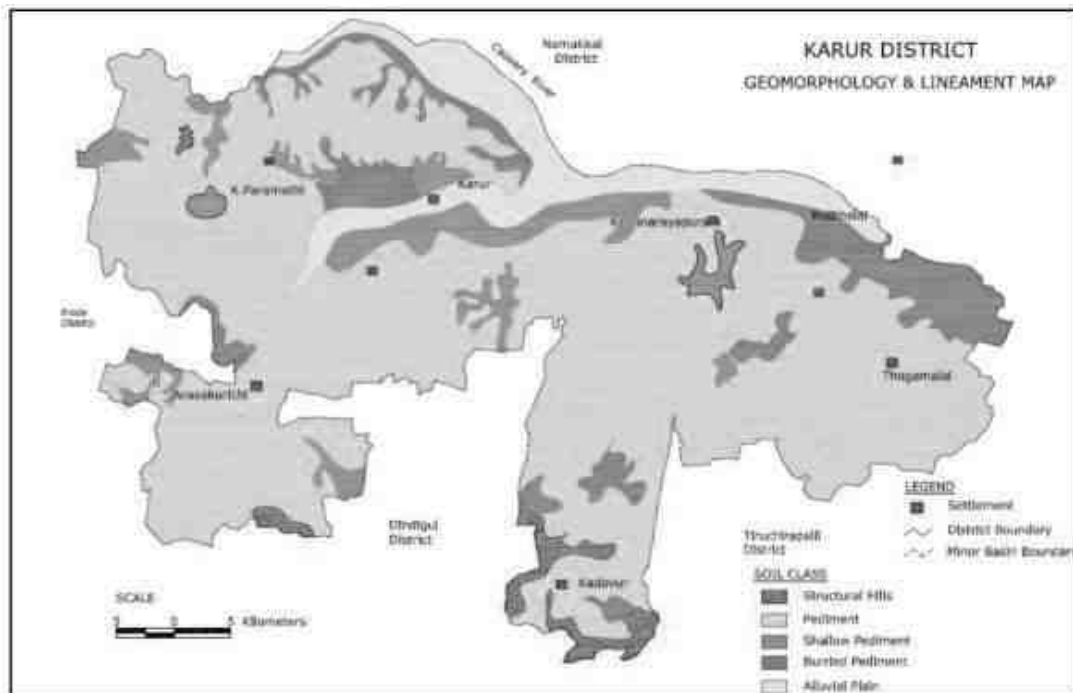
Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite body N40°E – S40°W with dipping towards SE60°.

Regional stratigraphic sequence:



**Geomorphology**

The entire area of the district is a pediplain. The Rangamalai hills and Kadavur hills occurring in the southern side of the district constitutes the remnants of the much denuded Eastern Ghats and rise to heights of over 1031m above mean sea level. There are numerous small residual hills represented by Ayyarmalai, Thanthonimalai and Velayuthampalayam hills. The general elevation of the area is ranging between 100 m and 200m above mean sea level. The prominent geomorphic units identified in the district through interpretation of Satellite imagery are 1) Structural hill, 2) Pediments, 3) Shallow Pediments, 4) Buried Pediments and 5) Alluvial plain. An overall appraisal of groundwater occurrence in each geomorphic unit and the significance of its hydro geological characters are given, geomorphology and lineament details are given.



### 2.3.2 Local Geology:-

Geologically, the entire district can be classified into hard rock and sedimentary formations. Hard rock Formation: - More than 90 percent of the district is underlain by hard rock of Archaean age. The gneissic type of Formation is the major formation among the various types of hard rocks. Charnockite occurs in this district as pockets in Karur and Aravakurichitaluks. Quartzites which are resistant to weathering are also seen as patches in Charnockite and gneissic varieties and the above rock types are shown in Figure 3.5. Sedimentary Formation: - Recent alluvial deposits such as sand, silt, clay, gravel etc. which are transported sediments by river are found on either side of Cauvery river in Karur, Kulithalai and Kulithalaiblocks. These formations are overlying the hard rock.

### 2.3.3 Hydrogeology

Karur district is underlain entirely by Archaean Crystalline formations with Recent alluvial deposits occurring along the river and streams courses. Weathered, fissured and fractured crystalline rock sand these recent alluvial deposits constitute the important aquifer systems in the district. The hard consolidated crystalline rocks of Archaean age represent weathered, fissured and fractured formations of gneisses, granites, charnockites and other associated rocks. The Specific capacity of large diameter wells tested in crystalline rocks from 31 to 200 lpm / m. of drawdown. The yield characteristics of wells vary considerably depending on the topographic set-up, lithology and the degree of weathering.

Source: <https://karur.nic.in/departments/geology-mining/>

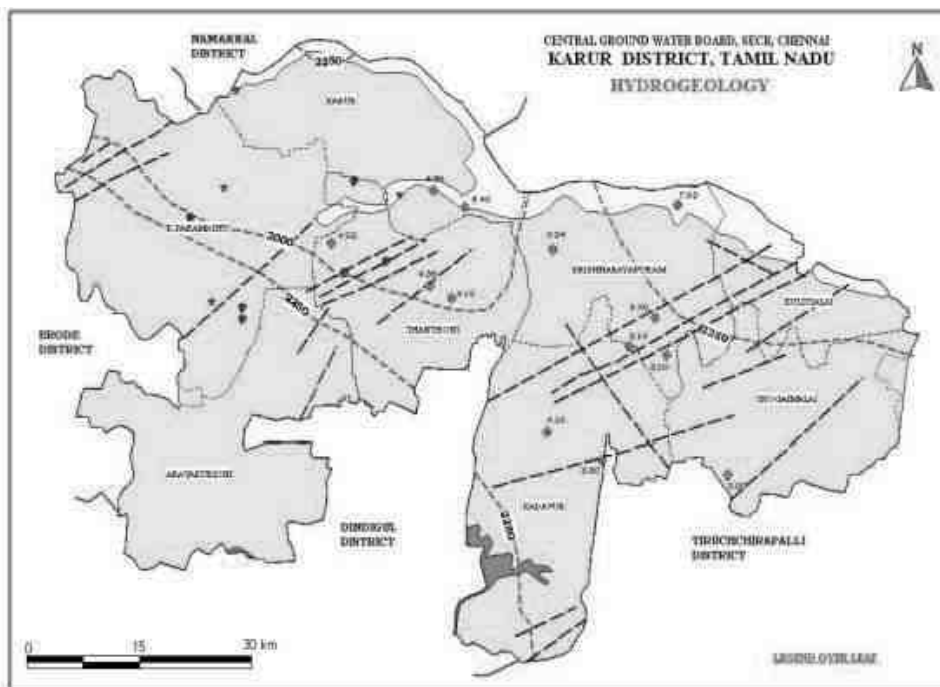




Figure 2.7: Regional Geology Map

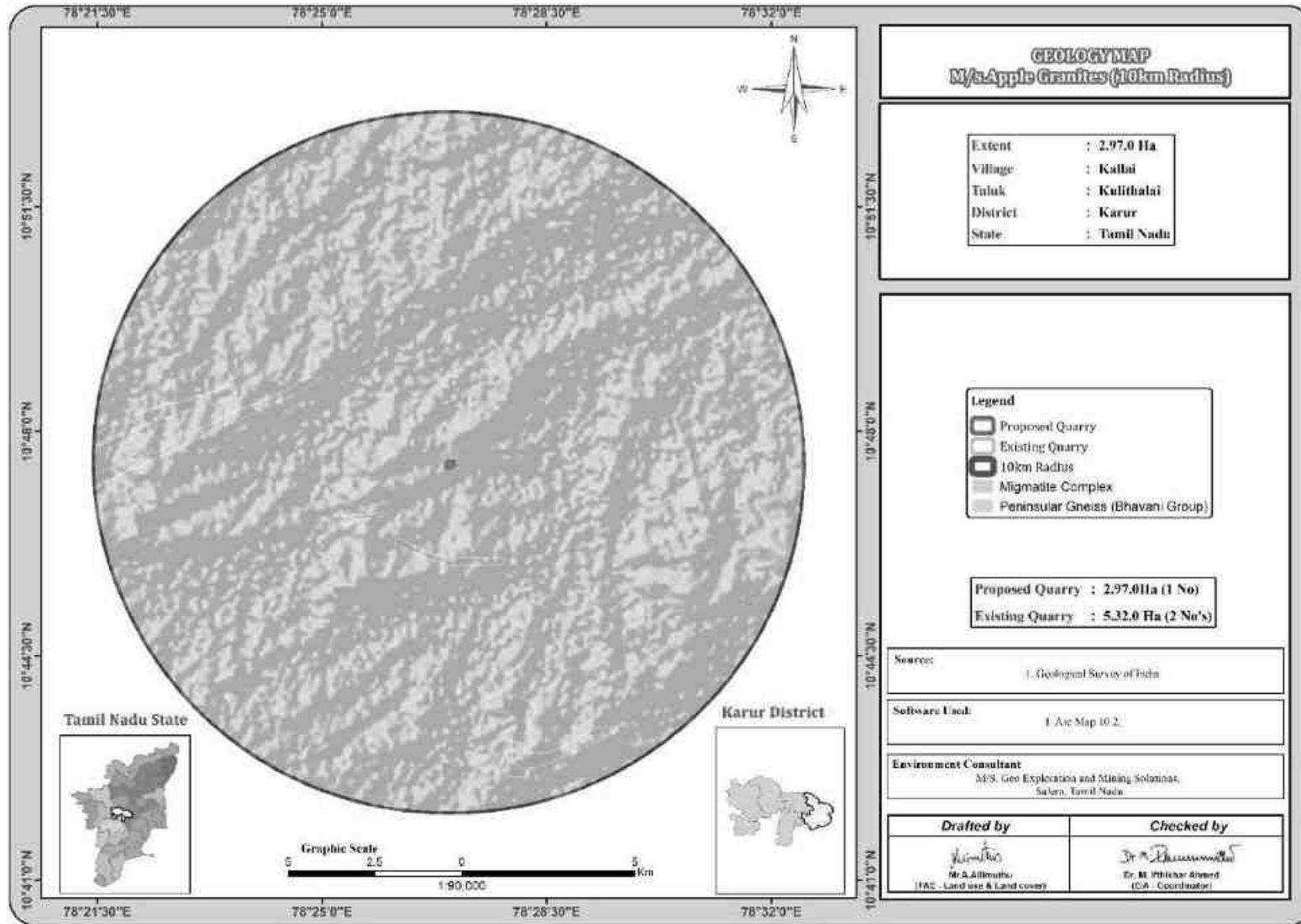


Figure 2.8: Geomorphology Map of The Study Area

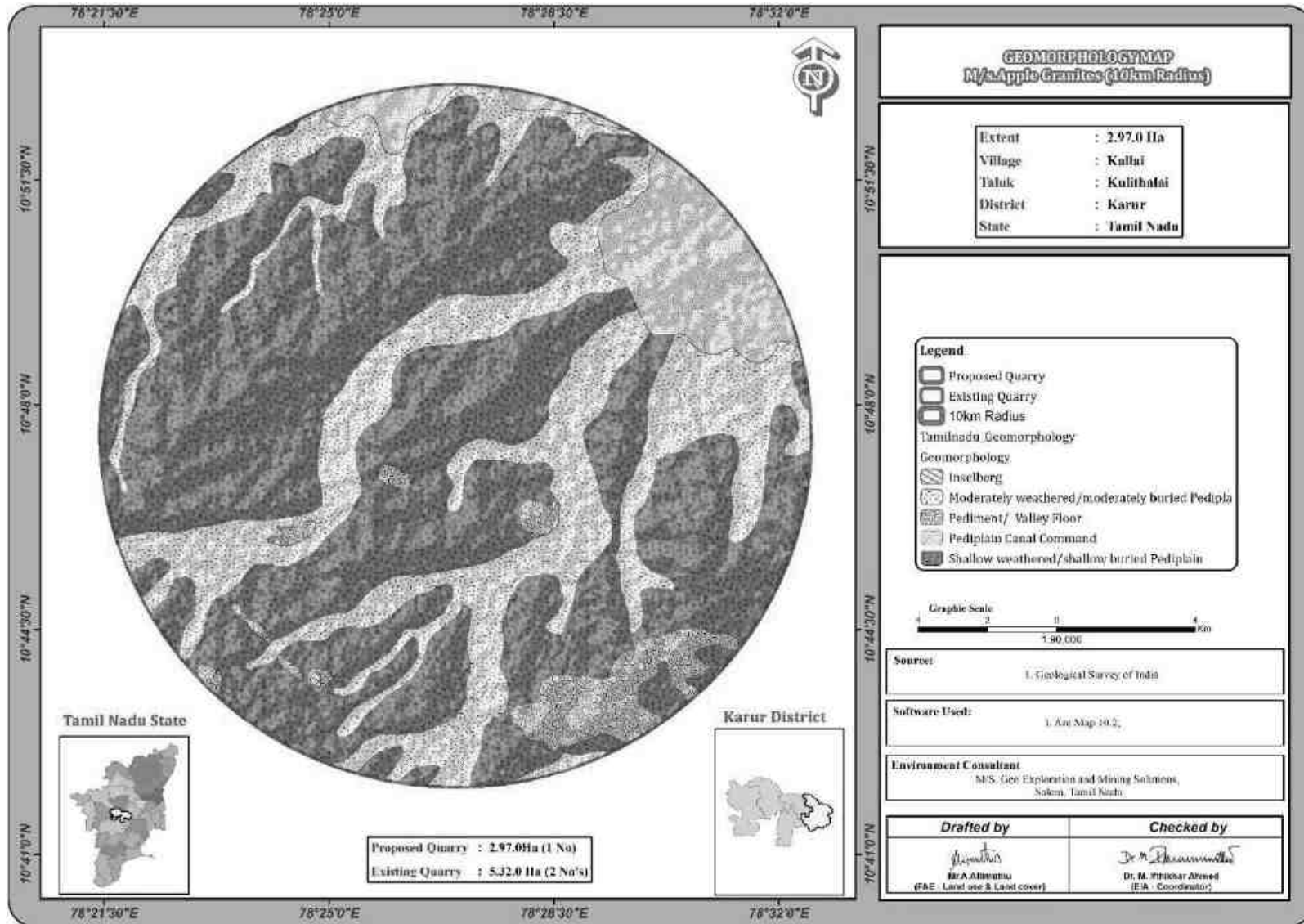
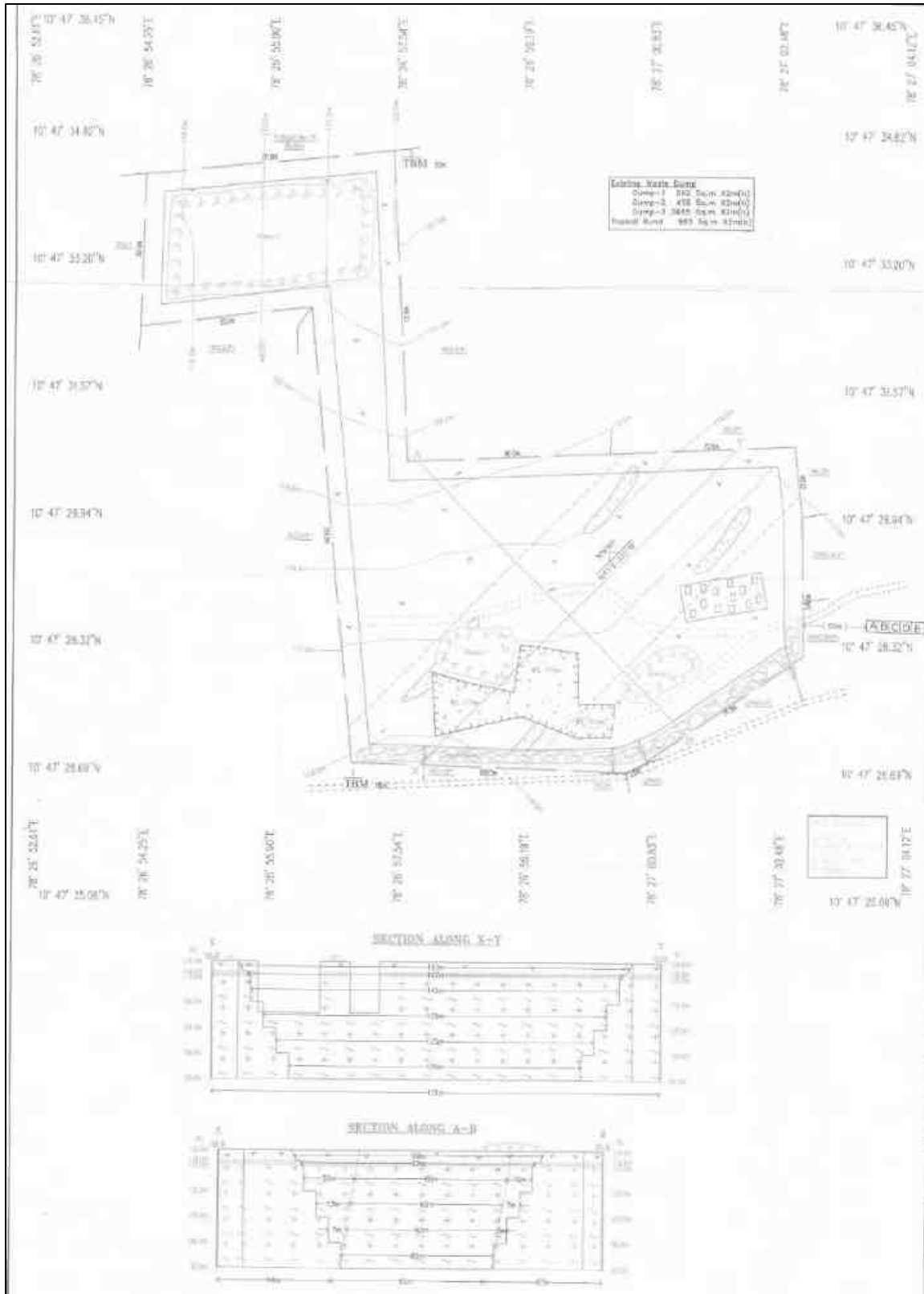


Figure 2.9: GEOLOGICAL PLAN AND SECTION



Source: Scheme of Approved mining plan

Figure 2.10: Year-Wise Development Production Plan and Section



Source: Scheme of Approved mining plan

## 2.4 Resources and Reserves

Multi Colour Granite is occurring beneath the surface, Granite outcrops are visible in some places within the project area.

**Table 2.5 Resources, Reserves**

Details	ROM (m <sup>3</sup> )	Granite Recovery @ 50% (m <sup>3</sup> )	Granite Waste @ 50% (m <sup>3</sup> )	Side burden (m <sup>3</sup> )	Weathered Rock (m <sup>3</sup> )	Topsoil (m <sup>3</sup> )
<b>Geological Resources</b>	2,02,268	1,01,134	1,01,134	3,19,708	25,096	4,45,938
<b>Mineable Reserves</b>	1,47,068	73,534	73,534	40,888	12,044	27,028

Source: Scheme of Approved mining plan

**Table 2.6 Year wise Production for Five years plan**

Year	ROM (m <sup>3</sup> )	Recovery @ 50% (m <sup>3</sup> )	Granite Waste @ 50% (m <sup>3</sup> )	Weathered Rock (m <sup>3</sup> )	Topsoil (m <sup>3</sup> )
<b>I</b>	7780.5	3890.3	3890.3	1652	4030
<b>II</b>	7794.3	3897.2	3897.2	1357	2,990
<b>III</b>	7783.2	3891.6	3891.6	-	-
<b>IV</b>	7800	3900	3900	-	-
<b>V</b>	7740	3870	3870	-	-
<b>Total</b>	<b>38,898</b>	<b>19,449</b>	<b>19,449</b>	<b>3,009</b>	<b>7,020</b>

Source: Scheme of Approved mining plan

### Stacking of Granite Rejects and Disposal of Waste

#### Top soil:

There will be generation of topsoil is about 7,020m<sup>3</sup> up to depth for 2m during this Scheme period, the same will be preserved all along the safety barrier and utilized for construction of bund and afforestation purpose.

#### Granite Waste:

Granite waste forms nearly 50% of ROM and the total quantity of granite waste in the five years will be around 22,458m<sup>3</sup> (Granite waste 19,449m<sup>3</sup> + Weathered rock 3,009m<sup>3</sup>) the same will be dumped on the Northwestern with dimensions of (L)85m X (W)43m X (H)8.69m.

#### Disposal:

As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose.

### Conceptual Mining Plan/ Final Mine Closure Plan

Conceptual mining plan is prepared with an object of long-term systematic development of benches, lay outs, selection of permanent ultimate pit limit, depth of quarrying and ultimate pit, selection of sites for construction of infrastructure etc. The ultimate pit size is designed based on certain practical parameters such as economical depth of quarrying, safety zones, permissible area etc.,

**Table 2.7 Ultimate Pit Dimension**

Length in m	Width in m	Depth in m
153	98	23

Source: Scheme of Approved mining plan

## 2.5 Method of Mining

- The method of mining is Opencast mechanized method
- Eco-friendly dimensional wire saw cutting for liberation and splitting up of blocks from parent sheet rocks
- Splitting of rock body of considerable volume from the parent rock formation by carefully avoiding visibly seen defects such as patches veins, etc., is done by adopting the method of “Diamond wire cutting” along the horizontal as well as two vertical sides on the front face of the formation.
- Jackhammer drilling with 32mm dia, this huge portion is further split into several blocks of required dimensions, only slurry explosives are used for secondary fragmentation and handling of waste.
- Hydraulic Excavator coupled with tippers is deployed for the formation of benches and loading
- There is no mineral processing or ore beneficiation proposed
- Proposed bench height is 5m and 5m width with 60° slope
- The waste material generated during quarrying activity includes rock fragments of different sizes, and waste chips during dressing of the blocks. The waste materials are taken in tippers and proposed to be dumped in the respective approved places ear-marked for the purpose and the same will be utilized for backfilling in the northern side of the lease area during conceptual stage.

### 2.5.1 Drilling

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

Spacing - 1m, Burden - 0.8m, Depth of hole - 1.5m

### 2.5.2 Blasting

Blasting will be done as per details below: -

- (i) Controlled blasting parameter: -
- Spacing – 1m
  - Burden – 0.8 m
  - Depth of hole – 1.5 m
  - Charge per hole – 125 gms
  - Powder factor – 7.0 tonnes/kg
  - Dia of hole – 32 mm

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

### 2.5.3 Extent of Mechanization

**Table 2.8: Machinery Details Proposed**

Drilling Equipment's					
Type	No of Unit	Dia of Hole mm	Size capacity	Make	Motive Power
Jack Hammer	4	32	1.2m to 6m	Atlas Copco	Compressed air
Compressor	1	-	450/150psi	Atlas Copco	Diesel drive
Diamond Wire Saw	2	-	20m <sup>3</sup> /day	Optimo	Diesel Generator
Diesel Generator	1	-	125kva	Kirloskar	Diesel
Loading Equipment					
Type	No of Unit	Capacity	Make	Motive Power	
Crawler Crane	1	855	Tata P & H	Diesel Drive	
Excavator	2	300	Tata Hitachi	Diesel Drive	
Haulage within the Mine & Transport Equipment					
Type	No of Unit	Capacity	Make	Motive Power	
Tipper	1	20 tonnes	Tata	Diesel Drive	

Source: Scheme of Approved mining plan

## 2.6 General Features

### 2.6.1 Existing Infrastructures

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

### 2.6.2 Drainage Pattern

There are Odai -650m-SE, Mayanur Barrage Right Canal -6.2km-NE, Napili Stream – 2.8km-E, Tank - 2.5km-N water bodies within the project area, hence there is no requirement of stream or canals diversion.

### 2.6.3 Traffic Density

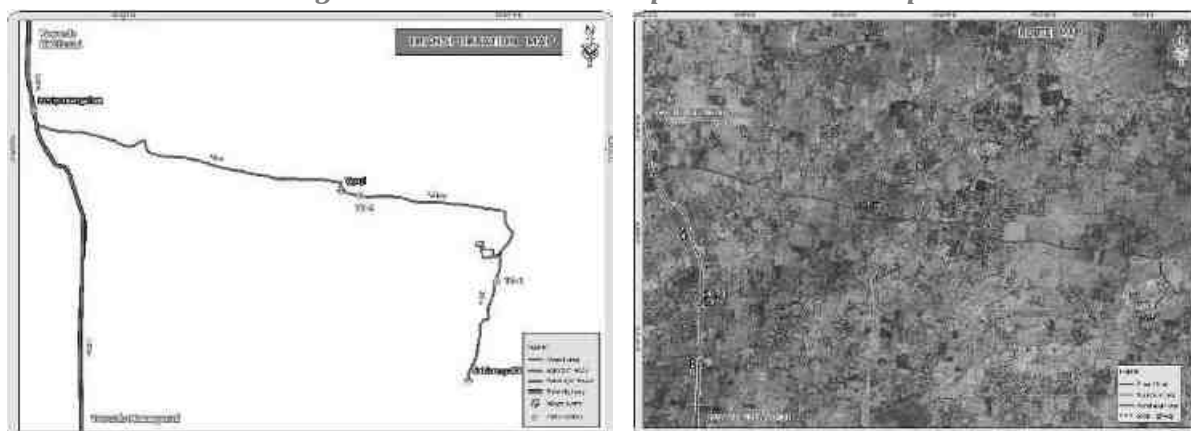
The traffic survey conducted based on the transportation route of material, the MultiColour granite will be transported mainly through the Panchayat Road Sukkampatti to Verul located 440m SE side of the area and Panchayat Road Sukkampatti to Verul -1.9km- NW side.

Traffic density measurements were performed at Two locations

1. Panchayat Road\_Sukkampatti to Verul Road- 440m- SE
2. Panchayat Road\_Sukkampatti to Verul Road- 1.9km- NW

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.

*Figure. 2.11: Mineral Transportation Route Map*



**Table.2.9: Traffic Survey Locations**

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Panchayat Road_Sukkampatti to Verul Road-	440m- SE	Panchayat Road
TS2	Panchayat Road_Sukkampatti to Verul Road-	1.9km- NW	Panchayat Road

Source: On-site monitoring by GEMS FAE & TM

**Table 2.10: Existing Traffic Volume**

Station Code	HMV		LMV		2/3 Wheelers		Total PCU
	Number	PCU	Number	PCU	Number	PCU	
TS1	100	300	100	100	150	60	460

TS2	175	525	150	150	200	100	725
-----	-----	-----	-----	-----	-----	-----	-----

Source: On-site monitoring by GEMS FAE & TM

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

**Table 2.11: Granite Hourly Transportation Requirement**

Transportation of Granite per day			
Capacity of Trucks	No of trips per day	Volume in PCU	PCU considering 8 Hours
20Ts	2	6	6

Source: Data analysed from Approved Mining plan

**Table 2.12: Summary of Traffic Volume**

Route	Existing Traffic Volume in PCU	Incremental Traffic Due to the project in PCU	Total Traffic Volume in PCU	Hourly Capacity in PCU as per IRC - 1960
Peelvadi to Keelapiyur Panchayat Road	460	6	466	1200
Keelapiyur to Valikandapuram	725	6	731	1500

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

Due to this project the existing traffic volume will not exceed

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

## 2.6.4 Mineral Beneficiation and Processing

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

## 2.7 Project Requirement

### 2.7.1 Water Source & Requirement

Detail of water requirements in KLD as given below:

**Table 2.13 Water Requirement for the Project**

Purpose	Quantity	Source
Domestic & Drinking purpose	0.5KLD	From Existing, bore wells and drinking water will be sourced from Approved Water vendors.
Dust Suppression	0.7KLD	From Existing bore wells from nearby area
Green Belt	0.6KLD	From Existing bore wells from nearby area
<b>Total</b>	<b>1.8KLD</b>	

Source: Prefeasibility report

### 2.7.2 Power and Other Infrastructure Requirement

The project does not require power supply for the mining operations. 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.

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 proposed lease area. Domestic effluent from the mine office will be discharged to septic tank and soak pit. There is no toxic effluent expected to generate in the form of solid, liquid or gaseous form hence there is no requirement of waste treatment plant.



### 2.7.3 Fuel Requirement

No raw material will be required for production of Multicolour granite quarry. The final product will be sent to consumer based on their demand. The mode of transportation of raw material and finished product will be by road. Tippers/ trucks will be used for transportation to the end users.

The proposed quarrying activity requires HSD (High Speed Diesel) for machineries as per below quantum –

Per hour Excavator will consume	=	16 liters / hour
Per hour Excavator will excavate	=	10m <sup>3</sup>
For 38,898m <sup>3</sup> (for this Scheme period)	=	38,898/10
Diesel consume 3,890working hours	=	3,890hours x 16 liters
	=	62,240liters of HSD for five years scheme period

\_Source: Prefeasibility report

### 2.8 Employment Requirement:

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

**Table 2.14: Employment Potential**

S.No	Description	Numbers
<b>Skilled Labour</b>		
1	Mines Manager	1
2	Mines Foreman	1
3	Mines operators	10
4	Skilled labour and Drivers	8
5	Semi-skilled	18
6	Unskilled	10
<b>Total</b>		<b>48</b>

Source: Scheme of Approved mining plan

### 2.9 Project Implementation Schedule

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

**Table 2.15 Expected time Schedule**

Sl.No	Particulars	Time Schedule (in month)					Remarks if any
		1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	
1	Environmental Clearance						
2	Consent to operate						Production Start Period
Time line may vary; subjected to rules and regulations /& other unforeseen circumstances							

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

**Table 2.16 Capital Cost Estimation**

S.No	Description	Cost
1	Project Cost	Rs.2,64,79,000/-

Source: Scheme of Approved mining plan

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## 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 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 Oct 2023-Dec 2023 with CPCB guidelines. Environmental data has been collected with reference to cluster quarries by **Global Lab and Consultancy Services, – An accredited by ISO/IEC 17025:2017 (NABL) Laboratory,** for the below attributes-

for the below attributes –

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

#### Study Area

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

#### Study Period

The baseline study was conducted during the **Post monsoon** i.e., Oct 2023-Dec 2023.

#### Study Methodology

- The boundary coordinates were superimposed on the satellite imagery to understand the relief of the area, besides Land use pattern of the area was studied through the Bhuvan (ISRO).
- Soil samples were collected and analysed for relevant physio-chemical characteristics, exchangeable Cations, nutrients & micro nutrients etc., in order to assess the impact due to mining activities and to recommend saplings for Greenbelt development.
- Ground water samples were collected during the study period from the existing bore wells, while surface water was collected from ponds in the buffer zone. The samples were analysed for parameters necessary to determine water quality (based on IS: 10500:2012 criteria) and those which are relevant from the point of view of environmental impact of the proposed mines.
- An onsite meteorological station was setup in project area, to collect data about wind speed, wind direction, temperature, relative humidity, rainfall and general weather conditions were recorded throughout the study period.
- In order to assess the Ambient Air Quality (AAQ), samples of ambient air were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, PM<sub>10</sub> and SO<sub>2</sub>, NO<sub>x</sub> with gaseous attachments & Fine Dust Samplers (FDS) for PM<sub>2.5</sub> and other parameters as per NAAQ norms and analysed for primary air pollutants to work out the existing status of air quality.
- The Noise level measurements were also made at various locations in different intervals of time with the help of sound level meter to establish the baseline noise levels in the impact zone.
- Baseline biological studies were carried out to assess the ecology of the study area to study the existing flora and fauna pattern of the area.

- Socio-Economic survey was conducted at village and household level in the study area to understand the present socio-economic conditions and assess the extent of impact due to the proposed mining project.

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

**Table 3.1: Monitoring Attributes and Frequency of Monitoring**

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
*Soil	Physio - Chemical Characteristics	Once during the study period	6 (1 core & 5buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (2 surface water & 4 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Automatic Weather Station	1	Site specific primary data & Secondary Data from IMD Station
*Ambient Air Quality	PM10 PM2.5 SO2 NOX Fugitive Dust	24 hourly twice a week (Oct-Dec2023)	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 Global Lab and Consultancy Services, 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 ResourceSat1 LISSIII (False Color Composite) has been used for Land Use / Land Cover study. Satellite image has been procured from National Remote Sensing Centre, Hyderabad.

### 3.1.2 OBJECTIVE

The objectives of the LULC study are as follow:

- ☞ To develop the Land use & Land cover map using land coordinates of the quarry area (Core Zone) and 10 km radius from the quarry site (Buffer area).
- ☞ To Identify and mark the important Land use and Land cover features using the primary and secondary data collected.
- ☞ To evaluate the impacts on existing land use/cover features of the buffer area by the Existing and 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 - 14<sup>th</sup> Sept 2022, Swath 141km wide.

SOI Toposheet No - 58J/01

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 $\mu\text{m}$	23.5 meters
Band 2	Red	0.62-0.68 $\mu\text{m}$	23.5meters
Band 3	NIR	0.77-0.86 $\mu\text{m}$	23.5meters
Band 4	SWIR	1.55-1.70 $\mu\text{m}$	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 pre-processing, 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. 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_%
<b>BUILTUP</b>			
1	Urban	147.17	0.46
2	Rural	1972.69	6.11
3	Mining	156.43	0.48
<b>AGRICULTURAL LAND</b>			
4	Crop Land	22868.13	70.86
5	Agriculture Land	608.60	1.89
6	Fallow Land	1049.18	3.25
<b>BARREN/WASTE LANDS</b>			
7	Barren Rocky	43.58	0.14
8	Grazing Land	972.06	3.01
9	Scrub Land	3290.70	10.20
<b>WETLANDS/ WATER BODIES</b>			
10	Waterbodies	1162.09	3.60
<b>TOTAL</b>		32270.62	100.00

Source: Bhuvan, NRSC.

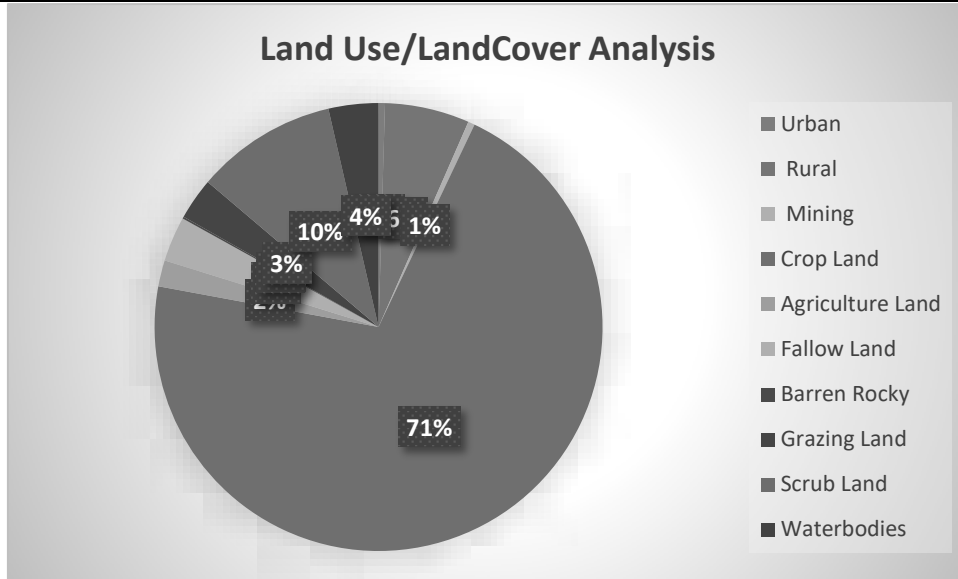


FIGURE 3.1: CHART SHOWING LANDUSE/LANDCOVER ANALYSIS USING LISS III Data

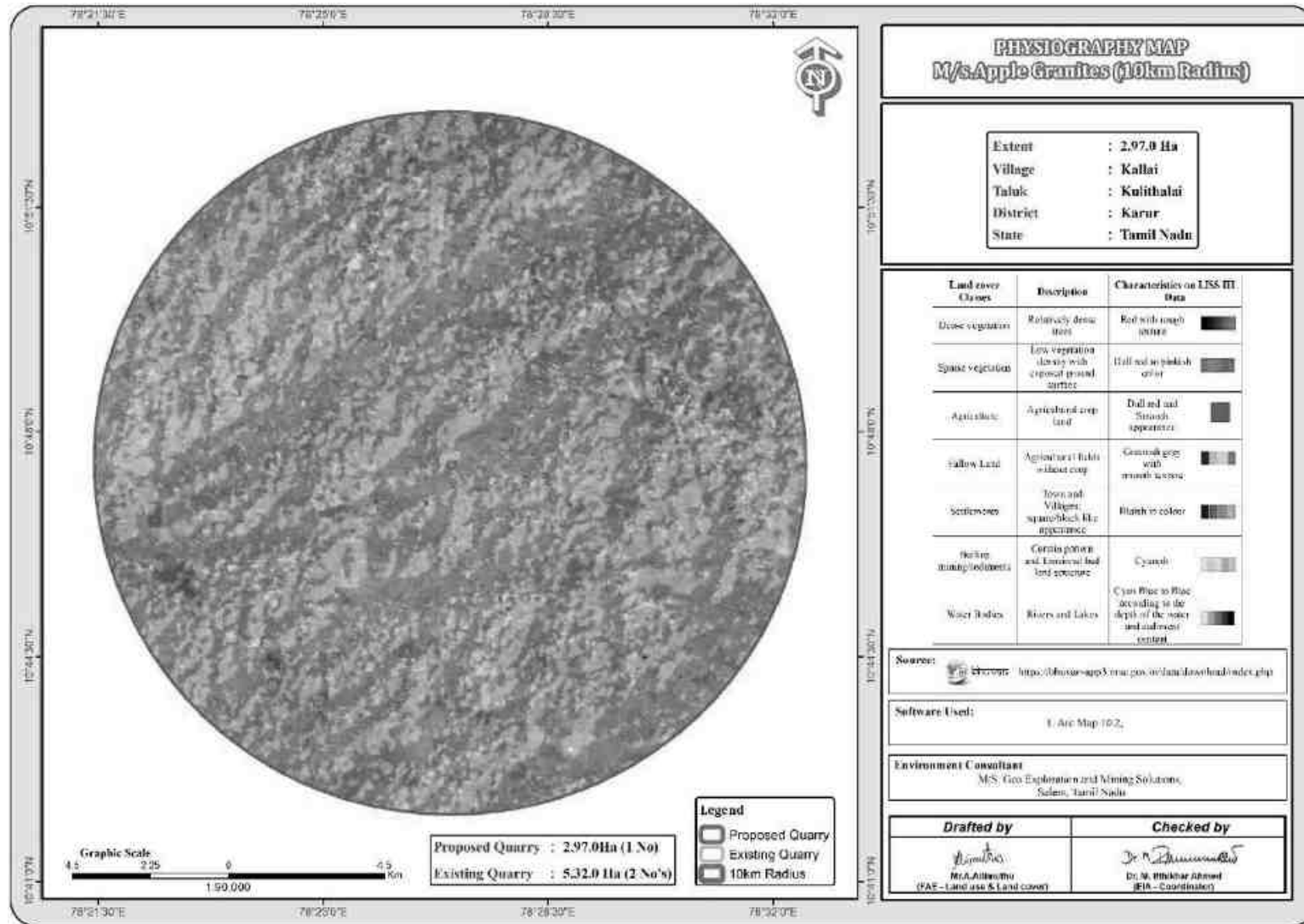


FIGURE 3.2: MAP SHOWING FALSE COLOR COMPOSITE (3,2,1) SATELLITE IMAGERY OF THE STUDY AREA

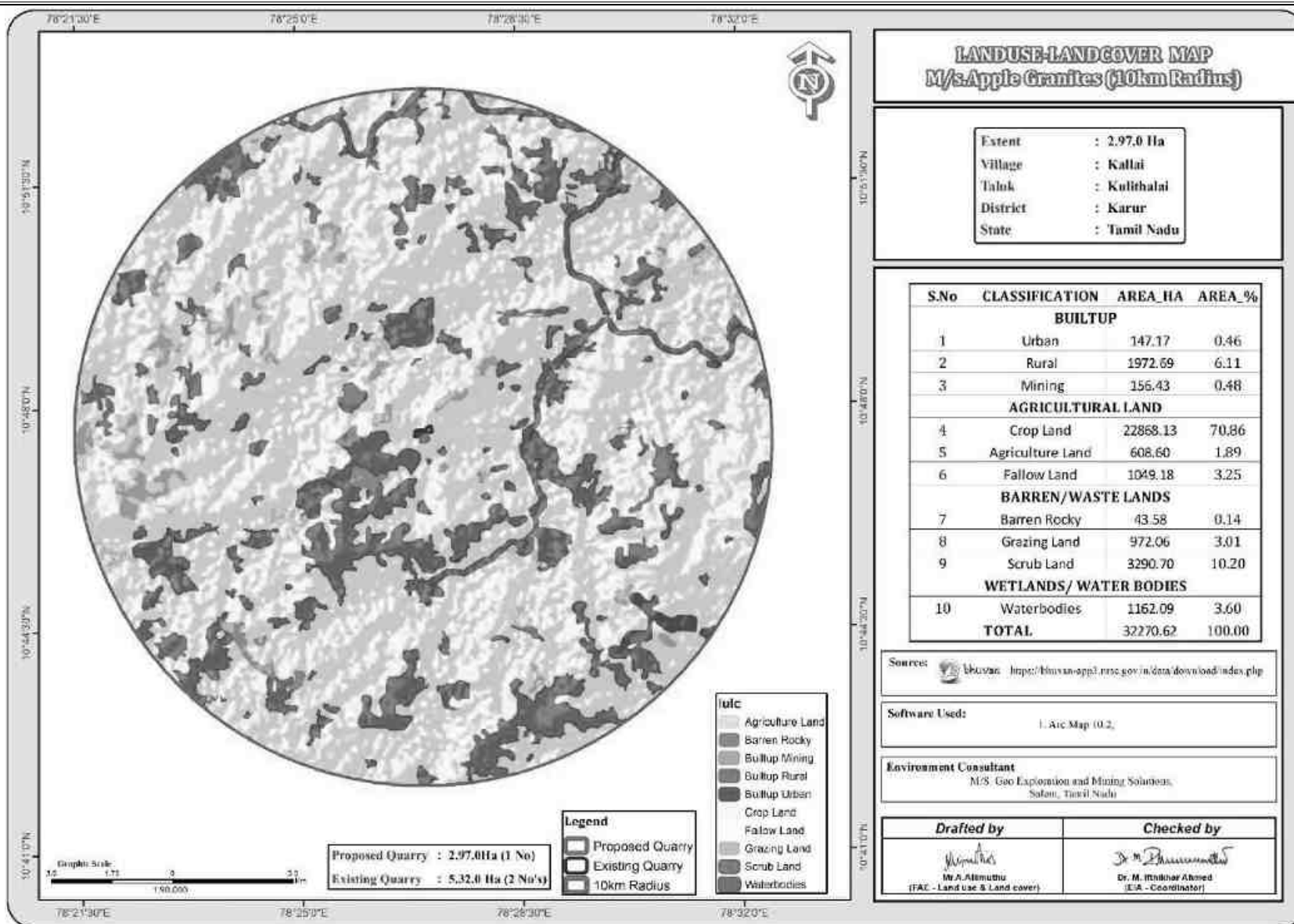


FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS



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### 3.1.4 Interpretation

- ☞ The 10 km radius study area mainly comprises of crop land & Agriculture Plantation land accounting of 70.76% & 3.17% of the total study area. The study area also consists of fallow land of 7.40%.
- ☞ Water Bodies such as ponds/ lakes comprises of 7.60% of the core and buffer area. such as Pungar stream at 2.5km and Panjapatty Lake 6.5km in S direction, Canal 4.5km- NW and Cauvery River at 7.3km -N direction of the total study area.
- ☞ The Scrub land accounts of 4.32%. 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.
- ☞ 0.49% of the total study area is occupied by the mine area. The area occupied by Mainly Multicolored granite 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 marble and small Brick kiln industries also located in the study area.
- ☞ 6.73% of the area is covered under the human Settlement. The nearest village within the 3 km radius from the project site boundary is observed to be villages like Pudupatty, Kallai, M.Pudupatty South etc.,

#### 3.1.4.1 Cropping Pattern of the Buffer Zone

The principal crops of the district are paddy, millets, pulses, oilseeds, sugarcane and banana. The major paddy area is in Kulithalai and Kulithalai taluks. Pulses are grown in rice fallow areas. In uplands millets like sorghum, pearl millet pulses such as red gram, horse gram oilseeds such as groundnut, gingelly and sunflower are grown both under irrigated and rain fed conditions.

Horticultural area of the Karur district was 16000.00 Ha. In general, Karur district has specifically known for Moringa and Banana cultivation and other prominent crops under cultivation are Tapioca, Gloriosa, Betelvine, Jasmine, Ixora, Coconut and other vegetable crops. Thanthoni, Aravakurichi, Kadavur and K. Paramathy were major vegetable growing region and Thogamalai, Kulithalai, Kulithalai were major Banana growing region and Karur block was major Coconut growing region. State Horticulture Farms was located on Mudalaipatti, Thogamalai block where Quality Planting materials are produced.

Source: <https://karur.nic.in/departments/department-of-horticulture-and-plantation-crops/>

### 3.1.5 TOPOGRAPHY

The area exhibits flat terrain. The gradient is gentle towards South side and altitude of the area is 131m above from MSL. Applied Proposed quarry area.

#### 3.1.5.1 Drainage Pattern of the Area

There are developed surface drainage channels in the study area. The drainage pattern of the area is dendritic it is inferred the rock-hard rock terrain.

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.

During rainy season the surface runoff flows in NE to SW direction. The drainage pattern of the study area is given in Fig. 3.5. The quarrying activity will not hinder the natural flow of rainwater.

#### 3.1.5.2 Seismic Sensitivity

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

#### 3.1.5.3 Environmental Features in the Study Area

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Kadavur Slender Loris Sanctuary is situated 30km Southwest. There are no other Wildlife Sanctuaries, National Park and Archaeological monuments within cluster area. Lalapettai Reserved Forest area is involved in the study area. Therefore, there will be no need to acquisition/diversion of forest land. The details related to the environment sensitivity around the cluster area i.e., 10km radius, are given in the below Table 3.3.

**Table 3.3: Details of Environment Sensitivity around the Cluster**

No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	Kadavur Slender Loris Sanctuary	30km-SW
2	Reserve Forest	Viramalai R.F	10.5 Km – SW
3	Lake/Reservoir	Tank	100m - SW
		Odai	650m-SE
		Tank	2.5km-N
		Napili Stream	2.8km-E
		Mayanur Barrage Right Canal	6.2km-NE
4	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	None	Nil within 10KM Radius
5	Critically Polluted Areas	Coimbatore - SIDCO Industrial Complex	Around 161.0 km- NW
6	Mangroves	None	Nil within 10 km Radius
7	Mountains/Hills	None	Nil within 10 km Radius
8	Notified Archaeological Sites	None	Nil within 10 km Radius
9	Industries/ Thermal Power Plants	None	Nil within 10 km Radius
10	Defence Installation	None	Nil within 10 km Radius

Source: Survey of India Toposheet

### 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 3.4 and Figure 3.3.

**Table 3.4: Soil Sampling Locations**

S. No	Location Code	Monitoring Locations	Distance (km) and Direction	Coordinates
1	S-1	Core Zone	Project Area	10°47'31.06"N 78°26'56.93"E
2	S-2	Kulandaipatti	450m SE	10°49'29.54"N 78°28'22.29"E
3	S-3	Onanthampatti	4.5km NE	10°46'14.41"N 78°23'32.89"E
4	S-4	Thalayarpatti	4.3km NW	10°49'31.16"N 78°25'36.00"E
5	S-5	Kallai	2.8km East	10°47'45.98"N 78°28'33.03"E
6	S-6	Kalladai	4km SW	10°45'24.21"N 78°26'17.72"E

Source: On-site monitoring/sampling by Global Lab and Consultancy Services in association with GEMS.

#### The objective of the soil sampling is -

- To determine the baseline soil characteristics of the study area;
- 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 project site representing various land use conditions. The samples were collected by auger boring into the soil up to 90-cm depth. Six (6) locations were selected for soil sampling on the basis of soil types, vegetative

cover, industrial & residential activities including infrastructure facilities, which would accord an overall idea of the soil characteristics. The samples were analysed for physical and chemical characteristics. The samples were sent to laboratory for analysis. The samples were filled in Polythene bags, coded and sent to laboratory for analysis and the details of methodology in respect are given in below Table 3.5.

**Table 3.5: Methodology of Sampling Collection**

<b>Particulars</b>	<b>Details</b>
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 Global Lab and Consultancy Services in association with GEMS

### **Soil Testing Result**

The samples were analysed as per the standard methods prescribed in “Soil Chemical Analysis (M.L. Jackson, 1967) & Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India”.

Figure 3.4: Soil Sampling Locations Around 10 Km Radius

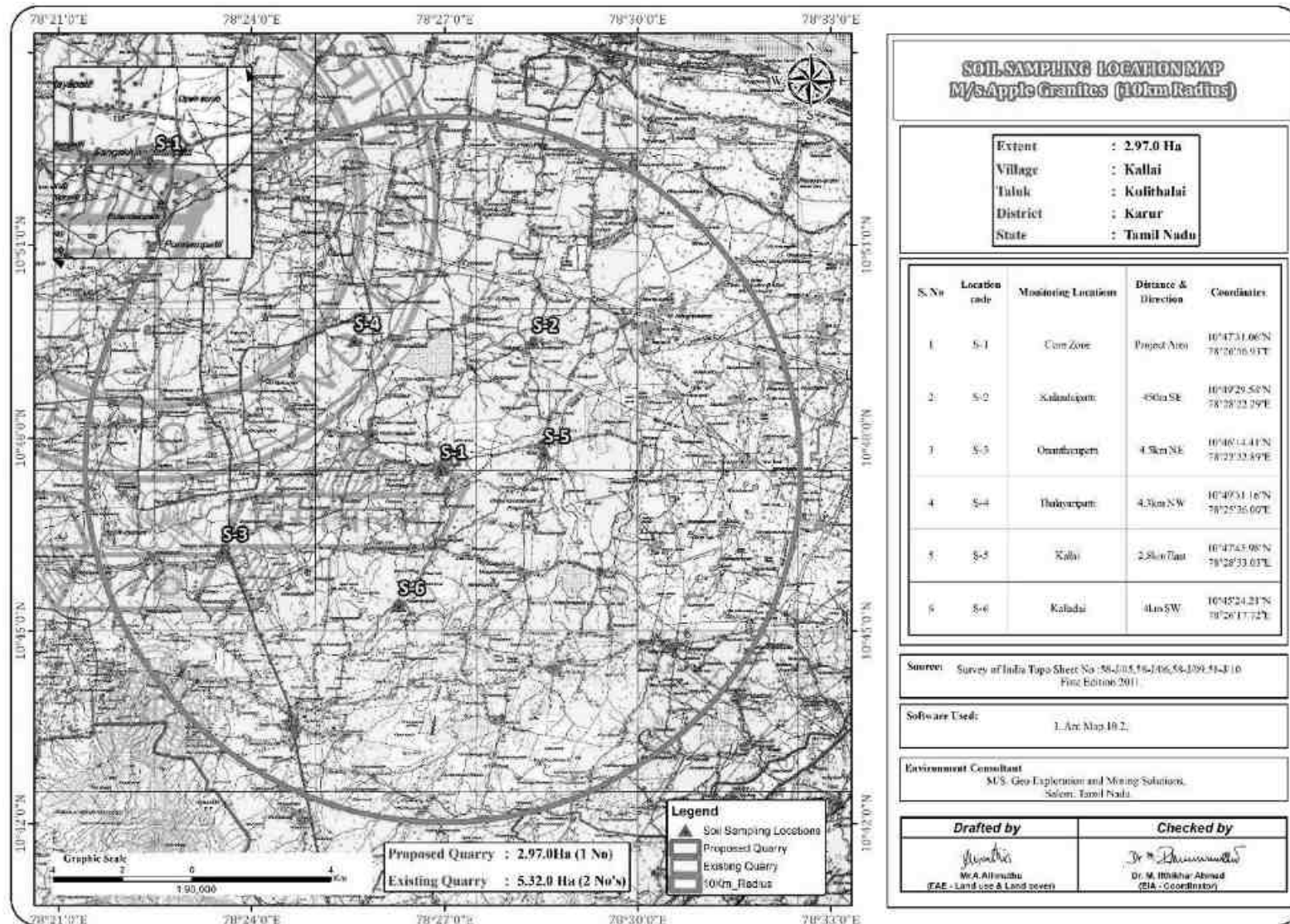
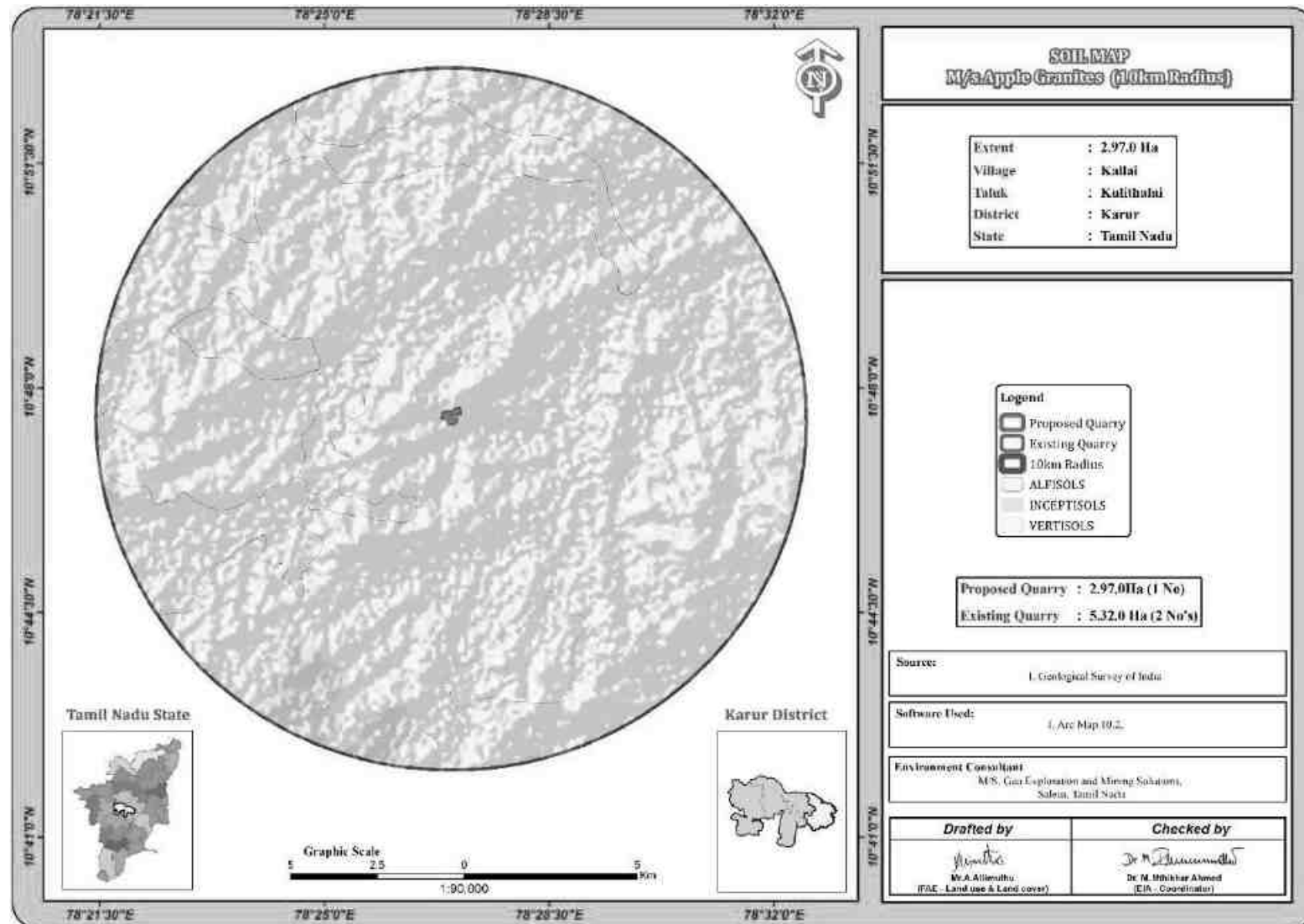


Figure 3.5: Soil Map



**Table 3.6: Soil Quality of the Study Area**

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	S-1 Core Zone (Project Site)	S-2 Kulandaipatti	S-3 Onanthampatti	S-4 Thalayaripatti	S-5 Kallai	S-6 Kalladai
1	Organic Matter	GLCS/SOP/S/003	%	1.97	1.13	1.46	1.57	1.96	1.21
2	pH	IS 2720 (Part 26)	-	8.55	8.37	7.93	8.59	8.84	8.07
3	Specific Electrical Conductivity	IS 14767	µS/cm	435.1	440	457.6	500	510.6	450.5
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	13.2	10.9	7.0	13.1	13.2	9.4
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.17	1.49	1.26	1.34	1.37	1.38
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	6.2	5.0	5.6	7.0	4.2	5
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	3.4	5.0	5.4	5.2	5.4	<b>4.8</b>
8	Sulphate as SO <sub>4</sub>	GLCS/SOP/S/009	mg/100g	15.66	10.4	6.68	12.64	13.96	17.12
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.9	16.3	16.6	18.3	18.1	18.7
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.055	1.025	1.009	1.086	1.049	1.055
11	Sand	GLCS/SOP/S/015	%	36.00	39.85	37.85	31.66	36.18	34.69
12	Slit	GLCS/SOP/S/015	%	35.25	38.20	35.84	40.99	38.64	43.27
13	Clay	GLCS/SOP/S/015	%	28.75	21.95	26.31	27.35	25.19	22.04
14	Water Holding Capacity	GLCS/SOP/S/016	%	46.2	49.6	51	45.2	43.4	47.2
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	326.144	464.128	426.496	401.408	376.32	439.04
16	Chloride	GLCS/SOP/S/004	meq/l	5.5	4.6	5.1	5.7	3.8	4.4
17	Permiability	By Permeameter	%	38.9	40.4	37.6	38.7	40.5	41.7
18	Manganese as Mn	USEPA Method	mg/kg	13.74	13.32	13.58	21.99	7.74	0.50
19	Zinc as Zn	USEPA Method	mg/kg	19.49	22.94	19.26	23.74	14.97	19.41
20	Cadmium as Cd	USEPA Method	mg/kg	10.75	10.85	10.62	15.99	19.22	16.42
21	Chromium as Cr 6+	USEPA Method	mg/kg	11.75	14.55	11.60	6.0	24.71	12.94
22	Copper as Cu	USEPA Method	mg/kg	9.25	10.36	8.89	7.25	10.23	1.0
23	Lead as Pb	USEPA Method	mg/kg	1.25	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)	BDL(DL:0.5)
24	Iron as Fe	USEPA Method	mg/kg	10.25	24.42	9.87	21.99	40.43	14.68
25	Organic Carbon	GLCS/SOP/S/003	%	1.14	0.66	0.85	0.91	1.14	0.71
26	Boron as B	USEPA Method	mg/kg	0.50	2.22	0.74	4.75	2.75	0.75

Source: Sampling Results by Global Lab and Consultancy Services Private Limited.

**FIGURE 3.7: SOIL SAMPLING COLLECTIONS**

### Interpretation & Conclusion

The physical properties of the soil samples were examined for texture, bulk density and water holding capacity. The soil texture found in the study area is Clay Loam Soil and Bulk Density of Soils in the study area varied between 1.13– 1.97 g/cc. The Water Holding Capacity between 42.6%–47.8%.

- The nature of soil is slightly alkaline to strongly alkaline with pH range 7.93 to 8.84
- The available Nitrogen content range between 376.32 to 464.128 kg/ha
- The available Phosphorus content range between 7.0 to 13.2 Mg/Kg
- The available Potassium range between 1.17 to 1.49 meq/l
- Whereas, the micronutrient as zinc (Zn) and iron (Fe) were found in the range of 14.97 to 23.74 mg/kg; 09.87to 40.43mg/kg.

### 3.2 Water Environment

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

#### 3.2.1 Surface Water Resources:

The study area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. The rainfall over the area is moderate, the rainwater storage in open wells and trenches are in practice over the area and the stored water acts as source of freshwater for couple of months after rainy season.

**Table 3.7: Water Bodies in the Buffer Zone**

Sl.No.	Water Bodies	Distance
1	Tank	80m SW
2	Nallur Tank	2.5Km NE
3	Canal	2.8Km E
4	Odai	3Km NW
5	Gudalur Lake	3km SW
	Tank	4Km SE
	Kavalaivaari Canal	6.2Km NE
	Kalugur Eri	7.8Km SW

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Source: Survey of India Toposheet

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### 3.2.3 Methodology

Reconnaissance survey was undertaken and monitoring locations were finalized based on;

- Drainage pattern;
- Location of Residential areas representing different activities/likely impact areas; and
- Likely areas, which can represent baseline conditions

Two(2) surface water and four (4) ground water samples were collected from the study area and were analysed for physio-chemical, heavy metals and bacteriological parameters in order to assess the effect of mining and other activities on surface and ground water. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012 and 'Standard methods for the Examination of Water and Wastewater' published by American Public Health Association (APHA). The water sampling locations are given in Table 3.8 and shown as Figure 3.6.

**Table 3.8: Water Sampling Locations**

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	SW1	Lake Near Nallur	3.8km North	10°49'37.67"N 78°27'7.14"E
2	SW2	Lake Near Makalipatti	8.0km SW	10°45'53.76"N 78°22'55.87"E
3	WW-1	Near Project Area	340m SW	10°47'16.29"N 78°26'54.34"E
4	WW-2	Periyaputhur	5km SE	10°46'10.05"N 78°29'25.86"E
5	BW-1	Kulandaipatti	370m SE	10°47'14.64"N 78°27'0.56"E
6	BW-2	Onanthaipatti	4.5km NE	10°49'24.76"N 78°28'26.86"E

Source: On-site monitoring/sampling by Global Lab and Consultancy Services in association with GEMS

**FIGURE 3.9: PHOTOGRAPHS OF WATER SAMPLING COLLECTIONS**







Figure 3.6: Water Sampling Locations Around 10 Km Radius

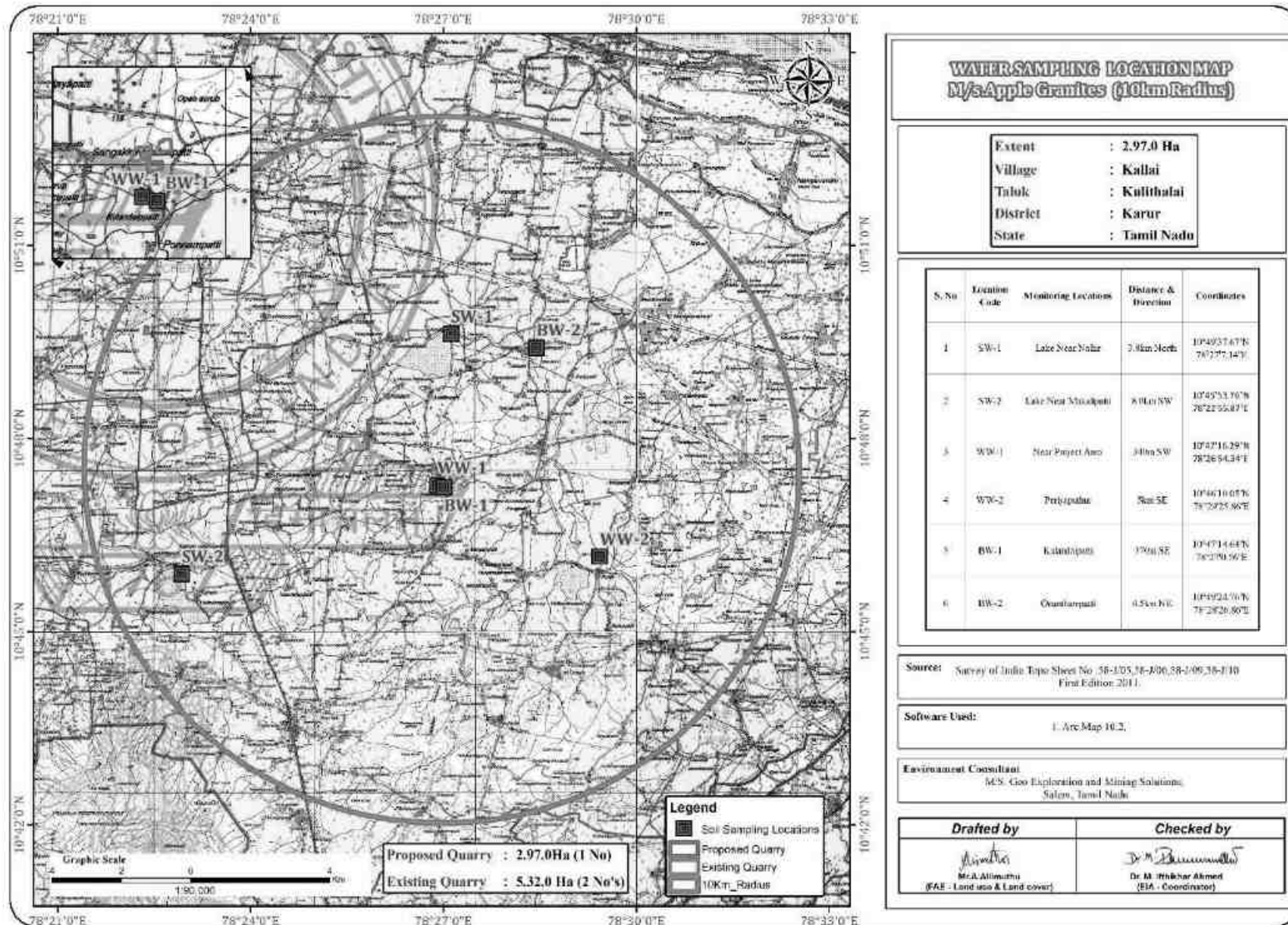


Table 3.9: Ground Water Sampling Results

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	WW-1 Near Project Area	WW-2 Periyaputhur	BW-1 Kulandaipatti	BW-2 Onanthampatti
1	Color	IS 3025 PART 4	Hazen	<5	< 5	< 5	< 5
2	Odor	IS 3025 PART 5	-	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	IS 3025 PART11	-	7.02	6.97	7.22	7.3
4	Electrical Conductivity	IS 3025 PART14	µS/cm	1144	1042	1092	1073
5	Turbidity	IS 3025 PART10	NTU	<1	<1	<1	<1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	675	615	644	633
7	Total Alkalinity as CaCO3	IS 3025 PART 23	mg/l	285.42	BDL(DL:2.0)	BDL(DL:2.0)	BDL(DL:2.0)
8	Total Hardness as CaCO3	IS 3025 PART 21	mg/l	272	237.18	261.3	273.36
9	Calcium as Ca	IS 3025 PART40	mg/l	65.73	240	268	252
10	Magnesium as Mg	IS 3025 PART 46	mg/l	26.26	59.32	64.13	56.11
11	Chloride as Cl-	IS 3025 PART 32	mg/l	149.95	22.37	26.26	27.24
12	Sulphate as SO4-	IS 3025 PART24	mg/l	31.26	127.96	143.95	131.95
13	Iron as Fe	IS 3025 PART 53	mg/l	BDL(DL:0.1)	17.94	28.33	19.07
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
15	Free Residual Chlorine as Cl2	IS 3025 PART 26	mg/l	BDL(DL:1.0)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	BDL(DL :2.0)	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:2.0)	BDL(DL:2.0)	BDL(DL:2.0)	BDL(DL:2.0)
18	Nitrate as NO3	IS 3025 PART 34	mg/l	26.26	BDL(DL:0.1)	BDL(DL:0.1)	BDL(DL:0.1)
19	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2.0)	BDL(DL :2.0)		
20	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)	Absent	Absent	Absent
21	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL(DL:0.05)	Absent	Absent	Absent
22	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)	BDL(DL:0.002)	BDL(DL:0.002)	BDL(DL:0.002)
23	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)
24	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
25	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
26	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
27	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
28	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.002)	BDL(DL:0.002)	BDL(DL:0.002)
29	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
30	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)	BDL(DL:0.01)
31	Chromium as Cr 6+	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.05)	BDL(DL:0.05)	BDL(DL:0.05)
32	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.02)	BDL(DL:0.02)	BDL(DL:0.02)
33	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDQ(DL:0.1)	BDQ(DL:0.1)	BDQ(DL:0.1)
34	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.1)	BDL(DL:0.01)	BDL(DL:0.01)
35	Ammonia as NH3	IS 3025 PART 34	mg/l	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)

Source: Sampling Results by Global Lab and Consultancy Services ,

Table 3.10: Surface Water Sampling Results

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	SW-1 Lake near Nallur	SW-2 Lake near Makalipatti
1	Color	IS 3025 PART 4	Hazen	10	5
2	Odor	IS 3025 PART 5	-	Agreeable	Agreeable
3	pH	IS 3025 PART11	-	7.77	7.61
4	Conductivity	IS 3025 PART14	µs/cm	878	987
5	Turbidity	IS 3025 PART10	NTU	4.9	3.1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	518	582
7	Total Alkalinity as CaCO <sub>3</sub>	IS 3025 PART 23	mg/l	196.98	225.12
8	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	204	236
9	Calcium as Ca	IS 3025 PART40	mg/l	56.11	60.92
10	Magnesium as Mg	IS 3025 PART 46	mg/l	15.56	20.43
11	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	99.97	117.96
12	Sulphate as SO <sub>4</sub> <sup>-</sup>	IS 3025 PART24	mg/l	19.96	30.4
13	Iron as Fe	IS 3025 PART 53	mg/l	0.28	0.28
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
15	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)	BDL(DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.55	0.32
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
18	Nitrate as NO <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL :2.0)	BDL(DL :2.0)
19	Dissolved Oxygen	IS 3025 PART 38	mg/l	4.9	4.6
20	Bio-Chemical Oxygen Demand	IS 3025 PART 44	mg/l	9.6	15.6
21	Chemical Oxygen Demand	IS 3025 PART 58	mg/l	28	56
22	Ammonia as NH <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL:1.0)	BDL(DL:1.0)
23	Total Suspended Solids	IS 3025 PART 17	mg/l	8.0	5.0
24	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)	BDL(DL:0.1)
25	Anionic Detergents	IS 13428	mg/l	BDL(DL:0.05)	BDL(DL:0.05)
26	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)	BDL(DL:0.02)
27	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)	BDL(DL:1.0)
28	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
29	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
30	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
31	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
32	Aluminium as Al	GLCS/SOP/W/62	mg/l	0.038	0.045
33	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
34	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
35	Total Chromium as Cr	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
36	Barium as Ba	GLCS/SOP/W/62	mg/l	0.036	BDL(DL:0.01)
37	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)	BDL(DL:0.01)
38	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)	BDL(DL:0.002)
39	Total Coliforms	IS 1622	MPN/100ml	50	70
40	<i>Escherichia coli</i>	Total Coliforms Organism MPN/100ml shall be 50 or less	MPN/100ml	<2	<2

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### 3.2.4 Interpretation & Conclusion

#### Surface Water

##### Ph:

The pH varied from 7.61 to 7.77 while turbidity found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH).

##### Total Dissolved Solids:

Total Dissolved Solids varied from 518 to 582 mg/l, the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter.

##### Other parameters:

Chloride varied between 99.97 mg/l- 117.96mg/l. Nitrates varied from BDL(DL:2.0) while sulphates varied from 19.96mg/l to 30.4mg/l.

#### Ground Water

The pH of the water samples collected ranged from and within the acceptable limit of 6.97 to 7.22. 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 615 to 675mg/l in all samples. Total hardness varied between 240-272mg/l. 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 59m - 64m. The maximum depth proposed out of proposed projects is 23m BGL for the entire period. Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area. There is no necessity of stream, channel diversion due to these proposed projects.

During the rainy season there is a possibility of collection of seepage water from the subsurface levels this is due to the high intensity of fracture and weathered portion up to a depth of 28m 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 act as a temporary reservoir.

### 3.2.6 Ground Water Resources:

Karur district is underlain entirely by Archaean Crystalline formations with Recent alluvial deposits occurring along the river and streams courses and colluvium of valley-fills. The important aquifer systems in the district are constituted by weathered, fissured and fractured crystalline rocks and the recent alluvial deposits. Ground water occurs under phreatic conditions. The maximum saturated thickness of these aquifers is up to 5 m depending upon the topographic conditions. The study area falls in the Karur which is categorized as Safe (< 70%) as per G.O (MS) No 113 dated 09.06.2016.

There are Seven open wells within the radius of 1km Most of the wells are almost in dry conditions: - The details of the well and depth in Post monsoon is described below:

**Table 3.11: Details of Borewell & Water Level in 1km Radius**

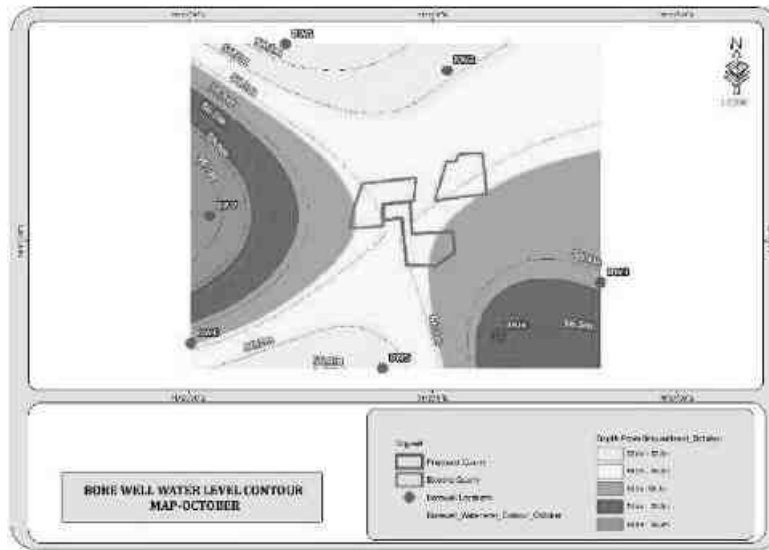
S.No	Label	Longitude	Latitude	Oct2023	Nov2023	Dec2023
1	BW1	78° 18' 11.4536" E	10° 53' 28.7073" N	57.1	57.7	58.3
2	BW2	78° 18' 10.7111" E	10° 53' 49.0288" N	56.8	57.4	58
3	BW3	78° 18' 20.7042" E	10° 53' 57.5732" N	56.3	56.9	57.5
4	BW4	78° 19' 00.2227" E	10° 53' 32.4202" N	56.6	57.2	57.8
5	BW5	78° 19' 06.2793" E	10° 53' 43.2716" N	56.9	57.5	58.1
6	BW6	78° 19' 16.8356" E	10° 53' 22.0273" N	56.7	57.3	57.9
7	BW7	78° 19' 00.9799" E	10° 53' 02.9915" N	57.2	57.8	58.4
8	BW8	78° 18' 22.9574" E	10° 52' 53.6488" N	56.5	57.1	57.7
9	BW9	78° 18' 23.7817" E	10° 52' 35.1493" N	56.4	57	57.6
10	BW10	78° 17' 49.2343" E	10° 53' 07.5656" N	57	57.6	58.2
11	BW11	78° 17' 54.8412" E	10° 53' 20.7550" N	57.2	57.8	58.4

Source: Data obtained by the FAE & Team Members

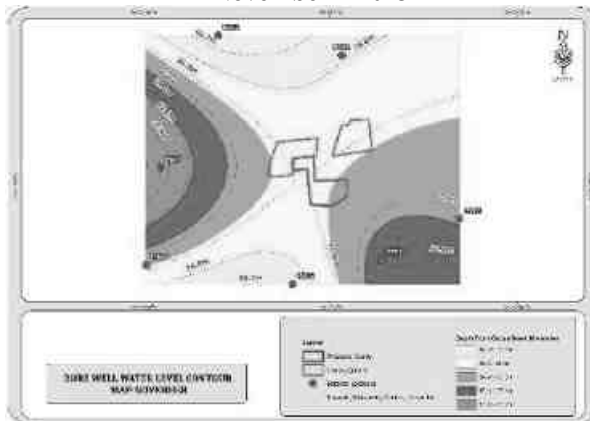
**Table 3.12: Details of Open well & Water Level in 1km Radius**

S.No	Label	Longitude	Latitude	Oct2023	Nov2023	Dec2023
1	OW-1	78° 18' 47.8039" E	10° 53' 15.4634" N	12	12.6	13.2
2	OW-2	78° 18' 37.9538" E	10° 53' 09.3274" N	11.3	11.9	12.5
3	OW-3	78° 18' 33.5656" E	10° 52' 55.9536" N	11.6	12.2	12.8
4	OW-4	78° 19' 08.7515" E	10° 52' 58.7010" N	11.8	12.4	13
5	OW-5	78° 18' 26.9390" E	10° 52' 35.3396" N	11.9	12.5	13.1
6	OW-6	78° 17' 57.2823" E	10° 52' 54.5290" N	11.4	12	12.6
7	OW-7	78° 18' 06.6587" E	10° 53' 20.3387" N	11.7	12.3	12.9
8	OW-8	78° 17' 50.9202" E	10° 53' 21.3059" N	12	12.6	13.2
9	OW-9	78° 18' 08.3210" E	10° 53' 44.0315" N	11.5	12.1	12.7
10	OW-10	78° 18' 26.4283" E	10° 54' 05.1043" N	11.3	11.9	12.5
11	OW-11	78° 18' 34.1507" E	10° 53' 51.7068" N	11.8	12.4	13

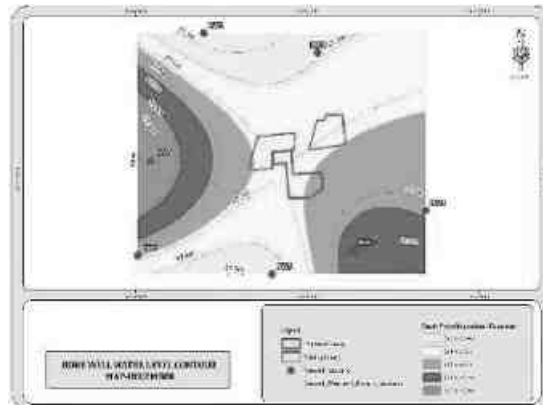
**Figure 3.7: Post Monsoon Water Level of Bore Well 1 Km Radius  
October– 2023**



**November – 2023**



**December -2023**



**Figure 3.8: Post Monsoon Water Level of Open Well 1 Km Radius**

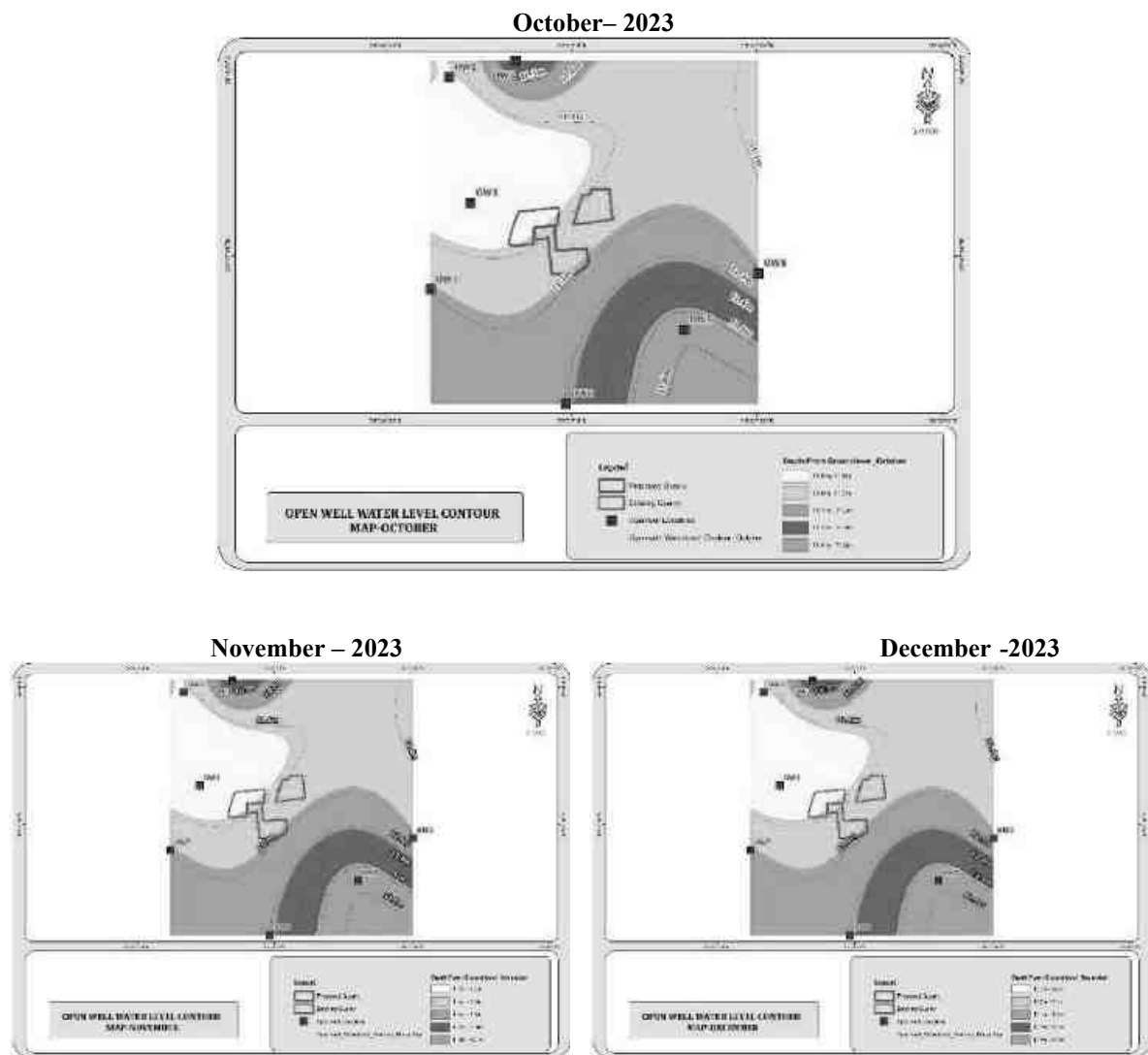




Figure 3.9: Drainage Map Around 10 Km Radius from Project Site

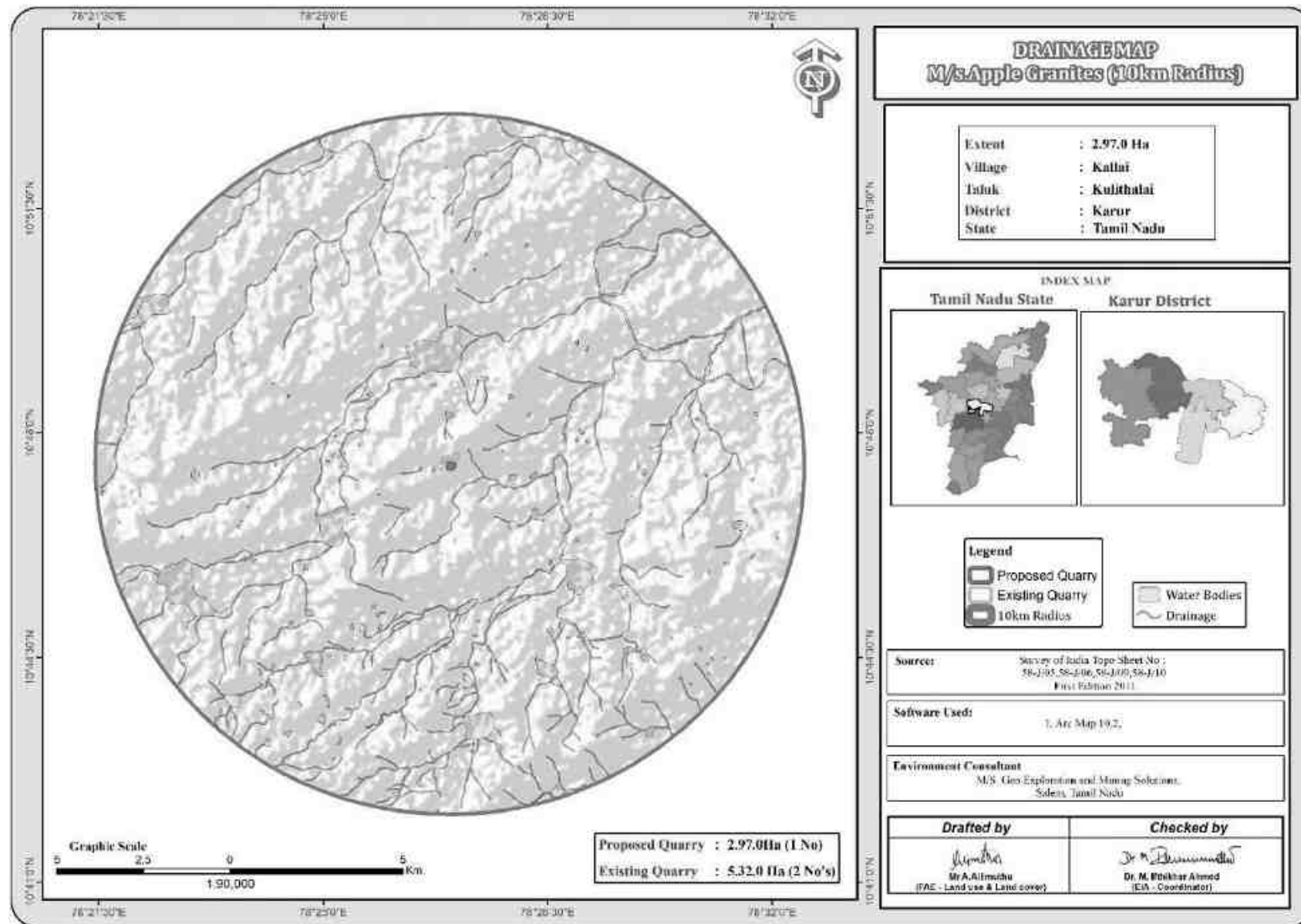
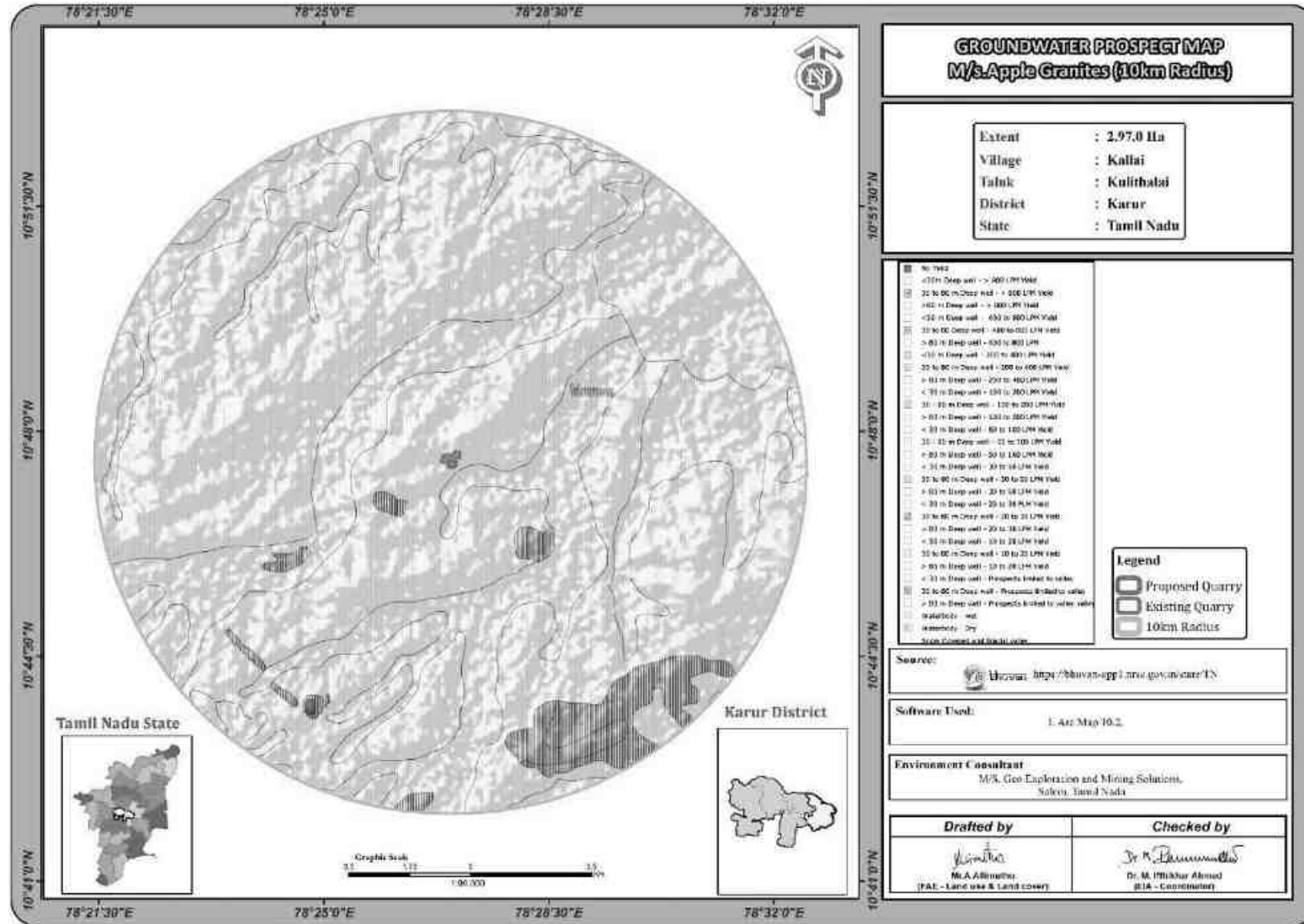


Figure 3.10: Ground Water Prospect Map



### 3.3 Air Environment

The existing ambient air quality of the area is important for evaluating the impact of mining activities on the ambient air quality. The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 10 km radius around the cluster forms the baseline information. The sources of air pollution in the region are mostly due to vehicular traffic, dust arising from unpaved village road and domestic & agricultural activities. The prime objective of the baseline air quality study was to establish the existing ambient air quality of the study area. These will also be useful for assessing the conformity to standards of the ambient air quality during the operation of proposed projects in cluster.

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

#### 3.3.1 Meteorology & Climate

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

A temporary meteorological station was installed at project site by covering cluster quarries. The station was installed at a height of 3 m above the ground level in such a way that there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature are recorded on hourly basis.

Climate:

Climate-

The climatic conditions of Karur are tropical in nature. In winter, there is much less rainfall than in summer. According to Köppen and Geiger, this climate is classified as Aw. The average temperature in Karur is 28.2 °C | 82.7 °F. Approximately 724 mm | 28.5 inch of rainfall occurs on a yearly basis.

Karur experiences a moderate climate, and the summers are not easy to define. The best time to visit is January, February, October, November, December.

The month characterized by the lowest precipitation levels is January, exhibiting a mere 8 mm | 0.3 inch of rainfall. Most precipitation falls in October, with an average of 168 mm | 6.6 inch.

On average, the month of April experiences the highest temperature with an average value of 31.5 °C | 88.7 °F. In December, the average temperature is 24.9 °C | 76.7 °F. It is the lowest average temperature of the whole year.

<https://en.climate-data.org/asia/india/tamil-nadu/karur-24030/>

#### Rainfall

**Table 3.13: Rainfall Data**

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
715.3	468.4	524.5	684.2	919.8	628.9

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

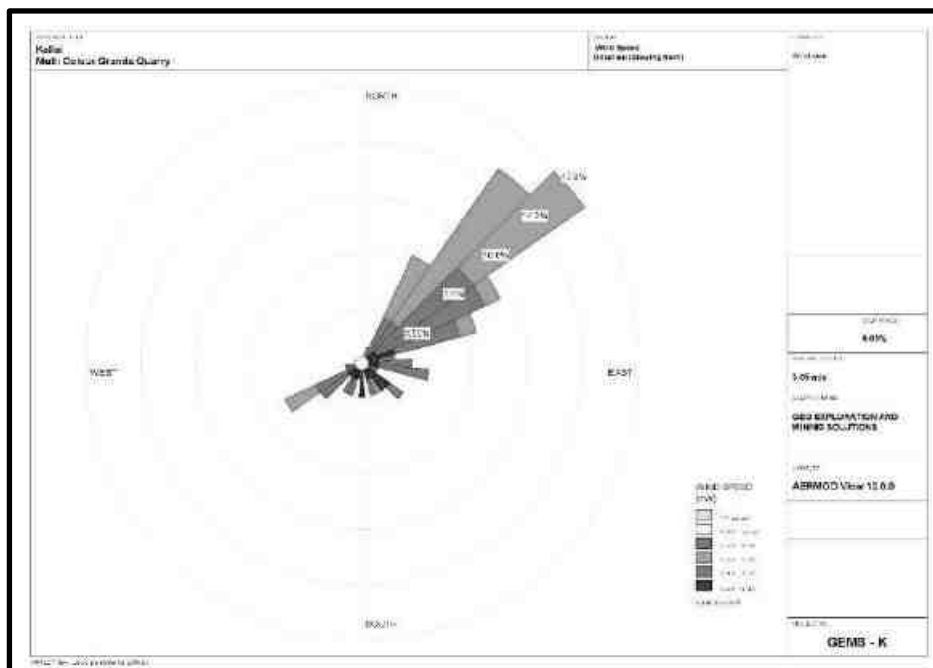
**Table 3.14: Meteorological Data Recorded at Site**

S.No	Parameters		Oct-2023	Nov-2023	Dec-2023
1	Temperature ( <sup>0</sup> C)	Max	29.9	26.8	26.77
		Min	25.48	24.75	22.61
		Avg	27.69	25.77	24.69
2	Relative Humidity (%)	Avg	73.15	85.62	86.53
3	Wind Speed (m/s)	Max	4.99	4.3	5.26
		Min	1.41	1.45	1.62
		Avg	3.2	2.87	3.44
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ENE,WSW	NE,ENE	NE,NNE

#### Correlation between Secondary and Primary Data

The meteorological data collected at the site is almost similar to that of secondary data collected from IMD station. A comparison of site data generated during the three months with that of IMD, Wind rose diagram of the study site is depicted in Figure. 3.12. Predominant downwind direction of the area during study season is East - East to North East.

*Figure 3.11: Windrose Diagram*



Source: Wind Rose plot view, Lake Environmental Software

In the abstract of collected data wind rose were drawn on presented in figure No.3.11 during the monitoring period in the study area

- Predominant winds were from ENE, WSW, NE, NNE
- Wind velocity readings were recorded between 2.87 to 3.44 m/s

- Temperature readings ranging from 24.69 to 27.69 °C
- Relative humidity ranging from 73.15 to 86.53%

### 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

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

Source: Sampling Methodology followed by Global Lab and Consultancy Services & CPCB Notification

**Table 3.15: 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 <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than $2.5\mu\text{m}$ ) PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ )	Annual Avg. 24 hours	40.0 60.0	40.0 60.0

Source: NAAQS CPCB Notification No. B-29016/20/90/PCI-I Dated: 18<sup>th</sup> 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 October to December, 2020. The baseline data of ambient air has been generated for PM<sub>10</sub>, PM<sub>2.5</sub>, Sulphur Dioxide (SO<sub>2</sub>) & Nitrogen Dioxide (NO<sub>2</sub>) Monitoring has been carried out as per the CPCB, MoEF guidelines and notifications.

It was ensured that the equipment was placed preferably at a height of at least  $3 \pm 0.5\text{m}$  above the ground level at each monitoring station, for negating the effects of wind-blown ground dust. The equipment was placed at open space free from trees and vegetation which otherwise act as a sink of pollutants resulting in lower levels in monitoring results.

### 3.3.5 Ambient Air Quality Monitoring Stations

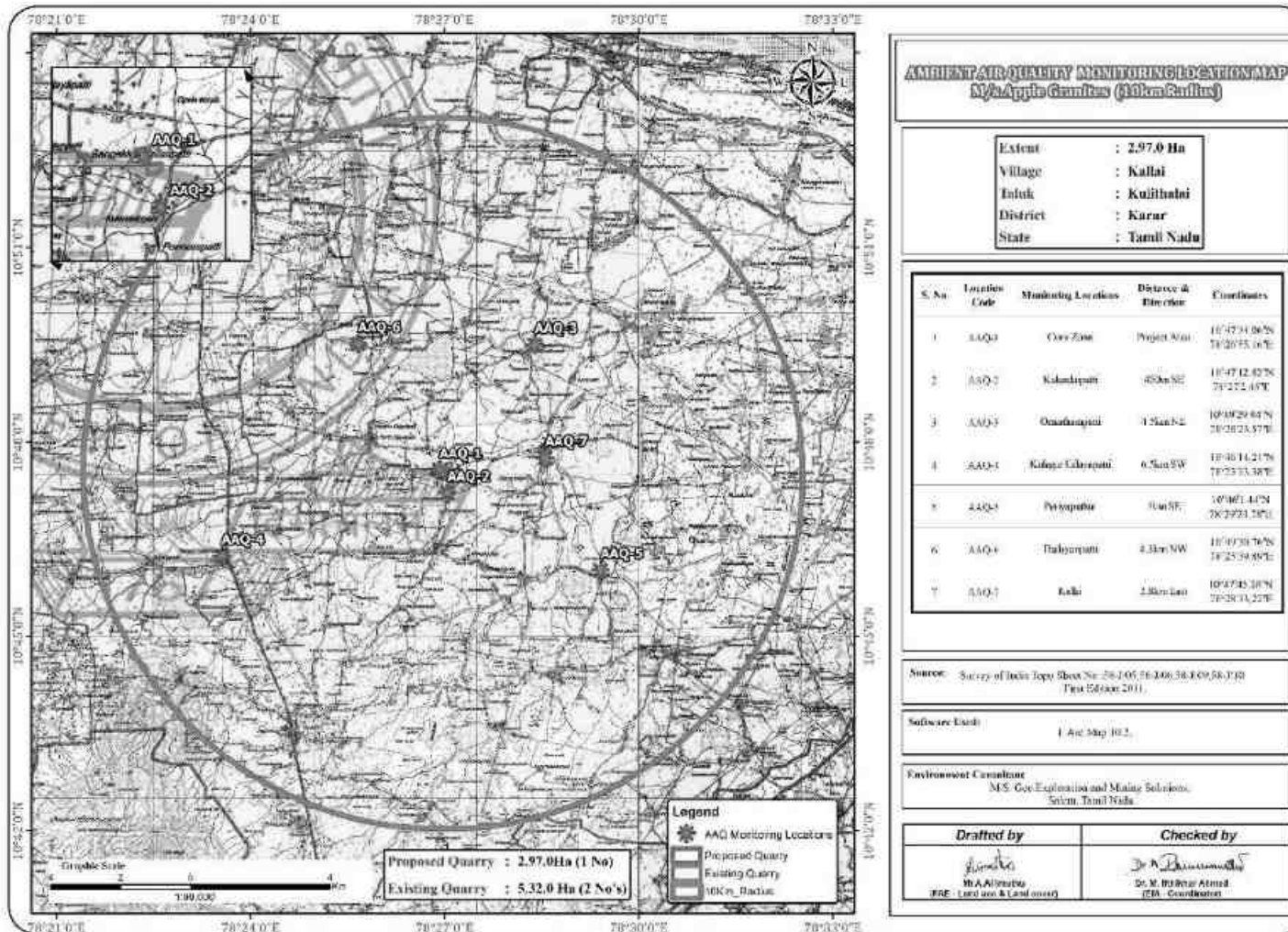
Seven (7) monitoring stations were set up in the study area as depicted in Figure 3.6.1 for assessment of the existing ambient air quality. Details of the sampling locations are as per given below.

**Table 3.16: Ambient Air Quality (AAQ) Monitoring Locations AAQ1-AAQ7**

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ-1	Core Zone	Project Area	10°47'34.06"N 78°26'55.16"E
2	AAQ-2	Kulandaipatti	450m SE	10°47'12.82"N 78°27'2.45"E
3	AAQ-3	Onanthampatti	4.5km NE	10°49'29.94"N 78°28'23.57"E
4	AAQ-4	Kalugur Udayapatti	6.5km SW	10°46'14.21"N 78°23'33.38"E
5	AAQ-5	Periyaputhur	5km SE	10°46'1.44"N 78°29'24.78"E
6	AAQ-6	Thalayripatti	4.3km NW	10°49'30.76"N 78°25'39.89"E
7	AAQ-7	Kallai	2.8km East	10°47'45.28"N 78°28'33.22"E

Source: On-site monitoring/sampling by Global Lab and Consultancy Services in association with GEMS

Figure 3.12: Ambient Air Quality Locations Around 10 Km Radius



**Table 3.25: Abstract of Ambient Air Quality Data**

S.No	Parameter	PM10	PM2.5	SO <sub>2</sub>	NO <sub>2</sub>
1	No. of Observations	260	260	260	260
2	10th Percentile Value	41.1	17.0	4.4	18.5
3	20th Percentile Value	41.9	17.3	4.7	19.1
4	30th Percentile Value	42.0	17.5	5.0	19.6
5	40th Percentile Value	42.5	17.9	5.2	20.0
6	50th Percentile Value	42.9	18.3	5.5	20.4
7	60th Percentile Value	43.1	18.3	5.8	20.6
8	70th Percentile Value	43.7	18.7	6.1	20.9
9	80th Percentile Value	44.0	18.7	6.5	21.4
10	90th Percentile Value	44.9	19.1	6.9	22.0
11	95th Percentile Value	45.1	19.5	7.1	22.4
12	98th Percentile Value	46.7	20.0	7.6	23.0
13	Arithmetic Mean	43.4	18.4	5.9	20.7
14	Geometric Mean	43.4	18.4	5.8	20.7
15	Standard Deviation	1.6	0.9	1.0	1.4
16	Minimum	41.1	17.0	4.4	18.5
17	Maximum	46.7	20.0	7.6	23.0
18	<b>NAAQ Norms*</b>	<b>100.0</b>	<b>60.0</b>	<b>80.0</b>	<b>80.0</b>
	% Values exceeding Norms*	0.0	0.0	0.0	0.0

**Legend:** PM<sub>2.5</sub>-Particulate Matter size less than 2.5 µm; PM<sub>10</sub>-Respirable Particulate Matter size less than 10 µm; SO<sub>2</sub>-Sulphur dioxide; NO<sub>2</sub>-Nitrogen Dioxide; CO-Carbon monoxide; O<sub>3</sub>-Ozone; NH<sub>3</sub>-Ammonia; Pb-Particulate Lead; As-Particulate Arsenic; Ni-Particulate Nickel; C<sub>6</sub>H<sub>6</sub>-Benzene & BaP- Benzo (a) pyrene in particulate phase levels were monitored below their respective detectable limits.

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

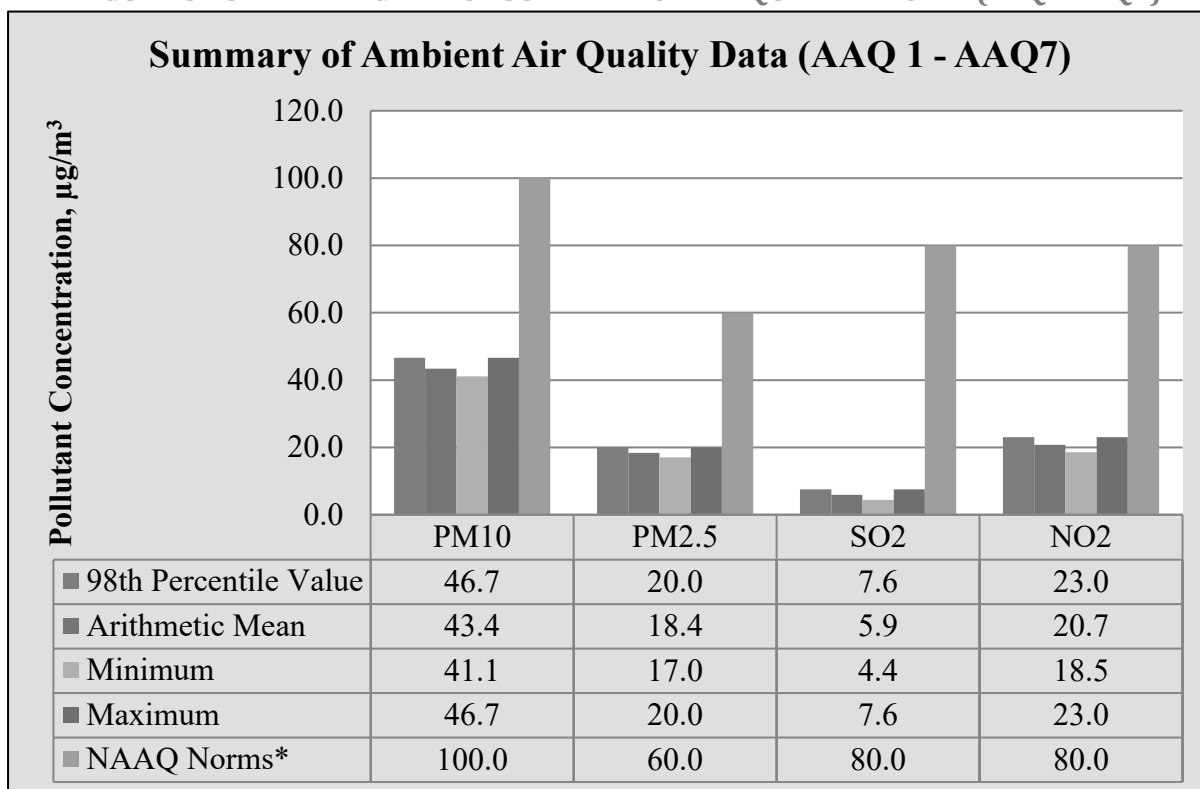
**Table 3.26: Summary of Ambient Air Quality Data (AAQ1-AAQ7)**

<b>PM10</b>	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	44.2	43.0	43.1	42.8	42.8	42.6	42.9
Minimum	41.0	40.0	40.0	40.2	40.2	41.0	41.0
Maximum	46.7	48.0	45.1	45.0	46.8	46.1	45.1
<b>NAAQ Norms</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>PM2.5</b>	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	18.3	18.0	18.3	18.0	17.9	18.2	18.3
Minimum	17.0	16.6	17.1	17.0	16.6	17.0	17.0
Maximum	21.2	20.4	20.0	19.1	20.0	20.0	19.5

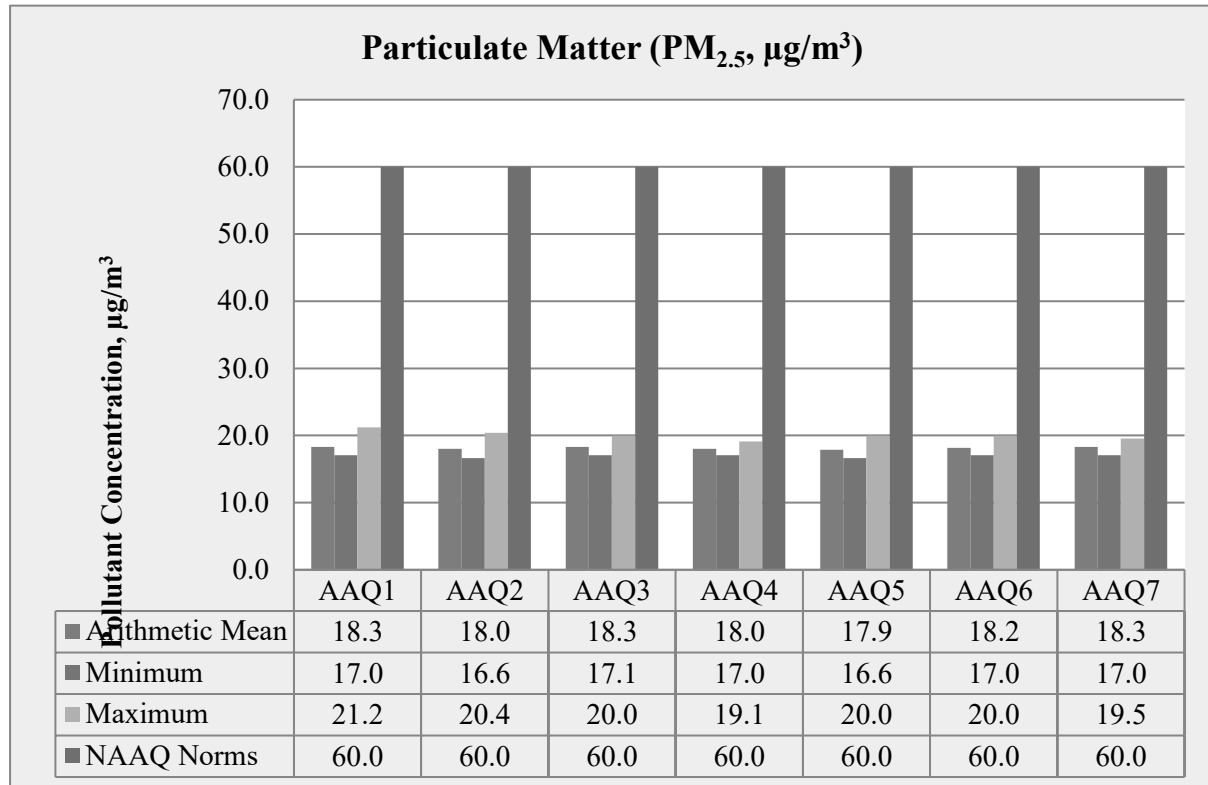


<b>NAAQ Norms</b>	60.0	60.0	60.0	60.0	60.0	60.0	60.0
<b>SO2</b>	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
<b>Arithmetic Mean</b>	5.5	5.7	5.6	5.4	5.6	5.5	5.6
<b>Minimum</b>	4.2	4.4	4.2	4.1	4.2	4.2	4.0
<b>Maximum</b>	7.7	7.1	7.6	7.2	7.6	6.9	7.1
<b>NAAQ Norms</b>	80.0	80.0	80.0	80.0	80.0	80.0	80.0
<b>NO2</b>	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
<b>Arithmetic Mean</b>	20.6	20.2	20.5	20.2	20.2	20.1	20.0
<b>Minimum</b>	18.2	16.3	18.1	15.4	18.2	17.8	16.7
<b>Maximum</b>	22.3	23.1	23.0	22.4	23.8	21.9	22.2
<b>NAAQ Norms</b>	80.0	80.0	80.0	80.0	80.0	80.0	80.0

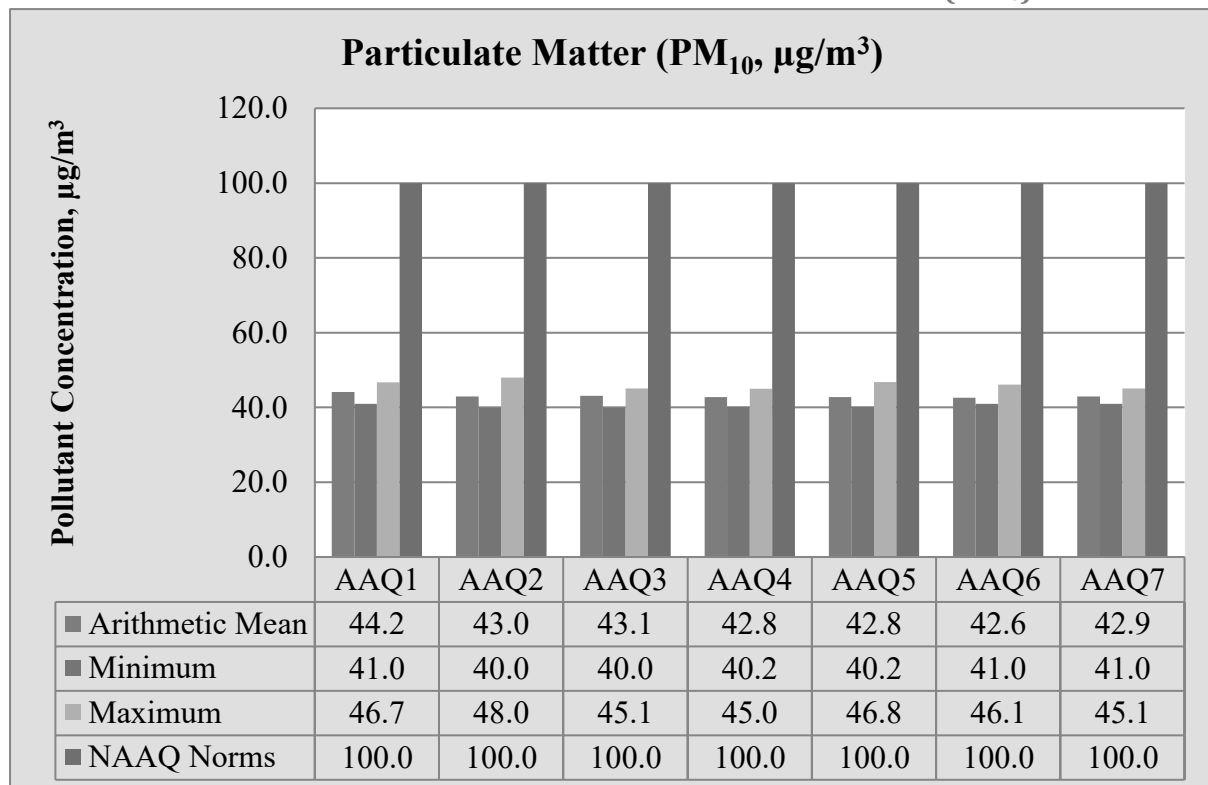
FIGURE 3.13: BAR DIAGRAM OF SUMMARY OF AIR QUALITY MODEL(AAQ1-AAQ7)



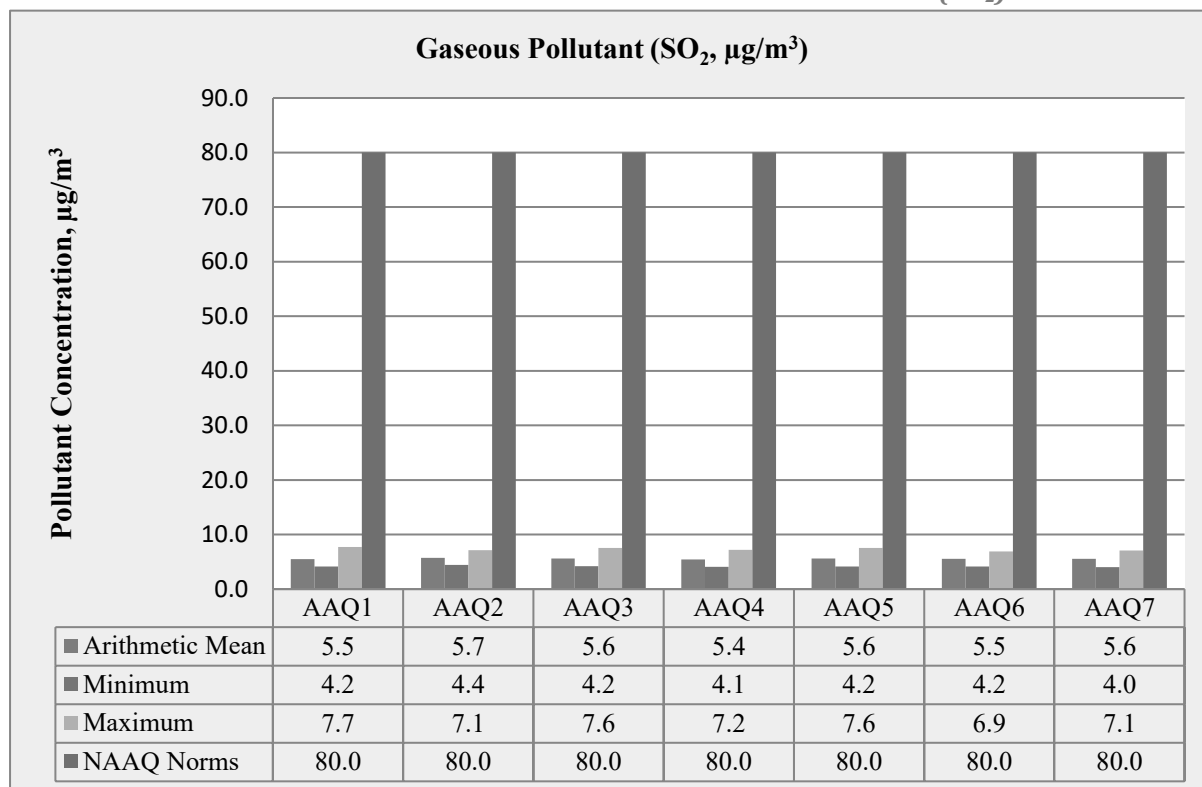
**FIGURE 3.14 : BAR DIAGRAM OF PARTICULATE MATTER (PM<sub>2.5</sub>)**



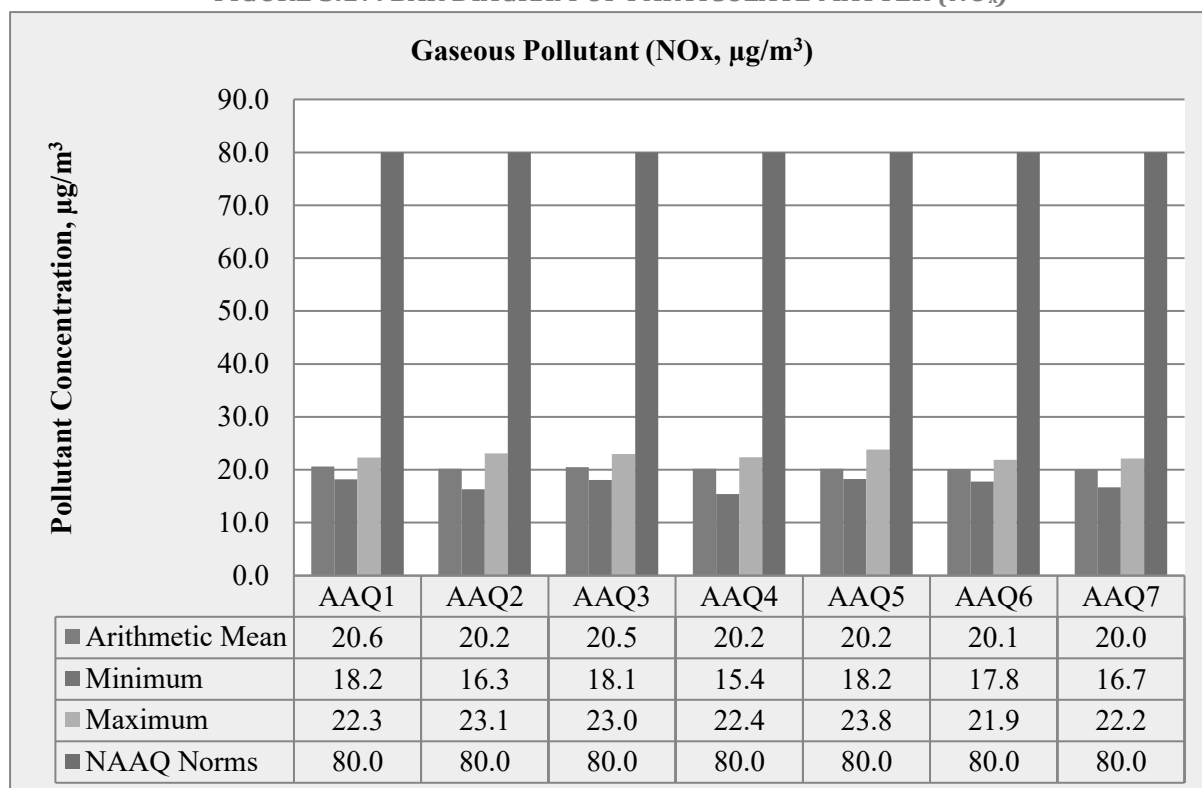
**FIGURE 3.15: BAR DIAGRAM OF PARTICULATE MATTER (PM<sub>10</sub>)**



**FIGURE 3.16: BAR DIAGRAM OF PARTICULATE MATTER (SO<sub>2</sub>)**



**FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER (NO<sub>x</sub>)**



**3.3.6 Interpretations & Conclusion**

From the above datas, the concentration of main criteria pollutants has been observed in PM10 concentration varies from 40.0-41.0µg/m<sup>3</sup> Minimum and 48µg/m<sup>3</sup> Maximum level. The concentration of PM2.5

varies from 16.6-17.1 $\mu\text{g}/\text{m}^3$  Minimum and 19.1-21.2 $\mu\text{g}/\text{m}^3$  Maximum level. SO<sub>2</sub> concentration level ranged from 4.0-4.4 $\mu\text{g}/\text{m}^3$  Minimum and 6.9-7.7 $\mu\text{g}/\text{m}^3$  Maximum level and NO<sub>x</sub> concentration ranged from 15.4-18.2 $\mu\text{g}/\text{m}^3$  Minimum and 21.9-23.8 $\mu\text{g}/\text{m}^3$  Maximum level. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

Toxic Metals (Lead, Nickel & Arsenic): Representative samples from all sampling stations were collected and analysed for Toxic Metals i.e. Lead, Arsenic & Nickel. The concentrations of Toxic Metals were below detectable limit at all sampling stations.

Overall Ambient Air Quality of proposed project area and its buffer zone is good during monitoring period and there are no any abnormal values recorded. The maximum concentration in the core zone is due to the quarrying activity of the cluster of quarries situated within 500m radius. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

The ambient air quality of different locations has been compared with the respective NAAQS. The air quality has been categorized into four broad categories based on an Exceedance Factor (the ratio of average concentration of a pollutant with that of a respective standard).

The four air quality categories are:

- i. Critical pollution (C): when EF is  $> 1.5$
- ii. High pollution (H): when the EF is between  $1.0 < 1.5$
- iii. Moderate pollution (M): when the EF between  $0.5 < 1.0$
- iv. Low pollution (L): when the EF is  $< 0.5$

The Exceedance Factor (EF) is calculated for major pollutants as follows:

### 3.4 Noise Environment

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

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

#### 3.4.1 Identification of Sampling Locations

In order to assess the ambient noise levels within the study area, noise monitoring was carried out at Seven (7) locations. The noise level monitoring locations were carried out by covering commercial, residential, rural areas within the radius of 10 km. A noise monitoring methodology was chosen such that it best suited the purpose and objectives of the study.

**Table 3.29: Details of Noise Monitoring Locations**

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	N-1	Core Zone	Project Area	10°47'28.78"N 78°27'1.37"E
2	N-2	Kulandaipatti	450m SE	10°47'12.17"N 78°27'2.62"E
3	N-3	Onanthampatti	4.5km NE	10°49'30.13"N 78°28'24.28"E
4	N-4	Kalugur Udayapatti	6.5km SW	10°46'14.26"N 78°23'33.09"E
5	N-5	Periyaputhur	5km SE	10°46'2.05"N 78°29'24.79"E
6	N-6	Thalayarpatti	4.3km NW	10°49'31.09"N 78°25'38.64"E
7	N-7	Kallai	2.8km East	10°47'45.73"N 78°28'33.28"E

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Source: On-site monitoring/sampling by Global Lab and Consultancy Services in association with GEMS

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### 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.

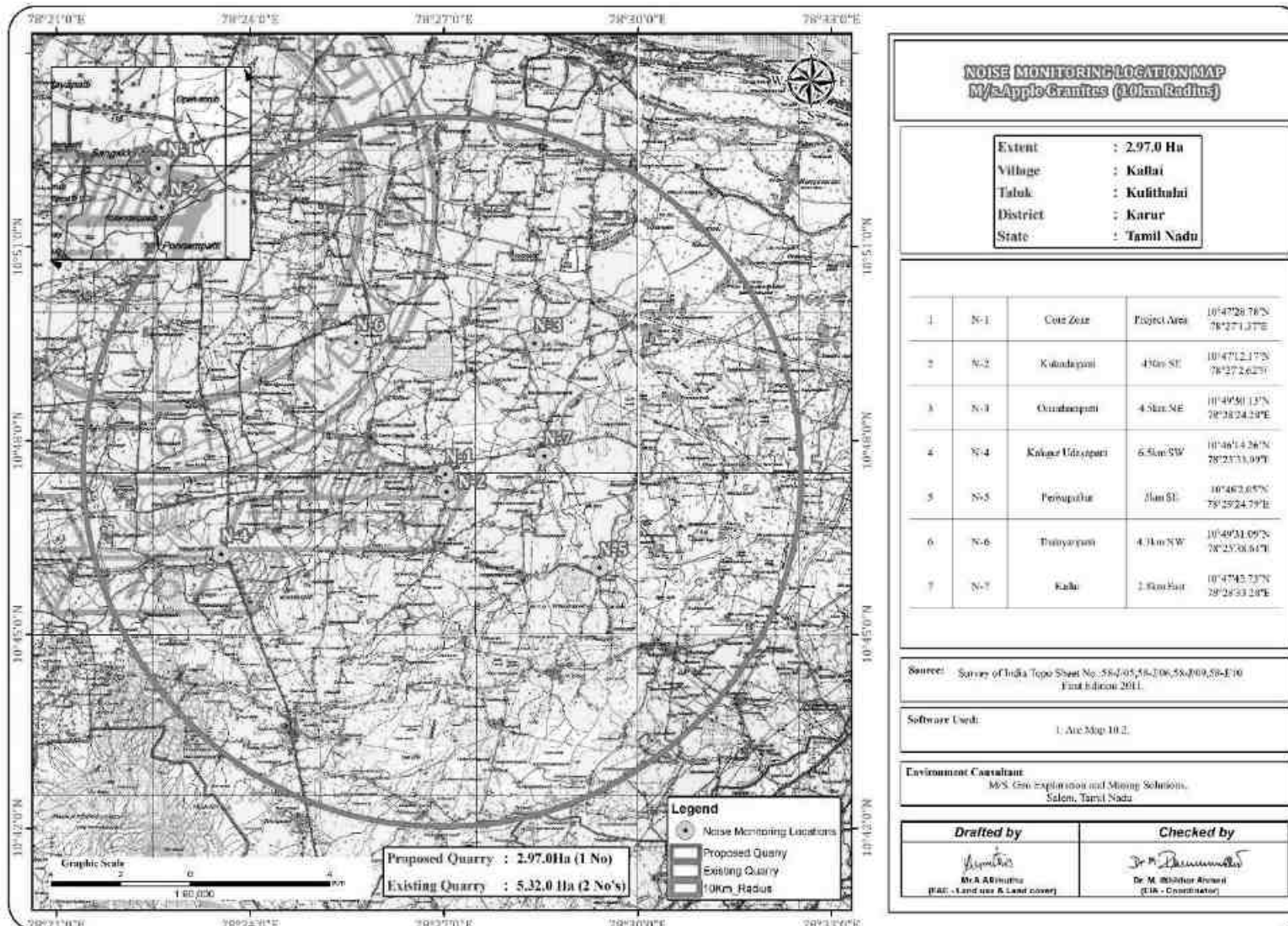
Measured noise levels, displayed as a function of time, is useful for describing the acoustical climate of the community. Noise levels recorded at each station with a time interval of about 60 minutes are computed for equivalent noise levels. Equivalent noise level is a single number descriptor for describing time varying noise levels.

$$L_{eq} = 10 \log L / T \sum (10L_n/10)$$

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

T = Time interval of observation

Figure 3.18: Noise Monitoring Stations Around 10 Km Radius



### 3.4.3 Analysis of Ambient Noise Level in the Study Area

The Digital Sound pressure level have been measured by a sound level meter (Model: HTC SL-1352) An analysis of the different Leq data obtained during the study period has been made. Variation was noted during the day-time as well as night-time. The results are presented in below Table 3.28

Day time: 6:00 hours to 22.00 hours.

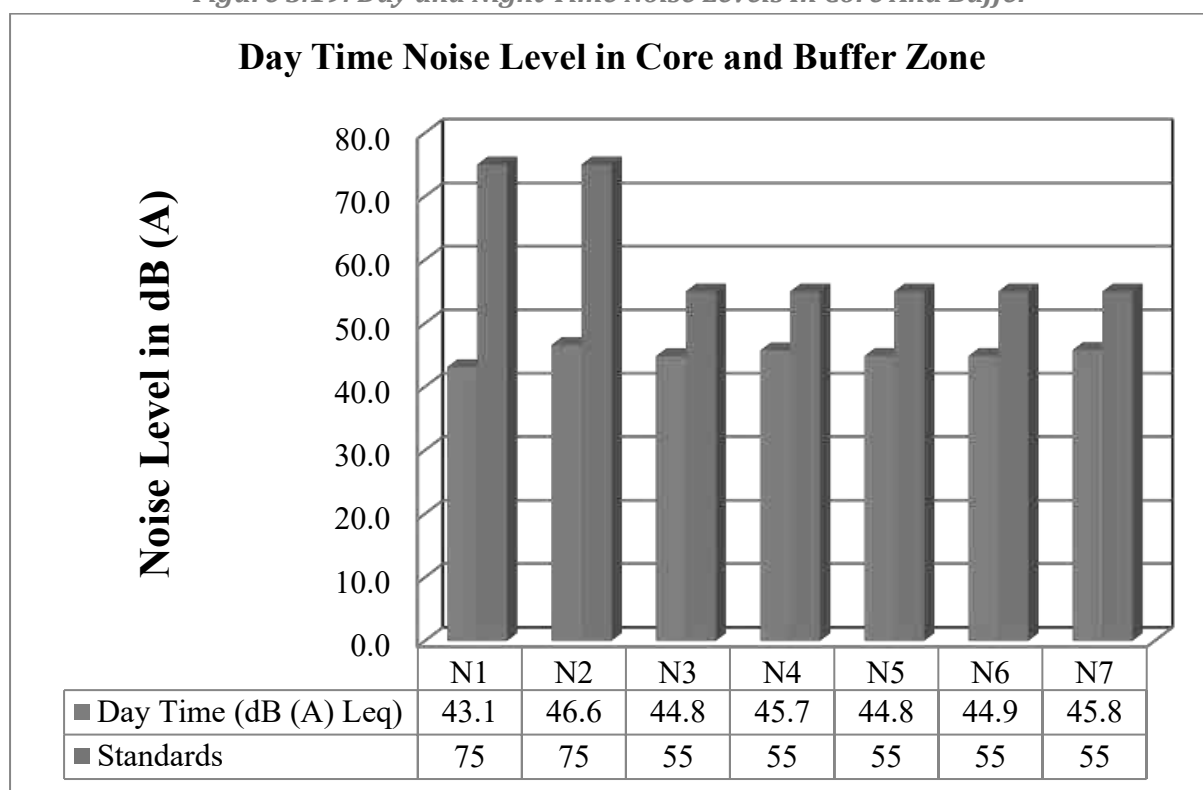
Night time: 22:00 hours to 6.00 hours.

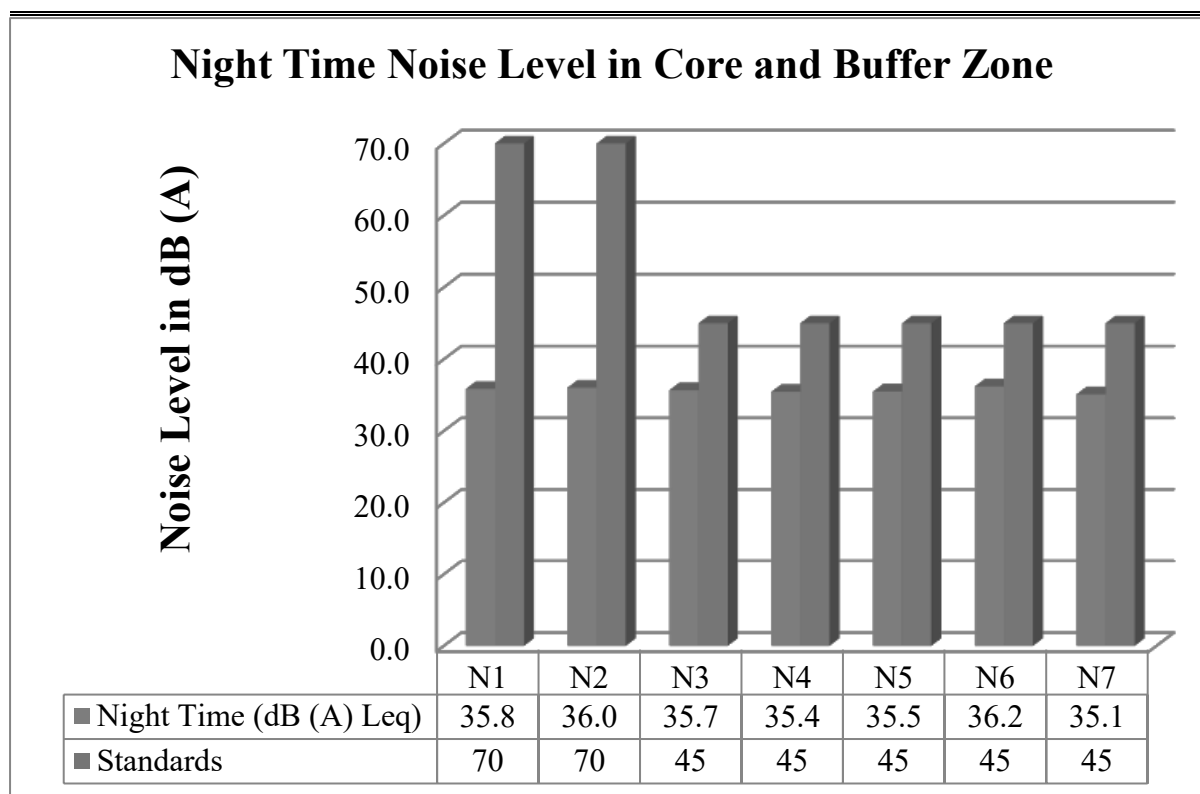
**Table 3.30: Ambient Noise Quality Result**

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Core Zone	45.88	36.87	<b>Industrial</b> Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Kulandaipatti	47.01	38.17	
3	Onanthampatti	44.93	36.20	
4	Kalugur Udayapatti	45.9	36.6	<b>Residential</b> Day Time- 55 dB (A) Night Time- 45 dB (A)
5	Periyaputhur	45.2	37.7	
6	Thalayariipatti	45.44	37.82	
7	Kallai	45.28	35.23	

Source: On-site monitoring/sampling by Global Lab and Consultancy Services in association with GEMS

**Figure 3.19: Day and Night Time Noise Levels In Core And Buffer**





#### 3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 7 (Seven) locations around the proposed and existing project area. Noise levels recorded in core zone during day time were from 45.88 dB (A) Leq and during night time were from 36.87 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 43.1– 46.6 dB (A) Leq and during night time were from 35.1 – 36.2dB (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 46.6 dB(A) Leq in Core area and 43.1 dB(A) Leg in Kulandaipatti village. Results reveal that maximum & minimum Night time is 49.6 dB(A) in Core area & 30.2 dB(A) in Kulandaipatti village at Minimum 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 study of the biological environment is one of the important aspects of Environmental Impact Assessments. The biotic component comprises both plant and animal communities which interact within the community and between themselves but also with abiotic i.e. physical and chemical components of the environment. A general ecological survey was carried out in the study area of 10 km radius around the Mine area. The study Area is not part of any National Park, Sanctuary, Biosphere Reserve, Wildlife Corridors, Migratory Path, etc. The primary data was generated by preparing a general checklist of all plants encountered in the study area. The species of vegetation found were identified and listed according to their families. The division of core and buffer zone is the best way to study the pattern of biodiversity for environmental impact assessment.

#### 3.5.2. Objectives of Biological Studies

- To study the likely impact of the proposed mining project on the local biodiversity and to suggest mitigation measures, if required, for vulnerable biota.
- Undertake intensive field survey to assess the status of floral & faunal component in different habitats in the core and buffer areas of the project site.
- Identification and listing of flora and fauna which are important as per the Wildlife (Protection) Act 1972.



- 
- d) Suggest Wildlife conservation (species specific/habitat specific) and management plan for the threatened (critically endangered & endangered species - schedule I) faunal species if any reported within the study area.
  - e) To identify the impacts of mining on agricultural lands and how it affects.
  - f) Proper collection of information about wildlife Sanctuaries/ national parks/ biosphere reserves of the project area.
  - g) Devise management & conservation measures for biodiversity.

### 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 ordinals. 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

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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).

#### 3.5.5. Flora

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

**Table No: 3.53. Flora in the Core Zone of M/s. Apple Granites, Multi-Colour Granite Quarry**

Sl.No	English Name	Vernacular Name	Scientific Name	Family Name
<b>Trees</b>				
1.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	Fabaceae
2.	Neem or Indian lilac	Vembu maram	<i>Azadirachta indica</i>	Meliaceae
3.	Singapore Cherry	Ten pazham	<i>Muntingia calabura</i>	Malvaceae
4.	Millettia Pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae
5.	Bitter Albizia	Arappu Tree	<i>Albizia amara</i>	Fabaceae
<b>Shrubs</b>				
1.	West Indian Lantana	Unni chedi	<i>Lantana camara</i>	Verbenaceae
2.	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae
3.	Yellow elder	Manjarali	<i>Tecoma stans</i>	Bignoniaceae
4.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
<b>Herbs</b>				
1.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
2.	Ban Tulsi	Milagai poondu	<i>Croton sparsiflorus</i>	Euphorbiaceae
3.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
4.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae
5.	Asthma-plant	Amman pacharisi	<i>Euphorbia hirta</i>	Euphorbiaceae
6.	Devil's thorn	Nerunji	<i>Tribulus terrestris</i>	Zygophyllales
7.	Fish poison	Kolinchi	<i>Tephrosia purpurea</i>	Fabaceae
8.	Pignut	Nattapoochedi	<i>Hyptis suaveolens</i>	Lamiaceae

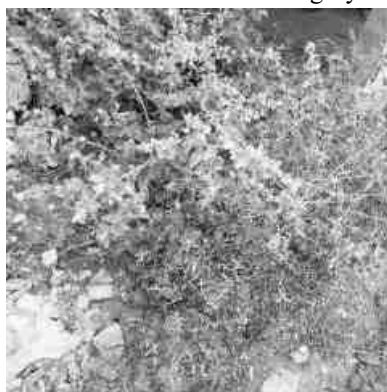
9.	Flannel Weed	Sida mutti	<i>Sida cordifolia</i>	Malvaceae
10.	Indian nettle	Nayuruvi	<i>Achyranthes aspera</i>	Amaranthaceae
<b>Climber</b>				
1.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
<b>Grasses</b>				
1.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
2.	Great brome	Thodappam	<i>Bromus diandrus</i>	Poaceae

**3.5.5.1. Flora Composition in the Core Zone**

Taxonomically a total of 21 species belonging to 14 families have been recorded from the core mining lease area. The proposed area applied area is situated on flat terrain. Based on the habitat classification of the enumerated plants the majority of species were Herbs 11 followed by Trees 5, Shrubs 3, Climber 1, and Grasses 2. Details of flora with the scientific name were mentioned in Table No. 3.53. The result of the core zone of flora studies shows that Fabaceae and Poaceae, Apocynaceae are the main dominating species in the study area mentioned in Table No.3.53. No species found as threatened category.



a. Tecoma stans



b. Abutilon indicum



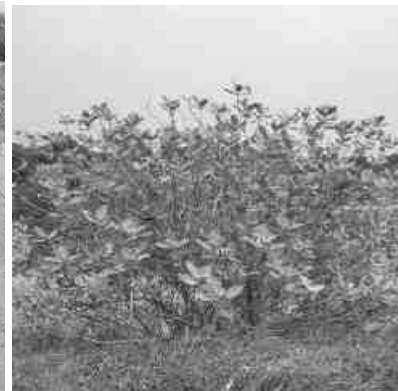
c. Euphorbia hirta



d. Azadirachta indica



e. Senna auriculata



f. Calotropis gigantea



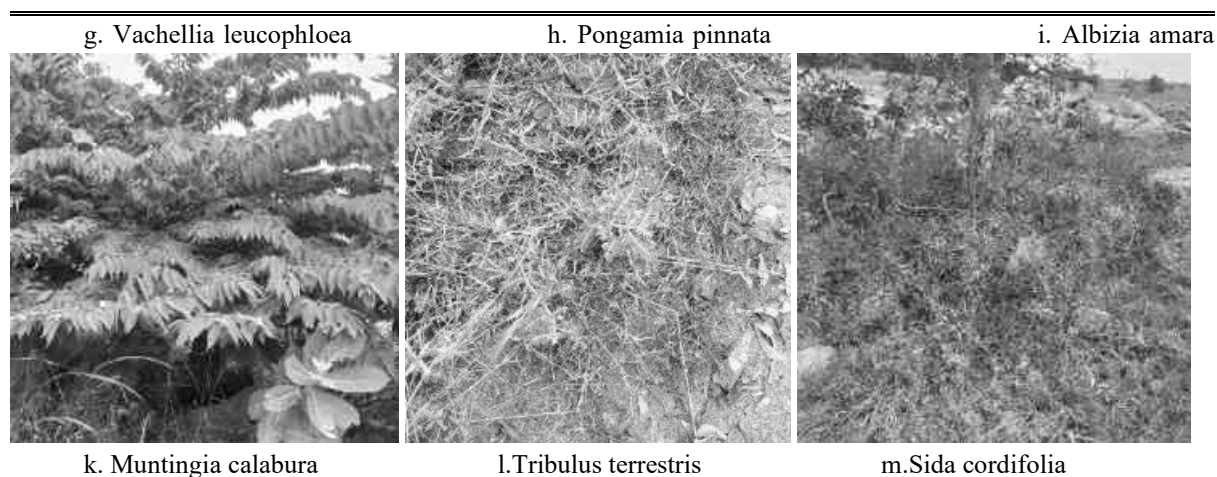


Fig No: 3.33. Flora species observation in the core zone area

Table No: 3.54. Flora in the Buffer zone of study area.

S.No	English Name	Vernacular Name	Scientific Name	Family Name
<b>Trees</b>				
1.	Millettia Pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	Fabaceae
2.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	Fabaceae
3.	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	Arecaceae
4.	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	Rutaceae
5.	Gooseberry	Arai nelli	<i>Phyllanthus acidus</i>	Euphorbiaceae
6.	Neem or Indian lilac	Vembu	<i>Azadirachta indica</i>	Meliaceae
7.	Indian plum	Elanthai maram	<i>Ziziphus mauritiana</i>	Rhamnaceae
8.	Coconut	Thennai maram	<i>Cocos nucifera</i>	Arecaceae
9.	Gum arabic tree	Karuvelam	<i>Acacia nilotica</i>	Mimosaceae
10.	Drumstick tree	Karimurungai	<i>Moringa oleifera</i>	Moraginaceae
11.	Banana tree	Vazhaimaram	<i>Musa</i>	Musaceae
12.	Senna siamea	Manjal Konnai	<i>Sennasiamea</i>	Fabaceae
13.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	Moraceae
14.	Creamy Peacock Flower	Vadanarayani	<i>Delonix elata</i>	Fabaceae
15.	Beauty leaf	Punnai	<i>Calophyllu inophyllum</i>	Calophyllaceae
16.	Umbrella thorn	Kodaivelam	<i>Acacia planifrons</i>	Mimosaceae
17.	Indian fig tree	Athi	<i>Ficus recemosa</i>	Moraceae
18.	Jujube	Ilanthai	<i>Ziziphus jujubha</i>	Rhamnaceae
19.	Oil cake tree	Arappu	<i>Albizia amara</i>	Mimosaceae
20.	Giant thorny bamboo	Perumungil	<i>Bambusa bambos</i>	Poaceae
21.	Woman's tongue	Vagai	<i>Albizia lebbeck</i>	Mimosaceae
22.	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	Legumes
23.	Rain Tree	Thoongu moonji	<i>Albizia saman</i>	Mimosaceae
24.	Muntingia calabura	Singapore cherry	<i>Muntingiacalabura</i>	Malvaceae
25.	Chinesh cheery	Thenpazham	<i>Muntingia calabura</i>	Tiliaceae
26.	Chebulic myrobalan	Kadukkai	<i>Terminalia chebula</i>	Combretaceae
27.	Indian fir tree	Nettilinkam	<i>Polylathia longifolia</i>	Annonaceae
28.	Indian bael	Vilvam	<i>Aegle marmelos</i>	Rutaceae
29.	Indian Mulberry	Manjanati	<i>Morinda coreia</i>	Rubiaceae
30.	Henna	Marudaani	<i>Lawsonia inermis</i>	Lythraceae
31.	Eucalyptus	Eucalyptus	<i>Eucalyptus globules</i>	Myrtaceae
32.	Manilkara zapota	Sapota	<i>Manilkara zapota</i>	Sapotaceae
33.	Black plum	Navalmaram	<i>Sygygium cumini</i>	Myrtaceae

34.	Mango	Manga	<i>Mangifera indica</i>	Anacardiaceae
35.	Jack fruit	Palamaram	<i>Artocarpus heterophyllus</i>	Moraceae
36.	Curry tree	Karivembu	<i>Murraya kenticia</i>	Rubiaceae
37.	Robber-thorn tree	Anaimullu	<i>Acacia horrida</i>	Mimosaceae
38.	Teak	Thekku	<i>Tectona grandis</i>	Verbenaceae
39.	Indian gooseberry	Nelli	<i>Emblica officinalis</i>	Phyllanthaceae
40.	Chinese chaste tree	Nochi	<i>Vote negundo</i>	Verbenaceae
41.	Madras Thorn	Kuduka puli	<i>Pithecellobium dulce</i>	Mimosaceae
42.	Noni	Nuna maram	<i>Morinda citrifolia</i>	Rubiaceae
43.	Five leaf chastera	Nochi	<i>Vitex negundo</i>	Lamiaceae
44.	Papaya	Pappali maram	<i>Carica papaya L</i>	Caricaceae
45.	Peepal	Arasanmaram	<i>Ficus religiosa</i>	Moraceae
46.	Monoon longifolium	Nettilingam	<i>Polyalthia longifolia</i>	Annonaceae
47.	Guava	Koyya	<i>Psidium guajava</i>	Myrtaceae
48.	custard apple	Seethapazham	<i>Annona reticulata</i>	Annonaceae
49.	Curry tree	Velipparuthi	<i>Murraya koenigii</i>	Asclepiadaceae
50.	Bamboo	Moonghil	<i>Bambusa bambo</i>	Poaceae
<b>Shrubs</b>				
1.	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	Malvaceae
2.	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae
3.	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae
4.	Coffee senna	Kattuttakarai	<i>Senna occidentalis</i>	Fabaceae
5.	Rosy Periwinkle	Nithyakalyani	<i>Cathranthus roseus</i>	Apocynaceae
6.	Peacock Flower	Mayil Kontai	<i>Caesalpinia pulcherrima</i>	Fabaceae
7.	Chrozophora tinctoria	Puramuttai	<i>Chrozophora rotleri</i>	Euphorbiaceae
8.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
9.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
10.	Yellow elder	Manjarali	<i>Tecoma stans</i>	Bignoniaceae
11.	Tiger nail	Eli verandi	<i>Martynia annua</i>	Martyniaceae
12.	Jackal jujube	Surai Iltantai	<i>Ziziphus oenoplia</i>	Rhamnaceae
13.	Rough cocklebu	Ottarachedi	<i>Xanthium strumarium</i>	Asteraceae
14.	Datura metel	Uumaththai	<i>Datura metel</i>	Solanaceae
15.	Castor oil plant	Amanakku	<i>Ricinus communis</i>	Euphorbiaceae
16.	Plumeria alba	Malaiarali	<i>Plumeria alba</i>	Appocynaceae
17.	Senna alata	Seemaigaththi	<i>Cassia alata</i>	Caesalpinaceae
18.	Pinwheelflower	Nandiar vattai	<i>Tabernaemontana coronaria</i>	Apocynaceae
19.	Flame of the Woods	Idlipoo	<i>xoracoc cinea</i>	Rubiaceae
20.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	Euphorbiaceae
21.	Giant reed	Naanal	<i>Arunudo donax</i>	Poaceae
22.	Malabar nut	Adathodai	<i>Justicia adhatoda</i>	Acanthaceae
23.	Indian Oleander	Arali	<i>Nerium indicum</i>	Apocynaceae
24.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	Euphorbiaceae
25.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae
26.	Prickly pear	Nagathali	<i>Opuntia</i>	Cactaceae
27.	Solanum pubescens	Malaisundai	<i>Solanum pubescens Willd</i>	Solanaceae
28.	Hygrophila spinosa	Neermulli	<i>Hydrophila auriculata</i>	Acanthaceae
29.	Ipomoea cornea	Neivelikattamanaku	<i>Ipomoea carnea</i>	Convolvulaceae
30.	Night shade plan	Sundaika	<i>Solanum torvum</i>	Solanaceae
31.	Ceylon Date Palm	Icham	<i>Phoenix pusilla</i>	Arecaceae
<b>Herbs</b>				

1.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
2.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
3.	Flannel Weed	Sida mutti	<i>Sida cordifolia</i>	Malvaceae
4.	Aloes	Katrazhai	<i>Aloe</i>	Liliaceae
5.	European nightshade black	Manathakkali	<i>Solanumnigrum</i>	Solanaceae
6.	Sessile joyweed	Ponnanganni	<i>Alternanthera sessilis</i>	Amaranthaceae
7.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae
8.	Cat's claw	Thael Kodukku	<i>Martynia annua</i>	Pedaliaceae
9.	Poor land flatsedg	Kunnakora	<i>Cyperus compressus</i>	Cyperaceae
10.	Goatweed	Pumpillu	<i>Ageratum conyzoides</i>	Asteraceae
11.	Mexican prickly poppy	Eli-yotti	<i>Argemone mexicana</i>	Papaveraceae
12.	Gotu kola	Vallarai	<i>Centella asiatica</i>	Apiaceae
13.	Pink Blumea	Suvatru mullangi	<i>Blumea mollis</i>	Asteraceae
14.	Chinese Spinach	Thandukeerai	<i>Amaranthus tricolor</i>	Amaranthaceae
15.	Tridax daisy	Veetukaayapoondu	<i>Tridax procumbens</i>	Asteraceae
16.	Creeping chaffweed	Adai otti	<i>Alternanthera pungens</i>	Amaranthaceae
17.	Digeria muricata	Thoiya keerai	<i>Digeria muricata</i>	Amarantheceae
18.	Indian Copperleaf	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae
19.	Cyperus difformis	Kudai koori	<i>Cyperus difformis</i>	Cyperaceae
20.	Mountain knotgrass	Thengaipoo kirai	<i>Aerva lanata</i>	Amaranthaceae
21.	Riceweeds	Seruppada	<i>Coldenia procumbens</i>	Boraginaceae
22.	Goatweed	Kallurukki	<i>Scoparia dulcis</i>	Plantaginaceae
23.	East Indian globe thistle	kottai-k-karantai	<i>Sphaeranthus indicus</i>	Asteraceae
24.	False daisy	Karisilanganni	<i>Eclipta prostata</i>	Asteraceae
25.	Chocolate weed	Punnakku poondu	<i>Melochia corchorifolia</i>	Sterculiaceae
26.	Marsh barbel	Neermulli	<i>Hygrophila auriculata</i>	Acanthaceae
27.	Black Mustard Seed	Kaduku	<i>Brassica juncea</i>	Brassicaceae
28.	Slender amaranth	Sirukeerai	<i>Amaranthus polygonoides</i>	Amaranthaceae
29.	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	Amaranthaceae
30.	Cleome viscosa	Nai kadugu	<i>Celome viscosa</i>	Capparidaceae
31.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae
32.	Punarnava	Mukkirattai	<i>Boerhaavia diffusa</i>	Nyctaginaceae
33.	Prickly amaranth	Mullukkeerai	<i>Amaranthus spinosus</i>	Amaranthaceae
34.	Tomato	Thakkali	<i>Solanum lycopersicum</i>	Solanaceae
35.	False daisy	Karisalankanni	<i>Eclipta alba</i>	Asteraceae
36.	Chilli	Milakai	<i>Capsicum annum</i>	Solanaceae
37.	Red Spiderling	Mukirattai	<i>Boerhavia diffusa</i>	Nyctaginaceae
38.	Porcupine flower	Kundan	<i>Barleria prionitis</i>	Acanthaceae
39.	Billygoat weed	Pumpillu	<i>Ageratum conyzoides</i>	Asteraceae
<b>Climbers</b>				
1.	Ivy gourd	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae
2.	Balloon vine	Mudakkotan	<i>Cardiospermum helicacabum</i>	Sapindaceae
3.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae
4.	Pointed gourd	Kovakkai	<i>Trichosanthes dioica</i>	Cucurbitaceae
5.	Rosary pea	Kuntumani	<i>Abrus precatorius L</i>	Fabaceae
6.	Indian sarsparilla	Nannari	<i>Hemidesmus indicus</i>	Asclepiadaceae
7.	Coral vine	Kodi rose	<i>Antigonon leptopus</i>	Polygonaceae
8.	Butterfly-pea	Sangupoo	<i>Clitoriaternatia</i>	Fabaceae
9.	Wild jasmine	Malli	<i>Jasminum augustifolium</i>	Oleaceae

10.	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	Cucurbitaceae
11.	Bitter gourd	Pavakkai	<i>Momordica charantia</i>	Cucurbitaceae
<b>Creepers</b>				
1.	Ground Spurge	Sithrapaalavi	<i>Euphorbia prostrata</i>	Euphorbiaceae
2.	<i>Ipomoea reniformis</i> chois	Elikkathilai	<i>Merremia gangetica</i>	Convolvulaceae
3.	Bitter Apple	Thumattikai	<i>Cucumis callosus</i>	Cucurbitaceae
4.	Merremia	Muthiyar koontha	<i>Merremia tridentata</i>	Convolvulaceae
5.	Frog fruit	Poduthalai	<i>Phyla nodifolia</i>	Verbenaceae
<b>Grasses</b>				
1.	Apluda	Kattu kanchippul	<i>Apluda mutica</i>	Poaceae
2.	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae
3.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	Poaceae
4.	Jungle rice	Kuthirai vaal Kattu arusi	<i>Echinochloa colona</i>	Poaceae
5.	Windmill grass	Chevvarakupul	<i>Chloris barbata</i>	Amaranthaceae
6.	Finger grass	Kuruthupillu	<i>Chloris dolichostachya</i>	Poaceae
7.	Umbrella-sedge	Vattakorai	<i>Cyperus difformis</i>	Cyperaceae
8.	Marvel grass	Marvel grass	<i>Dichanthium annulatum</i>	Poaceae

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

**Source:**

Nair.N.C and A.N. Henry, Flora of Tamil Nadu 1983, Series 1, Botanical Survey of India, Southern Circle.

**3.5.6. Flora Composition in the Buffer Zone**

The buffer region has a similar type of habitat, but it has a wider variety of vegetation than the core zone area. The proposed lease area has flat terrain. There are 144 different species identified in the buffer zone. Among the identified, floral (144) species were 50 trees, 39 herbs, 31 shrubs, 11 climbers, 5 Creepers, and 8 grasses. According to the findings of the buffer zone flora studies, the dominant species in the study area are Fabaceae, Asteraceae, and Euphorbiaceae, as shown in Table No.3.54. 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. Details of flora with the scientific name were mentioned in Table No.3.54.

A list of floral species has been prepared based on a 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 3.55 and their % distribution is shown in Figure 3.34.

**Table 3.55: Number of floral life forms in the Study Area**

S. No	Plant Life Form	Number of Species
1	Trees	50
2	Shrubs	31
3	Herbs	39
4	Climber	11
5	Creepers	5
6	Grasses	8
<b>Total No. of Species</b>		<b>144</b>

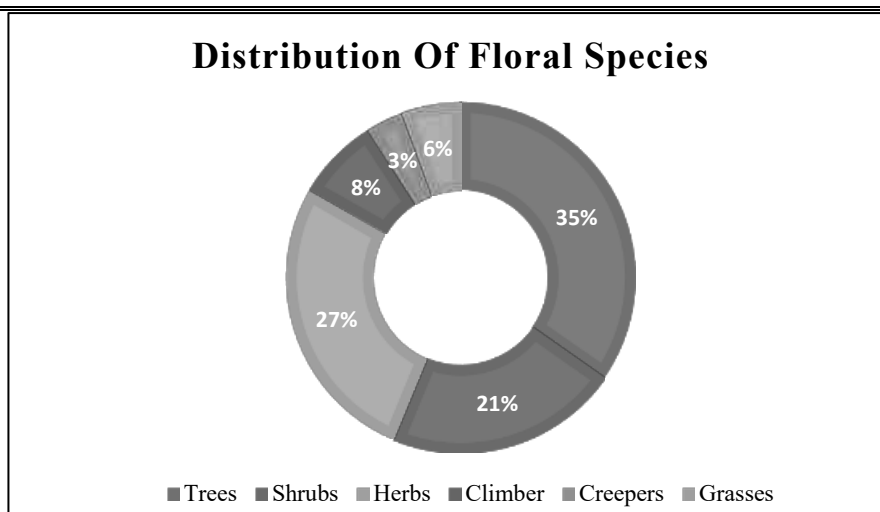


Fig No. 3.34: Graph showing % distribution of floral life forms

### 3.5.7. The vegetation in the RF / PF areas, ecologically sensitive areas

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

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

### 3.6. 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.

#### 3.6.1. Fauna Composition in the Core Zone

During the study, it was found that the faunal diversity in the core site was limited to Butterflies, insects, and some species of mammals & reptiles among them numbers Insects 5, Reptiles 6, Mammals 3, and Avian 8. The core site has avifauna species like the crow, Common myna, Koel, etc. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and nine species are under Schedule IV according to the Indian Wildlife Act 1972. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

**Table No: 3.56. Fauna in the Core zone of M/s. Apple Granites, Multi-Colour Granite Quarry**

Sl. No	Common Name	Scientific Name	Schedule list WLPC 1972
<b>Insects</b>			
1.	Common Tiger	<i>Danaus genutia</i>	Schedule IV
2.	Tawny coster	<i>Danaus chrysippus</i>	Schedule IV
3.	Striped tiger	<i>Danaus plexippus</i>	Schedule IV
4.	House fly	<i>Musca domestica</i>	-
5.	Dragonfly	<i>Agriansp</i>	-
<b>Reptiles</b>			
1.	Oriental garden lizard	<i>Calotes versicolor</i>	NL
2.	Indian forest skink	<i>Sphenomorphus indicus</i>	NL



3.	Common krait	<i>Bungarus caeruleus</i>	LC
4.	Rat snake	<i>Ptyas mucosa</i>	Schedule IV
5.	House lizards	<i>Hemidactylus flaviviridis</i>	Schedule IV
6.	Green vine snake	<i>Ahaetulla nasuta</i>	Schedule IV
<b>Mammals</b>			
1.	Indian Field Mouse	<i>Mus booduga</i>	Schedule IV
2.	Asian Small Mongoose	<i>Herpestes javanicus</i>	Schedule (Part II)
3.	Squirrel	<i>Funambulus palmarum</i>	Schedule IV
<b>Aves</b>			
1.	Rose-ringed parakeet	<i>Psittacula krameri</i>	Schedule IV
2.	Common myna	<i>Acridotheres tristis</i>	Schedule IV
3.	Asian koel	<i>Eudynamys scolopacea</i>	Schedule IV
4.	Koel	<i>Eudynamys</i>	Schedule IV
5.	Black drongo	<i>Dicrurus macrocercus</i>	Schedule IV
6.	House crow	<i>Corvus splendens</i>	Schedule IV
7.	Cattle egret	<i>Bubulcus ibis</i>	Schedule IV
8.	Asian green bee-eater	<i>Merops orientalis</i>	Schedule IV

(Sources: Species observation in the field study)

### 3.6.2. Fauna Composition in the Buffer Zone

As animals, especially vertebrates move from place to place in search of food, shelter, mate or other biological needs, separate lists for core and buffer areas are not feasible however, a separate list of fauna pertaining to core and buffer zone are listed separately. Though there are no reserved forest in the buffer zone. As such there are no chances of occurrence of any rare or endangered or endemic or threatened (REET) species within the core or buffer area.

There are no Sanctuaries, National Parks, Tiger Reserve or Biosphere Reserve or Elephant Corridor or other protected areas within 10 km radius from the core area. It is evident from the available records, reports, and circumstantial evidence that the entire study area including the core and buffer areas were free from any endangered animals. There were no resident birds other than common bird species such as green bee-eaters, Indian blue robin, Common Myna, Black drangos, Crows, etc.

The list of Mammals (\*directly sighted animals & Secondary data) is given in table No.3.57. The list of bird species recorded during the field survey and literature from the study area are given in Table 3.58. The list of reptilian species recorded during the field survey and literature from the study area is given in Table 3.59. The list of insect species recorded during the field survey and literature from the study area are given in Table 3.60. The list of Butterflies species recorded during the field survey and literature from the study area are given in Table 3.61. It is apparent from the list that none of the species either spotted or reported is included in Schedule I of the Wildlife Protection Act. Similarly, none of them comes under the REET category.

Taxonomically a total of 73 species were identified from the project site. Based on habitat classification the majority of species were Insects 4, followed by birds 35, Reptiles 9, Mammals 5, Amphibians 5, and Butterflies 15. A total of 35 species of bird were sighted in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed. There are no impacts on nearby fauna species.

Dominant species are mostly birds and buffer flies, and five Amphibians were observed during the extensive field visit *Duttaphrynus melanostictus*, *Rana tiger*, *Euphlyctis hexadactylus* and, *Hoplobatrachus tigerinus*. There is no schedule I Species in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

**Table 3.57. List of Fauna & Their Conservation Status,  
Mammals: (\*directly sighted animals & Secondary data)**

SI. No	Scientific Name	Common Name	Schedule
1.	<i>Funambulus palmarum</i>	Indian palm squirrel	Schedule IV
2.	<i>Mus booduga</i>	Indian Field Mouse	Schedule IV
3.	<i>Herpestes javanicus</i>	Asian Small Mongoose	Schedule (Part II)
4.	<i>Lepus nigricollis</i>	Indian hare	Schedule (Part II)

5.	<i>Rattus norvegicus</i>	Brown rat	Schedule IV
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**Table 3.58. Listed birds**

SI. No	Scientific Name	Common Name/English Name	Schedule list wildlife Protection act 1972
1.	<i>Turdoides striata</i>	Jungle babbler	Schedule IV
2.	<i>Lonchura Malabarica</i>	Indian Silver Bill	Schedule IV
3.	<i>Saxicoloides fulicatus</i>	Indian robin	Schedule IV
4.	<i>Psittacula krameri</i>	Rose Ringed Parakeet	Schedule IV
5.	<i>Turdoides caudata</i>	Common Babbler	Schedule IV
6.	<i>Eudynamys</i>	Asian Koel	Schedule IV
7.	<i>Hirundo rustica</i>	Barn Swallow	Schedule IV
8.	<i>Bubulcus ibis</i>	Cattle egret	Schedule IV
9.	<i>Columba livia</i>	Blue Rock Pigeon	Schedule IV
10.	<i>Acridotheres tristis</i>	Common myna	Schedule IV
11.	<i>Corvus splendens</i>	House crow	Schedule IV
12.	<i>Ploceus philippinus</i>	Baya Weaver	Schedule IV
13.	<i>Coracina melanoptera</i>	Black Headed Cuckoo Shrike	Schedule IV
14.	<i>Merops orientalis</i>	Small Bee Eater	Schedule IV
15.	<i>Cinnyris asiaticus</i>	Purple sunbird	Schedule IV
16.	<i>Nycticorax nycticorax</i>	Night Heron	Schedule IV
17.	<i>Apus affinis</i>	House Swift	Schedule IV
18.	<i>Cuculus micropterus</i>	Indian Cuckoo	Schedule IV
19.	<i>Passer domesticus</i>	House sparrow	Schedule IV
20.	<i>Psittacula eupatria</i>	Alexandrine Parakeet	Schedule IV
21.	<i>Motacilla maderaspatensis</i>	White Browed Wagtail	Schedule IV
22.	<i>Streptopelia chinensis</i>	Spotted Dove	Schedule IV
23.	<i>Dicaeum erythrorhynchos</i>	Tickell's Flowerpecker	Schedule IV
24.	<i>Pycnonotus cafer</i>	Red- Vented Bulbul	Schedule IV
25.	<i>Cypsiurus balasiensis</i>	Asian Palm Swift	Schedule IV
26.	<i>Halcyon smyrnensis</i>	White Throated Kingfisher	Schedule IV
27.	<i>Ardeola grayii</i>	Indian Pond Heron	Schedule IV
28.	<i>Dicrurus macrocercus</i>	Black drongo	Schedule IV
29.	<i>Turdoides affinis</i>	White Headed Babbler	Schedule IV
30.	<i>Ploceus philippines</i>	Weaver bird	Schedule IV
31.	<i>Dicrurus macrocercus</i>	Two-tailed Sparrow	Schedule IV
32.	<i>Dicrurus leucophaeus</i>	Ashy Drongo	Schedule IV
33.	<i>Merops philippinus</i>	Blue-Tailed Bee Eater	Schedule IV
34.	<i>Coracias benghalensis</i>	Indian Roller	Schedule IV
35.	<i>Nectarinia zeylonica</i>	Purple Rumped Sunbird	NL

Reference: Studies on the Abundance and Distribution of Birds in Three Different Habitats of Karur District, South India

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

**Table 3.59. List of Reptiles either spotted or reported from the study area.**

(\*indicates direct observations & Secondary data)

SI. No	Scientific Name	Common Name/English Name	Schedule list wildlife Protection act 1972
1.	<i>Calotes versicolor</i>	Oriental garden lizard	NL
2.	<i>Hemidactylus flaviviridis</i>	House lizards	Schedule IV
3.	<i>Naja naja</i>	Indian cobra	Sch II (Part II)

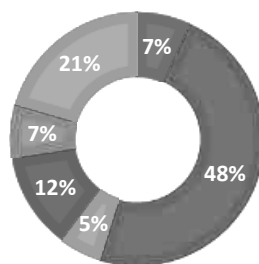
4.	<i>Ahaetulla nasuta</i>	Green vine snake	Schedule IV
5.	<i>Ptyas mucosa</i>	Rat snake	Sch IV (Part II)
6.	<i>Bungarus caeruleus</i>	Common krait	Schedule IV
7.	<i>Mabuya carinatus</i>	Common skink	NL
8.	<i>Vipera russelli</i>	Russell's viper	Sch II (Part II)
9.	<i>Nerodia piscator</i>	Fresh water snake	Sch III (Part II)

**Table 3.60. List of Dragonflies and Damselflies spotted or reported from the study area**

SI. No	Scientific Name	Common Name	IUCN Conservation Status
1.	<i>Brachythemis contaminata</i>	Ditch jewe	LC
2.	<i>Diplocodes trivialis</i>	Ground skimmer	LC
3.	<i>Trithemis aurora</i>	Crimson marsh glider	LC
4.	<i>Trithemis pallidinervis</i>	Long legged marsh skimmer	-

**Table.3.61. List of Butterflies reported from the study area  
(\*indicates direct observations & Secondary data)**

SI. No	Scientific Name	Common Name	Schedule
1.	<i>Danaus chrysippuschrysippus</i>	Plain Tiger	Schedule IV
2.	<i>Danaus genutia</i>	Striped Tiger	Schedule IV
3.	<i>Junoniahierta</i>	Yellow Pansy	Schedule IV
4.	<i>Tirumala limniacae</i>	Blue Tiger	Schedule IV
5.	<i>Papiliodemoleusdemoleus</i>	Lime Butterfly	Schedule IV
6.	<i>Phalanta phalantha</i>	Common leopard	Schedule IV
7.	<i>Papiliopolytespolytes</i>	Common Mormon	Schedule IV
8.	<i>Eurema hecabe</i>	Common grass yellow	Schedule IV
9.	<i>Zizeeria knysna</i>	Dark Crass Blue	Schedule IV
10.	<i>Parantica aglea</i>	Glassy Tiger	Schedule IV
11.	<i>Euploea core</i>	Common Crow	Schedule IV
12.	<i>Junonialemonias</i>	Lemon Pansy	Schedule IV
13.	<i>Hypolimnasmisippus</i>	Danaid Eggfly	Schedule IV
14.	<i>Acraea terpsicore</i>	Tawny Coster	Schedule IV
15.	<i>Euchrysops snejus</i>	Gram Blue	LC

**Distribution Of Faunal Communities**

■ Mammals ■ Birds ■ Insect ■ Reptiles ■ Amphibians ■ Butterflies

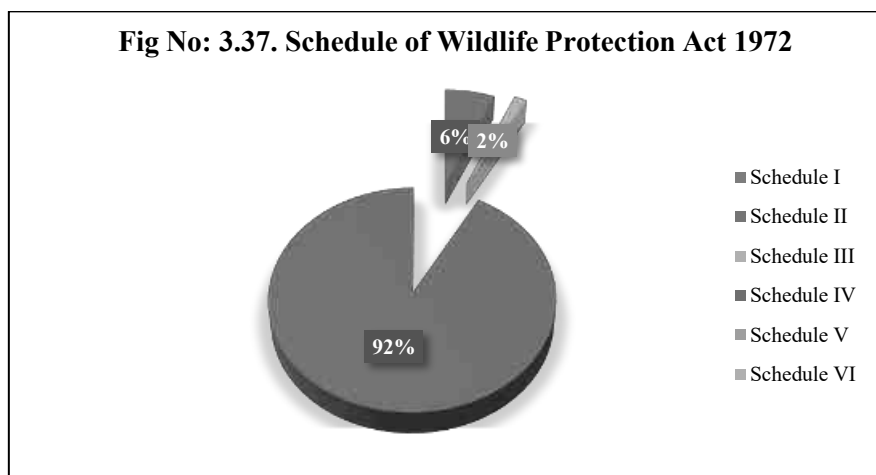
**Fig No. 3.36: Diagram showing % distribution of faunal life forms**

The study area is marked with moderate population of flora and fauna. With reference to the Wildlife Protection Act 1972 total number of wildlife tabulated in this study can be characterized as given in the Table 3.62.

**Table No: 3.62. Characterization of Fauna in the Study Area (As Per W.P Act, 1972)**

S.No	Schedule of Wildlife Protection Act 1972	No. of species	Remark
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1.	Schedule I	0	-
2.	Schedule II	4	-
3.	Schedule III	1	-
4.	Schedule IV	54	-
5.	Schedule V	0	-
6.	Schedule VI	0	-



**Table 3.63: Description of Flora & Fauna**

S.No	Type of Species	Name	Local Name
<b>Flora</b>			
1.	Endangered species	None	None
2.	Threatened species	None	None
3.	Near Threatened species	None	None
4.	Vulnerable species	None	None
<b>Fauna</b>			
5.	Endangered species	None	None
6.	Threatened species	None	None
7.	Near Threatened species	None	None
8.	Vulnerable species	None	None
9.	Migratory Corridors & Flight Paths	No corridors & flight paths	-
10.	Breeding & Spawning grounds	None	-

A comprehensive Central Legislation namely Wild Life (Protection) Act was enforced in 1972 to provide protection to wild animals. Schedule-I of this act contains the list of rare and endangered species, which are completely protected throughout the country. The list of animals and their conservation status as per Wild Life Act (1972) presented in Table 3.63 are the species recorded/reported from the study area, out of which 4 species belongs to schedule-II, 1 species belongs to schedule-III, no species belongs to schedule-V and rest of the species belongs to schedule-IV of Wildlife protection Act, 1972.

### 3.7. Aquatic Ecology

Mining activities will not disturb the aquatic ecology as there is no effluent discharge proposed from the Multi-Colour Granite Quarry. There is no natural perennial surface water body within the mine lease area, like wetlands, rivers streams, lakes, and farmer sites. Kaveri River is located about 7.5km on the north side. 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.

### 3.7.1. Objectives of Aquatic Studies

- Generating data through actual field collection in these locations over the study period.
- Impacts on aquatic fauna/flora
- Consulted with locals to obtain knowledge about aquatic flora and animals.

### 3.7.2. Macrophytes

The macrophytes observed within the study area are tabulated in Table 3.64.

**Table No.3.64. Description of Macrophytes**

S.No	Scientific name	Common Name	IUCN Red List of Threatened Species
1.	<i>Cyperus exaltatus</i>	Tall Flat Sedge	LC
2.	<i>Carex cruciata</i>	Cross Grass	NA
3.	<i>Aponogeton natans</i>	Floating laceplant	NA
4.	<i>Hydrilla verticillata</i>	Waterhymes	LC
5.	<i>Eichornia crassipe</i>	Water hyacinth	NA
6.	<i>Chrysopogon aciculatus</i>	Golden false beard grass	NA
7.	<i>Marsilea quadrifolia</i>	Water clover	LC

### 3.7.3. Aquatic Faunal Diversity

Amphibian species like the common Indian Burrowing frog, and Indian Pond Frog, Indian Toad, Indian Bull Frog, Common Tree Frog were sighted near the water bodies located in the study area.

**Table no. 3.65. Amphibians Observed/Recorded from the Study Area**

SI. No	Scientific Name	Common Name	IUCN Red List data
1.	<i>Duttaphrynus melanostictus</i>	Common Indian Toad	IV
2.	<i>Rana tiger</i>	Common Frog	NA
3.	<i>Euphlyctis hexadactylus</i>	Indian Pond Frog	LC
4.	<i>Hoplobatrachus tigerinus</i>	Indian Bull Frog	IV/LC
5.	<i>Polypedates maculatus</i>	Common Tree Frog	LC

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

### 3.7.4. Fishes

Fish is commonly found in all types of natural water bodies and very common source of food in Eastern South India. The local fishermen were enquired and also the secondary resources were reviewed to collect information on the fishes found in the study area. Few common species are; Catla (Catla catla), Dwarf panchax (Aplocheilus parvus), Tank goby (Glossogobius giuris), Ticto barb (Pethia ticto), Greenstripe barb (Puntius vittatus), Roho (Labeo rohita) and Pool barb (Puntius sophore) etc., Species of fish reported in the study area are given in table 3.66.

**Table 3.66. Based on Actual Sighting, based on inputs from locals and Perused from Secondary Data**

S.No	Scientific name	Common name	Family
1.	<i>Pethia ticto</i>	Ticto barb	Cyprinidae
2.	<i>Glossogobius giuris</i>	Tank goby	Gobiidae
3.	<i>Labeo rohita</i>	Rohu	Cyprinidae
4.	<i>Siluriformes</i>	Catfish	Diplomystidae
5.	<i>Aplocheilus parvus</i>	Dwarf panchax	Aplocheilidae
6.	<i>Puntius vittatus</i>	Greenstripe barb	Cyprininae
7.	<i>Puntius sophore</i>	Pool barb	Cyprinidae
8.	<i>Catla Catla</i>	Catla	Cyprinidae

### 3.7.5. Findings/Results

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

#### Records of threatened species in the area

No threatened species were observed

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**Endangered Species as per Wildlife (Protection) Act**

No Endangered fauna was recorded in the project area.

**Endemic Species of the Project areas**

No endemic species were observed in the project area.

**Migratory species of the Project areas**

No migratory fauna observed in project area.

**Migratory corridors and Flight paths**

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

**Breeding and spawning grounds**

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

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

There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar sites, Tiger/Elephant Reserves/(existing as well as proposed) within 10 km of the mine lease area. There are no protected forests within the project area. Hence submission of clearance from the National Board of Wildlife does not arise. There is no endangered, endemic and RET Species. There is no Schedule I species in study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] The proposed project is not going to have any direct or indirect adverse impact on the species mentioned above.

**3.7. 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.

**3.8 Socio Economic Environment**

There is no habitation/ village within the radius of 10km from the project area. Socio-economic study is an essential part of environmental study. It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project.

It is expected that the Socio-Economic Status of the area will substantially improve because of this proposed project. As the proposed project will provide direct and indirect employment and improve the infrastructural facilities in that area and, thus, improve their standard of living.

**3.8.1 Objectives of the Study**

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

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

**3.8.2 Scope of Work**

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

### 3.8.3 Administrative Setup of Karur District

Karur district includes 2 Revenue Divisions, 7 Taluks. There are 203 Revenue Villages, 157 Village panchayats in this district. In 2011, Karur had population of 1,064,493 of which male and female were 528,184 and 536,309 respectively. In 2001 census, Karur had a population of 935,686 of which males were 465,538 and remaining 470,148 were females.

### 3.8.4 Study area

Kallai is a large village located in Kulithalai Taluka of Karur district, Tamil Nadu with total 908 families residing. The Kallai village has population of 3530 of which 1764 are males while 1766 are females as per Population Census 2011.

#### ☞ Child Sex Ratio

In Kallai village population of children with age 0-6 is 419 which makes up 11.87 % of total population of village. Average Sex Ratio of Kallai village is 1001 which is higher than Tamil Nadu state average of 996. Child Sex Ratio for the Kallai as per census is 905, lower than Tamil Nadu average of 943.

#### ☞ Literacy rate

Kallai village has lower literacy rate compared to Tamil Nadu. In 2011, literacy rate of Kallai village was 58.66 % compared to 80.09 % of Tamil Nadu. In Kallai Male literacy stands at 70.40 % while female literacy rate was 47.10 %.

#### ☞ Caste Factor

Kallai village of Karur has substantial population of Schedule Caste. Schedule Caste (SC) constitutes 28.07 % while Schedule Tribe (ST) were 0.03 % of total population in Kallai village.

#### ☞ Work Profile

In Kallai village out of total population, 2207 were engaged in work activities. 99.18 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 0.82 % were involved in Marginal activity providing livelihood for less than 6 months. Of 2207 workers engaged in Main Work, 399 were cultivators (owner or co-owner) while 1206 were Agricultural labourer.

**Table 3.38: Population Characteristics - Kallai Village, Kulithalai Taluk, Karur District**

Particulars	Total	Male	Female
Total No. of Houses	908	-	-
Population	3,530	1,764	1,766
Child (0-6)	419	220	199
Schedule Caste	991	492	499
Schedule Tribe	1	1	0
Literacy	58.66 %	70.40 %	47.10 %
Total Workers	2,207	1,135	1,072
Main Worker	2,189	-	-
Marginal Worker	18	13	5

Source: <https://www.census2011.co.in/data/village/635599-Kallai-tamil-nadu.html>

**Table 3.39: Population Characteristics Around 10km Radius**

Total No of Villages	No. of Households	Total Population	Population Male	Population female	SC Population Male	SC Population female	Total Literates Male	Total Literates Female	Total Illiterates Male	Total Illiterates Female
18	24517	93881	46905	46976	10079	10435	33766	26033	13139	20943

**Table 3.40: Occupational Characteristics Around 10km Radius**

Total Worker Population Male	Total Worker Population Female	Main Working Population Male	Main Working Population Female	Main Cultivator Population Male	Main Cultivator Population Female	Main Agricultural Labourers Population Male	Main Agricultural Labourers Population Female	Non-Working Population Male	Non-Working Population Female
28627	20990	27404	19559	5170	2850	13558	13658	18278	25986

Source: census 2011, Karur District

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### 3.8.5 Karur Population 2011 – 2031

The last census of Karur was done in 2011 and next census of 2021 has been postponed or cancelled. But we can do projection of future Karur 2031 Population on the basis likely Population Growth Rate.

**Table 3.41: Population projection**

<b>Year</b>	<b>Projected Population (Estimation)</b>
2011	10.64 Lakhs
2021	11.89 Lakhs
2022	12.01 Lakhs
2023	12.11 Lakhs
2024	12.20 Lakhs
2025	12.27 Lakhs
2026	12.34 Lakhs
2027	12.39 Lakhs
2028	12.44 Lakhs
2029	12.48 Lakhs
2030	12.51 Lakhs
2031	12.54 Lakhs

**Source:** <https://www.census2011.co.in/census/district/35-karur.html>



**Table 3.42: Population Characteristics Core and Buffer zone around 10km Radius**

Sno	Village Name	TRU	No_HH	TOT_P	TOT_M	TOT_F	P_06	M_06	F_06	P_SC	M_SC	F_SC	P_ST	P_LIT	M_LIT	F_LIT	P_ILL	M_ILL	F_ILL
1	Thirukkampuliyur	Rural	1708	6487	3246	3241	670	349	321	1044	506	538	0	4343	2443	1900	2144	803	1341
2	Sithalavai	Rural	1004	3706	1859	1847	395	202	193	779	397	382	0	2212	1298	914	1494	561	933
3	Kammanallur	Rural	576	2121	1025	1096	183	96	87	846	400	446	0	1539	815	724	582	210	372
4	Mahadhanapuram(North)	Rural	1409	5396	2670	2726	511	255	256	2087	1010	1077	0	3823	2085	1738	1573	585	988
5	Chinthalavadi	Rural	2708	10325	5252	5073	1099	592	507	2032	1014	1018	0	7237	4058	3179	3088	1194	1894
6	Pillalalayam	Rural	1206	4671	2363	2308	473	245	228	2029	987	1042	1	3363	1849	1514	1308	514	794
7	Kallapalli	Rural	1576	6043	3069	2974	637	336	301	870	431	439	10	4394	2462	1932	1649	607	1042
8	Karuppathur	Rural	1558	5968	3038	2930	624	315	309	1059	523	536	0	3595	2117	1478	2373	921	1452
9	Vayalur	Rural	1041	3899	1957	1942	444	222	222	825	416	409	0	2152	1297	855	1747	660	1087
<b>10</b>	<b>Kallai</b>	<b>Rural</b>	<b>908</b>	<b>3530</b>	<b>1764</b>	<b>1766</b>	<b>419</b>	<b>220</b>	<b>199</b>	<b>991</b>	<b>492</b>	<b>499</b>	<b>1</b>	<b>1825</b>	<b>1087</b>	<b>738</b>	<b>1705</b>	<b>677</b>	<b>1028</b>
11	Muthurengampatti	Rural	350	1409	700	709	175	92	83	261	136	125	0	721	417	304	688	283	405
12	Panjabatti	Rural	1093	4278	2096	2182	461	233	228	1082	537	545	1	2710	1509	1201	1568	587	981
13	Pothuravuthanpatti	Rural	1233	5263	2592	2671	675	348	327	601	302	299	0	2676	1573	1103	2587	1019	1568
14	Pappakkapatti	Rural	1303	5354	2648	2706	662	361	301	842	406	436	0	2623	1510	1113	2731	1138	1593
15	Krishnarayapuram (TP)	Urban	2946	10792	5326	5466	1045	532	513	2255	1097	1158	15	7429	4058	3371	3363	1268	2095
16	P.J. Cholapuram (TP)	Urban	2016	7484	3731	3753	776	406	370	1539	749	790	2	4708	2683	2025	2776	1048	1728
17	Manathattai	Rural	317	1206	584	622	124	59	65	808	400	408	0	759	403	356	447	181	266
18	Sathiyamangalam	Rural	1565	5949	2985	2964	668	331	337	564	276	288	0	3690	2102	1588	2259	883	1376
	Total		24517	93881	46905	46976	10041	5194	4847	20514	10079	10435	30	59799	33766	26033	34082	13139	20943

**Source: census 2011**

**Table 3.43: Occupational Characteristics Core and Buffer zone around 10km Radius**

Sn o	Village Name	TOT_WOR K P	TOT_WOR K M	TOT_WOR K F	MAINWOR K P	MAINWOR K M	MAINWOR K F	MAIN_C L P	MAIN_A L P	NON_WOR K P	NON_WOR K M	NON_WOR K F
1	Thirukkampuliyur	3668	2037	1631	3637	2023	1614	396	2363	2819	1209	1610
2	Sithalavai	2015	1180	835	2013	1180	833	595	846	1691	679	1012
3	Kammanallur	1224	671	553	1005	580	425	103	663	897	354	543
4	Mahadhanapuram( North)	2587	1595	992	2096	1323	773	134	1325	2809	1075	1734
5	Chinthlavadi	5197	3110	2087	4776	2903	1873	668	2793	5128	2142	2986
6	Pillalalayam	2248	1401	847	2228	1392	836	118	1698	2423	962	1461
7	Kallapalli	2712	1767	945	2665	1748	917	334	1637	3331	1302	2029
8	Karuppathur	3436	1898	1538	3364	1854	1510	616	2357	2532	1140	1392
9	Vayalur	2331	1243	1088	1951	1042	909	364	1208	1568	714	854
<b>10</b>	<b>Kallai</b>	<b>2207</b>	<b>1135</b>	<b>1072</b>	<b>2189</b>	<b>1122</b>	<b>1067</b>	<b>399</b>	<b>1206</b>	<b>1323</b>	<b>629</b>	<b>694</b>
11	Muthurengampatti	855	455	400	844	454	390	442	202	554	245	309
12	Panjpatti	2190	1222	968	2157	1208	949	385	1165	2088	874	1214
13	Pothuravuthanpatti	3166	1612	1554	2865	1518	1347	1019	1187	2097	980	1117
14	Pappakkapatti	2767	1620	1147	2736	1608	1128	544	1753	2587	1028	1559
15	Krishnarayapuram (TP)	5035	3157	1878	4878	3135	1743	686	2508	5757	2169	3588
16	P.J. Cholapuram (TP)	4117	2369	1748	4041	2325	1716	723	2139	3367	1362	2005
17	Manathattai	651	353	298	649	352	297	37	527	555	231	324
18	Sathiyamangalam	3211	1802	1409	2869	1637	1232	457	1639	2738	1183	1555
	<b>Total</b>	<b>49617</b>	<b>28627</b>	<b>20990</b>	<b>46963</b>	<b>27404</b>	<b>19559</b>	<b>8020</b>	<b>27216</b>	<b>44264</b>	<b>18278</b>	<b>25986</b>

Source: census 2011

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### 3.8.6 Basic Amenities

A better network of physical infrastructure facilities (well-built roads, rail links, irrigation, power and telecommunication, information technology, market-network and social infrastructure support, viz. health and education, water and sanitation, veterinary services and co-operative) is essential for development of the rural economy.

A review of infrastructure facilities available in the area has been given on the basis of field survey. In this study the villages which fall within 10 km radius around the site has been covered. Infrastructure facilities available in the area are presented below.

All basic amenities Education (higher education, colleges, medical college, transport facilities, railway station, bus station area available in the district headquarters Karur at a distance of 44km – North West).

### 3.8.7 Interpretation

Based on the data, following inferences could be drawn:

- Total literacy rate in the study area is 64%.
- The study area had average educational facilities. The overall status depicts that the education is limited to primary and middle level.
- Schedule Tribe (ST) were 0.03 % of total population in Kallai village and Scheduled Caste forms 22% of the total population of study area.
- The Other Population forms 78%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.
- 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.

### 3.8.8 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.

### 3.8.9 Conclusion

To evaluate the impacts of proposed granite quarry project on the surrounding area, it is vital to assess the baseline status of the environmental quality in the locality of the site. Hence it can be concluded that the present environment status of the study area will not be affected by the project as M/s. Apple Granites Multi Colour

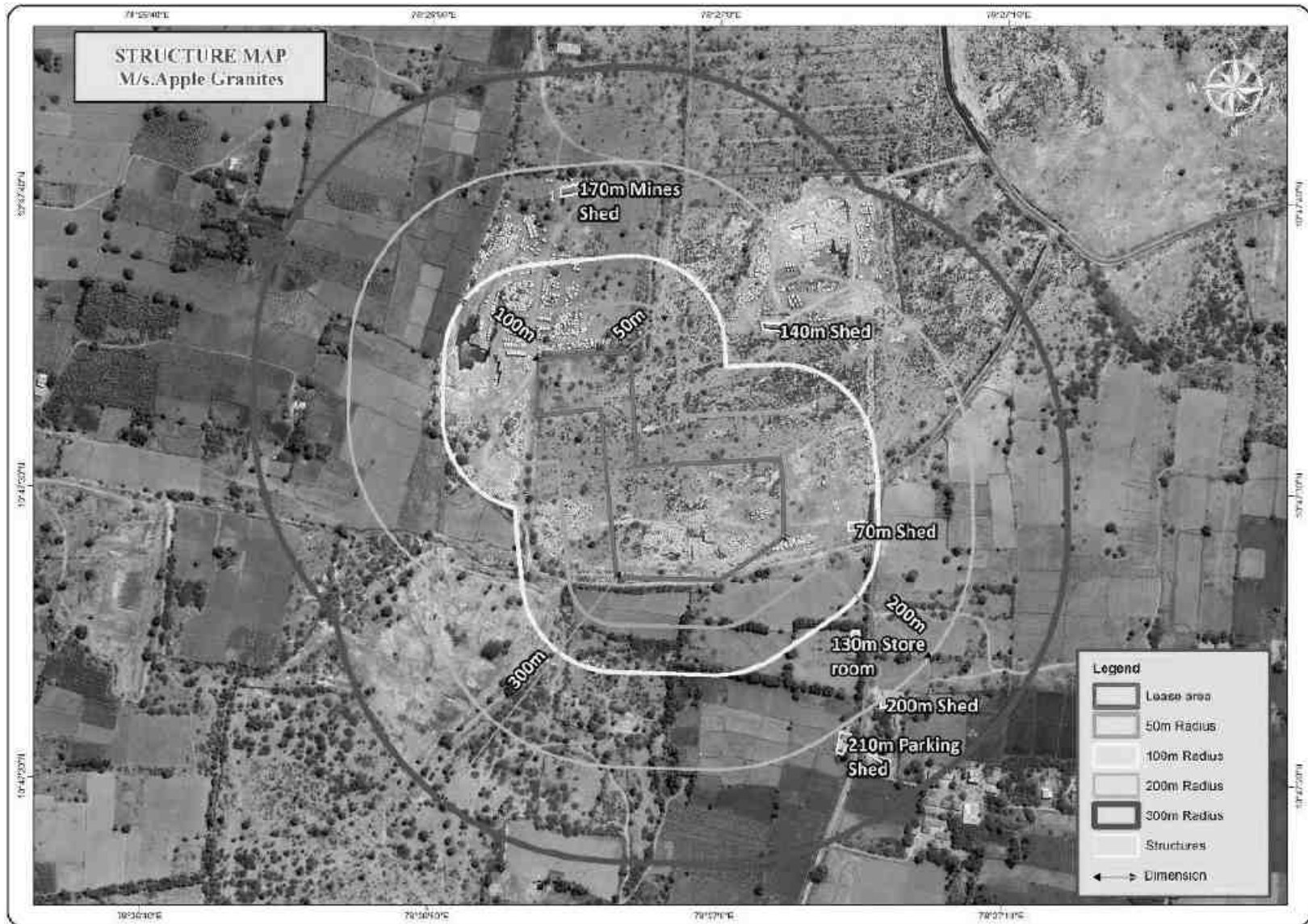
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Granite Quarry will adopt adequate control measures to protect the surrounding environment and will contribute in development of the study areas.

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.

3.8.10 Structure Studies 0 to 300m



<b>Enumeration of Structures from 0 - 300m Radius</b>						
<b>Structure Numbers</b>	<b>Distance &amp; Direction from the project site</b>	<b>Structure Details and Usage Purpose</b>	<b>Type of Structure Structures (Kutchu/ Brick/ Cement/ RCC/ Framed Structures)</b>	<b>No. of Occupants</b>	<b>Structure belongs to owner (Yes/No)</b>	<b>Remarks</b>
1	70m - E	Shed	Sheet Structure	-	Yes	To store Mine machinery parts – No stay
2	130m - SE	Store Room	Sheet Structure	-	No	To store coconuts and agriculture goods – No Stay
3	140m - NE	Shed	Sheet Structure	-	Yes	To store Mine machinery parts – No stay
4	170m - N	Mines Shed	Brick & Sheet structure	-	No	To store Mine machinery parts
5	200m - SE	Shed	Brick & Sheet structure	-	No	To store agriculture goods
6	210 - SE	Parking Shed	Sheet Structure		No	To Park the Vehicle

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## 4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

### 4.0 General

Environmental impacts both direct and indirect on various environmental attributes due to proposed mining activity will be created in the surrounding environment, during the operational and post-operational phases. The occurrence of mineral deposits, being site specific, their exploitation, often, does not allow for any choice except adoption of eco-friendly operation. The methods are required to be selected in such a manner, so as to maintain environmental equilibrium ensuring sustainable development.

In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans sustainable resource extraction.

The following parameters are of significance in the Environmental Impact Assessment and are being discussed in detail

- Land environment
- Soil environment
- Water Environment
- Air Environment
- Noise Environment
- Socio economic environment
- Biological Environment

Based on the baseline environmental status at the project site, the environmental factors that are likely to be affected (Impacts) are identified, quantified and assessed.

### 4.1 Land Environment

#### 4.1.1 Anticipated Impact

The main anticipated impact on the Land Environment due to quarrying operation is change in Landscape, change in Land – use Pattern. M/s. Apple Granites Multi Colour Granite Quarry area is calculated as per MoEF & CC Notification – S.O. 2269 (E) Dated: 01.07.2016) including proposed quarry. The proposed project area is proponent own patta land, no forest land involved in this lease applied area. The ultimate depth of the proposed project is quarrying is varying from 30m below the ground level and will not intersect the ground water table. The project is site specific.

#### 4.1.2 Mitigation measures

Due to the quarrying activities in the project the land use pattern will be altered. In order to minimize the adverse effects, the following control measures will be implemented:

- In the Opencast Method of Mining the degradation of land is insignificant, after completion of the quarrying operation the land, the land will be partially backfilled with dumped material and part of the area will be allowed to collect rainwater which will act as temporary reservoir, this Granite waste, overburden not produce any toxic effluents in the form of solid, liquid or gas
- Top Soil will be removed and utilized for greenbelt development in the safety barrier.
- The periphery of the mining lease area will be converted to a greenbelt to prevent Noise and sound propagation to the nearby lands.
- Construction of garland drains all around the quarry pit and construction of check dam at strategic location in lower elevations to prevent soil erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area.
- Barbed wire fencing will be re constructed at the conceptual stage, Security will be posted round the clock, to prevent inherent entry of the public and cattle.

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#### 4.1.1.2 Soil Environment

#### 4.1.1.3 Impact on Soil Environment

**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).

#### 4.1.1.4 Mitigation measures for Soil Conservation

- The top soil will be preserved in the safety barrier and kept in moisture condition. The preserved top soil will be utilized for greenbelt development in the safety barrier and utilized for plantation on the top bench.
- Garland drains will be constructed around the project area to arrest any soil from the quarry area being carried away by the rainwater. This will also avoid the soil erosion and siltation in the mining pits and maintaining the stability of the benches.

#### 4.1.1.5 Waste Dump Management

#### 4.1.1.6 Anticipated Impact

Solid waste is in the form of Granite waste which does not produce any toxic effluent during dumping. Garland drains will be constructed around the waste dump to prevent the rainwater entering into the quarrying pit besides this garland drain will also help in facilitating the rainwater to the natural gradient.

There will be generation of topsoil is about 7,020m<sup>3</sup> up to depth for 2m during this Scheme period, the same will be preserved all along the safety barrier and utilized for construction of bund and afforestation purpose. Granite waste forms nearly 50% of ROM and the total quantity of granite waste in the five years will be around 22,458m<sup>3</sup> (Granite waste 19,449m<sup>3</sup> + Weathered rock 3,009m<sup>3</sup>) the same will be dumped on the Northwestern with dimensions of (L)85m X (W)43m X (H)8.69m.

#### 4.1.1.7 Mitigation measures

- Retaining wall with weep hole, Garland drain will be provided around the dump areas.
- Proper angle of repose to be maintained.
- Grasses to be done over the dump areas for stability.
- Soil erosion may also be accelerated on areas where the overburden from the ore excavation operation will be dumped. As there is neither a toxic effluent nor solid waste from the mine, quality of soil is not expected to be adversely affected.

### 4.2 Water Environment (Impact & Mitigation Measures)

#### 4.2.1 Anticipated Impact on Surface and ground water

The impact due to mining on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process. For the quarrying activity water will be utilized for wire saw cutting (which will be recycled), water sprinkling on haul roads and greenbelt development encountered at the depth between 59m - 64m. The maximum depth proposed out of proposed projects is 23m BGL for the entire period. 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.

#### 4.2.2 Mitigation measures

The following mitigation measures are suggested for water management

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 proposed 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.

There is no proposal Granite processing or workshop within the project area thus there is no effluent anticipated in the mine.



Detail of water requirements in KLD as given below:

**Table 4.1 Water Requirement for the Project**

Purpose	Quantity	Source
Domestic & Drinking purpose	0.5KLD	From Existing, bore wells and drinking water will be sourced from Approved Water vendors.
Dust Suppression	0.7KLD	From Existing bore wells from nearby area
Green Belt	0.6KLD	From Existing bore wells from nearby area
<b>Total</b>	<b>1.8KLD</b>	

Source: Prefeasibility report

- With respect to Turbidity, Total Iron and Silica, Pre-treatment methods like settling or filtration, Water Softening (Ion Exchange) shall be adopted to make it fit for drinking purposes. But it can be used for other domestic purposes
- Rainwater will be collected in sump in the mining pit 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 onwards 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
- Construction of garland drains to divert surface run-off into the quarrying area
- Retaining walls with weep hole will be constructed around the dump to arrest silt wash off
- Periodic 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
- Wastewater 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 and analysing the quality of water in open well, bore wells and surface water

#### 4.3 Air Environment (Impact & Mitigation Measures)

The air borne particulate matter is the main air pollutant in this opencast mining. The mining operation will be carried out by Diamond wire saw cutting, jackhammer drilling (35mm dia) and Hydraulic Excavators will be utilized for handling of Granite waste.

##### 4.3.1. Anticipated Impact

The air borne particulate matter generated by quarrying operation, and transportation. The emissions of Sulphur dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) due to excavation/loading equipment and vehicles plying on haul roads are marginal. Loading - unloading and transportation of Granite and overburden, wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities releasing Particulate Matter (PM<sub>10</sub>) affecting Ambient Air of the area. Prediction of impacts on air environment has been carried out taking into consideration proposed production (ROM) on air environment and net increase in emissions by Open pit source modelling in AERMOD Software.

##### 4.3.2 AERMOD Frame work of Computation & details

By using the above-mentioned inputs, ground level concentrations due to the quarrying activities have been estimated to know the incremental concentration in ambient air quality and impact in the study area. The effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere. Air quality modelling is an important tool for prediction, meet the regulatory standards and to apply mitigation measures to reduce impact caused by quarrying activities. PM<sub>10</sub> was the major pollutant occurred during quarrying activities. The prediction included the impact of Excavation, Drilling, Blasting (Occasionally), loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

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

#### 4.3.2.1 Emission Rate

An emissions factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. The general equation for emissions estimation is:

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

Where:

- E = Emissions;  
 A = Activity rate;  
 EF = Emission factor, and  
 ER = Overall emission reduction efficiency, %

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

**Table 4.2: Estimated Emission Rate for Quarry**

<b>Emission Estimation for quarry P1</b>				
	<b>Activity</b>	<b>Source type</b>	<b>Value</b>	<b>Unit</b>
Estimated Emission Rate for PM <sub>10</sub>	Drilling	Point Source	0.030172910	g/s
	Blasting	Point Source	0.000006049	g/s
	Mineral Loading	Point Source	0.029446751	g/s
	Haul Road	Line Source	0.002482416	g/s/m
	Overall Mine	Area Source	0.058852105	g/s
Estimated Emission rate for SO <sub>2</sub>	Overall Mine	Area Source	1.9045E-05	g/s
Estimated Emission rate for NO <sub>x</sub>	Overall Mine	Area Source	0.000001208	g/s

Source: Emission calculator

#### 4.3.2.2 Frame work of Computation & Model details

By using the above-mentioned inputs, ground level concentrations due to the quarrying activities have been estimated to know the incremental concentration in ambient air quality and impact in the study area. The effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere. Air quality modelling is an important tool for prediction, planning and evaluation of air pollution control activities besides identifying the requirements for emission control to meet the regulatory standards and to apply mitigation measures to reduce impact caused by quarrying activities. PM<sub>10</sub> was the major pollutant occurred during quarrying activities. 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<sub>10</sub> was observed close to the source due to low to moderate wind speeds. Incremental value of PM<sub>10</sub> was superimposed on the base line data monitored at the proposed site to predict total GLC of PM<sub>10</sub> due to combined impacts.

Figure 4.1: AERMOD Terrain Ma

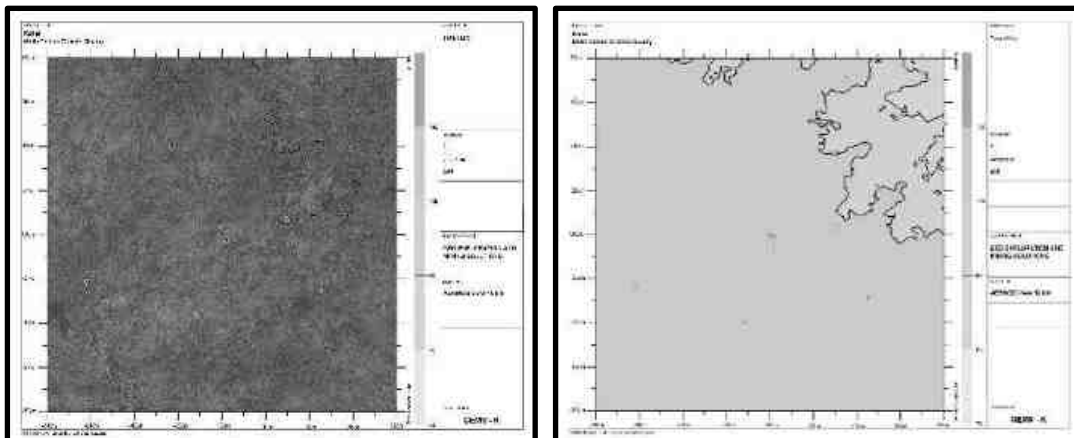


Figure 4.2: Predicted Incremental Concentration of Fugitive Dus

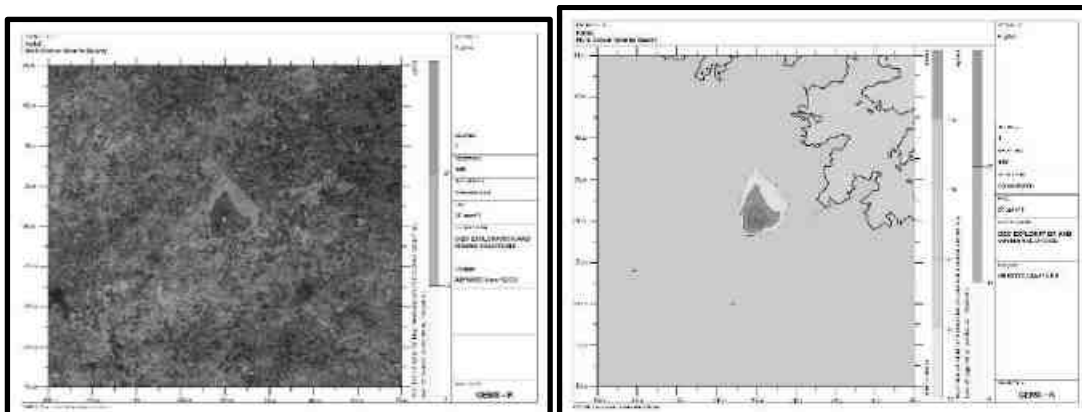
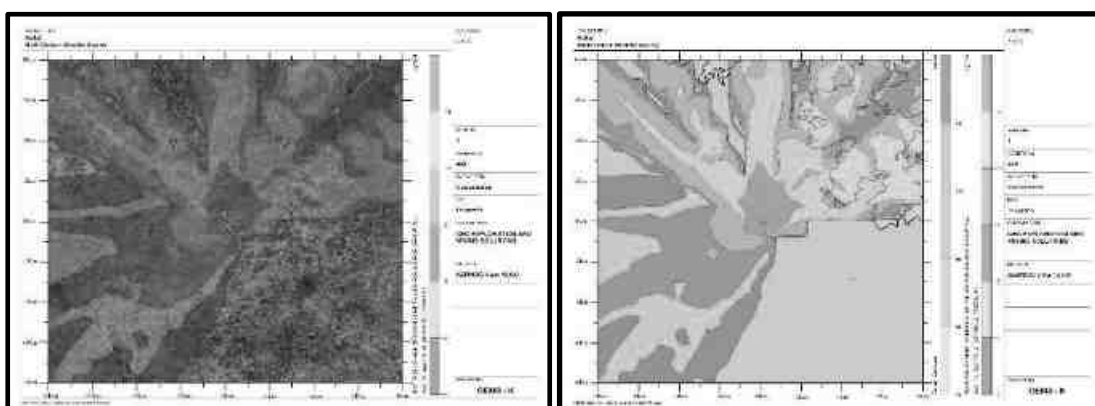
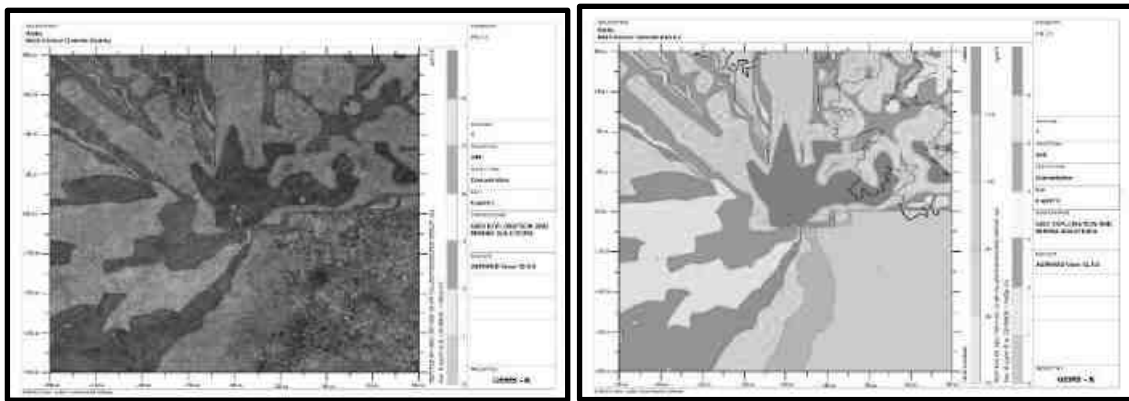


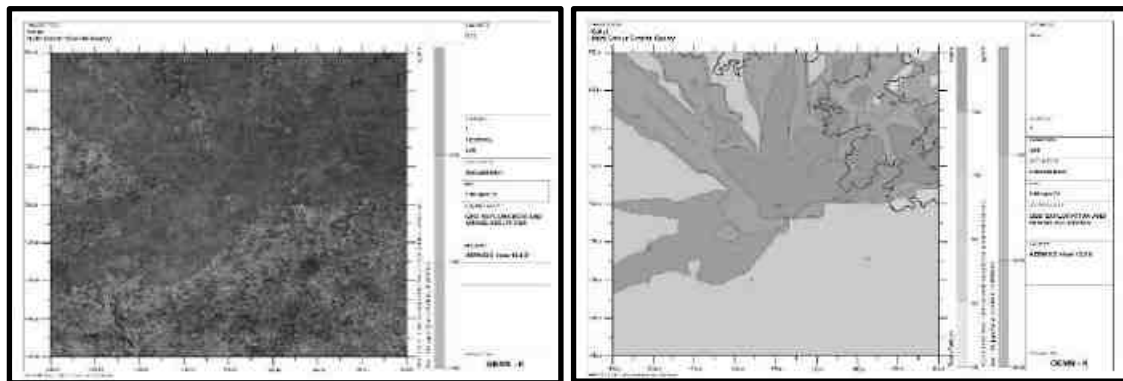
Figure 4.3: Predicted Incremental Concentration of PM<sub>10</sub>



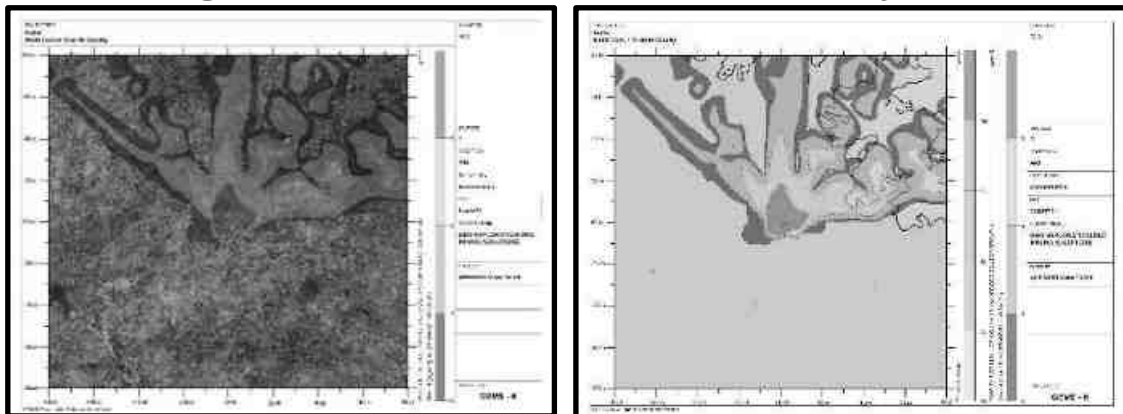
**Figure No 4.4: Predicted Incremental Concentration Of PM<sub>2.5</sub>**



**Figure No 4.5: Predicted Incremental Concentration Of SO<sub>2</sub>**



**Figure No 4.6: Predicted Incremental Concentration of NO<sub>x</sub>**



#### 4.3.2.4 Model Results

The post project Resultant Concentrations of Fugitive Dust emission, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> & NO<sub>x</sub> (GLC) is given in Table below:

**Table 4.3: 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	10°47'34.06"N 78°26'55.16"E	-17	11	60.31	27	87.3
AAQ2	10°47'12.82"N 78°27'2.45"E	206	-647	61.61	0	61.6
AAQ3	10°49'29.94"N 78°28'23.57"E	2689	3604	62.95	0	63.0
AAQ4	10°46'14.21"N 78°23'33.38"E	-6202	-2462	62.89	0	62.9
AAQ5	10°46'1.44"N 78°29'24.78"E	4568	-2856	62.86	0	62.9
AAQ6	10°49'30.76"N 78°25'39.89"E	-2326	3626	63.45	0	63.5
AAQ7	10°47'45.28"N 78°28'33.22"E	2990	363	63.91	0	63.9

**Table 4.4: Incremental & Resultant GLC OF PM<sub>10</sub>**

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	Incremental value of PM <sub>10</sub> due to mining ( $\mu\text{g}/\text{m}^3$ )	Total PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ ) (5+6)
AAQ1	10°47'34.06"N 78°26'55.16"E	-17	11	42.0	14.52	56.5
AAQ2	10°47'12.82"N 78°27'2.45"E	206	-647	41.4	10.85	52.2
AAQ3	10°49'29.94"N 78°28'23.57"E	2689	3604	41.1	13.00	54.1
AAQ4	10°46'14.21"N 78°23'33.38"E	-6202	-2462	41.4	6.30	47.7
AAQ5	10°46'1.44"N 78°29'24.78"E	4568	-2856	41.1	0	41.1
AAQ6	10°49'30.76"N 78°25'39.89"E	-2326	3626	41.1	12.41	53.5
AAQ7	10°47'45.28"N 78°28'33.22"E	2990	363	40.5	11.29	51.7

**Table 4.5: Incremental & Resultant GLC OF PM<sub>2.5</sub>**

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	Incremental value of PM <sub>10</sub> due to mining ( $\mu\text{g}/\text{m}^3$ )	Total PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ ) (5+6)
AAQ1	10°47'34.06"N 78°26'55.16"E	-17	11	20.9	6.76	27.6
AAQ2	10°47'12.82"N 78°27'2.45"E	206	-647	20.8	4.81	25.61
AAQ3	10°49'29.94"N 78°28'23.57"E	2689	3604	20.8	5.90	26.7
AAQ4	10°46'14.21"N 78°23'33.38"E	-6202	-2462	20.7	3.60	24.3
AAQ5	10°46'1.44"N 78°29'24.78"E	4568	-2856	41.1	0	41
AAQ6	10°49'30.76"N 78°25'39.89"E	-2326	3626	41.0	5.49	46.4
AAQ7	10°47'45.28"N 78°28'33.22"E	2990	363	19.2	5.20	24.4

**Table 4.6: Incremental & Resultant GLC OF SO<sub>2</sub>**

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ )	Incremental value of PM <sub>10</sub> due to mining ( $\mu\text{g}/\text{m}^3$ )	Total PM <sub>10</sub> ( $\mu\text{g}/\text{m}^3$ ) (5+6)
AAQ1	10°47'34.06"N 78°26'55.16"E	-17	11	5.5	1.89	7.3
AAQ2	10°47'12.82"N 78°27'2.45"E	206	-647	5.6	1.61	7.2
AAQ3	10°49'29.94"N 78°28'23.57"E	2689	3604	5.8	1.86	7.6
AAQ4	10°46'14.21"N 78°23'33.38"E	-6202	-2462	5.5	0.40	5.9
AAQ5	10°46'1.44"N 78°29'24.78"E	4568	-2856	5.4	0	5.4
AAQ6	10°49'30.76"N 78°25'39.89"E	-2326	3626	5.4	1.83	7.2
AAQ7	10°47'45.28"N 78°28'33.22"E	2990	363	5.2	1.80	7

**Table 4.7: Incremental & Resultant GLC OF NO<sub>x</sub>**

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM <sub>10</sub> (µg/m <sup>3</sup> )	Incremental value of PM <sub>10</sub> due to mining (µg/m <sup>3</sup> )	Total PM <sub>10</sub> (µg/m <sup>3</sup> ) (5+6)
AAQ1	10°47'34.06"N 78°26'55.16"E	-17	11	20.8	9.41	30.2
AAQ2	10°47'12.82"N 78°27'2.45"E	206	-647	20.9	0	20.9
AAQ3	10°49'29.94"N 78°28'23.57"E	2689	3604	20.8	7.30	28.1
AAQ4	10°46'14.21"N 78°23'33.38"E	-6202	-2462	20.7	0	20.7
AAQ5	10°46'1.44"N 78°29'24.78"E	4568	-2856	20.8	0	20.8
AAQ6	10°49'30.76"N 78°25'39.89"E	-2326	3626	20.8	6.00	26.8
AAQ7	10°47'45.28"N 78°28'33.22"E	2990	363	20.8	5.00	25.8

From the resultant of cumulative concentration i.e., Background + Incremental Concentration of pollutant in all the receptor locations without effective mitigation measures are still within the prescribed NAAQ limits of 100, 60, 80 & 80 µg/m<sup>3</sup> for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> & NO<sub>x</sub> respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

#### 4.3.3. Mitigation Measures

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

##### Advantages of Wet Drilling:

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

##### Blasting

- Blasting will be carried out only to remove the overburden and weathered portion
- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- 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

##### Haul Road & Transportation –

- Water will be sprinkled on haul roads, Loading Points 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.
- 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 road 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 area

##### Occupational Health –

- Dust mask will be provided to the workers and their use will be strictly monitored

- Annual medical check-ups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers & tipper drivers
- Ambient Air Quality Monitoring will be conducted six months once to assess effectiveness of mitigation measures proposed

#### 4.4 Noise Environment

Noise pollution is mainly due to operation like drilling & blasting (Occasionally) 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 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.

$$Lp_{total} = 10 \log \{10^{(Lp_1/10)} + 10^{(Lp_2/10)} + 10^{(Lp_3/10)} + \dots\}$$

##### 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 considering of all the machinery and activities used in the mining process. Same has been listed in Table 4-8.

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 4.8: Predicted Noise Incremental Values**

Location ID	N1	N2	N3	N4	N5	N6	N7
Maximum Monitored Value (Day) dB(A)	57.9	55.5	55.5	54.47	54.3	54.7	55.3
Incremental Value dB(A)	54.08	51.16	31.16	25.45	26.66	30.56	25.29
Total Predicted Noise level dB(A)	59.41	56.86	55.52	54.48	54.31	54.72	55.30
NAAQ Standards	Industrial Day Time- 75 dB (A) & Night Time- 70 dB (A) Residential Day Time- 55 dB (A) & Night Time- 45 dB (A)						

The incremental noise level is found within the range of 54.08 dB (A) in Core Zone and 24.54- 51.16dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance 33.3 involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations are within permissible limits of Industrial area (core zone) & Residential area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated

22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.).

#### 4.4.2 Mitigation measures for Control of Noise

The following noise mitigation measures are proposed for control of Noise

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

#### 4.4.3 Ground Vibrations

Ground vibrations due to mining activities in the project area 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 proposed mine is moving of Heavy Earth Moving Machineries vibration due to blasting is very minimal since the blasting will not carried out frequently in this type of Granite quarry operation. 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 550m South West. 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)

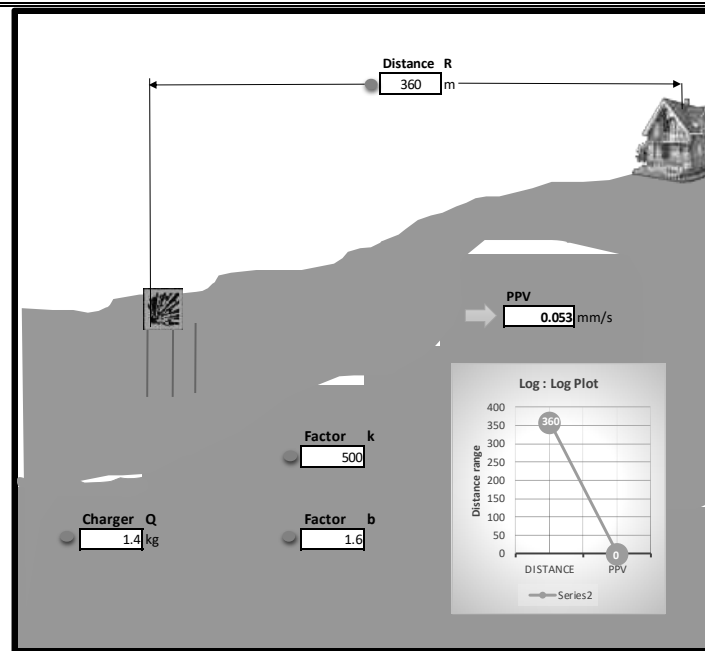
B = constant related to the rock and site (usually 1.6)

R = distance from charge (m)

**TABLE 4.9: PREDICTED PPV VALUES DUE TO BLASTING**

Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
1.4	360	0.053





**Figure No 4.7: Ground Vibration Prediction**

From the above graph, the charge per blast of 1.4kg 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 100kg 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 Mitigation measures for Control of Vibration

- The blasting operations in the mine are proposed to be carried out by jackhammer drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system should be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting should 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 shall 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, 2<sup>nd</sup> Class Mines Manager/ 1st Class Mines Manager) will be appointed.

#### 4.5 Biological Environment

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

##### 4.5.1. Anticipated Impact on Flora

- None of the plants will be cut during the operational phase of the mine.
- There shall be negligible air emissions or effluents from the project site. During the loading of the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.

- Most of the land in the buffer area is undulating terrain with croplands, grass patches, and small shrubs. Hence, there will be no effect on the flora of the region.

#### 4.5.1.1. Mitigation Measures

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

#### 4.5.1.2. Selection of Plant Species for Green Belt Development

The selection of plant species for the green belt development depends on various factors such as climate, elevation, and soil. The plants should exhibit the following desirable characteristics in order to be selected for plantation.

- Native plant species will be preferred.
- The species should be wind-firm and deep-rooted.
- The species should form a dense canopy.
- Fast-growing plants will be planted
- Species tolerance to air pollution like SO<sub>2</sub> and NO<sub>2</sub> should be preferred.
- Plants having large leaf area index will be considered
- Soil improving plants (Nitrogen fixing rapidly decomposable leaf litter).
- Attractive appearance with good flowering and fruit-bearing.
- Birds and insects attract tree species.
- Roadsides will be planted with local vegetation.

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

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

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

#### 4.5.2. Anticipated Impact on Fauna

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

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

#### 4.5.2.1. Mitigation Measures

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

#### 4.5.3. Impact on Aquatic Biodiversity

Mining activities will not disturb the aquatic ecology as there is no effluent discharge proposed from the Multi-Colour Granite 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. Kindly refer the Chapter 3, clause No 3.7. Aquatic biodiversity is observed in the study area.

#### 4.5.4. Impacts on Bird Fauna:

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

#### 4.5.5. Impacts on wildlife

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

#### 4.5.6. Impact Assessment on Biological Environment

This chapter highlights the various impacts on ecology and biodiversity due to mining activity. The major adverse impacts due to pre-mining and mining phases are loss of habitat, biodiversity, rare flora and fauna, fisheries and other aquatic life, migration of wildlife, and overall disruption of the ecology of the area. During the post-mining phase after land restoration, ecology may effectively improve. A detail of impact and assessments was mentioned in Table No.4.2.

##### 4.5.6.1. Anticipated Environmental Impacts and Mitigation Measures of Kallai Village, Multi-Colour Granite Quarry, Karur 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: 4.2. Anticipated impact of Ecology and Biodiversity in Kallai Village Multi-Colour Granite Quarry**

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

		Site specific loss of associated faunal diversity (Partial impact)	The site supports only common species, which use a wide variety of habitats of the buffer zone reserve forest area. So, there is no threat of Faunal diversity		developed on the project site and on the periphery of the project boundary, which will improve the floral and faunal diversity of the project area.
		Loss of Habitat (Direct impact)	Site does not for unique / critical habitat structure for unique flora or fauna.		
<b>Mining phase</b>					
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 4.13: Greenbelt development plan**

Plantation Details	1 <sup>st</sup> Year
No. of plants	1490
Yearly %	100 %

Within the safety barrier can plant 900 Nos of trees in two rows with 3m spacing interval  
Remaining 590 Nos of trees proposed to plant on the Village roads.

**Table 4.14: Preparation of green belt details**

Source: Approved Scheme of Mining Plan

ACTIVITY	YEAR					RATE	AMOUNT (Rs.)
	I	II	III	IV	V		
Plantation (In Nos.)	1490	-	-	-	-	@100 Rs Per sapling	Rs.1,49,000/-
Plantation (Safety zone) cost	1,49,000	-	-	-	-		
Fencing (In Mtrs) 940 Mtrs	2,82,000					@300 Rs Per Meter	2,82,000/-

Garland drain (In Mtrs) 360Mtrs	1,08,000	-	-	-	-	@300 Rs Per Meter	1,08,000/-
<b>TOTAL</b>							<b>5,39,000/-</b>

#### 4.5.2.2.1. Species Recommendation for Plantation granted in the district

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

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

**Table 4.15: Recommended Species to Plant in the Greenbelt**

<i>Sl.No</i>	<i>Name of the plant (Botanical)</i>	<i>Family Name</i>	<i>Common Name</i>	<i>Habit</i>
1	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree
2	<i>Albiziafalcataria</i>	Fabaceae	Tamarind, Puliyamaram	Tree
3	<i>Polyalthialongifolia</i>	Annonaceae	Kattumaram	Tree
4	<i>Borassus Flabellifer</i>	Arecaceae	Palmyra Palm	Tree

#### 4.6 Socio Economic

The socio-economic impacts of mining are many. Impacts of a mine project may be positive or Negative. The adverse impacts attribute to physical displacement due to land acquisition, which is followed by loss of livelihood, mental agony, changes in social structure, and risk to food security etc., People are also directly affected due to pollution. Social Impact Assessment (SIA) is a process of analysis, monitoring and managing the social consequences of a project. Study on Socio-economic status has already been carried out using primary socio-economic survey for generating the baseline data of Socio-economic status.

##### 4.6.1 Anticipated Impact

From the primary Socio-economic survey & through secondary data available from established literature and census data 2011, it is found that there would be positive impact on Socio-economic condition of the nearby area. There is no habitation within 300 m of the proposed mining lease area. Therefore, no major impact is anticipated on the nearby habitation during the entire life of the mine.

##### 4.6.2 Mitigation Measures

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

#### 4.7 Occupational Health and Safety

Occupational health and safety hazards will 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

- 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)
- 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
- 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/ Silicosis 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.

#### 4.7.5 Plastic Waste Management

As per the Tamil Nadu Government Order (Ms) No. 84 Environment and Forest (EC.2) Department Dated 25.06.2018 following kind of plastics will not be used in the mines area.

- Use and throw away plastics such as carry bags, plastic bags, plastic sheets used for food wrapping, spreading, plastic plates, plastic coated tea cups and plastic tumblers will not be used in the mines

#### Action Plan:

Action Plan	Responsibility
All the employees will be checked for plastics before entering the quarry.	Watchman
Every week or month a meeting of workers under the chairmanship of the mine manager will be held to explain the disadvantages of plastic use.	Mine Foreman & Mining Mate
They will be advised not to bring plastic materials into the mines and those who are involved in such activities will not be allowed to work on the day of the snow.	Mines Manager

The miners will be provided with areca nut plates and mugs to help reduce the use of plastics.	Mines owner
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#### 4.8 Mine Closure

Mine closure plan is the most important environmental requirement in mineral 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.

##### Objective of Mine closure

- 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.

#### 4.8.1 Mine Closure criteria

The criteria involved in mine closure are discussed below:

##### 4.8.1.1 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.,

##### 4.8.1.2 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.

##### 4.8.1.3 Biological Stability

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

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

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

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

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## 5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

### 5.1 Introduction

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

The quarrying operation like drilling, blasting, excavation, loading & transportation are being carried out. The site has been selected based on geological investigation and exploration as below:

- Transportation facility for materials & manpower
- Overall impact on environment and mitigation feasibility
- Socio – economic background.

Enough infrastructures exists and lesser resources are required to be deployed. Since, any further construction for infrastructure is not required and hence does not affect the environment considerably. The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise for this project.



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## 6. ENVIRONMENTAL MONITORING PROGRAMME

### 6.0 General

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

The main objective of environmental monitoring is to ensure that the obtained results in respect of environmental attributes and prevailing conditions during operation stage are in conformity with the prediction during the planning stage. In case of substantial deviation from the earlier prediction of results, this forms as base data to identify the cause and suggest remedial measures. Environmental monitoring is mandatory to meet compliance of statutory provisions under the Environment (Protection) Act, 1986, relevant conditions regarding monitoring covered under EC orders issued by the SEIAA as well as the conditions set forth under the order issued by Tamil Nadu Pollution Control Board while granting CTO.

### 6.1 Methodology of Monitoring Mechanism

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

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

The responsibilities of this cell will be:

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

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

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

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

### 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**

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

### 6.3 Monitoring Schedule and Frequency

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

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

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

The details of monitoring are detailed in Table 6.2

**Table 6.2: Monitoring Schedule for the Project Area**

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, PM2.5, PM10, SO2 and NOx.
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting Operation	Peak Particle Velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

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

#### 6.4 Budgetary Provision for EMP

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

The proposed capital cost for Environmental Monitoring Programme for M/s. Apple Granites Multi Colour Granite Quarry is Rs. 3,80,000 for conducting Air Quality, Meteorology, Water Quality, Hydrology, Soil Quality, Noise Quality Vibration Study, Greenbelt.

**Table 6.3: Environmental Monitoring Budget**

Sl.No.	Parameter	No of Location	Recurring Cost per annum
1	Air Quality	4	Rs 2,60,000/-
2	Noise Level	4	Rs 10,000/-
3	Ground Vibration	2	Rs 20,000/-
4	Water sampling	1	Rs 90,000/-
	<b>Total</b>		<b>Rs 3,80,000</b>

#### 6.5 Reporting Schedules of Monitored Data

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

Periodical reports to be submitted to: -

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

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

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

## CHAPTER – 7: ADDITIONAL STUDIES

### 7.0 General

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

- Public Consultation
- Risk Assessment
- Disaster Management Plan

### 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 31<sup>st</sup> December, 2002. The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities.

The whole quarry operation will be carried out under the direction of a qualified Competent Mine manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad. 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**

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"> <li>▪ 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;</li> <li>▪ Entry of unauthorized persons will be prohibited;</li> <li>▪ Firefighting and first-aid provisions in the mine office complex and mining area;</li> <li>▪ 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</li> <li>▪ Working of quarry, as per approved plans and regularly updating the mine plans;</li> <li>▪ Cleaning of mine faces shall be daily done in order to avoid any overhang or undercut;</li> <li>▪ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager;</li> <li>▪ Maintenance and testing of all mining equipment as per manufacturer guidelines.</li> </ul>

2	OB / Waste Dump	Sliding of benches Height and slope of the benches Drainage facilities	<ul style="list-style-type: none"> <li>▪ Dumps benches are maintained with proper 3 m height and 37° slope to prevent slope failure and terraced.</li> <li>▪ Dumping in the waste dump in layers and dozing daily.</li> <li>▪ Vegetation of the top and slopes of the dump to prevent erosion and providing water drainage channels</li> <li>▪ Providing proper drainage facilities in mine and dump area.</li> <li>▪ Construction of retaining wall around dump area to stop sliding of material.</li> <li>▪ Garland drain to be made around OB dump area</li> </ul>
3	Drilling& Wire Saw Cutting	Due to improper and unsafe practices Due to high pressure of compressed air, hoses may burst Drill Rod may break	<ul style="list-style-type: none"> <li>▪ Safe operating procedure established for drilling (SOP) will be strictly followed.</li> <li>▪ Only trained operators will be deployed.</li> <li>▪ 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,</li> <li>▪ Drill&amp; Wire saw operator shall examine the drilling and wire saw equipment and satisfy himself</li> <li>▪ Drilling &amp; cutting operations shall not be carried on simultaneously on the benches at places directly one above the other.</li> <li>▪ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment and wire saw equipment as per operator manual.</li> <li>▪ All drills and wire saw unit shall be provided with wet drilling and cutting arrangement and it shall be maintained in efficient working in condition.</li> <li>▪ Operator shall regularly use all the personal protective equipment.</li> </ul>
4	Blasting	Fly rock, ground vibration, Noise and dust. Improper charging, stemming & Blasting/ fining of blast holes Vibration due to movement of vehicles	<ul style="list-style-type: none"> <li>▪ 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.</li> <li>▪ SOP for Charging, Stemming &amp; Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation</li> <li>▪ Shots are fired during daytime only.</li> <li>▪ All holes charged on any one day shall be fired on the same day.</li> <li>▪ The danger zone is and will be distinctly demarcated (by means of red flags)</li> </ul>
5	Transportation	Potential hazards and unsafe workings contributing to accident and injuries Overloading of material While reversal & overtaking of vehicle	<ul style="list-style-type: none"> <li>▪ Before commencing work, drivers personally check the dumper/truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio visual reversing alarm, rear view mirrors , side indicator lights etc., are in good condition.</li> </ul>

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

**7.3 Disaster Management Plan**

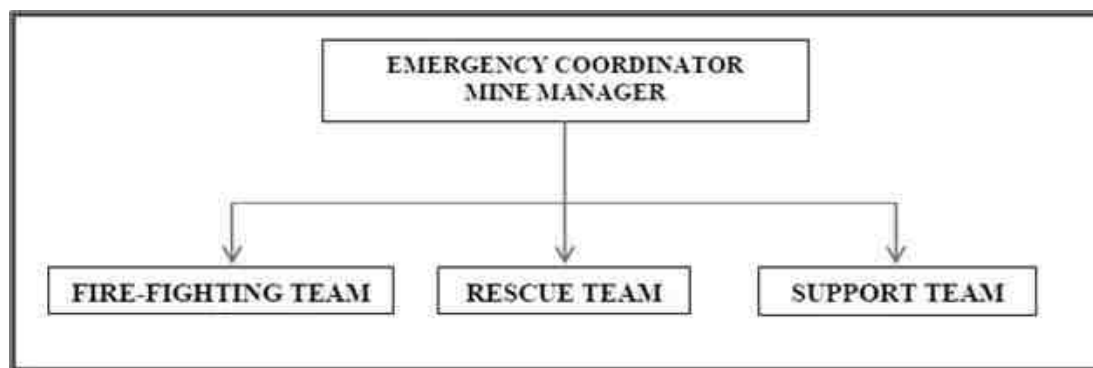
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

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:

- Effect the 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

It is to optimize operational efficiency to rescue rehabilitation and render medical help and to restore normalcy. To tackle the consequences of a major emergency inside the mines or immediate vicinity of the mines, a Disaster Management Plan must be formulated, and this planned emergency document is called “Disaster Management Plan”.

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 below –



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

**Table 7.2: Proposed Teams to Deal with Emergency Situation**

Designation	Qualification
<b>Fire-Fighting Team</b>	
Team Leader	Mines Manager
Team Member	Mines Foreman
Team Member	Mining Mate
<b>Rescue Team</b>	
Team Leader	Mines Manager
Team Member	Environment Officer
Team Member	Mining Foreman
<b>Support Team</b>	
Team Leader	Mines Manager
Assistant Team Leader	Environment Officer
Team Member	Mining Mate
Security Team	Mines Foreman

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

#### **Roles and responsibilities of emergency team –**

(a) Emergency coordinator (EC)

The emergency coordinator shall assume absolute control of site and shall be located at MECR.

(b) Incident controller (IC)

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

(c) Communication and advisory team

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

(d) Roll call coordinator

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

(e) Search and rescue team

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

(f) Emergency security controller

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

#### **Emergency control procedure –**

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

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

- He will receive information continuously from incident controller and give decisions and directions to:
  - Incident controller
  - Mine control rooms
  - Emergency security controller

### Proposed fire extinguishers at different locations

The following type of fire extinguishers has been proposed at strategic locations within the mine.

**Table 7.3: Proposed Type of Fire Extinguishers**

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

### Alarm system to be followed during disaster

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

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

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

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

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



#### 7.4 Cumulative Impact Study

There are Proposed applied and nearby proposed quarries within a radius of 500 meters from the proposed project area. The list of quarries is as below –

**Table 7.4: List of Quarries within 500 Meter Radius from this Proposal**

PROPOSED QUARRY				
CODE	Name of the Owner	S.F. Nos	Extent	Status
P-1	M/s. Apple Granites S.F.No. 299/1, 2 Kallai Village, Kulithalai Taluk, Karur District	299/1(P), 299/2A(P), 299/2B(P), 301/(P), 302/2(P) and 302/3(P)	2.97.0Ha	Obtained ToR vide Lr No.SEIAA- TN/F.No.10261/SEAC/ ToR-1562/2023 Dated:27.09.2023
		<b>Total</b>	<b>2.97.0Ha</b>	
EXISTING QUARRIES				
E-1	M/s. V.B.S. Exports	349/part 303/2A(P) 302/1(P)	2.80.5Ha	21.02.2018 to 20.02.2038 (Last permit obtained on 21.07.2022)
E-2	Thiru. K. Sakthivel	351	2.51.5Ha	05.09.2017 to 04.09.2037 (Last permit obtained on 22.03.2022)
		<b>Total</b>	<b>5.32.0Ha</b>	
TOTAL CLUSTER EXTENT			<b>8.29.0Ha</b>	

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

**Table 7.5: Salient Features of Proposed Projects “P1”**

Name of the Quarry	M/s. Apple Granites Multi Colour Granite quarry				
SF.no	299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P)				
Extent	2.97.0Ha				
Village & Taluk	Kallai Village, Kulithalai Taluk				
Lease period	20 years				
1 <sup>st</sup> Scheme of Mining Plan Period	5 Years				
Life of the Mine	19 years				
Existing Depth	10m				
Previous History and CCR	Previous Mining plan period – 2018 -19 to 2022 – 23 EC.No: Lr. No. DEIAA-DIA/TN/MIN/9629/2017-KRR/EC.No.88/201/Mines Dated: 18.01.2018 CCR Letter No: EP/12.1/2023-24/SEIAA/57/TN/913 date 28.07.2023				
TNPCB Clearance details	No.F.0848KAR/RS/DEE/TNPCB/KAR/W/2022 Dated: 16.02.2022				
Land use classification	It is a Patta land, Classified as Punjai and the entire land is covered by Granite boulders and sheet rock.				
Previous lease particulars	It is Patta land, registered in the name of Thiru. A. Meganathan, S/o. Angathevar, Thiru.R.Sudalaimuthu, S/o. S.Ramasamy, Thiru.K.Paramasivam, S/o. Krishnasamy and Thiru.R.Subburaman, S/o.Ramasamy vide patta no.1826. The Pattadhars has given consent letter to the company for quarrying operations for a period of 35 years				
Proposed Depth for five years plan period	23m(2m Topsoil + 1m Weathered rock + 20m Multi Colour Granite)				
Ultimate depth of Mining	23m(2m Topsoil + 1m Weathered rock + 20m Multi Colour Granite)				
Existing Pit Dimension	<b>Pit</b>	<b>RL</b>	<b>Ex Pit RL</b>	<b>Area in m<sup>2</sup></b>	<b>Total Depth (m)</b>
	Depth – 1	117	107	1276	10
	Depth - 2	117	111	204	6
Ultimate Pit Dimension	153m(L) x 98m (W) x 23m (D)				

Toposheet No	58-J/05	
Latitude between	10°47'26.9261''N to 10°47'34.8130''N	
Longitude between	78°26'54.0048''E to 78°27'02.6395''E	
Topography	The area is exhibits flat terrain. The gradient is gentle towards South side and altitude of the area is <b>116m to 122m above</b> from MSL. The Multi-Colour granite is covered with 2.0m thickness of soil and 1m weathered rock.	
Ground water level	The water level is found to occur at a depth of 64m in summer and 59m in rainy season below from the ground level.	
Machinery proposed	Jackhammer	4
	Compressor	1
	Crawler crane	1
	Excavator	2
	Tipper	1
	Diesel Generator	1
	Diamond wire saw	2
Proposed manpower deployment	48	
Project cost	Rs.2,64,79,000/-	
CER cost	Rs. 5,00,000/-	
Nearby Water Bodies	<ul style="list-style-type: none"> <li>• Tank - 100m – SW</li> <li>• Odai - 650m -SE</li> <li>• Tank - 2.5km -N</li> <li>• Napili Stream - 2.8km -E</li> <li>• Mayanur Barage Right Canal- 6.2km - NE</li> </ul>	
Nearest Habitation	360 m – South	
Nearest Reserve Forest	Viramalai R.F. 10.67 Km – South West	
Nearest Wild Life Sanctuary	Kadavur Slender Loris Santuary -30km-SW	

Table 7.6: Salient Features of Existing Quarry "E1"

Name of the Quarry	M/s.V.B.S Exports				
Extent	2.80.5 Ha				
SF No	349(P), 303/2A(P) & 302/1(P)				
Lease period	20 years				
Mining Plan Period	5 Years				
Life of the Mine	20 years				
Existing Depth	NIL				
Landuse details	The lease area is registered in the name of ThiruV.Balakrishnan S/o Venkatraman vide patta nos.1828,1966 and 1929.The pattadhar has given consent to the company for grant of granite quarry lease for 25 years.				
Status of applicant	Company is Partnership firm				
Geological Resources	ROM	Granite Waste 55%	Recoverable Reserves 45%		
	3,42,000 m <sup>3</sup>	1,88,100m <sup>3</sup>	1,53,900m <sup>3</sup>		
Mineable Reserves	ROM	Granite Waste 55%	Recoverable Reserves 45%	Weatherd Rock	Topsoil
	2,22,885m <sup>3</sup>	1,22,587m <sup>3</sup>	1,00,298m <sup>3</sup>	45,500m <sup>3</sup>	45,500m <sup>3</sup>
Production (Quantity in m <sup>3</sup> ) for the period of 5 years as per EC.	55,135 m <sup>3</sup>	29,774 m <sup>3</sup>	24,361 m <sup>3</sup>	8,950 m <sup>3</sup>	20,720 m <sup>3</sup>
Proposed Depth period	28m Bgl				
Toposheet No	58-J/05.				
Latitude between	10°47'31.49"N to 10°47'37.67"N				
Longitude between	78°26'49.80"E to 78°26'57.94"E				
Ultimate pit dimensions	209m(L) x 99m (W) x 28m (D)				
Topography	The area is situated in flat terrain. The gradient is gentle towards North side and the altitude of the area is 116 to 122m above from MSL.				
Water table	48-53				
Machinery proposed	Jackhammer	8			
	Compressor	2			

	Hydraulic/Crawler crane	1
	Excavator	2
	Tipper	2
	Diesel Generator	1
	Diamond wire saw	2
Water Requirement <sup>d</sup>		3.0 KLD
Proposed manpower deployment		40
Fixed Asset cost		Rs.18,00,000/-
Operational Cost		Rs.2,77,90,000/-
EMP Cost		Rs. 2,55,000/-
Total Project cost (Excluding EMP cost) as per EC		Rs.2,98,45,000/-
CER cost		Rs. 5,00,000/-
Nearest habitation		450m- SE

Table 7.6: Salient Features of Existing Quarry "E2"

Name of the Quarry		Thiru.K.Sakthivel Multi-Colour Granite Quarry				
Extent		2.51.5 Ha				
SF No		351				
Lease period		10 years				
Mining Plan Period		5 Years				
Life of the Mine		10 years				
Existing Depth		NIL				
Status of applicant		Proprietor				
Geological Resources		ROM	Granite Waste 50%	Recoverable Reserves 50%		
		3,76,800 m <sup>3</sup>	1,88,400m <sup>3</sup>	1,88,400m <sup>3</sup>		
Mineable Reserves		ROM	Granite Waste 50%	Recoverable Reserves 50%	Weatherd Rock	Topsoil
		2,24,125m <sup>3</sup>	2,86,618m <sup>3</sup>	1,91,078m <sup>3</sup>	25,120m <sup>3</sup>	50,240m <sup>3</sup>
Production (Quantity in m <sup>3</sup> ) for the period of 5 years as per EC.		1,06,122 m <sup>3</sup>	1,12,062 m <sup>3</sup>	1,12,063 m <sup>3</sup>	17,947 m <sup>3</sup>	39,182 m <sup>3</sup>
Proposed Depth period		18m Bgl				
Toposheet No		58-J/05.				
Latitude between		10°47'34.84"N to 10°53'40.69"N				
Longitude between		78°27'00.25"E to 78°27'06.65"E				
Ultimate pit dimensions		143m(L) x 137m (W) x 18m (D)				
Topography		The area is situated in flat terrain. The gradient is gentle towards SouthEast side and the altitude of the area is 124m above from MSL.				
Water table		48-53m				
Machinery proposed		Jackhammer	10			
		Compressor	4			
		Hydraulic/Crawler crane	1			
		Excavator	2			
		Tipper	2			
		Diamond wire saw	2			
Water Requirement <sup>d</sup>		2.5 KLD				
Proposed manpower deployment		40				
Fixed Asset cost		Rs.15,14,000/-				
Operational Cost		Rs.58,50,000/-				
EMP Cost		Rs. 2,55,000/-				
Total Project cost (Excluding EMP cost) as per EC		Rs.76,19,000/-				
CER cost		Rs. 5,00,000/-				
Nearest habitation		500m-S				

The Cumulative Impact is mainly anticipated due to drilling & blasting and excavation and transportation activities in all the quarries (proposed and existing) within the cluster and major impact anticipated is on Air & Noise Environment Movement of HEMM and operating of machineries in the cluster.

### Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.8

**Table 7.7: Cumulative Production Load of Granite**

Quarry	Mineable Reserves ROM In m <sup>3</sup>	Mineable Reserves of Granite	Proposed production ROM for five-year period	Production of ROM Per Day	Proposed production Granite for five-year period	Production of Granite Per day in m <sup>3</sup>	Weathered rock in Production m <sup>3</sup>	Weathered rock per day in m <sup>3</sup>	Topsoil in Production m <sup>3</sup>	Topsoil per day in m <sup>3</sup>	Number of Lorry loads per day (ROM)
P1	1,47,068	75,534	38,898	26	19,449	13	3,009	2	7,020	5	2
<b>Total</b>	<b>1,47,068</b>	<b>75,534</b>	<b>38,898</b>	<b>26</b>	<b>19,449</b>	<b>13</b>	<b>3,009</b>	<b>2</b>	<b>7,020</b>	<b>5</b>	<b>2</b>
E1	222885	100298	55135	37	24361	16	8950	6	20720	14	3
E2	224125	191078	106122	71	25138	17	17082	11	7437	5	5
<b>Total</b>	<b>447010</b>	<b>291376</b>	<b>161257</b>	<b>108</b>	<b>49499</b>	<b>33</b>	<b>26032</b>	<b>17</b>	<b>28157</b>	<b>19</b>	<b>8</b>
<b>Grand Total</b>	<b>594,078</b>	<b>366910</b>	<b>200155</b>	<b>134</b>	<b>68,948</b>	<b>46</b>	<b>29,041</b>	<b>19</b>	<b>35177</b>	<b>24</b>	<b>10</b>

Source: Approved mining Plan, Scheme of Approved Mining plan of Respective mines and PFR Report ,form1.

On a cumulative basis considering all the 1 Proposed quarry and 2 Existing quarries it can be seen that the overall production of Granite ROM per day is 134m<sup>3</sup> and overall production of Granite is 46m<sup>3</sup> per day No of Lorry loads per day is 10.

Based on the above production quantities the emissions due to various activities in all the 3 quarries includes various activities like ground preparation, excavation, handling and transport of ore. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 7.9.

**Table 7.9: Emission Estimation from Quarries within 500 Meter Radius**

<b>Emission Estimation for quarry- P1</b>				
	<b>Activity</b>	<b>Source type</b>	<b>Value</b>	<b>Unit</b>
Estimated Emission Rate for PM <sub>10</sub>	Drilling	Point Source	0.059233650	g/s
	Blasting	Point Source	0.000176383	g/s
	Mineral Loading	Point Source	0.037338655	g/s
	Haul Road	Line Source	0.002484914	g/s/m
	Overall Mine	Area Source	0.072546031	g/s
Estimated Emission rate for SO <sub>2</sub>	Overall Mine	Area Source	0.000208691	g/s
Estimated Emission rate for NO <sub>x</sub>	Overall Mine	Area Source	0.000020861	g/s
<b>Emission Estimation for quarry-E1</b>				
	<b>Activity</b>	<b>Source type</b>	<b>Value</b>	<b>Unit</b>
Estimated Emission Rate for PM <sub>10</sub>	Drilling	Point Source	0.066728150	g/s
	Blasting	Point Source	0.000320007	g/s
	Mineral Loading	Point Source	0.039547821	g/s
	Haul Road	Line Source	0.002487054	g/s/m
	Overall Mine	Area Source	0.066818610	g/s
Estimated Emission rate for SO <sub>2</sub>	Overall Mine	Area Source	0.00035013	g/s
Estimated Emission rate for NO <sub>x</sub>	Overall Mine	Area Source	0.000028730	g/s
<b>Emission Estimation for quarry- E2</b>				
	<b>Activity</b>	<b>Source type</b>	<b>Value</b>	<b>Unit</b>
Estimated Emission Rate for PM <sub>10</sub>	Drilling	Point Source	0.059233650	g/s
	Blasting	Point Source	0.000176383	g/s
	Mineral Loading	Point Source	0.037338655	g/s
	Haul Road	Line Source	0.002484914	g/s/m
	Overall Mine	Area Source	0.072546031	g/s
Estimated Emission rate for SO <sub>2</sub>	Overall Mine	Area Source	0.000208691	g/s

Estimated Emission rate for NO <sub>x</sub>	Overall Mine	Area Source	0.000020861	g/s
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Source: Emission Calculations.

**Table 7.10: Incremental & Resultant GLC within Cluster**

PM <sub>10</sub> in µg/m <sup>3</sup>	
Location	CORE
Background	42.0
Highest Incremental	18.82
Resultant	60.8
NAAQ standard	100 µg/m <sup>3</sup>
PM <sub>2.5</sub> in µg/m <sup>3</sup>	
Location	CORE
Background	20.9
Highest Incremental	9.83
Resultant	30.7
NAAQ standard	60 µg/m <sup>3</sup>
SO <sub>2</sub> in µg/m <sup>3</sup>	
Location	CORE
Background	5.5
Highest Incremental	1.49
Resultant	6.9
NAAQ standard	80 µg/m <sup>3</sup>
NO <sub>x</sub> in µg/m <sup>3</sup>	
Location	CORE
Background	20.8
Incremental	13.58
Resultant	34.4
NAAQ standard	80 µg/m <sup>3</sup>

#### Noise Environment –

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

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

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

Where:

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

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

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

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

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

**Table 7.11: Predicted Noise Incremental Values from Cluster**

Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near P1	57.9	54.1	59.4	55
Habitation Near P2	-	-	-	
Habitation Near P3	47.5	39.9	48.2	

The incremental noise level is found within the range of 54.1-39.9 dB (A) in Core 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. 123E, dated 14.2.2000 and subsequently amended vide S.O. 1046E, dated 22.11.2000, S.O. 1088E, dated 11.10.2002, S.O. 1569E, dated 19.09.2006 and S.O. 50E dated 11.01.2010 under the Environment (Protection) Act, 1986.).

#### Socio Economic Environment –

The 3 mines shall create employment to **128** people and revenue will be created to government

**Table 7.12: Socio Economic Benefits from Quarries**

Location code	Employment	Project Cost	CER
P1	48	Rs.2,64,79,000/-	5,00,000/-
E1	40	Rs.2,98,45,000/-	5,00,000/-
E2	40	Rs.76,19,000/-	5,00,000/-
<b>Total</b>	<b>128</b>	<b>Rs. 6,39,43,000/-</b>	<b>15,00,000/-</b>

A total of 128 people getting and will get employment from these cluster quarries. Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III, Dated: 01.05.2018 by all the mines.

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 the 3 Quarries is Rs 15,00,000/-

#### 7.5 Cluster Management Committee

The cluster management committee is proposed to form including of 1 Proposed quarries and 2 existing quarries total extent of the cluster is 8.29.0 Ha

In the cluster management committee, the following Environmental Management plan will be followed the activities such as

- Transportation of Minerals and blasting activities with the coordination between the individual quarry owners.
- Sprinkling of water regularly thrice a day in the mutual understanding with the quarry owners
- Carrying out blasting operation as specified times by the Mines Managers and as per the EIA report
- Usage of Haul roads in a time specified by the Cluster Management Committee
- Following Safe operating procedure prescribed by the Mines Manager during natural calamities
- Planting Trees in the Government Land, School and within the project site
- Celebrating Safety month, Environmental Month along with the Mines Managers in every six months once
- Regularly follow the health of the workers and take medical examination as per the DGMS norms under the guidance of Mines Manager
- Meet at Association Hall monthly once to review the Environmental Management and Safety activities prescribed by the Cluster Management Committee
- We have read and understood all the above steps and we ensure to follow these specific steps Quarry owners in the Cluster management committee

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**Quarries in the Cluster Management Committee**

<b>PROPOSED QUARRY</b>				
<b>CODE</b>	<b>Name of the Owner</b>	<b>S.F. Nos</b>	<b>Extent</b>	<b>Status</b>
<b>P-1</b>	M/s. Apple Granites S.F.No. 299/1, 2 Kallai Village, Kulithalai Taluk, Karur District	299/1(P), 299/2A(P), 299/2B(P), 301/(P), 302/2(P) and 302/3(P)	<b>2.97.0Ha</b>	Obtained ToR vide Lr No.SEIAA- TN/F.No.10261/SEAC/ ToR-1562/2023 Dated:27.09.2023
		<b>Total</b>	<b>2.97.0Ha</b>	
<b>EXISTING QUARRIES</b>				
E-1	M/s. V.B.S. Exports	349/part 303/2A(P) 302/1(P)	2.80.5Ha	21.02.2018 to 20.02.2038 (Last permit obtained on 21.07.2022)
E-2	Thiru. K. Sakthivel	351	2.51.5Ha	05.09.2017 to 04.09.2037 (Last permit obtained on 22.03.2022)
		<b>Total</b>	<b>5.32.0Ha</b>	
<b>TOTAL CLUSTER EXTENT</b>			<b>8.29.0Ha</b>	

**STANDARD OPERATING PROCEDURE FOR KALLAI CLUSTER MANAGEMENT COMMITTEE**

**1. Maintenance of Haul Roads and Village Roads:**

- 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

**2. Maintenance of Drilling Activities**

- 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.
  - Usage of sharp drill bits while drilling which will help in reducing noise;
-

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

### **3. Maintenance of Blasting Activities**

- 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 (1.00 PM to 2.00 PM), 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
  - 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, 2<sup>nd</sup> Class Mines Manager/ 1<sup>st</sup> 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. Maintenance of Greenbelt Activities

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

#### 5. Maintenance of 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
- 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

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

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.

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**6. Cluster Management Committee Policy**

- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities
- Implement a program to train employees in general environmental issues and individual workplace environmental responsibilities
- Allocate necessary resources to ensure the implementation of the environmental policy
- Ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts
- Implement monitoring programme 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
- 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.

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## CHAPTER – 8: PROJECT BENEFITS

### 8.0 General

There is one applied proposed project for M/s. Apple Granites Multi Colour Granite Quarry village aims to Proposed production 38,898m<sup>3</sup> (ROM for five year period) for Life of Mine of 20Years. 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
- To meet out the demand supply gap of Granite and enhance the foreign exports

### 8.1 Employment Potential

It is proposed to provide employment to about 48 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 and Existing mine is located in Kallai Village, Kulithalai Taluk and Karur District of Tamil Nadu and the area have communications, roads and other facilities already well established. The following physical infrastructure facilities will further improve due to proposed mine.

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

### 8.4 Improvement in Social Infrastructure

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

### 8.5 Other Tangible Benefits

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

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

### 8.5.1 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 proponent 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

### 8.5.2 CSR Cost Estimation

CSR activities will be taken up in the Kallai Village, Kulithalai Taluk 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.

### 8.5.3 Corporate Environment Responsibility–

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

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

**Table 8.1: CER – Action Plan**

<b>Code</b>	<b>CER</b>
P1	Rs 5,00,000/-
<b>Total</b>	<b>Rs 5,00,000/-</b>

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

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## **CHAPTER – 9: ENVIRONMENTAL COST BENEFIT ANALYSIS**

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

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## CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN- M/S. APPLE GRANITES

### 10.0 General

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

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

### 10.1 Environmental Policy

The Project Proponent committed to conduct all its operations and activities in an environmentally responsible manner and to continually improve environmental performance.

The Proponent will – **M/s. Apple Granites Multi Colour Granite Quarry**

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

#### 10.1.1 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 the proposed existing quarry.

The said team will be responsible for:

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

## 10.2 Land Environment Management –

Landscape of the area will be changed due to the quarrying operation, restoration of the land by converting the quarry pit into temporary reservoir and the remaining part of the area (un utilized areas, infrastructure, haul Roads) will be utilized for greenbelt development. Aesthetic of the Environment will not be affected. There is no major vegetation in the project area during the course of quarrying operation and after completion of the quarrying operation thick plantation will be developed under greenbelt development programme.

**Table 10.1: Proposed Controls for Land Environment**

Control	Responsibility
Designing vehicle wash-down system so that all washed water is captured and passed through grease and oil separators.	Mines Manager
Refueling will be carried out in a safe location, away from vehicle movement pathways	Mine Foreman & Mining Mate
No external dumping i.e., outside the project area	Mine Foreman
Greenbelt on dumps 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 backfilled area.	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

## 10.3 Soil Management

### 10.3.1 Top Soil Management –

It is anticipated to remove 7,020m<sup>3</sup> of topsoil and preserve it to facilitate greenbelt development on the backfilled area during mine closure.

### 10.3.2 Overburden / Waste and Side Burden Management –

- It is anticipating to remove 19,449m<sup>3</sup> of waste (Granite waste@ 50%) which will temporarily store at predetermined places as per mining plan and will be backfilled during mine closure.

**Table 10.2: Proposed Controls for Soil Management**

Control	Responsibility
backfilling process during mine closure as per mining plan	Mines Manager
The dump slopes will be planted with deep rooting shrubs, grasses and creepers for stabilizing them	Environment Officer
Garland drains are to be paved around the dump area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface dumps via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
The backfilled area shall be covered with the soil for green belt development	Environment Officer
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
The overall slope of the dump is maintained at angle of repose not exceeding 37° from horizontal	Mines Manager
The retaining wall has to be made to arrest the waste dump spills	Mines Manager
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

#### 10.4 Water Management

Water is a key component in mining projects as it is required for, and affected by, mining activities. Effective water management is important for a variety of reasons including: uninterrupted operation of the mine, compliance with operational permissions and applicable legislation, and minimization of effects on the receiving environment.

This section focuses on actions for avoidance, mitigation, and control, as well as a water management monitoring program –

- To protect water-related resources, and avoid harmful impacts;
- To supply and retain water for mine operations;
- to Define water-related environmental control structures; and
- To manage water to ensure that any discharges are following the applicable water quality levels and guidelines.

**Table 10.3: Proposed Controls for Water Environment**

<b>Control</b>	<b>Responsibility</b>
To maximize the reuse of pit water for water supply	Mines Manager
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	Environment Officer
Natural drains/nallahs/brooklets outside the project area should not be disturbed at any point of mining operations Safety distance of 50m will be always maintained from the odai and oorani	Mines Manager
Mine pit water is used for dust suppression and greenbelt development utilization of mine pit water is optimal and effective ways	Environment Officer
Ensure there is no process effluent generation or discharge from the project area into water bodies	Environment Officer
Domestic sewage generated from the project area will be disposed in septic tank and soak pit system	Mines Manager
Fast growing grasses, small plants and bushes will be grown on the overburden dumps to control soil erosion and siltation	Mines Manager
Retention walls and garland drains will be constructed around toe of waste dumps to arrest silt wash off from dumps during monsoon	Environment Officer
Rainwater harvesting measures will be adopted in the project area and in nearby villages to maintain and enhance the ground water table of the area	Environment Officer
Regularly assess and modify Water Management Plan to adapt to changing work plans and site conditions	Environment Officer
Familiarize all site personnel with the purpose and content of the Water Management Plan, and their responsibilities in its implementation	Environment Officer
Water management and sediment control structures and facilities will be regularly inspected and maintained according to the monitoring schedules	Environment Officer
Monthly or after rainfall, inspection for performance of water management structures and systems	Environment Officer
Conduct ground water and surface water monitoring for parameters specified by State Pollution Control Board (SPCB)	Mines Manager

Source: Proposed by FAE's & EIA Coordinator



## 10.5 Air Quality Management

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

**Table 10.4: Proposed Controls for Air Environment**

<b>Control</b>	<b>Responsibility</b>
Generation of dust during excavation is minimized by water sprinkling on working face	Mines Manager
Develop thick Greenbelt with tall growing trees and thick foliage cover all along the boundary of the project (7.5 Meter Buffer Zone) to arrest dust spreading outside the project area and to be maintained. This plantation cover will also act as an acoustic barrier	Environment Officer
Daily maintenance of haul roads and daily water sprinkling to minimize the generation of fugitive dust due to movement of heavy earth moving machineries on it	Mines Manager
Handle the waste from the mine pit to respective dumps and backfilling during closure process, fugitive dust is anticipated. this fugitive emission can be controlled by well-maintained machineries, well maintained haul roads water sprinkling on haul roads twice a day. Besides it is also advised not to handle the waste during high windy periods	Mines Manager & Environment Officer
Wet drilling procedure /drills with dust extractor system to control dust generation during drilling at source itself to be implemented	Environment Officer
Plantation will be carried out on surface dumps, backfilled area and top benches of the mined out area	Environment Officer
Water reservoir will be developed in the left over mined out pit, which will serve as additional surface water resources for the nearby villages	Environment Officer
Maintenance as per operator manual of the equipment and machinery in the mines to minimizing air pollution and noise generation	Mines Manager
Over loading of trucks should be avoided	Mines Manager
All the mining equipment and trucks has been controlled with emission norms	Environment Officer
The village roads used for mineral transport will be maintained weekly and monthly basis to avoid fugitive dust emissions	Mines Manager
Dust mask are provided to the workers working in high dust generating areas and continue to provide the same	Mines Manager
Weekly and Monthly maintenance of deployed machineries, to reduce gaseous emission	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	Environment Officer
Monitor meteorological conditions (temperature, wind, rainfall)	Environment Office

Source: Proposed by FAE's & EIA Coordinator

## 10.6 Noise Management

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

**Table 10.5: Proposed Controls for Noise Environment**

<b>Control</b>	<b>Responsibility</b>
A thick greenbelt to be developed all along the Buffer Zone (7.5 Meters) of the project area to attenuate the noise and the same will be maintained	Mines Manager
Plantation activities to be carried out on surface dumps and infrastructure facilities, these plantations will help in attenuating the noise levels	Environment Officer
Preventive maintenance of mining machinery and replacement of worn-out accessories to control noise generation	Mines Manager
Deployment of mining equipment with an inbuilt mechanism to reduce noise	Environment Officer
Provision of earmuff / ear plugs to workers working in noise prone zones in the mines	Environment Officer
Provision of effective silencers for mining machinery and transport vehicles	Environment Officer
Provision of sound proof AC operator cabins to HEMM	Environment Officer
Sharp drill bits are used to minimize noise from drilling	Environment Officer
Controlled blasting technologies are adopted by using delay detonators to minimize noise from blasting	Mines Manager
Annual ambient noise level monitoring to be carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Environment Officer
Undertake noise or vibration monitoring in response to a complaint (from any sensitive receptor).	Mines Manager
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination during initial stage of operation	Mines Manager
If a noise or vibration complaint is received, follow the complaints and inquiries	Environment Officer
Undertake noise or vibration monitoring half yearly	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

## 10.7 Ground Vibration and Fly Rock Control

**Table 10.6: Proposed Controls for Ground vibration & Fly rocks**

<b>Control</b>	<b>Responsibility</b>
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 during initial stage 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
Prior to blasting within 500 meters of the lease boundary, establish a fly rock exclusion zone within adjacent properties and check with landholders that the area is not occupied by humans, blast clearance zones are applied for all blasts.	Environment Officer
Undertake vibration monitoring	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

## 10.8 Biological Environment Management

The mine management 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 mined out area, backfilled area, etc., the water reservoir will be developed in lower benches of the mined-out area at conceptual stage will be used for the maintenance of green belt after the closure of mine.

Following control measures are proposed for its management and will be the responsibility of the environment officer.

- Greenbelt development all along the safety barrier of the project area
- 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 constructing a sprinkler near the newly planted area.
- Year wise plantation should 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.

The objectives of the greenbelt development plan are –

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

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

### 10.8.1 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 10.7: Recommended Species to Plant in the Greenbelt**

<i>SI.No</i>	<i>Name of the plant (Botanical)</i>	<i>Family Name</i>	<i>Common Name</i>	<i>Habit</i>
1	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree
2	<i>Albiziafalcatorea</i>	Fabaceae	Tamarind, Puliyamaram	Tree
3	<i>Polyalthialongifolia</i>	Annonaceae	Kattumaram	Tree
4	<i>Borassus Flabellifer</i>	Arecaceae	Palmyra Palm	Tree

Source: Proposed by FAE's & EIA Coordinator

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## 10.9 Occupational Safety & Health Management

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health in mines are fugitive dust and noise. Safety of employees during mining operation and maintenance of mining equipment will be taken care as per Mines Act 1952 and Rule 29 of Mines Rules 1955. To avoid any adverse effect on the health of workers due to dust, noise and vibration sufficient measures have been provided.

### 10.9.1 Medical Surveillance and Examinations –

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

The health status of workers in the mine shall be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detail's 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 above tests keep upgrading the database of medical history of the employees.

### 10.9.2 Proposed Occupational Health and Safety Measures –

- Providing a clean working environment that is conducive to safety & health annually
- Employee involvement and commitment in the implementation of health and safety guidelines
- Implementing safety and health management system and assessing the effectiveness through periodic audits
- Setting of safety and health objectives based on comprehensive strategic plans and measure performance against these plans
- Provision of necessary standard personal protective equipment's (PPE)
- Ensuring that all employees at all levels receive appropriate training and are competent to carry out their duties and responsibilities.
- Provision of rest shelters for mine workers with amenities like drinking water, fans, toilets urinals, canteen etc.,
- Rotation of workers exposed to noisy areas.
- Daily dust suppression on haul roads to prevent fugitive dust emission into the air.
- First-aid facility at the mine office.

### 10.9.3 Health and Safety Training Programme

The company shall 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 an Environmental Consultants to provide periodical training to all the employ to carry out the mining operation in and eco-friendly manner.

**Table 10.8: List of Periodical Trainings Proposed for employees**

<b>Course</b>	<b>Personnel</b>	<b>Frequency</b>	<b>Duration</b>	<b>Instruction</b>
New-hire Training	All new hires 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

***Budgetary Provision for Environmental Management –***

Adequate budgetary provision has been made by the Company for execution of Environmental Management Plan. The Table 5.2 and 5.3 give overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures (including reclamation).

**Table 10.9: Capital and Recurring Cost of EMP**

Activities	Mitigation Measure	Provision for Implementation	Capital	Recurring
<b>Air Environment</b>	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	14200	14200
	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	0
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 4 Units	100000	10000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 1 Units	5000	250
	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	28400

	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
<b>Noise Environment</b>	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	19559
<b>Waste Management</b>	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
<b>Mine Closure</b>	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	14200	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	284000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 1490 Trees - (880 Inside Lease Area & 610 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	176000	26400
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	183000	18300
	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 20% of the proposed closure cost will be spent during the final mine closure stage - Last Year	87000	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	23038202	0	



		and not necessarily implemented in the Project Site		
<b>Implementation of EC, Mining Plan &amp; DGMS Condition</b>	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) - 48 Employees	192000	48000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	48000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	2840
	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	71000	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 <sup>st</sup> Class / 2 <sup>nd</sup> 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
<b>Start Rating</b>	Monitoring of Granite Quarrying Operation by Anna University	Star Rating @ Rs. 1,00,000/- per Year will be deposited in the First Year	500000	0
<b>CER</b>	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
<b>TOTAL</b>			<b>2999400</b>	<b>1192949</b>

In order to implement the environmental protection measures, an amount of Rs. 29.99 lakhs as capital cost and recurring cost as Rs. 11.92 lakhs as recurring cost is proposed considering present market price considering present market scenario.

<b>Year Wise Break Up</b>	
1 <sup>st</sup> Year	₹ 41,92,349
2 <sup>nd</sup> Year	₹ 12,52,596
3 <sup>rd</sup> Year	₹ 13,15,226
4 <sup>th</sup> Year	₹ 13,80,987
5 <sup>th</sup> Year	₹ 14,50,036
6 <sup>th</sup> Year	₹ 30,22,238
7 <sup>th</sup> Year	₹ 1,673,650
8 <sup>th</sup> Year	₹ 17,57,333
9 <sup>th</sup> Year	₹ 18,45,199
10 <sup>th</sup> Year	₹ 19,37,459
11 <sup>th</sup> Year	₹ 3,534,032
12 <sup>th</sup> Year	₹ 22,11,034
13 <sup>th</sup> Year	₹ 23,21,585
14 <sup>th</sup> Year	₹ 2,437,665
15 <sup>th</sup> Year	₹ 25,59,548
16 <sup>th</sup> Year	₹ 41,87,225
17 <sup>th</sup> Year	₹ 2,896,887
17 <sup>th</sup> Year	₹ 30,41,731
18 <sup>th</sup> Year	₹ 31,93,817
19 <sup>th</sup> Year	₹ 34,40,508
<b>Total</b>	<b>₹497 Lakhs</b>

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## CHAPTER – 11: SUMMARY AND CONCLUSIONS

M/s. Apple Granites Multi Colour Granite Quarry 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 Oct 2023 to Dec 2023 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

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

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

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

Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 48 people directly in the cluster and indirectly around 80 people.

As discussed, it is safe to say that the proposed quarries are not likely to cause any significant impact to the ecology of the area, as adequate preventive measures will be adopted to keep the various pollutants within the permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigate technique, as well as to serve as biological indicators for the pollutants released from the M/s. Apple Granites Multi Colour Granite Quarry (Extent 2.97.0 Ha)

## 12. DISCLOSURE OF CONSULTANTS

M/s. Apple Granites Multi Colour Granite Quarry 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.Thangaraju.P	In-house	1	A	HG GEO	A A
2	Dr. M. Ifthikhar Ahmed	In-house	1 38	A B	SC	A
3	Mr. Devanathan.D	In-house	-	-	AP EB	B A
4	Mrs. Jisha parameswaran	In-house	-	-	SHW	B
5	Mr. Govindasamy.P	In-house	-	-	WP	B
6	Mr.Viswanathan.P	In-house	-	-	LU	B
7	Mr.Senthilkumar.N	Empanelled			AQ	B
8	Mrs. Sasikala.T	Empanelled	-	-	SE	B
9	Mr.Vikram Krishna J.R	Empanelled	-	-	NV 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 Draft EIA/EMP for M/s. Apple Granites Multi Colour Granite Quarry (Extent 2.97.0Ha) in Kallai Village, Kulithalai Taluk, Karur 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:




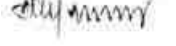

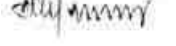














Period of Involvement: **August 2023 to till date**

### **Associated Team Member with EIA Coordinator:**

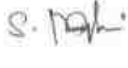
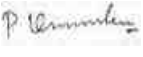



1. Mr. S. Nagamani
2. Mr.P. Viswanathan
3. Mr. M. Santhoshkumar
4. Mr. S. Ilavarasan





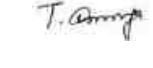
### **FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT**

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

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

#### LIST OF TEAM MEMBERS AS FUNCTIONAL AREA EXPERT

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

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



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**DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION**

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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 Draft EIA/EMP for M/s. Apple Granites Multi Colour Granite Quarry (Extent 2.97.0Ha) in Kallai Village, Kulithalai Taluk, Karur 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 &amp; 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 &amp; Issue Date:

**NABET/EIA/2225/RA0276 Dated: 20-02-2023**

Validity:

**Valid till 06.08.2025**

# ANNEXURE

## M/S. APPLE GRANITES MULTI COLOUR GRANITE QUARRY

S.F. Nos. 299/1(P), 299/2A(P), 299/2B(P), 301(P),

302/2(P) and 302/3(P)

Kallai Village,

Kallikudi Taluk,

Karur District.

**EXTENT = 2.97.0 ha**

ToR obtained vide

Lr No.SEIAA-TN/F.No.10261/SEAC/ToR-1562/2023 Dated:27.09.2023

**Project Proponent**

**M/s. Apple Granites,**

**Thiru. R. Subburaman - Managing Director**

No. 95/2, Perur Udaiyappatty,

Gudalur Village, Kulithalai Taluk,

Karur District.

Tamil Nadu – 639 120.

## LIST OF ANNEXURES

ANNEXURES	DESCRIPTION	PAGE NOS
<b>P1</b> <b>M/S. APPLE GRANITES</b>	COPY OF TERMS OF REFERENCE	1A – 25A
	COPY OF MINING PLAN APPROVED LETTER	26A – 30A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	31A-32A
	COPY OF APPROVED MINING PLAN WITH PLATES	33A – 152A
	COPY OF 300m & VAO ATTESTATION LETTER	153A – 154A
	COPY OF ENVIRONMENTAL CLEARANCE	155A – 162A
	COPY OF EXPLOSIVES LETTER	163A – 165A
	COPY OF CTO	166A-171A
	COPY OF LAST PERMIT	172A
	COPY OF CCR	173A-216A
E2	COPY OF PRECISE AREA LETTER	217A – 218A
E1	COPY OF PRECISE AREA LETTER	219A – 222A
	COPY OF BASE LINE MONITORING DATA	223A – 294A
	COPY OF CONSULTANT ACCREDITATION CERTIFICATE	295A



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

STATE LEVEL ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY – TAMIL  
NADU

3rd Floor, Panagal Maaligai,  
No.1, Jeenis Road, Saidapet,  
Chennai-15.  
Phone No. 044-24359973  
Fax No. 044-24359975

**TERMS OF REFERENCE (ToR)**

**Lr No.SEIAA-TN/F.No.10261/SEAC/ToR-1562/2023 Dated:27.09.2023**

To

M/s. Apple Granites,  
No:95/2, udaiyappathy,  
Guddalur village,  
Kulithalai taluk,  
Karur district,  
Karur-639120.

Sir / Madam,

**Sub:** SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Multi Colour Granite Quarry over an extent of 2.97.0Ha at S.F. No: 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) of Kallai Village, Kulithalai Taluk, Karur District, Tamil Nadu by M/s. Apple Granites - 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/430899/2023, Dated: 26.05.2023.
2. Your application submitted for Terms of Reference dated: 28.07.2023.
3. Minutes of the 407<sup>th</sup> Meeting of SEAC held on 07.09.2023.
4. Minutes of the 658<sup>th</sup> meeting of Authority held on 26.09.2023 & 27.09.2023.

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

  
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The proponent, M/s Apple Granites, has submitted application for ToR, in Form-I, Pre-Feasibility report for the Multi Colour Granite Quarry over an extent of 2.97.0Ha at S.F.Nos. 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) of Kallai Village, Kulithalai Taluk, Karur District, Tamil Nadu.

**Discussion by SEAC and the Remarks:-**

**Proposed Multi Colour Granite Quarry over an extent of 2.97.0Ha at S.F.Nos. 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) of Kallai Village, Kulithalai Taluk, Karur District, Tamil Nadu by M/s. Apple Granites-For Terms of Reference. (SIA/TN/MIN/430899/2023, Dated:26.05.2023).**

The proposal was placed in the 407<sup>th</sup> Meeting of SEAC held on 07.09.2023. The details of the project furnished by the proponent are available in the website (parivesh.nic.in).

**The SEAC noted the following:**

1. Earlier, the PP has obtained Environmental Clearance from DEIAA vide Lr. No. DEIAA-DIA/TN/MIN/9629/2017-KRR/EC.No.88/2017/Mines, Dt: 18.01.2018 for the proposed Multi Colour Granite Quarry over an extent of 2.97.0Ha at S.F.Nos. 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) of Kallai Village, Kulithalai Taluk, Karur District for the production of Multi Colour Granite - 19500 cu.m & depth up to 13m.
2. Lease granted for the period of 20 years. The lease deed was executed on 21.02.2018 and lease period is valid up to 20.02.2038.
3. This EC issued by the DEIAA has been filed before the SEIAA-TN for reappraisal in compliance to the order of the Hon'ble NGT in O.A142 of 2022 as per the Guidelines stipulated in MoEF &CC OM F.No. IA3-22/11/2023-IA.III (E-208230), dated. 28.04.2023.
4. Certified Compliance Report (CCR) obtained from IRO(SZ), MoEF&CC vide Lr. EP/12.1/2023-24/SEIAA/57/TN/913 Dt:28.07.2023.
5. Now, The Project Proponent, M/s. Apple Granites has applied for Terms of Reference for the Proposed Multi Colour Granite Quarry over an extent of 2.97.0Ha at S.F.Nos. 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) of Kallai Village, Kulithalai Taluk, Karur District, Tamil Nadu.
6. The proposed quarry/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
7. As per the mining plan the lease period is 20 years (21.02.2018 to 20.02.2038). The

  
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SEIAA-TN

first scheme of mining plan is for the period of five years (2023 to 2028) & production should not exceed 38,898 m<sup>3</sup> of ROM, 19,449 m<sup>3</sup> of Granite Recovery (@50%) & 19,449 m<sup>3</sup> of Granite Waste (@50%) with ultimate depth of mining 23m BGL.

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

1. The proponent shall give an Affidavit before the issuance of ToR from SEIAA-TN stating that the mining operations will remain suspended from the date of publication of MoEF & CC OM F.No. IA3-22/11/2023-IA.III (E-208230), dated. 28.04.2023 till they obtain the EC granted by the SEIAA after the reappraisal process for carrying out remedial actions subsequently.
2. For the existing quarry, the PP shall obtain a letter from the concerned AD (Mines) which shall stipulate the following information:
  - i. Original pit dimension of the existing quarry
  - ii. Quantity achieved Vs EC Approved Quantity
  - iii. Balance Quantity as per Mineable Reserve calculated.
  - iv. Mined out Depth as on date Vs EC Permitted depth
  - v. Details of illegal/illicit mining carried out, if any
  - vi. Non-compliance/Violation in the quarry during the past working.
  - vii. Quantity of material mined out outside the mine lease area (or) in the adjacent quarry/land.
  - viii. Existing condition of Safety zone/benches
  - ix. Details of any penalties levied on the PP for any violation in the quarry operation
3. The PP shall furnish **mitigation measures/remedial action plan** for the non-compliance stated in the Certified Compliance Report (CCR) obtained from IRO(SZ), MoEF&CC.
4. The study on impact of the proposed quarrying operations on the surrounding environment which includes water bodies, etc.
5. The Project Proponent shall furnish the revised EMP based on the study carried out on impact of the dust & other environmental impacts due to proposed quarrying operations

  
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SEIAA-TN



- on the nearby agricultural lands for remaining life of the mine in the format prescribed by the SEAC considering the cluster situation.
6. The Proponent shall furnish a comprehensive plan for green belt plantation and stacking the waste blockage of granite produced from the proposed quarrying operation to ensure sustainable environment.

#### ANNEXURE-I

1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:
  - (i) Original pit dimension
  - (ii) Quantity achieved Vs EC Approved Quantity
  - (iii) Balance Quantity as per Mineable Reserve calculated.
  - (iv) Mined out Depth as on date Vs EC Permitted depth
  - (v) Details of illegal/illicit mining
  - (vi) Violation in the quarry during the past working.
  - (vii) Quantity of material mined out outside the mine lease area
  - (viii) Condition of Safety zone/benches
  - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.

  
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6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?

  
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14. Quantity of minerals mined out.
  - Highest production achieved in any one year
  - Detail of approved depth of mining.
  - Actual depth of the mining achieved earlier.
  - Name of the person already mined in that leases area.
  - If EC and CTO already obtained, the copy of the same shall be submitted.
  - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.
19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells

  
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due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.

21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
28. Impact on local transport infrastructure due to the Project should be indicated.

  
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29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

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

**Appendix -I**  
**List of Native Trees Suggested for Planting**

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	வில்வம்
2	<i>Adenaanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆனாக்குன்றிமணி
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usai	உசை
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathu	ஆத்து
7	<i>Bauhinia tomentos</i>	Iruvaadu	இருவாத்து
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமா
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punai	பனை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon sweetenia</i>	Purasamaram	புரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Marjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Nanvuli	நருவளி
18	<i>Creteva adansonii</i>	Mavalingum	மாவிளங்கம்
19	<i>Dillema indica</i>	Uva, Uzha	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சீறு உசா
21	<i>Diospyro sebemum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகனை
23	<i>Ficus amplissima</i>	Kallitchi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆற்றுப்பலரசு
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயா மரம், ஆயிலி
27	<i>Lanea coromandelica</i>	Odham	ஒதிமம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottaimaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	வில்லா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	பிரம்பாட்டி பிச்சின்பட்டை
32	<i>Madhuca longifolia</i>	Iluppai	இலுப்பை
33	<i>Mamikara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	ஏச்சமரம்
39	<i>Pongamia pinnat</i>	Fungam	புங்கம்

  
MEMBER SECRETARY  
SEIAA-TN

40	<i>Premna mollissima</i>	Murruai	முள்ளை
41	<i>Premna serratifolia</i>	Narumuruai	நடு முள்ளை
42	<i>Premna tomentosa</i>	Malapoovarasu	மலை பூவரசு
43	<i>Prosopis cinerea</i>	Vanru maram	வள்ளி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Verunangu, Tada	வெண்ணாங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	புலவு
47	<i>Putranjiva roxburghii</i>	Karpala	கறிபாலா
48	<i>Salvadora persica</i>	Ugaa Maram	வாகா மரம்
49	<i>Sapindus emarginatus</i>	Manupungan, Soapukai	மணிப்புங்கன் சோப்புக்காய்
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Strebilus asper</i>	Piray maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yetti	எட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தான் கோட்டை
54	<i>Syzygium cumini</i>	Naval	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தாண்டு
56	<i>Terminalia arjuna</i>	Ven narudhu	வெண் மருது
57	<i>Toona ciliata</i>	Sandhara vembu	சந்தன வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsouratrifoliata</i>	valsura	வால்கரா
60	<i>Wrightia tinctoria</i>	Veppalai	வெப்பாலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்காப்புளி

#### Discussion by SEIAA and the Remarks:-

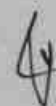
The subject was placed in the 658<sup>th</sup> Authority meeting held on 26.09.2023 & 27.09.2023. The Authority noted that the subject was appraised in the 407<sup>th</sup> Meeting of SEAC held on 07.09.2023. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions and conditions in **Annexure 'B'** of this minutes.

#### Annexure 'B'

##### Cluster Management Committee

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,

  
MEMBER SECRETARY  
SEIAA-TN






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

**Impact study of mining**

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
  - a) Soil health & soil biological, physical land chemical features .
  - b) Climate change leading to Droughts, Floods etc.
  - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
  - d) Possibilities of water contamination and impact on aquatic ecosystem health.
  - e) Agriculture, Forestry & Traditional practices.
  - f) Hydrothermal/Geothermal effect due to destruction in the Environment.

  
MEMBER SECRETARY  
SEIAA-TN

- g) Bio-geochemical processes and its foot prints including environmental stress.
- h) Sediment geochemistry in the surface streams.

#### **Agriculture & Agro-Biodiversity**

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

#### **Forests**

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

#### **Water Environment**

- 23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
- 24. Erosion Control measures.

  
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25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water-body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

#### **Energy**

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

#### **Climate Change**

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

#### **Mine Closure Plan**

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

#### **EMP**

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

  
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SEIAA-TN

**Risk Assessment**

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

**Disaster Management Plan**

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

**Others**

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

**A. STANDARD TERMS OF REFERENCE**

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

  
MEMBER SECRETARY  
SEIAA-TN



- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if 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.

  
MEMBER SECRETARY  
SEIAA-TN

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

  
MEMBER SECRETARY  
SEIAA-TN



Necessary allocation of funds for implementing the same should be made as part of the project cost.

- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of

  
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Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- 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

  
MEMBER SECRETARY  
SEIAA-TN



plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same 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

  
MEMBER SECRETARY  
SEIAA-TN

any Court of Law against the Project should be given.

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

  
MEMBER SECRETARY  
SEIAA-TN





Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

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

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

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

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

  
MEMBER SECRETARY  
SEIAA-TN

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

  
MEMBER SECRETARY  
SEIAA-TN



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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2<sup>nd</sup> December, 2009, 18<sup>th</sup> March 2010, 28<sup>th</sup> May 2010, 28<sup>th</sup> June 2010, 31<sup>st</sup> December 2010 & 30<sup>th</sup> 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 29<sup>th</sup> August, 2017.

  
MEMBER SECRETARY  
SEIAA-TN

**Copy to:**

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, MoEF& CC (SZ), 34, HEPC Building, 1<sup>st</sup>& 2<sup>nd</sup> 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, Karur District.
7. Stock File.

**COMMISSIONERATE OF GEOLOGY AND MINING**

From  
Thiru J.Jayakanthan, I.A.S.,  
Commissioner,  
Commissionerate of Geology and Mining,  
Guindy I.E.,  
Chennai - 32

To  
M/s. Apple Granites,  
No.95/2, Perur Udaiyapatty,  
Gudalur Village,  
Kulihalai Taluk,  
Karur District,  
Tamil Nadu - 639 120.

Re.No. 8445/MM2/2022 dated: 11.01.2023

Sir,

Sub: Mines and Minerals - Minor Mineral - Multicolour Granite - Karur District - Kulithalai Taluk - Kallai village - over an extent of 2.97.0 hecets. of patta lands in SF Nos.299/1 (Part) (0.46.0 hecets), 299/2A (Part) (0.03.5 hecets) 299/2B (Part) (0.03.0 hecets), 301 (Part) (0.31.0 hecets), 302/2 (Part) (0.43.0 hecets), 302/3 (Part) (1.70.5 hecets) - Quarry lease granted to M/s. Apple Granites - 1<sup>st</sup> Scheme of Mining Plan submitted for the period from 2023 -2024 to 2027 - 2028 - Recommended and forwarded by the Deputy Director(G&M), Karur for approval - Approval accorded - Reg.

- Ref:
1. Mining plan approved by the Commissioner of Geology and Mining, Chennai letter in Rc.No. 269/MM2/2017, Dated. 21.09.2017.
  2. G.O.(3D) No.03, Industries (MMB.2), Department, Dated.25.01.2018.
  3. 1<sup>st</sup> Scheme of Mining Plan for the period from 2023 - 2024 to 2027 - 2028 submitted by M/s.Apple Granites, Karur on 25.08.2022.
  4. Deputy Director (G&M), Karur Letter in Rc.No.511/Mines/2022, dated.07.12.2022 along with 1<sup>st</sup> Scheme of Mining Plan submitted by M/s. Apple Granites.

\*\*\*\*\*

Kind attention is invited to the references cited above.

2) A Quarry lease has been granted to M/s. Apple Granites, Karur for quarrying multicolour granite over an extent of 2.97.0 hecets of patta lands in SF.Nos.299/1 (Part) (0.46.0 hecets), 299/2A (Part) (0.03.5 hecets) 299/2B

(Part) (0.03.0 hecets), 301 (Part) (0.31.0 hecets), 302/2 (Part) (0.43.0 hecets), 302/3 (Part) (1.70.5 hecets) of Kallai village, Kulithalai Taluk, Karur District vide G.O.(3D) No.03, Industries (MMB.2), Department, Dated.25.01.2018 for a period of 20 years. The lease deed was executed on 21.02.2018 and the lease period is valid from 21.02.2018 to 20.02.2038. The Mining plan was approved by Commissioner of Geology and Mining, Chennai vide the office letter in Rc.No.269/MM2/2017 dated 21.09.2017.

3) In the reference 4<sup>th</sup> cited the Deputy Director (G&M), Karur has recommended and forwarded the 1<sup>st</sup> scheme of mining submitted by the lessee, M/s. Apple Granites, Karur for the period from 2023 - 2024 to 2027 - 2028 to the Commissioner of Geology and Mining for approval and reported that the lessee has complied the terms and conditions stipulated in the lease granting G.O and the lease deed, and no violations are noticed in the subject area. Further there is no litigation in the subject area.

4) Based on the recommendation of the Deputy Director (G&M), Karur and in exercise of the powers conferred under Rule, 18(4) of Granite Conservation and Development Rules, 1999 read with G.O. (Ms) No.87, Industries (MMC.1) Department dated 22.02.2001, the 1<sup>st</sup> Scheme of Mining submitted by M/s. Apple Granites is hereby approved for the period 2023 - 2024 to 2027 - 2028 for the proposed production of 19449 Cbm from the ROM of 38,898 Cbm of granite subject to the following conditions:

- i. A safety distance of 7.5 meters should be maintained to the adjacent patta lands.
- ii. A safety distance of 10 meters should be provided for the "vandipathai (S.F.No.299/3, 302/4) situated on the southern side of the area.
- iii. A safety distance of 50 meters should be left out for tiled house located at distance of 46 meters from the boundary in Nallur village on the north-western corner of the applied area.
- iv. The waste material generated during the time of quarrying should be dumped only within the lease hold area that will be



undertake re-grassing the mining area and any other area which may have been disturbed due to this mining activities and restore the land to a condition which is fit for the growth of fodders, flora and fauna etc."


- xxiii. The lessee has to pay the stamp duty for enhanced quantity in the 1<sup>st</sup> scheme of mining if any.

Approved scheme of mining is sent herewith for further necessary action.

**Encl:** Approved scheme of mining

Sd/- J.Jayakanthan,  
Commissioner of Geology and Mining

Forwarded / By Order

  
Additional Director

**Copy to:**

1. The Director of Mines Safety,  
Lapis Lagoon, AA Block,  
Shanthi Colony, Anna Nagar,  
Chennai-40. (With AMP)
2. The District Collector,  
Karur.
3. The Deputy Director,  
Geology and Mining,  
Karur. (With AMP)

**Copy Submitted to:**

Additional Chief Secretary to Government,  
Industries, Investment Promotion &  
Commerce Department,  
Secretariat, Chennai-9.

- Rules, 1999. The Commissionerate of Geology and Mining does not take any responsibility regarding correctness of the boundaries of the lease shown on the ground with reference to the lease map and other plans furnished by the lessee.
- xiii. If anything is found to be concealed as required by the Granite Conservation and Development Rules, 1999 and Tamil Nadu Minor Mineral Concession Rules, 1959 and proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
  - xiv. Relaxation to be obtained under Rule 106(2)(a)&(b) of Metalliferous Mines Regulations, 1961 from the Director of Mines Safety, if necessary.
  - xv. The lessee should obtain environmental clearance from the appropriate authority.
  - xvi. This 1<sup>st</sup> Scheme of Mining is approved for the proposal contained therein and is applicable from the date of approval of the document for the quarrying activities to be carried out within the leasehold area.
  - xvii. The earlier instances of irregular / illegal quarrying, if any, shall not be regularized through the approval of this document.
  - xviii. The lessee shall remit the penalty / cost of mineral / other dues if any as arrived by the Assistant Director/ Deputy Director (G&M), Kaur District.
  - xix. The quarry labourers shall be registered with the Labour Board and shall be enrolled under the Insurance Scheme.
  - xx. The child labourers should not be engaged in the quarry works.
  - xxi. Non adherence to any condition set-out above, the approval shall be deemed to have been withdrawn with immediate effect.
  - xxii. The applicant should comply with the conditions stipulated in the Government of India, Ministry of Mines order no.11/02/2020, dated 14.01.2020 issued as per the orders of the Hon'ble Supreme Court of India dated 08.01.2020, "the mining lease holders shall after ceasing mining operations,



earmarked for the purpose in the mining plan as per rule 31 of granite conservation development and regulation act, 1999.

- v. No hindrance shall be caused to the adjacent pattadars lands.
- vi. No encroachment shall be made in the adjacent poramboke land and the waste generated during the quarrying operation shall not be dumped in the adjacent poramboke land.
- vii. This scheme of 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.
- viii. The approval of the scheme of mining (including progressive mine closure plan) does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1986, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Minerals Concession Rules, 1959.
- ix. This scheme of mining including progressive mine closure plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- x. Provisions of the Mines Act, 1952 and the Rules and Regulations made there under including submission of notice of opening, appointment of manager and other statutory officials as required under Mines Act, 1952 shall be complied with.
- xi. Provisions made under Mines and Minerals (Development & Regulation) Act, 1957, MMDR Amendment Act, 2015 and Granite Conservation and Development Rules, 1999 made there under shall be complied with.
- xii. This approval of scheme of mining is restricted to the mining lease area only. The mining lease area is as shown on the statutory plan under Granite Conservation and Development

From

Dr.P.Jayapal M.Sc., Ph.D.,  
Deputy Director,  
Geology and Mining,  
Karur.

To

M/s.Apple Granites,  
5/2, Perur Udaiyapatty,  
Gudalur Village,  
Kulithalai Taluk,  
Karur District

**R.C. No.511/Mines/2022, Dated:24.05.2023**

Sir,

Sub Mines and Minerals – Minor Mineral – Multicolour  
Granite – Karur District – Kulithalai Taluk – Kallai  
: Village - S.F.Nos. 299/1 (Part) (0.46.0 hecets),  
299/2A (Part) (0.03.5 hecets) 299/2B (Part) (0.03.0  
hecets), 301 (Part) (0.31.0 hecets), 302/2 (Part)  
(0.43.0 hecets), 302/3 (Part) (1.70.5 hecets) over an  
extent of 2.97.0 hectares of patta lands - quarry  
lease granted to M/s.Apple Granites - Requested  
for existing/proposed/expired and abandoned  
quarries situated within 500 mts radial distance -  
details furnished – Regarding.

Ref: 1. G.O.(3D) No.03, Industries (MMB.2),  
Department, Dated:25.01.2018  
2. M/s.Apple Granites letter dated:23.05.2023.

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In the reference 1<sup>st</sup> cited, M/s.Apple Granites had been granted quarry lease for quarrying Multicoloured Granite in S.F.Nos. 299/1 (Part) (0.46.0 hecets), 299/2A (Part) (0.03.5 hecets) 299/2B (Part) (0.03.0 hecets), 301 (Part) (0.31.0 hecets), 302/2 (Part) (0.43.0 hecets), 302/3 (Part) (1.70.5 hecets) over an extent of 2.97.0 hectares of patta lands in Kallai Village, Kulithalai Taluk, Karur District.

In this regard, M/s.Apple Granites have requested the Deputy Director, Geology and Mining, Karur to provide the details of existing/proposed/expired and abandoned quarries with 500 meter radial distance from the lease granted area.

As requested by the lessee firm the particulars furnished as detailed below.

**I. Existing Quarries: -**

Sl No.	Name of the lessee/firm it holder	Name of the Mineral	Taluk & Village	S.F.No.	Extent (hect)	Lease Period	Remarks
1	M/s Apple Granites S.F.No.299/1, 2 Kallai Village Kulithalai Taluk Karur District.	Multicoloured Granite	Kulithalai Taluk, Kallai Village	299/1 (P) 299/2A (P) 299/2B (P) 301/1 (P) 302/2 (P) 302/3 (P)	<b>2.97.0</b>	21.02.2018 to 20.02.2038	Scheme of Mining plan approved and proposed for Environ mental Clearance
2	M/s V.B.S. Exports No.38, Srinivasa Nagar 1st street Thiran Nagar, Madurai District.		Kulithalai Taluk, Kallai Village	349/part 303/2A(P) 302/1(P) Total	<b>2.80.5</b>	21.02.2018 to 20.02.2038	Last permit obtained on 21.07.2022
3	Thiru.K.Sakthivel S/o. Karuppannan Porunthalur Village Kulithalai Taluk Karur District.		Kulithalai Taluk Nallur Village	351	<b>2.51.5</b>	05.09.2017 to 04.09.2037	Last permit obtained on 22.03.2022

**II. Proposed Quarries: -**

Sl No.	Name of the lessee/firm it holder	Name of the Mineral	Taluk & Village	S.F.No.	Extent (hect)	Lease Period
1	-- Nil--					

**III. Lease Expired Quarries : -**

Sl No.	Name of the lessee/firm it holder	Name of the Mineral	Taluk & Village	S.F.No.	Extent (hect)	Lease Period
1	-- Nil--					

**IV. Abandoned Quarries : -**

Sl No.	Name of the lessee/firm it holder	Name of the Mineral	Taluk & Village	S.F.No.	Extent (hect)	Lease Period
1	-- Nil--					

*(Signature)*  
24/5/23

Deputy Director,  
Geology and Mining,  
Karur.

*(Signature)*  
24/05/2023

**SCHEME OF QUARRYING ALONG WITH  
PROGRESSIVE QUARRY CLOSURE PLAN FOR  
KALLAI MULTI COLOUR GRANITE**



(Under Rule 18 (2) of Granite Conservation and Development Rules, 1999)

Lease Period: 21.02.2018 to 20.02.2038

Patta Land/ Scheme Period 2023-24 to 2027-28

*IN*

**LOCATION OF QUARRY LEASE AREA**

EXTENT : 2.97.0 Ha  
S.F.Nos. : 299/1 (P), 299/2A (P), 299/2B (P),  
301 (P), 302/2 (P) and 302/3 (P)  
VILLAGE : KALLAI  
TALUK : KULITHALAI  
DISTRICT : KARUR  
STATE : TAMIL NADU.

*FOR*

**APPLICANT / LESSEE**

**M/s. Apple Granites,**  
No.95/2, Perur Udaiyappatty,  
Gudalur Village,  
Kulithalai Taluk,  
Karur District,  
Tamilnadu - 639 120.

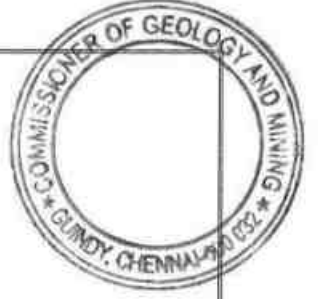
**PREPARED BY**

**Dr. P.Thangaraju, M.Sc., Ph.D.,**

Qualified Person (As per Rule 15(I)(a) and (b) of MCR 2016)

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

**M/s. Apple Granites,**  
No.95/2, Perur Udaiyappatty,  
Gudalur Village,  
Kulithalai Taluk,  
Karur District,  
Tamilnadu - 639 120.



### **CONSENT LETTER FROM LESSEE**

The Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Gudalur Multi colour Granite Quarry over an extent of 2.97.0 hectares of patta lands in S.F.Nos. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P) in Kallai Village, Kulithalai Taluk, Karur District, Tamil Nadu State, Tamil Nadu State has been prepared by


**Dr. P.Thangaraju, M.Sc., Ph.D.,**  
Qualified Person

I request the Commissioner, Department of Geology and Mining, Chennai to make further correspondence regarding the modification of the Scheme of quarrying with the said Qualified Person at his following address.

**Dr. P.Thangaraju, M.Sc., Ph.D.,**  
No.17, Advaita Ashram Road,  
Alagapuram, Salem - 636 004.  
Cell: +91 94422 78601, 94433 56539.

I hereby undertake that all the modifications, if any made in the Scheme of Quarrying 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.

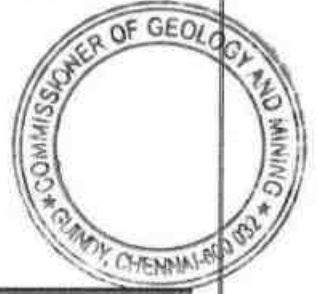
Signature of the lessee  
For M/s. Apple Granites

  
(R.Subburaman)  
Managing Partner

Place: Karur

Date: 24.06.2022

**M/s. Apple Granites,**  
No.95/2, Perur Udaiyappatty,  
Gudalur Village,  
Kulithalai Taluk,  
Karur District,  
Tamilnadu - 639 120.




### **DECLARATION OF MINE OWNER**

The Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Gudalur Multi colour Granite Quarry over an extent of 2.97.0 hectares of patta lands in S.F.Nos. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P) in Kallai Village, Kulithalai Taluk, Karur District, Tamil Nadu State has been prepared in full consultation with me by

**Dr. P.Thangaraju, M.Sc., Ph.D.,**  
Qualified Person

I have understood its contents and agree to implement the same in accordance with Laws applicable to Mines.

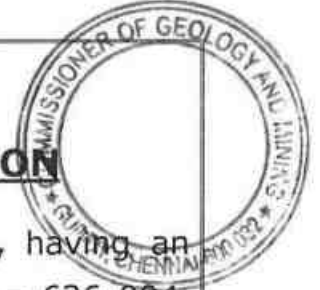
Signature of the lessee  
For M/s. Apple Granites

  
(R.Subburaman)  
Managing Partner

Place: Karur  
Date: 24.06.2022



## CERTIFICATE FROM THE QUALIFIED PERSON



Certified that I, **Dr. P. THANGARAJU, M.Sc., Ph.D.**, having an office at No.17, Advaitha Ashram Road, Alagapuram, Salem - 636 004, am a Post Graduate 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, 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 prepare this Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Kallai Multi colour Granite Quarry over an extent of 2.97.0 hectares of patta lands in S.F.Nos. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P) in Kallai Village, Kulithalai Taluk, Karur District, Tamil Nadu State for **M/s. Apple Granites**, having an office at No.95/2, Perur Udaiyappatty, Gudalur Village, Kulithalai Taluk, Karur District, Tamilnadu - 639 120. Since the Scheme of Quarrying along with Progressive Quarry Closure Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person

  
Dr. P. Thangaraju, M.Sc., Ph.D.,

Place : Salem

Date : 29.06.2022



**Dr. P.Thangaraju, M.Sc., Ph.D.,**

No.17, Advaita Ashram Road,

Alagapuram,

Salem - 636 004.

Mobile: +91 94422 78601, 94433 56539.

**CERTIFICATE FROM THE QUALIFIED PERSON**

This is to certify that the Provisions of Granite Conservation and Development Rules, 1999 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Kallai Multi colour Granite Quarry over an extent of 2.97.0 hectares of patta lands in S.F.Nos. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P) in Kallai Village, Kulithalai Taluk, Karur District, Tamil Nadu State has been prepared for

**M/s. Apple Granites,**

No.95/2, Perur Udaiyappatty,

Gudalur Village,

Kulithalai Taluk,

Karur District,

Tamilnadu - 639 120.

Whenever specific permissions / exemptions / relaxations and approvals are required, the lessee will approach the concerned authorities of Commissioner, Department of Geology and Mining, Government of Tamil Nadu, Guindy, Chennai- 600 032 for such permissions/ exemptions/ relaxations and approvals.

It is also certified that information furnished in the above Scheme of Quarrying 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 : 29.06.2022



**Dr. P.Thangaraju, M.Sc., Ph.D.,**

No.17, Advaita Ashram Road,

Alagapuram,

Salem - 636 004.

Mobile: +91 94422 78601, 94433 56539.



**CERTIFICATE FROM THE QUALIFIED PERSON**

Certified that the Provisions of Mines Act, Rules and Regulations made there under have been observed in the preparation of Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Kallai Multi Colour Granite Quarry over an extent of 2.97.0 hectares of patta lands in S.F.Nos. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P) in Kallai Village, Kulithalai Taluk, Karur District, Tamil Nadu State has been prepared for

**M/s. Apple Granites,**

No.95/2, Perur Udaiyappatty,

Gudalur Village,

Kulithalai Taluk,

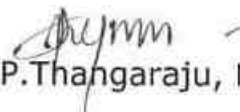
Karur District,

Tamilnadu - 639 120.

Whenever specific permissions / exemptions / relaxations and approvals are required, the lessee will approach the concerned authorities of the Director of Mines Safety, No. 5, II<sup>nd</sup> Street, Block - AA, Anna Nagar, Chennai, Tamil Nadu for such permissions / exemptions / relaxations and approvals.

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

Signature of the Qualified Person

  
Dr. P.Thangaraju, M.Sc., Ph.D.,

Place : Salem

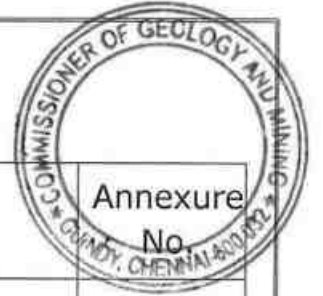
Date : 29.06.2022

## LIST OF CONTENTS



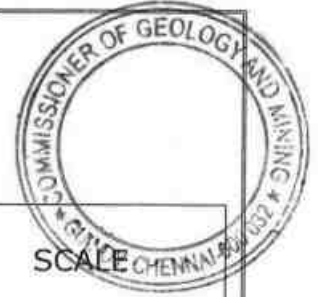
S.No.	Description	Page No.
1.	Introduction	1
2.	<u>PART - I</u> Proposal under Scheme of Quarrying for the next five years	8
3.	Exploration and reserves	9
4.	Conceptual mining plan	16
5.	Mining	17
6.	Blasting	21
7.	Mine Drainage	21
8.	Stacking of Mineral Waste and Disposal of Waste	22
9.	Use of the granite stone	22
10.	Quality control	22
11.	Surface transport	22
12.	Site Services	23
13.	Employment potential	23
14.	Environmental Management plan	24
15.	Progressive Mine Closure Plan	30
16.	Mineral Conservation and Development	35
17.	Statutory Provisions	36

## LIST OF ANNEXURES



S.Nos.	Description	Annexure No.
1.	Copy of G.O.	I
2.	Copy of FMB Sketches	II
3.	Copy of Combined Map	III
4.	Copy of Patta	IV
5.	Copy of Adangal	V
6.	Copy of "A" Register	VI
7.	Copy of Consent letter from the Pattadar	VII
8.	Copy of Mining Plan Approval Letter	VIII
9.	Copy of Lease deed	IX
10.	Copy of Partnership deed	X
11.	Copy of Codicil Deed (Authorization Letter)	XI
12.	Copy of Codicil deed for change of Address	XII
13.	Copy of Identity Proof	XIII
14.	Copy of Educational Certificate of Qualified Person	XIV
15.	Copy of Experience Certificate of Qualified Person	XV

**LIST OF PLATES**



SL.NOs.	DESCRIPTION	PLATE Nos.	SCALE
1.	LOCATION PLAN	I	1:24,00,000
2.	KEY PLAN (10km RADIUS)	IA	1:1,00,000
3.	ROUTE MAP	IB	Not to scale
4.	ENVIRONMENTAL AND LAND USE PLAN FOR 1km RADIUS	IC	1:10,000
5.	QUARRY LEASE PLAN	II	1:1,000
6.	SURFACE PLAN	III	1:1,000
7.	GEOLOGICAL PLAN AND SECTIONS	IV	1:1,000 Sec-Hor 1:1000 Ver 1:500
8.	YEAR WISE DEVELOPMENT AND PRODUCTION PLAN AND SECTIONS	V	1:1,000 Sec-Hor 1:1000 Ver 1:500
9.	QUARRY LAYOUT AND AFFORESTATION PLAN	VI	1:1,000
10.	PROGRESSIVE QUARRY CLOSURE PLAN AND SECTIONS	VII	1:1,000 Sec-Hor 1:1000 Ver 1:500
11.	ENVIRONMENTAL PLAN	VIII	1:5,000
12.	CONCEPTUAL PLAN AND SECTIONS	IX	1:1,000 Sec-Hor 1:1000 Ver 1:500

## SCHEME OF QUARRYING ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR KALLAI MULTI COLOUR GRANITE QUARRY

Lease Period = 21.02.2018 to 20.02.2038

Scheme Period = 2023-24 to 2027-28

(Prepared Under Rule 18(2) of Granite Conservation and Development Rules, 1999)

### 1.0 INTRODUCTION:

The present Scheme of Quarrying is prepared in respect of Kallai Multi Colour Granite quarry belongs to **M/s. Apple Granites**, having an office at No.95/2, Perur Udaiyappatty, Gudalur Village, Kulithalai Taluk, Karur District, Tamilnadu – 639 120, for over an extent of 2.97.0 hectares of patta lands in S.F.Nos. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P) in Kallai Village, Kulithalai Taluk, Karur District, Tamil Nadu State.

M/s. Apple Granites is a partnership firm. The Partnership deed executed on 16.03.2016 with two partners under Indian Partnership Act, 1932. The details of partners are given below (Refer annexure No. X).

Table - 1

S.No.	Name	Address	Designation
1.	Thiru. R. Subburaman, S/o. Ramasamy.	No.8/122, Patti Adaikkan Patti, Keelaiyur Post, Melur Taluk, Madurai District, Tamil Nadu- 625106.	Managing Partner
2.	Thiru. K. Paramasivam, S/o. Krishnaswamy.	Mullai Nagar, Perundurai, Erode District, Tamil Nadu State.	Partner
3.	Thiru. R. Sudalaimuthu, S/o. S. Ramasamy.	No. 3, Chokkalinga Nagar, 4 <sup>th</sup> Street, Madurai District, Tamil Nadu - 625010.	Partner
4.	Thiru. A. Meganathan, S/o. Angathevar.	No. 27, New Jail Road, Grammarpuram, Madurai District, Tamil Nadu - 526016.	Partner

Thiru. R R. Subburaman is the Managing Partner of the Firm and he is an authorized person for signing all the documents on behalf of this company (Refer annexure No. X & XI).

This scheme of Quarrying is prepared with a view of optimum exploitation of deposit by systematic quarrying with proper bench dimensions and safety measures, to enable the Multi Colour Granite deposit on a long run with consistent Multi Colour Granite to waste ratio and with a view to maintain uniform cost of Quarrying, profit margin, conservation and proper dumping of waste/rejects with minimum damage to the environment and society.

The lessee for the past 1 decade has vast experience in safe and systematic quarrying, Trading and export of granite blocks.

**1.1 Particulars of Approval of Mining Plan and Date of Commencement of Mining Operation:**

The quarry lease was granted vide **G.O.(3D)No.3, Industries (MMB.2) Department Dated: 25.01.2018** for a period of twenty years (Refer Annexure No. I). The quarry lease deed has **executed on 21.02.2018** and the lease period is **valid upto 20.02.2038** (Annexure No. IX). The quarry operation has commenced on 12.03.2018.

The mining plan was prepared in respect of Multi colour granite quarry and the same was approved by the Commissioner, Department of Geology and Mining, Guindy, Chennai vide **letter No.269/MM2/2017 dated 21.09.2017** (Annexure No. VIII). As per direction issued in the precise area communication letter the lessee has obtained Prior Environmental Clearance from the District Level Environment Impact Assessment Authority, Karur District, Tamil Nadu vide letter No. **DEIAA-DIA/TN/MIN/9629/2017-KRR EC.No.88/2017/Mines, dated: 18.01.2018**. The mining plan period is valid upto 20.02.2023. Now, the first scheme has prepared and submitted for the period of **2023-24 to 2027-28 (Five years)**.

**1.2 Detail of lease particulars are given as under:**

Table - 2

G.O. No.	Extent (Ha.)	Date of Execution	Period of lease	Valid Upto
G.O.(3D)No.3 Dated: 25.01.2018	2.97.0	21.02.2018	20 Years	20.02.2038

**1.3 Proposed and achieved Production particulars from the commencement of quarry operations are given below:**

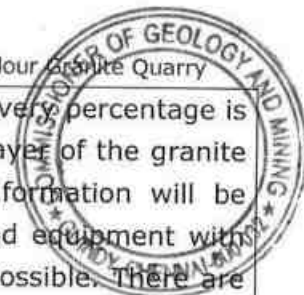
Table - 3

Year	PROPOSED					
	ROM (m <sup>3</sup> )	Production @ 50% (m <sup>3</sup> )	Mineral Reject @50% (m <sup>3</sup> )	Weathered Rock in m <sup>3</sup>	Topsoil in m <sup>3</sup>	Side Burden in m <sup>3</sup>
2018 - 19	7800	3900	3900	2016	5304	1300
2019 - 20	7800	3900	3900	1872	4056	1300
2020 - 21	7800	3900	3900	1296	2808	900
2021 - 22	7800	3900	3900	-	-	-
2022 - 23	7800	3900	3900	-	-	-
<b>Total</b>	<b>39000</b>	<b>19500</b>	<b>19500</b>	<b>5184</b>	<b>12168</b>	<b>3500</b>

Table - 3A

Year	Achieved (Excavation Carried Out during past Five years)									
	ROM in m <sup>3</sup>	Recovery (%)	Production in m <sup>3</sup>	Despatch in m <sup>3</sup>	Stock in m <sup>3</sup>	Mineral Reject in m <sup>3</sup>	Side Burden (SB) in m <sup>3</sup>	Weathered Rock (WR) in m <sup>3</sup>	Total Waste (GW+SB+WR) in m <sup>3</sup>	Topsoil in m <sup>3</sup>
	(A)		(B)			C	(D)	(E)	(C+D+E=F)	(G)
2018 - 19	-	-	-	-	-	-	-	740	740	1480
2019 - 20	380	6.38	24.238	6.963	17.275	355.762	612	740	1707.762	1480
2020 - 21	7028	9.64	677.673	633.878	61.070	6350.327	-	0	6350.327	-
2021 - 22	1238	16.17	200.159	221.599	39.630	1037.841	-	-	1037.841	-
2022 - 23 (Upto 27.06.2022)	286	15.84	45.289	34.819	50.100	240.711	-	-	240.711	-
<b>Total</b>	<b>8932</b>	<b>10.61 (avg)</b>	<b>947.359</b>	<b>897.259</b>	<b>50.100</b>	<b>7984.641</b>	<b>612</b>	<b>1480</b>	<b>10076.641</b>	<b>2960</b>





Recovery anticipated @ 50% but during operation the achieved recovery percentage is about 10.61% (Avg) due to highly weathered joints and fractures on top layer of the granite formation. When the excavation goes to deeper, the massive granite formation will be encountered also the lessee has proposed new innovative machineries and equipment with technically highly qualified personnel the recovery enhancement may be possible. There are about 9 unsold dimensional blocks stacked within the lease area which may have a gross measurement of 50.100m<sup>3</sup>. These blocks when being approved by the buyer's overseas, the same will be dressed into desired dimensions size and will be despatch for sale. If any defect found during buyer's overseas it can be considered as reject.

In the interest of quarrying, the lessee worked out continuously and tried his maximum effort to market. The lessee was keen in carrying out the quarrying operations in a scientific and systematic manner to win the Multi Colour Granite in all possible means

#### **1.4.0 REVIEW OF MINING PLAN:**

1.4.1 Name of the Quarry	: Kallai Multi Colour Granite Quarry
Name of Lessee	: <b>M/s. Apple Granite,</b>
Address	: No.95/2, Perur Udaiyappatty, Gudalur Village, Kulithalai Taluk, Karur District,
State	: Tamil Nadu.
PIN Code	: 639 120
E-mail	: Applegranites@yahoo.com
Mobile	: +91 94430 54550 & +91 90958 28906.

#### **1.4.2 REVIEW OF COMPLIANCE POSITION OF SALIENT FEATURES OF MINING PLAN:**

All the condition stipulated in the G.O. and lease deed was maintained and mitigated during the course of quarrying operations.

#### **1.5.0 REVIEW OF IMPORTANT CHAPTERS OF MINING PLAN:**

##### **1.5.1 EXPLORATION:**

As far as Multi Colour granite deposits are concerned, the only practical method is the systematic geological mapping and delineation of commercial Multi Colour granite bodies with in the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.,

Such an exploration study has already been carried out during the course of quarry operations, the same has been validated by the RQP and his team members during preparation of mining plan.

Even though the depth persistence of the Multi Colour Granite stone may be beyond 23m depth from the Petrogenetic character of the rock, only 23m depth persistent has been taken as economically viable depth to calculate categories of proved, probable, and possible reserves during the mining plan period.

The recovery of saleable Multi-colour Granite stones has been taken as 50% and if the recovery percentage is good or bad, it may enhance or decrease.

Based on the valuable geological information from these organizations estimation of geological resources and mineable reserves was arrived at considering the waste and market potentiality. Future exploration was not proposed.

**1.5.2 MINE DEVELOPMENT**

During the mining plan period the production and development has proposed on the Southern side and progressed towards Northern with total dimension of (L) 78m x (W) 78m x (D) 13m.

The production and development for the first five years are as under.

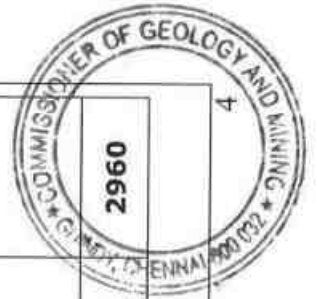
**PROPOSAL GIVEN THE MINING PLAN:**

Table - 4

Year	PROPOSED					
	ROM (m <sup>3</sup> )	Production @ 50% (m <sup>3</sup> )	Mineral Reject @50% (m <sup>3</sup> )	Weathered Rock in m <sup>3</sup>	Topsoil in m <sup>3</sup>	Side Burden in m <sup>3</sup>
2018 - 19	7800	3900	3900	2016	5304	1300
2019 - 20	7800	3900	3900	1872	4056	1300
2020 - 21	7800	3900	3900	1296	2808	900
2021 - 22	7800	3900	3900	-	-	-
2022 - 23	7800	3900	3900	-	-	-
<b>Total</b>	<b>39000</b>	<b>19500</b>	<b>19500</b>	<b>5184</b>	<b>12168</b>	<b>3500</b>

Table - 4A

Year	Achieved (Excavation Carried Out during past Five years)									
	ROM in m <sup>3</sup>	Recovery (%)	Production in m <sup>3</sup>	Despatch in m <sup>3</sup>	Stock in m <sup>3</sup>	Mineral Reject in m <sup>3</sup>	Side Burden (SB) in m <sup>3</sup>	Weathered Rock (WR) in m <sup>3</sup>	Total Waste (GW+SB+WR) in m <sup>3</sup>	Topsoil in m <sup>3</sup>
	(A)		(B)			(C)	(D)	(E)	(C+D+E=F)	(G)
2018 - 19	-	-	-	-	-	-	-	740	740	1480
2019 - 20	380	6.38	24.238	6.963	17.275	355.762	612	740	1707.762	1480
2020 - 21	7028	9.64	677.673	633.878	61.070	6350.327	-	-	6350.327	-
2021 - 22	1238	16.17	200.159	221.599	39.630	1037.841	-	-	1037.841	-
2022 - 23	286	15.84	45.289	34.819	50.100	240.711	-	-	240.711	-
(Upto 27.06.2022)										
<b>Total</b>	<b>8932</b>	<b>10.61 (avg)</b>	<b>947.359</b>	<b>897.259</b>	<b>50.100</b>	<b>7984.641</b>	<b>612</b>	<b>1480</b>	<b>10076.641</b>	<b>2960</b>





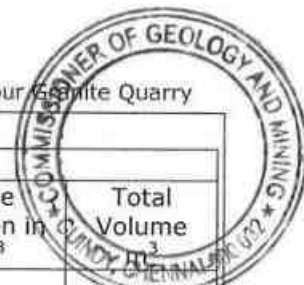


Table - 4B

Pit and their Formation wise Existing Quarry Pit Volume									
Pit	RL	EX Pit RL	Area in Sq.m	Depth in m	Topsoil in m <sup>3</sup> 2m	Weathered in m <sup>3</sup> 1m	Granite m <sup>3</sup>	Side Burden in m <sup>3</sup>	Total Volume m <sup>3</sup>
Depth -1	117	107	1276	10	2552	1276	8932	0	12760
Depth -2	117	111	204	6	408	204	0	612	1224
<b>Total</b>					<b>2960</b>	<b>1480</b>	<b>8932</b>	<b>612</b>	<b>13984</b>

Table - 5

Excavation Details					
Total Excavation in m <sup>3</sup>	Despatch in m <sup>3</sup>	Stock in m <sup>3</sup>	Topsoil in m <sup>3</sup>	Waste Dump in m <sup>3</sup>	Fragmentation and Waste utilized for Ramp and Road in m <sup>3</sup>
13984	897.259	50.1	2955	9310	771.641

(Please refer Plate No. III)

Recovery anticipated @ 50%, achieved @ 10.61% (Avg). There was change in the proposed and actual productions and Recovery percentage during the approved mining plan period. The production and recovery percentage was slightly decreased due to weathered joints and fractures of top layer of the granite formation.

At present the lessee has been working in the massive granite formation, the sheet rock is having good recovery due to very hard and massive in the lease area. Anyhow, as per proposed in the approved mining plan we have considered an average recovery of 50% during the present scheme period, it may enhance.

During the last four years of the mining plan period there was no production achieved due to this particular type of granite blocks are not saleable in the global market due to its colour, shape, size and textures also this type of granite blocks are customized by the specific Customer only. Since, this unique material fetches only to certain targeted countries and customers unlike other Multi Colour granite. Hence, the company has to find and wait for the unique customers to sell this type of granite blocks.

Due to continuous effort of the company and for his result of hard work, now the company has identified a perfect consistent buyer to sell his multi colour granite.

In the interest of quarrying, the lessee worked out continuously and tried his maximum effort to market. The lessee was keen in carrying out the quarrying operations in a scientific and systematic manner to win the Multi Colour Granite in all possible means.

#### 1.5.3 REVIEW OF MINING DEVELOPMENT:

During the approved mining plan period the production and development was proposed on the Southern side and progressed towards Northern side with total dimension of (L) 78m x (W) 78m x (D) 13m, but during the Mining plan period the Development and Production has carried in the Southern side. At present there are two different depths exists within lease area. The dimensions of the present pits are given table below (Please refer Plate No. III).

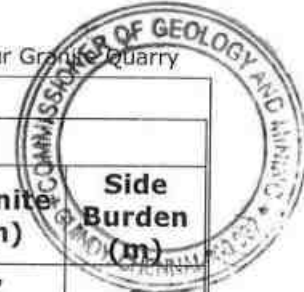


Table - 6

Existing Quarry Pit - Dimensions								
Pit	RL	EX Pit RL	Area in m <sup>2</sup>	Total Depth (m)	Topsoil (2m) In m	Weathered 1m (m)	Granite (m)	Side Burden (m)
Depth-1	117	107	1276	10	2	1	7	
Depth-2	117	111	204	6	2	1	-	3

The lessee has much conservation of the Multi Colour granite, invested a huge amount and his resources to win the Multi Colour granite from the lease area. The lessee has been carried out all possible ways and best effort to develop and exploit the Multi Colour granite continuously.

#### **1.6.0 AFFORESTATION PROGRAMME:**

Program of Afforestation as given in the last five years are given as under.

Proposal as given in the Mining Plan:

The safety distance along the Eastern side lease boundary has to be utilized for Afforestation. Appropriate species will be planted in a phased manner as described below.

Table - 7

Year	No. of tress proposed to be planted	Name of the species	Area in m <sup>2</sup>	Survival rate expected in %	No. of trees expected to be grown
2018-19	40	Neem, Casuarina, Pongamia pinnata, etc.,	390	80	32
2019-20	40		390	80	32
2020-21	40		390	80	32
2021-22	40		390	80	32
2022-23	40		390	80	32

Total number of trees planted during the approved mining plan period is 200 numbers around the quarry with the survival rate of 80%. The afforestation program carried out during mining plan period is affected by the failure of monsoon and water scarcity. The lessee ensures to compensate the afforestation during the present scheme period.

#### **1.7. LAND RECLAMATION AND REHABILITATION:**

Due to nature of occurrence of the granite body in this quarry is beyond the workable limits. During the approved mining plan period the quantum of waste is proposed about 28,184m<sup>3</sup> (Granite Waste 19,500m<sup>3</sup> + Weathered rock 5,184m<sup>3</sup> + Side burden 3,500m<sup>3</sup>). The same has proposed to dump on the Northwestern side with maximum dimension of (Length) 85m x (Width) 43m x (Height) 7.7m and excavated topsoil (12,168m<sup>3</sup>) has proposed to preserved all along the safety barrier and utilized for Construction of bund and afforestation purpose.

During the mining plan period part of the quarried out waste are dumped with three dumps, remaining waste was utilized for Ramp and road purpose and their dimension and direction is given table below (Refer Plate No. III):

Table - 8

Dump No	Area (Sq.m)	Height (m)	Direction
Dump - 1	562	2	West
Dump - 2	438	2	Southeast
Dump - 3	3655	2	Northwest
Top soil Bund	985	3	Preserved Southern side Safety Barrier

During the approved mining plan period 23m depth has been envisaged as workable depth for safe and systematic quarrying operations but, now the quarry attained a maximum depth of 10m in a portion of the area.

The quarry is an active hence, no reclamation has carried out and immediate backfilling does not arise. When the quarry reaches the ultimate pit limit or at the end of life of quarry the quarried out waste will be backfilled.

### **1.8 CONTROL OF DUST, NOISE AND VIBRATION:**

The quarrying operation has carried out by mechanized means HEMM were deployed. Hence, the effects due to dust, noise and vibration were minimal and well within the prescribed limits during the course of quarry operation besides the Ambient quality of Air respect of dust concentration, respirable dust, SO<sub>2</sub>, NO<sub>2</sub> were tested periodically for every season around 1km radius for core and buffer zones as per the guidance of TNPCB. The dust prone areas of the Mine are blasting site, Loading, Hauling and dumping. All such areas were closely monitored as per the guidelines.

The quarry operation has carried out by mechanized method with small dia drilling and low intense blasting. Dressing carried out manually with portable compressor and Jack Hammers. Hence, the effects due to dust (only development and bench formation), noise and vibration were minimal.

#### **NOISE:**

The ambient Noise Level ranges must be <80dB. As the compressors are, keep at high levels, the impact of noise to the workers is less. Expanding Chemical used for cracking the rough blocks and therefore noise of blasting was minimal.

#### **VIBRATION:**

Blasting induced ground vibration is the only source of vibration in Mining area. Since chemicals @ 1kg for 3 feet being used for 8 hours retention time for cracking the solid rock along the line of drilling. Minimal vibration has observed in this quarry.

### **1.9.0 SIGNIFICANT FEATURES:**

Being the lessee who is much concerned above the environment, the company closely monitored the environmental factors systematically without degrading the land, water and air. Related tests carried out to show the actual performance of mine on environmental issues which would be complying in the present scheme period.

**PART - I****2.0 PROPOSAL UNDER SCHEME OF QUARRYING FOR THE NEXT FIVE YEARS****2.1 NAME OF THE APPLICANT WITH ADDRESS**

Name of Lessee : M/s. Apple Granites,  
 Address : No.95/2, Perur Udaiyappatty,  
 Gudalur Village,  
 Kulithalai Taluk,  
 Karur District,  
 State : Tamil Nadu.  
 PIN Code : 639 120  
 E-mail : applegranites@yahoo.com  
 Mobile : +91 99437 71147  
 Aadhaar No. : 9533 7286 8136 (Refer Annexure No. XII)

**2.2 NAME AND ADDRESS OF THE QUALIFIED PERSON WHO PREPARED THE SCHEME OF MINING**

Name : Dr.P.Thangaraju, M.Sc., Ph.D.,  
 Qualified Person (As per Rule 15(I)(a) and (b) of MCR 2016)  
 Address : No.17, Advaita Ashram Road,  
 Alagapuram,  
 Salem District,  
 Tamil Nadu - 636 004.  
 Telephone (Office) : 0427- 2431989  
 Mobile : 94422 78601, 94433 56539.  
 E-mail id : infogeoexploration@gmail.com

(Refer Annexure No. XIV and XV).

**2.3 DETAILS OF LEASE PARTICULARS ARE GIVEN AS UNDER**

Table - 8

G.O. No.	Extent (Hects)	Date of Execution	Period of lease	Date of expiry
G.O.(3D) No.3 Dated: 25.01.2018	2.97.0	21.02.2018	20 Years	20.02.2038

The quarry lease has granted vide G.O.(3D)No.3, Industries (MMB.2) Department Dated 25.01.2018 for a period of twenty years. The quarry lease was executed on 21.02.2018 and the lease period is valid upto 20.02.2038.

**2.4 DETAILS OF THE AREA**

- The area is marked in the Geological Survey of India, Topo sheet no. 58-J/05.
- The details of the land covered by the area is given below
- There is no change in the extent as mentioned in the approved mining plan.

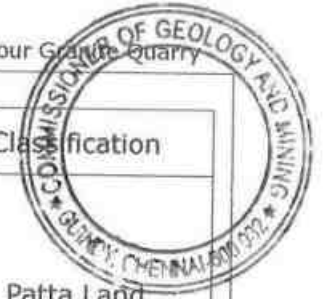


Table - 9

District and State	Taluk	Village	S.F.No.	Area in Ha.	Patta No	Classification
Karur and Tamil Nadu	Kulithalai	Kallai	299/1 (P)	0.46.0	1826	Patta Land
			299/2A (P)	0.03.5		
			299/2B (P)	0.03.0		
			301 (P)	0.31.0		
			302/2 (P)	0.43.0		
			302/3 (P)	1.70.5		
<b>Total</b>				<b>2.97.0</b>		

It is Patta land, registered in the name of Thiru. A. Meganathan, S/o. Angathevar, Thiru.R.Sudalaimuthu, S/o. S.Ramasamy, Thiru.K.Paramasivam, S/o. Krishnasamy and Thiru.R.Subburaman, S/o.Ramasamy vide patta no.1826. The Pattadhars has given consent letter to the company for quarrying operations for a period of 35 years. (Please refer Annexure IV to VII)

The area lies between the Latitudes of 10°47'26.9261"N to 10°47'34.8130"N and Longitudes of 78°26'54.0048"E to 78°27'02.6395"E on WGS datum-1984. (Plate No. I & I-A).

### **3.0 EXPLORATION AND RESERVES**

#### **3.1. Physiography**

The area exhibits almost flat terrain. The gradient is gentle towards South and altitude of the area is vary between 116m to 122m above from MSL. The Multi Colour granite is covered with 2m thickness of reddish soil and 1m weathered rock. The area receives rainfall 655mm/annum and the ground water occurs at a depth of 64mtr in summer and 59m at rainy season. The Multi-colour granite is medium to coarse grained with quartz, Plagioclase feldspar and Calcite are the primary minerals, Hornblende, Garnet and other mafic minerals are secondary constituents. This Multi-colour granite is widely used for slabs, Tiles and Monuments after cutting and polishing.

#### **Topographical view of Kallai Multi Colour Granite Quarry Lease Area**







**Boundary Pillars**

**Dump**



**Notice Board**





### 3.1.1 Geology of the area.

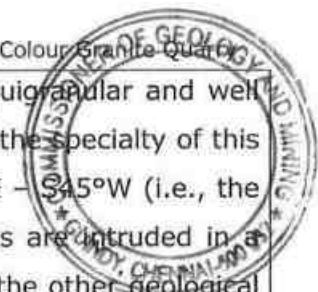
This area forms a part of peninsular gneiss the most wide spread group of rocks in many parts of Tamil Nadu. The southern domain of Tamil Nadu is characterized by the khondalite group of rocks (with subordinate amounts of Charnockite) and marked by the absence of BMQ and dolerite dyke systems. The rock formation is popularly known as "**Calc-Granite Gneiss**" commercially called as "**Colonial White**" essentially made up of a supra crustal assemblages of quartz, Alkali feldspar and Plagioclase feldspar is major constituents, Hornblende, Biotite, Garnet and other mafic minerals are accessories and closely inter banded with Hornblende Biotite Gneiss.

The Hornblende Biotite Gneiss forms the country rock of the area with trending of N45°E – S45°W with vertical dipping and "**Multi colour Granite**" (**Calc-Granite Gneiss**) intruded between the batholithic formation of pre-existing country rock of Hornblende Biotite Gneiss discordantly as one band and the dimensions of the bands are given below.

Table - 10

Band No.	Dimension in meter		Strike and Dip
	Length(avg)	Width(Avg)	
Band - I	176	60	N45°E – S45°W, dip – NW80°

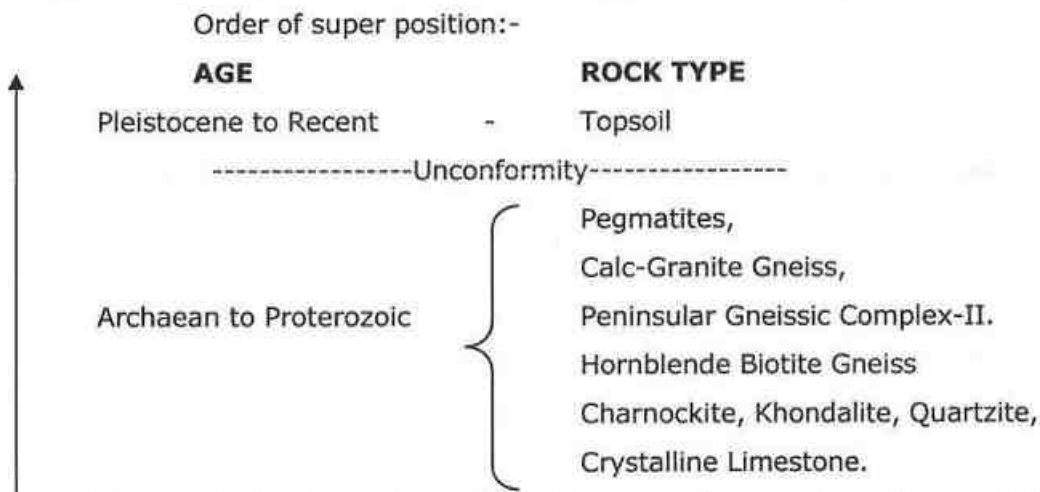
The Multi-Colour granite is clearly visible right from the surface outcrops and existing pit. The fresh Multi-Colour granite is found in some places concealed under overburden having an average thickness of 3m (2m topsoil + 1m weathered rock) below from the ground level.



The rock type is leucocratic euhedral, fine to medium grained, equigranular and well developed gneissic banding of alternate layers of dark and light mineral is the specialty of this area which is the indicative of flow pattern of the rock mass in this N45°E – S45°W (i.e., the cutting direction of the multicolor granite). Some slender pegmatite veins are intruded in a crisscross fashion which is likely to be reduced at deeper levels. However the other geological parameters such as shear, joints concentration of melanocratic (pyroxene) minerals traversing of pegmatite veins and hard solid relic patches of xenoliths are the controlling recovery factor which decides the fate of the quarry. Well-developed strike and dip joints observed at the surface level which is likely to decrease in deep seated condition. Taking in to consideration of the above geological factors, over burden, inter burden wastage during quarrying, other flaw and flower patches etc, the average recovery percentage has been computed as 50% upto 23m depth from the general ground level.

**STRUCTURAL SETTINGS OF KARUR**

The general geological sequence of the rock types in the investigated area is:-



The physical attitude of the Multi Colour granite deposit of this area is given below:-

- Strike Direction - N45°E to 45°W
- Dip direction - NW80°

**3.2 DETAILS OF EXPLORATION**

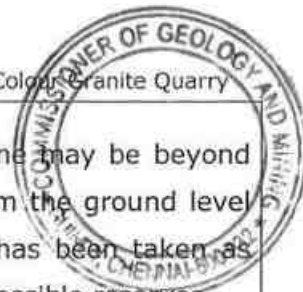
**3.2.1. ALREADY CARRIED OUT**

As far as Multi colour Granite deposits are concerned, the only practical method is the systematic geological mapping and delineation of commercial Multi colour Granite bodies within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.

Such an exploration study has already been conducted in this area during the course of quarrying operations.

Based on the valuable geological information and by the field experience and the quarry already attained a maximum depth of 10m, the estimation of geological resources, mineable reserve is arrived at considering to waste and market potential.





### 3.2.2. PROPOSED STUDY TO BE CARRIED OUT

Even though the depth persistence of the Multi Colour Granite stone may be beyond 23m (2m topsoil + 1m weathered + 20m Multi Colour Granite) below from the ground level from the Petrogenetic character of the rock, only 23m depth persistent has been taken as economically viable depth to calculate categories of proved, probable, and possible reserves.

The recovery of saleable Multi colour Granite stones has been taken as about 50% and if the recovery percentage is good, it may enhance.

No definite programs for future exploration have been drawn. The quarrying activities for the proposed scheme period with deep cut as envisaged in the scheme of quarrying may render additional data as may be required for future planning.

### 3.3 METHOD OF ESTIMATION OF RESERVES:

The geological plan demarcating the commercially viable Multi Colour granite body has been prepared in 1:1000 scale (Plate No. IV). Totally two sections have been drawn, one along the strike direction as (X-Y) length wise and another one cross section are drawn perpendicular to strike as (A-B) width wise which is suitably chosen to cover the maximum area in the scale of 1:1000 vertical – 1:500 (Refer Plate No. IV).

The cross sectional area for the proved depth persistence of Multi Colour has been worked out for each section. The cross sectional area multiplied by its length of influence on the longer axis gives the volume (insitu) in the cross sectional area. The sum total of the insitu reserves available within the individual cross sectional area gives the Geological Resources of the lease area.

The Multi Colour granite recovery percentage has been calculated upto 50% in the present scheme may decrease of joints and fractures in deeper level. High efficient technology machineries, quarry masters, Market demand significantly determine the recovery percentage of granite quarries. The estimated recovery is based on today market scenario and the same recovery has been considered as normative recovery. When the market demands, the lessee may take necessary steps to deploy a quarry masters with latest innovative machineries technology. So the recovery enhancement may raise to the peak production resulting in 80%. During the operation the method of quarry, deployment of men and machineries will not have any negative impact on the Environment. It is worthening the recovery anticipate the normative production has been scientifically converted into commercial production resulting in the decrease dump of waste inside the quarry. Due to the micro fractures, flaws, patches, xenoliths, required dimension, dressing, etc., the recovery in the granite could not be 100% of the R.O.M.

From the total Geological insitu Reserves, the quantity of saleable Multi Colour granite stones and quantity of Multi Colour granite rejects and waste generation are computed by applying recovery factor as 50% by its volume upto 23m depth.

As the salable Multi Colour Granite stone are in terms of cubic meters (Volume) only and not in terms of tonnage as in the case of major industrial mineral, the geological resources, mineable reserves and quantum of waste generated etc, are given only in terms of cubic meters.

The details of estimation of geological resources and mineable reserves with reference to the geological plan & cross section and Conceptual Plan & Section as shown in (Plate No. IV & IX).

**3.4 GEOLOGICAL RESOURCES AND GRADE (RE-ASSESSED ON 27.06.2022):**

Table - 11

Geological Resource						
Total Geological Resources As per Approved Mining Plan (A)	Granite ROM (m <sup>3</sup> )	Recoverable Reserves @ 50% (m <sup>3</sup> )	Granite Waste @ 50% (m <sup>3</sup> )	Side Burden (m <sup>3</sup> )	Weathered Rock (m <sup>3</sup> )	Topsoil (m <sup>3</sup> )
	211200	105600	105600	320320	26576	53152
Total Depletion has taken from the excavation carried out during the first five years (B)	8932	947.359	7984.641	612	1480	2960
Total Available Geological Resources during the present scheme period (A - B)	202268	101134	101134	319708	25096	50192

Total Geological Reserves in ROM	=	2,02,268m <sup>3</sup>
Total Recoverable Granite @ 50% (RG)	=	1,01,134m <sup>3</sup>
Granite Reject @ 50%(GR)	=	1,01,134m <sup>3</sup>
Side Burden	=	3,19,708m <sup>3</sup>
Weathered Rock (WR)	=	25,096m <sup>3</sup>
Total waste (GR + SB + WR)	=	4,45,938m <sup>3</sup>
Topsoil	=	50,192m <sup>3</sup>
Granite waste ratio:	=	1:4.4

**\*The Total Geological resources are calculated based on the last approved Geological resources and after depleted the excavation carried out during the approved Mining Plan period.**

The geological reserves are calculated based on the geological cross sections up to the economically workable depth of 23mts (2m topsoil + 1m Weathered Rock +20m Multi Colour granite) below from the general ground level at the rate of 50% recovery yields 1,01,134m<sup>3</sup> and 2,02,268m<sup>3</sup> of ROM.

**3.5 MINEABLE RESERVES: (REASSESSED ON 27.06.2022)**

Table - 12

Minable Reserve						
Total Minable Reserve As per Approved Mining Plan (A)	Granite ROM (m <sup>3</sup> )	Recoverable Reserves @ 50% (m <sup>3</sup> )	Granite Waste @ 50% (m <sup>3</sup> )	Side Burden (m <sup>3</sup> )	Weathered Rock (m <sup>3</sup> )	Topsoil (m <sup>3</sup> )
	156000	78000	78000	41500	13524	29988
Total Depletion has taken from the excavation carried out during the first five years (B)	8932	947.359	7984.641	612	1480	2960
Total Available Mineable Reserves during the present scheme period (A - B)	Granite ROM (m <sup>3</sup> )	Recoverable Reserves @ 50% (m <sup>3</sup> )	Granite Waste @ 50% (m <sup>3</sup> )	Side Burden (m <sup>3</sup> )	Weathered Rock (m <sup>3</sup> )	Topsoil (m <sup>3</sup> )
	147068	73534	73534	40888	12044	27028

Total Minable Reserves of Granite in ROM	=	1,47,068m <sup>3</sup>
Total Minable Granite @ 50%	=	73,534m <sup>3</sup>
Granite Reject @ 50%	=	73,534m <sup>3</sup>
Side Burden (SB)	=	40,888m <sup>3</sup>
Weathered Rock (WR)	=	12,044m <sup>3</sup>
Total waste (GR + SB + WR)	=	1,26,466m <sup>3</sup>
Topsoil	=	27,028m <sup>3</sup>
Granite waste ratio:	=	1:1.72

**\*The Total Mineable reserves are calculated based on the last approved mineable reserves and after depleted the excavation carried out during the approved Mining plan period.**

The Mineable reserves have been computed as 73,534m<sup>3</sup> at the rate of 50% recovery and 1,47,068m<sup>3</sup> of ROM. Proved reserves are considered up to 23mts (2m topsoil + 1m Weathered Rock + 20m Multi Colour granite) from the surface.

The Multi Colour granite body occurring in this area exhibits more or less uniform colour and texture. If any variation occurs during mining, such as cracks, joints, patches, colour variations etc, the defective area will be avoided. The formation is uniform and no gradational change is noticed except some shears, cracks and slender pegmatite veins.



#### **4.0 CONCEPTUAL MINING PLAN:**

Conceptual Mining plan is prepared with an object of long-term systematic development of benches, lay outs, selection of permanent ultimate pit limit, depth of Mining and ultimate pit, 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. The ultimate pit dimensions of the quarry are given below.

Table - 13

Ultimate Pit Dimensions (Maximum)		
Length (m)	Width (m)	Depth (m)
153	98	23

However, during extraction of blocks each bench will be of 5mts height & width, vertical slope for proper dimensional cutting. The quantum of excavation is estimated to be 2,27,028m<sup>3</sup> (ROM 1,47,068m<sup>3</sup> + Side burden 40,888m<sup>3</sup> + Topsoil 27,028m<sup>3</sup> + Weathered rock 12,044m<sup>3</sup>) to a depth of 23m from the ground level. The generation of total waste is estimated about 1,26,466m<sup>3</sup> and marketable Multi Colour Granite as 73,534m<sup>3</sup>.

During this scheme period, excavated waste (22,458m<sup>3</sup>) will be proposed to dump over the existing waste dump situated on the Northwestern side with dimension of (L)85m x (W)43m x (H)8.69m, which will be act as temporary waste dump. When the quarry reaches its ultimate pit limit of 23m, the quarried out waste will be backfilled. If the mineral reserves available and Market persist, the lessee may apply a renewal of quarry lease as to develop and conserve mineral reserves. When the entire mineral reserves will be completely exhausted, backfilling will be carried out nearly existing ground profile and spread out the preserved topsoil to facilitate afforestation in the backfilled area. If permission is granted for removal of waste, the waste material will be supplied to needy crusher for building and road construction from concerned authorities after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste.

The quarry area will be fenced with barbed wire fencing, also safety bund to be construct around the quarry to prevent inadvertent entry of public and cattle (Please refer plate No. III and IX).

**5.0 MINING**

No change in the method of Mining. The same open cast semi mechanized Mining with 5 mtr vertical bench with a bench width of 5 mtr has been followed.

Under the regulation 106 (2) (b) of the Metallurgical Mines Regulation 1961, in all open cast Mining, the bench height should not exceed 5 mtr and bench width should not be less than bench height. The slope of the bench should not exceed  $60^{\circ}$  from horizontal.

But as far as the Mining of granite dimensional stones are concerned, observance of the provisions of Regulation 106(2) (b) as above is seldom possible due to various inherent petro genetic & mining difficulties. Hence, the company has obtained relaxation to the provisions of the above regulation from the Director of Mines Safety, Chennai for which necessary provision is available with the Regulation 106 (2) (b).

The production of Multi Colour Granite dimensional stone in this quarry involves the following method typical for Multi Colour granite stone mining in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent sheet rock is carefully removed by avoiding any kind of damage in the form of cracks adopting the method of diamond wire cutting along the horizontal as well as two vertical sides along the width direction and the third vertical face behind the front face.

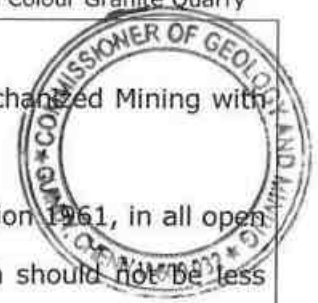
This liberation of huge volume of granite body from the parent sheet rock is called primary cutting. The Blocks splitted above are toppled and removed from the pit to the dressing yard, by using hydraulic cranes.

Removing the defective portion and dressing into the dimensional blocks are done manually using feather, wedges, and chiseling respectively by the labours that are skilled in this work.

The defect free, dimensional stone of different sizes is marketed in domestic and international market by the well experienced marketing personals of the lessee.

The waste material generated during quarry activity includes rock fragments of different sizes and waste chips during dressing of the blocks.

The excavated waste materials are proposed to dump in the respective places earmarked for the purpose, which will be act as temporary waste dump. (Refer Plate No. VI and IX).





**5.1 YEAR WISE DEVELOPMENT AND PRODUCTION FOR THE NEXT FIVE YEARS:**

Total Length : 66m

Maximum Width : 67m

Maximum Depth : 23m

Section	Year	Bench	Length (m)	Width (m)	Depth (m)	ROM (m <sup>3</sup> )	Granite Recovery @ 50% (m <sup>3</sup> )	Granite Reject @ 50% (m <sup>3</sup> )	Weathered Rock (m <sup>3</sup> )	Topsoil (m <sup>3</sup> )
XY-AB	2023-24	i	31	65	2	-	-	-	-	4030
		ii	28	59	1	-	-	-	1652	
		iii	27.3	57	5	7780.5	3890.3	3890.3	-	
		<b>Total</b>				<b>7780.5</b>	<b>3890.3</b>	<b>3890.3</b>	<b>1652</b>	<b>4030</b>
	2024-25	i	23	65	2				-	2990
		ii	23	59	1				1357	
		iii	22.7	57	5	6469.5	3234.8	3234.8	-	
		iv	14.4	46	2	1324.8	662.4	662.4	-	
	<b>Total</b>				<b>7794.3</b>	<b>3897.2</b>	<b>3897.2</b>	<b>1357</b>	<b>2990</b>	
	2025-26	iv	30.6	46	2	2815.2	1407.6	1407.6	-	-
		iv	36	46	3	4968.0	2484.0	2484.0	-	-
		<b>Total</b>				<b>7783.2</b>	<b>3891.6</b>	<b>3891.6</b>		
	2026-27	iv	20	46	3	2760	1380	1380	-	-
		v	28	36	5	5040	2520	2520	-	-
		<b>Total</b>				<b>7800</b>	<b>3900</b>	<b>3900</b>		
	2027-28	v	18	36	5	3240	1620	1620	-	-
		vi	36	25	5	4500	2250	2250	-	-
		<b>Total</b>				<b>7740</b>	<b>3870</b>	<b>3870</b>		
<b>Grand Total</b>						<b>38898</b>	<b>19449</b>	<b>19449</b>	<b>3009</b>	<b>7020</b>

Total Proposed Granite ROM	=	38,898m <sup>3</sup>
Total Recoverable Granite @ 50%	=	19,449m <sup>3</sup>
Granite Waste @ 50%	=	19,449m <sup>3</sup>
Weathered Rock (WR)	=	3,009m <sup>3</sup>
Top Soil	=	7,020m <sup>3</sup>
Total waste (GW + WR)	=	22,458m <sup>3</sup>
Granite waste ratio:	=	1:1.15

**Estimated Life of the quarry**

Mineable ROM	=	1,47,068m <sup>3</sup>
Mineable Reserves @ 50%	=	73,534m <sup>3</sup>
Average production per year @ 50%	=	19,449/5 years = 3,890m <sup>3</sup>
Estimated Life of the Quarry	=	73,534 / 3890 = 19 years

The year wise quantum of work proposed and the details of estimation of production quantity and generation of waste are furnished with reference to Year wise Development and Production plan. The proposed volume of production is lesser than the proposed in the approved mining plan. Hence, there will not be any substantial change in the Method of quarrying, Drilling, Blasting, Wire saw cutting, Men and machinery deployment, Transportation and Handling of waste in the present scheme period (Plate No.V). The average annual production for the next five years is 3,890m<sup>3</sup> at the rate of 50% recovery. More details of the year wise production parameter explained with bench length, width and height in Plate No. V.

**5.2 PROPOSED RATE OF PRODUCTION WHEN THE QUARRY IS FULLY DEVELOPED**

The proposed rate of production when the quarry is fully developed is 3,890m<sup>3</sup> per annum @ 50% Recovery. The production schedule for the subsequent five year has drawn mainly in consideration of reserves position, market demand, men, machinery development and the cost of production.

**5.3 MINEABLE RESERVES AND ANTICIPATED LIFE OF QUARRY**

The Multi Colour granite deep seated in nature as they have formed by basic intrusions from depth as Multi Colour granite. The depth persistence of the Multi Colour granite will be beyond the economically workable depth. The method of extraction of rock mass from Multi Colour granite sheet rock is highly expensive at greater depth.

An optimum depth of 23m has been established as economically viable depth at present scenario. Eventually this depth is the optimum depth for safe and scientific quarrying.

The Mineable Reserves are calculated by excluding the mining loss due to formation of benches with suitable height & width, ultimate depth of quarry, the Mineral Reserve held up within the safety distances all along the lease boundary.

The Mineable Reserves @ 50% for this Multi Colour Granite quarry is thus arrived as 73,534m<sup>3</sup> and 1,47,068m<sup>3</sup> of ROM for an assumed depth of 23mtr below from the surface. The average rate of production of Multi-Colour Granite from this quarry is 3,890m<sup>3</sup> per year and Mineable recoverable reserves 73,534m<sup>3</sup> considering 50% recovery for the entire life of the quarry. The details of estimation of year wise development and production plan and sections are shown in the plate No.V.

Based on the above, and taking into consideration of the available Mineable Reserves, **the life of quarry will be about 19 years** at 50% recovery, if the quarry is being worked out continuously with an average annual production of 3,890m<sup>3</sup>. This calculation is based on the plan approved by Director of Mines Safety leaving Benches and Safety barriers. If the annual production increases considerably and consistently a modified scheme will be prepared under Granite Conservation and Development Rules-1999 the same will be submitted to the relevant authorities for subsequent clearance and approval.

**5.4 EXTENT OF MECHANIZATION**

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

**I. DRILLING MACHINE**

Table - 15

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
1	Compressor	1	-	450/150 psi	Atlas Capco	Diesel Drive
2	Jack hammer	4	32	1.2m to 6m	Atlas Copco	Compressed air
3	Diesel Generator	1	-	125kva	Kirloskar	Diesel
4	Diamond Wire saw	2	-	20m <sup>3</sup> /day	Optima	Diesel Generator

**II. LOADING EQUIPMENT****Table - 16**

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Crawler Crane	1	855	Tata P&H	Diesel Drive
2	Excavator	2	300	Tata Hitachi	Diesel Drive

**III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT**

a)

**Table - 17**

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Tippers	1	20 tonns	Tata	Diesel Drive

**b) Transport from the quarry head to destination**

Transport from quarry head to destination is done by trucks or trailers.

**c). Miscellaneous:**

Apart from the above, the following tools and tackles are required for quarry operation.

**A. For operation**

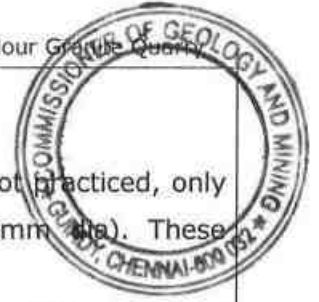
The operation of granite quarry requires the following loose tools material and have to be kept sufficiently in stock for non - interruption of the quarry work.

1. Drill rods - 0.5 m, 0.75m, 1.65m, 2.25m, 3m, 5.5m, upto 9m.
2. Steel Alloy chains of sufficient length of 12mm, 16mm, 18mm, etc. sizes.
3. 'D' shackles to link the chain lengths.
4. Rubber hose of required length.
5. Hose clamps to link the compressor delivery hoses.
6. Feather and wedges of 6" and 12" dia sizes utilize for splitting the block from the mother rock. This is an important tool in the operation of a quarry.
7. Crow bars.
8. Spades.
9. Sludge Hammer
10. Iron Pans
11. Pitcher Hammer
12. Chisels.
13. Consumables, such as diesel, Hydraulic oil, grease, abrasive wheels, welding machines etc.
14. Stock of essential spare parts of machinery.
15. Explosive as per the licensed quantity
16. Besides diamond wire saw equipment with accessories are required to liberate the rock from to parent body rapidly with minimum damage.

Splitting the sheet rock by Diamond wire sawing which increases substantial recovery potential. Hence it is proposed to follow "Diamond wire saw cutting" for best recovery.

The above machineries are adequate to meet out the simultaneous development and production schedule drawn out in this scheme period.





## **6.0 BLASTING**

### **a. Broad Blasting Parameters:**

In general for granite quarrying primary (deep hole drill) blasting is not practiced, only secondary blasting is practiced coupled with jackhammer drilling (30-35mm dia). These blasting are carried out for splitting the blocks from parent sheet mass.

The granite industry needs blocks for about 3m x 2m x 2m for International buyers hence small blocks blasting pattern is not followed. The blasting pattern depends upon the texture of the rocks in the case of granite quarrying which in-turn depends upon the bedding plane, presence of fractures, fissures and cracks hence it is difficult to decide the definite particular pattern of holes in each blast.

Now-a-days Diamond wire saws are used for splitting the blocks from parent sheet mass. It is a new innovative Eco-friendly splitting technique without involving blasting. This increase the recovery percentage of granite blocks and reduces from induce fissures due to blasting.

Hence, it is difficult to pronounce a definite pattern of holes with regard to spacing, burden and depth. Hence, only blasting is deployed for secondary fragmentation for handling the wastes and not for production.

### **b. Type and use of explosives**

In granite quarries, only heaving effect is required and not the shattering effect. The aim is to recovery as large a block as possible.

Hence only low intense explosives like D-Cord and Gelatin sticks are used.

In granite quarrying it is very difficult to prescribe the charge/ hole as it depends upon the various factors like type of rock, texture, planes of weakness, required size of block, etc.

### **c) Storage of explosives:**

Authorized explosive dealers supply the explosive at site as per the day's requirement. Hence question of storage of explosives does not arise at present.

However, the lessee has been advised to install one portable magazine of 'M' type at the earliest possible opportunity.

Splitting within the sheet rock is affected by diamond wire sawing which increases substantial recovery potential. Hence it is proposed to follow diamond wire saw cutting for better recovery of granite dimensional stone.

During future development of quarrying, removal of over burden will be done by blasting with explosives in small dia holes drilled by Jackhammer.

The explosive that will be used are D-Cord and Gelatin sticks that are indicated below.

D Cord - 5mg

Gelatin Sticks .

## **7.0 MINE DRAINAGE**

The water table in this area is 64m as observed in nearby wells. Working expected to well above the water table. If water is encountered at due to rain water seepage, the same will be drained out by 5HP motor pumps and the drained out water will be utilized for Green belt.



## **8.0 STACKING OF MINERAL WASTE AND DISPOSAL OF WASTE**

### **a) Topsoil:**

There is 7,020m<sup>3</sup> of topsoil will be generated during this scheme period. The quarried out topsoil will be preserved all along the safety barrier and utilized for construction of bund and afforestation purpose.

### **b) Granite waste and Land chosen for disposal of waste:**

Total waste produced during this scheme period will be around 22,458m<sup>3</sup>. The quarried out waste will be proposed to dump over the existing waste dump situated on the Northwestern side with dimension of (L)85m x (W)43m x (H)8.69m. The waste management plan with reference to the quantum of waste generated is shown in quarry layout and afforestation plan (Plate No.VI).

### **c) Manner of disposal of waste:**

As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose.

The waste management plan with reference to the quantum of waste generated is shown in Quarry layout and Afforestation plan (Plate No.VI).

There is no slurry anticipated in this quarry operations and the granite waste does not produce any toxic effluent in the form of Solid, liquid or gas.

## **9.0 USE OF THE GRANITE STONE**

The quarried out granite blocks are exported as raw blocks and also processed as value added products such as slabs, tiles, fancy items, Monuments, precision surface plates for engineering application.

The export market for Multi Colour Granite blocks are European Countries, North America, Middle East & Far East besides catering domestic demand.

## **10.0 QUALITY CONTROL**

The Multi Colour granite deposit occurring in this mine shows uniform quality throughout and hence mined and marketed as a single variety.

The excavated blocks will carefully examined for any natural defects such as joints, cracks, xenoliths growth etc and such defects is removed manually using feather and wedges and the blocks are then shaped into perfect rectangular dimensional stone blocks by chiseling. Different price for each quality material have been fixed and the entire production quantity is marketed accordingly.

## **11.0 SURFACE TRANSPORT**

The mode of transport of the Multi Colour granite blocks produced and marketed is by road to various customer destinations and Multi Colour granite processing units located at different parts of the country. The Multi Colour granite blocks approved for export market are shipped from Thoothukudi Port to various countries and if required the blocks may be shifted to Chennai Port which depend upon the exporter's destination from time to time.

**12.0 SITE SERVICES**

The simple methods adopted and the limited scale of activities involved in Multi Colour granite dimensional stone quarrying does not require high-tension electric power supply or huge workshop facilities. The quarry operation is restricted to one general shift during daytime only. Machinery repair works are attended at Thogaimalai (8km-SW). Minor repairs can be rectified at the quarry site itself by the Company's experienced personnel.

Packaged drinking water is available from the approved water vendors in Kallai also potable water from the community wells can be transported to the work site through tanker placed on tippers. The quarry office, first-aid room, store room, rest shed, toilet etc., are already constructed as semi - permanent structures in the company's own patta land situated on the eastern side of the lease area (Plate No - III).

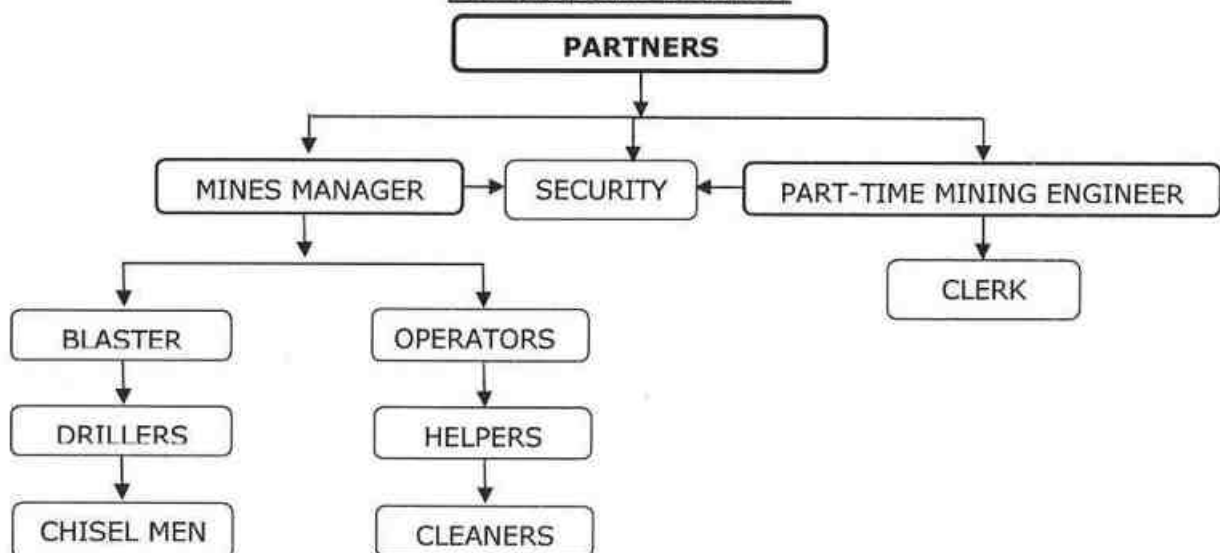
**13.0 EMPLOYMENT POTENTIAL**

The following manpower is proposed for the Multi Colour granite quarry to carry out the day-to-day Mining activities aimed at the proposed production target and also to comply with the statutory provisions of the metalliferous mines regulations, 1961.

1.	Mines manager (with valid statutory qualification)	:	1
2.	Mines foreman (with valid statutory qualification)	:	1
3.	Machinery operators (Certified)	:	10

**WORKERS:**

a.	Skilled labour and Drivers	:	8
b.	Semi-skilled	:	18
c.	Unskilled	:	10
	<b>Total</b>	:	<b>48</b>

**ORGANIZATION CHART**

The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the scheme of quarrying and also to comply with the statutory provisions of the Mines Safety Regulations.



**V. HUMAN SETTLEMENT:**

There is no approved habitation situated within 300m radius of the area and few villages are located within 5km radius of the quarry lease area. The approximate distance, direction and population are given below.

Table – 19

S.No	Name of the Village	Direction	Approximate Distance	Approximate population
1.	Perur Udaiyappatty	NW	2km	3,500
2.	Kallai	NE	3km	3,800
3.	Gudalur	SW	3km	8,300
4.	Kalladai	SW	3km	8,200

Basic human welfare amenities such as health center, schools, communication facilities, commercial centers etc., are available at Thogaimalai which is located about 8km on the Southwestern side of the lease area.

**VI. PUBLIC BUILDINGS, MONUMENTS AND PLACES OF WORSHIPS:**

There is no Public building, Archaeological or Historical Monument situated within 500m radius.

Table – 20

Particulars	Location	Approximate aerial Distance and Direction from the lease applied area.
Nearest Post Office	Perur Udaiyappatty	2km – NW
Nearest School	Perur Udaiyappatty	2km – NW
Nearest Dispensary	Perur Udaiyappatty	2km – NW
Nearest Police Station	Thogaimalai	8km – SW
Nearest Hospital	Thogaimalai	8km – SW
Nearest Town	Thogaimalai	8km – SW
Nearest NH	Karur – Trichy(NH-81)	13km – NE
Nearest SH	Musiri – Pudukkottai (SH-71)	6km – West
Nearest D.S.P. Office	Kulithalai	17km – NW
Nearest Railway Station	Pettavaitalai	13km – NE
Nearest Airport	Trichy	29km – East
Nearest Seaport	Thoothukudi	226km – SW
District Head Quarters	Karur	44km – NW

VII. WEATHER THE AREA FALLS UNDER NOTIFIED AREA UNDER WATER ACT, 1974.  
The area falls under notified area under water Act, 1974.

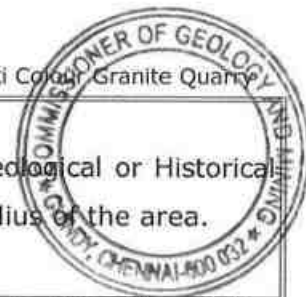
**14.2 ENVIRONMENT IMPACT ASSESSMENT STATEMENT**

The Scheme of quarrying has proposed for a small production of Multi Colour granite dimensional stone without involving deep hole drilling and heavy blasting. Such limited Mining activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned.



Table - 21

S. No.	Salient Features at Presently bounded by the quarry site	Prescribed safety distance	If any present within the prescribed limit, it's actual distance and direction from the site																							
1.	Railways, Highways, Tank, Lake, Odai, Canal, Stream, River and Reservoir	50m	None of the above situated within 50m radius of the area.																							
2.	Village Road	10m	The Vandipathai (S.F.No. 299/3 and 302/4) situated on the southern side of the lease area. Hence 10m safety distance has been provided. There is no Village Road passing within 10m radius of the area.																							
3.	Habitation / Village	300m	Before the grant of lease there was a tiled house situated 46m to the Northwest side, and now there is no approved habitation within 300m of that area.																							
4.	Adjacent Land Patta/ Govt.	7.5m / 10m	<table border="1"> <thead> <tr> <th>Direction</th> <th>S.F.No.</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Nallur Village</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>East</td> <td>302/3 (P), 301 (P), 299/2A (P) &amp; 299/2B (P)</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td rowspan="2">South</td> <td>302/3 (P) &amp; 299/1 (P)</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>302/4 &amp; 299/3</td> <td>Govt, Land</td> <td>10m to the vandipathai</td> </tr> <tr> <td>West</td> <td>302/3 (P), 302/2 (P) &amp; 302/1</td> <td>Patta land</td> <td>7.5m</td> </tr> </tbody> </table> <p>(Please Refer Plate No. II).</p>	Direction	S.F.No.	Classification	Safety Distance	North	Nallur Village	Patta land	7.5m	East	302/3 (P), 301 (P), 299/2A (P) & 299/2B (P)	Patta land	7.5m	South	302/3 (P) & 299/1 (P)	Patta land	7.5m	302/4 & 299/3	Govt, Land	10m to the vandipathai	West	302/3 (P), 302/2 (P) & 302/1	Patta land	7.5m
Direction	S.F.No.	Classification	Safety Distance																							
North	Nallur Village	Patta land	7.5m																							
East	302/3 (P), 301 (P), 299/2A (P) & 299/2B (P)	Patta land	7.5m																							
South	302/3 (P) & 299/1 (P)	Patta land	7.5m																							
	302/4 & 299/3	Govt, Land	10m to the vandipathai																							
West	302/3 (P), 302/2 (P) & 302/1	Patta land	7.5m																							
5.	Housing area, EB line (HT & LT Line)	50m	There is no EB (LT/HT) line or Housing area located within 50m radius.																							
6.	Boundaries of the permitted area	7.5m	<p>North - Nallur Village</p> <p>East - S.F.Nos. 302/3 (P), 301 (P), 299/2A (P) and 299/2B (P),</p> <p>South - S.F.Nos. 302/3 (P), 299/1 (P), 302/4 and 299/3</p> <p>West - S.F.Nos. 302/3 (P), 302/2 (P) and 302/1</p> <p>(Please refer Plate No. II).</p>																							



7.	Public building, Archaeological or Historical Monument	500m	There is no Public building, Archaeological or Historical Monument situated within 500m radius of the area.
8.	Reserve forest	1Km	There is no Reserved Forest situated within 1km radius of the area.
9.	Protected area / ECO sensitive area/State or International border	10Km	There is no Wildlife sanctuary / Eco-Sensitive zone / Critically polluted area / HACA / CRZ, State or National border located within 10km radius of the area.

The Financial Estimation for Quarry operations and Environment Management Plan (EMP).

Table - 22

A. Operational Cost				
S.No.	Description			Approximate Cost (Rs.)
1.	Land Cost (As per Govt. Guideline value at present)			7,69,000
	SF.No	Extent in Ha	Cost / Ha	
	299/1	0.46.0	250500	
	299/2A	0.03.5	250500	
	299/2B	0.03.0	250500	
	301	0.31.0	331000	
	302/2	0.43.0	250500	
	302/3	1.70.5	250500	
		2.97.0	768940	
	<b>Total round off is Rs. 7,69,000/-</b>			
2.	Labour Shed, Office, Workshop			2,00,000
3.	Sanitary Facility			75,000
4.	First aid Room, Accessories and Safety kits			50,000
5.	Excavator (2 Nos.)			1,12,00,000
6.	Crawler Crane (1 No.)			75,00,000
7.	Diesel Generator (1 No.)			7,50,000
8.	Tipper (1 No.)			25,00,000
9.	Diamond Wire Saw (2 Nos.)			8,00,000
10.	Jack Hammer (4 Nos.) with loose tools			2,00,000
11.	Compressor (2 Nos.),			18,00,000
12.	Drinking Water Facility and Water sprinkling			1,00,000
13.	Fencing (1940m length x Rs. 300/- per meter)			2,82,000
14.	Garland drain (360m length x Rs. 300/- per meter)			1,08,000
15.	Green belt development under safety zone during this scheme period (450m sapling x Rs. 100/- per sapling)			45,000
16.	Water sprinkling			1,00,000
	<b>Total Machineries for Operational Cost</b>			<b>2,64,79,000</b>

**B. Proposed financial estimate / budget for (EMP) Environmental Management Plan.**

Budget Provision for this Scheme period

S. No.	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year	Total Charges For this scheme period
1	Ambient air quality monitoring	6500	4	26000	52000	2,60,000
2	Noise level monitoring	250	4	1000	2000	10,000
3	Ground vibration monitoring	1000	2	2000	4000	20,000
4	Water sampling and analysis	9000	1	9000	18000	90,000
<b>Total EMP Cost/ year</b>					<b>76,000</b>	<b>3,80,000</b>

The EMP cost for this scheme period would be around **Rs. 3,80,000/-**

<b>Total Cost of the Project including EMP Cost</b>	
Description	Cost (Rs.)
<b>A. Operational Cost</b>	<b>2,64,79,000</b>
<b>B. EMP Cost</b>	<b>3,80,000</b>
<b>Total Project Cost (A+B)</b>	<b>2,68,59,000</b>
<b>C. The lessee Indents to involve corporate Environment responsibilities (CER) activity like Water purifier, Bed, Cot, Fan and Sanitary facilities to the Perur Udaiyappatty Dispensary and Water purifier, Fan and Sanitary facilities to the Perur Udaiyappatty Govt. School at 2.0% from the total project cost. The cost would be around Rs.5,37,000/-.</b>	<b>5,37,000</b>
<b>Total Cost (A+B+C)</b>	<b>2,73,96,000</b>

The total project cost would be around two crore seventy three lakh and ninety six thousand only.

**14.3 PROPOSAL FOR WASTE MANAGEMENT**

The waste in the quarry includes rock fragments, rubbles generated as waste during production work.

Total waste produced during this scheme period will be around 22,458m<sup>3</sup>. The quarried out waste will be proposed to dump over the existing waste dump situated on the Northwestern side with dimension of (L)85m x (W)43m x (H)8.69m.

The waste management plan with reference to the quantum of waste generated is shown in quarry layout and afforestation plan (Plate No. VI).



#### 14.4 PROPOSAL FOR RECLAMATION OF LAND AFFECTED BY MINING ACTIVITIES DURING & AT THE END OF MINING

Due to nature of occurrence of Multi Colour granite, the depth persistence of the granite body in this quarry is beyond the workable limits. In the proposed Scheme of quarrying only 23m depth has been envisaged as workable depth for safe & economic quarrying. If the mineral reserves available and Market persist, the lessee may apply a renewal of quarry lease as to develop and conserve mineral reserves. If permission is granted for removal of waste, the waste material will be supplied to needy crusher for building and road construction from concerned authorities after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. When the entire mineral reserves completely exhausted if permission not obtained from the concerned authority for handling of waste, backfilling will be carried out nearly existing ground profile and spread out the preserved topsoil to facilitate afforestation in the backfilled area (Refer plate No. IX).

#### 14.5 PHASED PROGRAMME OF PLANTING TREES

The safety distance along the Northern side lease boundary has to be utilized for subsequent Afforestation. Appropriate species of local trees will be planted in a phased manner as described below.

Table - 23

Year	No. of trees proposed to be planted	Area to be covered in m <sup>2</sup>	Name of the species to be plant	Survival rate expected in %	No. of trees expected to be grown
2023-24	90	846	Neem, Casuarina, Pongamia pinnata, etc.,	80	72
2024-25	90	846		80	72
2025-26	90	846		80	72
2026-27	90	846		80	72
2027-28	90	846		80	72

Nearly 4,230m<sup>2</sup> area is proposed for afforestation by planting 450 Nos. of trees during every year and expected growth is around 360 Nos. of trees at a survival rate of 80%. The afforestation plan is shown in Plate No.VI.

#### 14.6 MEASURES FOR DUST SUPPRESSION:

As the Multi Colour granite stones are mined as undamaged dimensional stones without involving deep hole drilling and heavy blasting, fragmentation and generation of lumps, fines or dust is very limited. This quantum of Mining activity will not cause the dust detrimental to the health of the persons employed. Nevertheless, water will be sprinkle for the suppression air borne dust from mine approach roads, waste dumps on regular intervals using water tankers. Drilling of blast holes of 32mm dia will be always under wet conditions to prevent flying of dusts. In the unloading points, water will be sprinkle through tippers to suppress dust. The drillers are provided with respirators in accordance with the Mines Safety Regulations.

#### 14.7 MEASURES TO MINIMIZE GROUND VIBRATION DUE TO BLASTING AND CHECK NOISE POLLUTION

Shallow holes of 32 mm diameter to be drilled and conventional low explosives such as D-Cord and Gelatin Sticks will be used for removal of over burden. Hence, ground vibration and noise pollution will be minimal and restricted with the quarry workings. The blasting will be taking up at appointed timing and with sufficient caution to the public under the advice of qualified and competent personnel. The noise produced by diamond wire saw cutting will be negligible.

**14.8 STABILIZATION AND VEGETATION OF DUMPS**

As the waste generation in the mine includes hard rock fragments of considerable size and irregular shape with varying angularity, the temporary waste dump will be stable on its own even at higher slopes of the sides. However, excavated and preserved topsoil will be spread out over and sides of the inactive waste dump and tree saplings will be carried out for increasing the stability also to prevent erosion during rainy season.

**15.0 PROGRESSIVE QUARRY CLOSURE PLAN****15.1 Introduction**

The Progressive Quarry Closure Plan for Kallai Multi Colour Granite quarry over an extent of 2.97.0 hectares of patta lands in S.F.Nos. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P) in Kallai Village, Kullithalai Taluk, Karur District, Tamil Nadu State has been prepared for **M/s. Apple Granites**, having an office at No.95/2, Perur Udaiyappatty, Gudalur Village, Kullithalai Taluk, Karur District, Tamilnadu - 639 120.

**15.2 Present Land use pattern:**

Land Use Table - 24

Description	Present area in (Ha)
Area under Quarry	0.14.7
Dumps	0.56.4
Infrastructure	Nil
Roads	0.01.0
Green Belt	Nil
Stocking Blocks	2.24.9
<b>Grand Total</b>	<b>2.97.0</b>

**15.3 Mineral Processing Operations:**

The quarried out Rough granite blocks are marketed by road to various customer destinations and granite processing units located at different parts of the country. The Multi colour Granite blocks approved for export market are shipped from Thoothukudi Port to various countries and if required the blocks may be shifted from Chennai Port which depend upon the exporter's destination from time to time. No Mineral processing is involved within the quarry lease area.

**15.4 Reasons for closure:**

The mineral is not going to be exhausted during the proposed scheme period hence, immediate closure is not planned due to sufficient reserves are available for the entire life of quarry. Hence, the reason for closure will be discussed an ensuing scheme period or in Final Mine Closure Plan.

**15.5 Statutory obligations:**

All the conditions stipulated in the G.O. and lease deed was fulfilled and maintained during the course of quarry operations.

**15.6 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.

**Dr.P.Thangaraju, M.Sc., Ph.D.,**

Qualified Person

No.17, Advaita Ashram Road,

Alagapuram, Salem-636 004.

Cell: +91 94433 56539, 94422 78601

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

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

In the previous approved mining plan is discussed for Reclamation and Rehabilitation will be carried out only when the working area reaches its ultimate pit limit or at the end of life of quarry. The multicolour granite mineral reserves are available for the entire life of quarry. The entire quarry working area is an active, so the lessee 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 during this scheme period, it will be discuss an ensuing Scheme period.

**15.8 Closure Plan:****(i) Mined Out Land:**

At the end of this scheme period the quarry operation to be carried out only 0.51.3 Ha out of 1.34.7 Ha of total mineable area. When the remaining reserves will be completely exhausted, the mine closure plan will be prepared and submitted to the competent authority to obtain approval and the same will be implemented. The quarry area will be fenced with barbed wire/metal sheet fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle.

Land use pattern

Table – 25

Description	Present Area (Ha.)	Area required during this Scheme period(Ha)	Area at the end of life of quarry (Ha)
Area under Quarry	0.14.7	0.36.6	1.34.7
Waste dump	0.56.4	Nil	Back Filling
Infrastructure	Nil	Nil	Nil
Roads	0.01.0	0.01.0	0.03.0
Green Belt	Nil	0.42.3	0.68.5
Stocking Blocks	2.24.9	1.45.0	0.90.8
<b>Total</b>	<b>2.97.0</b>	<b>2.24.9</b>	<b>2.97.0</b>



**(ii) Water quality management:**

Following control measures will be adopted for controlling water pollution:-

- Garland drain will be constructed around the quarry area to prevent surface run off rain water entering to the pit.
- 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 quarry pit water and ground water quality in nearby villages.
- 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. All personnel protective equipment like Nose-mask, earplug/ muffs will be provided to the Workers. For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

**(iv) Top Soil and Waste Management:**

There is 7,020m<sup>3</sup> of topsoil will be generated during this scheme period. The quarried out topsoil will be preserved all along the safety barrier and utilized for construction of bund and afforestation purpose.

Total waste produced during this scheme period will be around 22,458m<sup>3</sup>. The quarried out waste will be proposed to dump over the existing waste dump situated on the Northwestern side with dimension of (L)85m x (W)43m x (H)8.69m, which will be act as temporary waste dumps. When the quarry reaches its ultimate pit limit or at the end of life of quarry, quarried out waste will be backfilled and separately preserved topsoil will be spread out over the backfilled area also plantation carried out in the backfilled area.

**(v) Disposal of mining machinery:**

All the Machineries are purchased by fresh condition and the same has been maintained in good condition during entire life of quarry. After completion of quarry operation all machineries will be utilized in another quarry area or sold out to the second hand. Hence, disposal or decommissioning of mining machinery does not arise.

**(vi) Safety & Security:**

Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m 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 working personnel.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries. Sufficient caution and sign boards will be kept in and around the quarry to induct public for awareness.
- Blasting will be carried out in a specific time after giving sufficient caution to the public such as danger signs shall be displayed near the excavations and siren alarm signal will be provide before small amount of blasting time for precautionary action of accident. (blasting is carried out only for secondary fragments and not to liberate the Granite body from the parent rock mass).
- Security guards will be posted to prevent inadvertent entry of public.
- 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 Company 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.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959



and other laws applicable to mine will be strictly complied with.

- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.



**(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 an inadvertent entry to the lease 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,

Mine 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 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 quarry shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, quarry 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 twenty years. 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 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 quarry closure plan.

**(xi) Abandonment Cost:**

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

Table - 26

ACTIVITY	YEAR					RATE	AMOUNT (Rs.)
	2023-24	2024-25	2025-26	2026-27	2027-28		
Plantation (In Nos.)	90	90	90	90	90	@100 Rs Per sapling	45,000/-
Plantation (Safety zone) Cost	9,000	9,000	9,000	9,000	9,000		
Fencing (In Mtrs) 940 Mtrs	2,82,000	-	-	-	-	@300 Rs Per Meter	2,82,000/-
Garland drain (In Mtrs) 360 Mtrs	1,08,000	-	-	-	-	@300 Rs Per Meter	1,08,000/-
<b>TOTAL</b>							<b>4,35,000/-</b>

**16.0 MINERAL CONSERVATION AND DEVELOPMENT**

The scheme of quarrying proposed has fully covered the aspects of granite conservation and Development Rules, 1999 with a future plan to extend the proposed working of the quarry to the maximum possible workable depth of the deposit. Extreme care is taken to ensure proper supervision of quality control of the granite dimensional stone aimed at the recovery of the maximum saleable quality and quantity of Multi Colour granite dimensional stones suitable for full utilization of the consumers.

Care is been taken for each process just to safeguard the material quarried in an economical and efficient manner by adopting systematic and scientific quarrying with consultation and supervision of well experienced quarry persons.

**17.0 STATUTORY PROVISIONS**

The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied with, so that the safety of the mine, machinery and person will be ensured. Permission, relaxation or exemption wherever required for the safe and scientific mining of the deposit will be obtained from the Department of Mines Safety, Chennai. Any violation pointed out by the inspecting authorities shall be rectifying as per the guidelines of the department.

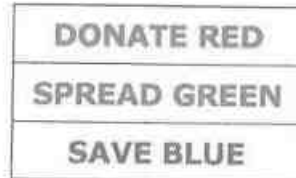
Certified that this Scheme of Mining has been prepared in accordance with the Mines Act, Rules & Regulations and orders made there under and in conformity with the provisions sub rule (13) of Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 and Rule 12, 13 & 16 of Granite Conservation and Development rules June 1999.

Prepared By

*[Signature]*  
Dr. P.Thangaraju, M.Sc., Ph.D.,  
Qualified Person.

Place: Salem

Date: 29.06.2022



*[Signature]*  
COMMISSIONER  
GEOLOGY AND MINING,  
GUINDY, CHENNAI-600 032.

*[Signature]*  
11/1/2023

This Scheme of Mining Plan is approved  
Subject to the Conditions / Stipulation Indicated  
in the Scheme of Mining Plan Approval

Letter No. / 8445/MM2/2022. Dated: 11.01.2023





## ABSTRACT



Mines and Quarries - Minor Mineral - Multi Colour Granite - Karur District - Kulithalai Taluk - Kallai Village over an extent of 2.97.0 hecets of patta lands in S.F. Nos. 299/1(P) (0.46.0 hect), 299/2A (P) (0.03.5 hect), 299/2B(P) (0.03.0 hect), 301 (P) (0.31.0 hect), 302/2 (P) (0.43.0 hect) and 302/3 (P) (1.70.5 hect) - Quarry Lease Application of M/s. Apple Granites - Grant of quarry lease - Sanctioned - Orders - Issued.

Industries (MMB.2) Department

G.O. (3D) No.3

Dated: 25.01.2018

ஹேவிஎம்பி- கை 12

திருவள்ளூர் ஆண்டு 2049

Read:

- 1) From M/s. Apple Granites Quarry Lease Application dated: 4.8.2014.
- 2) From the District Collector, Karur, Letter Rc. No.923/Mines/2014, dated 08.01.2017.
- 3) From the Commissioner of Geology and Mining, Chennai, File No.269/MM2/ 2017, dated 13.03.2017.
- 4) Government Letter No.3648/MMB.2/ 2017-1, Dated 24.08.2017.
- 5) From the Commissioner of Geology and Mining Letter No.269/MM2/2017, dated 21.09.2017.
- 6) From the Chairman, DEIAA/District Collector, Karur Lr. No. DEIAA /DIA/ TN/ MIN/ 9629/2017- KRR EcNo.88/ 2017/ Mines dated 18.01.2018.

\*\*\*\*\*

**ORDER:**

In the reference first read above, M/s. Apple Granites has applied for grant of lease for quarrying Multi Colour Granite over an extent of 2.97.0 hectares of patta land in S.F. Nos. 299/1(P) (0.46.0 hect), 299/2A (P) (0.03.5 hect), 299/2B(P) (0.03.0 hect), 301 (P) (0.31.0 hect), 302/2 (P) (0.43.0 hect) and 302/3 (P) (1.70.5 hect) of Kallai Village, Kulithalai Taluk, Karur District for a period of 20 years under rule 19A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

2. In the reference second and third read above, the District Collector of Karur and the Commissioner of Geology and Mining have recommended and forwarded the application of M/s. Apple Granites to the Government for passing orders.



4. The waste material generated during the time of quarrying should be dumped only within the lease hold area that will be earmarked for the purpose in the mining plan as per Rule 31 of Granite Conservation Development and Regulations Act, 1999.
5. No hindrance shall be caused to the adjacent pattadars lands.
6. The applicant should fence the lease granted area with Barbed wire before the execution of lease deed as follows:-
  - The pillar posts shall be firmly grounded with concrete foundation of height not less than 2 meters with a distance between two pillars shall not be more than 3 meters.
  - The applicant shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly showed in the mining plan.
7. The lessee shall strictly adhere to the statutory and safety requirements.
8. Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
9. The lease grantee shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
10. The District Collector, Karur shall obtain a sworn-in-affidavit from the appellant containing the above conditions before execution of lease deed and also ensure that they are complied with. Further, the lessee / firm will furnish a declaration in the lease deed agreement as per the Government Letter No.12789/MMB.2/2002-7, Dated: 9.1.2003 stating that the lessee / firm will mine only in the lease hold area and will not undertake any quarrying activity in the adjoining poramboke land. Further, the lessee / firm will fence the lease hold area separating it from the adjoining poramboke land. If any illegal mining is undertaken, the lessee / firm will be held responsible for those activities and will be subjected to the action taken by the Government in this regard.



Annexure

G.O (3D) No.3, Industries (MMB.2) Department, Dated: 25.01.2018

1. The applicant shall execute an agreement within one month from the date of receipt of the Government order.
2. The date of commencement of the period of lease shall be the date on which the agreement is executed.
3. The applicant shall pay seigniorage or dead rent whichever is more in respect of the actual quantity of granite removed at the rate prescribed from time to time in Appendix-II of the Tamil Nadu Minor Mineral Concession Rules, 1959.
4. The applicant should keep correct accounts showing the quantities and other particulars of all minerals obtained from the lands permitted to quarry.
5. The applicant should also allow any officer authorized by the District Collector or any other officer authorized by the State Government in this behalf to inspect the area and verify records and accounts and furnish such information under the terms as may be required by them.
6. The applicant shall carry out the quarrying operations in skilful, scientific systematic manner keeping in view, the proper safety of the labour conservation of minerals and preservation of environment ecology.
7. The applicant shall allow any officer authorized by the District Collector and Director of Geology and Mining to enter upon the area and inspect for the purpose mentioned in conditions 4 and 6 above and also carry out the directions issued to the satisfaction of the above said authorities.
8. No quarrying activities connected there to shall be done before the execution of the agreement and registration is at the cost of the applicant.
9. No hindrance shall be caused to the adjoining pattadars or public.
10. The applicant should restrict his mining operation strictly within the permitted area as defined in the sketch.
11. The terms and conditions are also subject to such further modifications, deletion and additions alternation as may be ordered by the Government to be included in the agreement to be executed for this purpose.

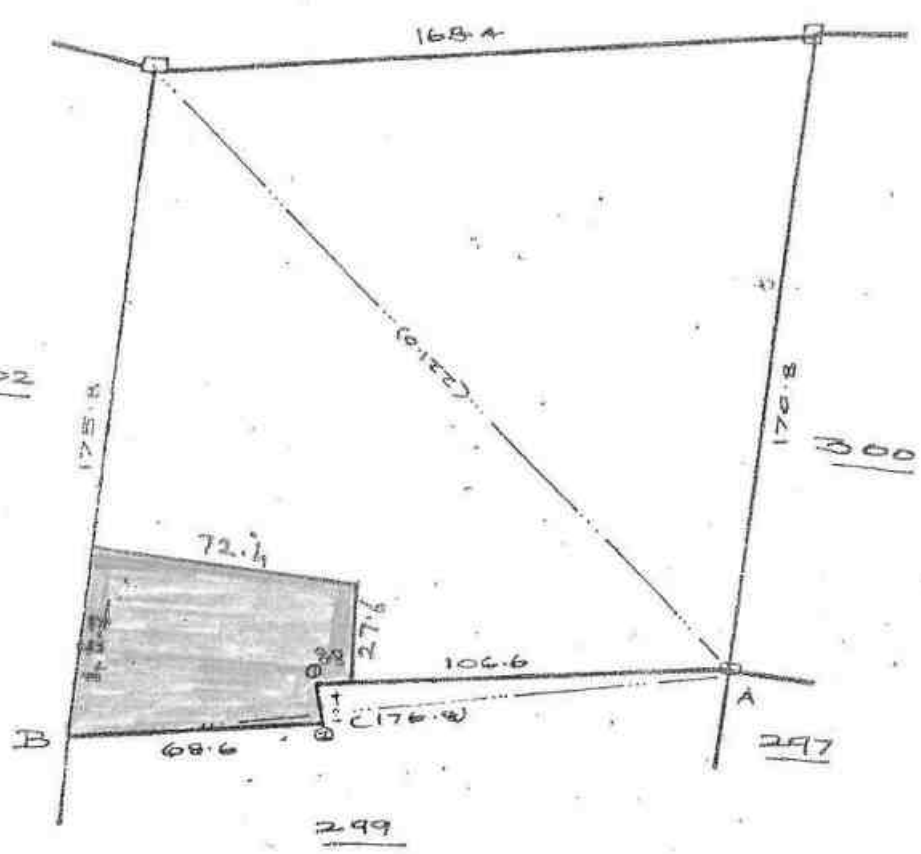


பெரிய கிணர் பகுதி  
 பகுதி எண்: 301  
 கிராமம்: வெள்ளாறு  
 மாவட்டம்: வேலூர்

நாள்: 31/12/2000



கிணர் எண்: 301, 302



கிணர் இடத்தில் உள்ள பகுதி

கிணர்: 301  
 0.31.0 ஏக்கர்  
 0.76 ஏக்கர்

LEASE AREA

		B		
		186.0		
2	1.8	108.6		
		106.2	2.6	1
		A		

பெரிய கிணர் பகுதி  
 பகுதி எண்: 301, 302  
 கிராமம்: வெள்ளாறு  
 மாவட்டம்: வேலூர்

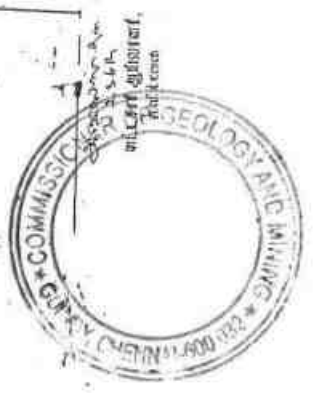
தேதி: 1: 10. 12: 2000

23. 82A





# ANNEXURE III



140 sqm  
 299/13m 0.460 shm 1.15 sqm  
 299/14m 0.035 shm 0.9 sqm  
 299/28m 0.030 shm 0.07 sqm  
 301/1m 0.510 shm 0.76 sqm  
 302/2m 0.430 shm 1.06 sqm  
 302/3m 1.705 shm 4.21 sqm



LEASE AREA

ANNEXURE IV



தமிழக அரசு

வருவாய்த் துறை

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



மாவட்டம் : கரூர்

வட்டம் : குளித்தலை

வருவாய் கிராமம் : கள்ளை

பட்டா எண் : 1826

உரிமையாளர்கள் பெயர்

1.	ஆங்கதேவர்	மகன்	மேகநாதன்	-
2.	ராமசாமி	மகன்	சுடலைமுத்து	-
3.	கிருஷ்ணசாமி	மகன்	பரமசிவம்	-
4.	ராமசாமி	மகன்	சப்புராமன்	-

புல எண்	உட்பிரிவு	புன்செய்		ருன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
299	1	0 - 48.00	0.59	--	--	--	--	904/14--- -- 14-08-2001
299	2A	0 - 34.00	0.42	--	--	--	--	904/14--- -- 14-08-2001
299	2B	0 - 34.50	0.43	--	--	--	--	904/14--- -- 14-08-2001
301	-	2 - 86.50	3.54	--	--	--	--	---- -- 30-09-2015
302	2	1 - 47.50	1.82	--	--	--	--	904/14--- -- 14-08-2001
302	3	3 - 1.50	3.73	--	--	--	--	904/14--- -- 14-12-2001
		8 - 52.00	10.53					

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 14/03/045/01826/30597 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 03-06-2022 அன்று 03:36:29 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்





பெரிய கிணர் - 193 - கிணர்



2	3	4	5	6	7	8	9	10	11			
						கு. மை.	கி. மீ. ஏர்ஸ்	கு. மை.				
298-5பா	ர	11		8-3	15	1	24	0	04.5	0	06	851 பெ. பெருமாள் கவுண்டர்.
-5பா	ர	12		8-3	15	1	24	0	05.0	0	06	864 பெ. பொன்னு சாமி.
-5பா	ர	11		8-8	15	1	24	0	03.5	0	06	851 பெ. பெருமாள் கவுண்டர்.
-6பா	ர	11		8-3	15	1	24	0	12.5	0	16	1312 க. வடிவேல் மற்றும் முன்று பெருகனம்.
-6பா	ர	11		8-3	15	1	24	0	29.0	0	36	887 க. பெருமாள்(1), க. பொன்னு சாமி(2).
-6பா	ர	11		8-3	15	1	24	0	07.5	0	09	851 பெ. பெருமாள் கவுண்டர்.
-7பா	ர	11		8-3	15	1	24	0	19.0	0	24	851 பெ. பெருமாள் கவுண்டர்.
-7பா	ர	11		8-3	15	1	24	0	23.0	0	29	864 பெ. பொன்னு சாமி.
-7பா	ர	11		8-3	15	1	24	0	39.0	0	46	851 பெ. பெருமாள் கவுண்டர்.
								2	30.5	3	31	
199-1	ர	11		8-3	15	1	24	0	48.0	0	59	887 க. பெருமாள் கவுண்டர்(1), க. பொன்னு சாமி கவுண்டர்(2).
-2பா	ர	11		8-3	15	1	24	0	34.0	0	42	887 க. பெருமாள்(1), க. பொன்னு சாமி(2).
-2பா	ர	11		8-3	15	1	24	0	34.5	0	43	889 க. வடிவேல்(1), க. பெருமாள்(2).
-3	ர	11						0	10.5			
-4	ர	11		8-3	15	1	24	0	02.5	0	06	889 க. வடிவேல்(1), க. பெருமாள்(2).
-5பா	ர	11		8-3	15	1	24	0	08.0	0	10	880 க. வி. சி. பாண்டி கவுண்டர்.
-5பா	ர	11		8-3	15	1	24	0	09.0	0	11	888 க. பெ. பொன்னு சாமி.
-5பா	ர	11		8-3	15	1	24	0	10.0	0	12	888 க. வி. சி. பாண்டி கவுண்டர்.
-5பா	ர	11		8-3	15	1	24	0	16.5	0	21	885 க. வி. சி. பாண்டி கவுண்டர்.

*Handwritten signature*

க. வி. சி. பாண்டி  
23/6/14

மா. பி. சி. பாண்டி  
இன் சி. கி. கி.



2	3	4	5	6	7	8	9	10	11	12
						கு. வ. ப.	நெ. ம. வ. ப.	கு. வ. ப.		
301	ர	ய	...	8-3	15	1 24	2 86.5	3 54	1520	ம. பெருமான் கவுண்டர் மற்றும் ஒன்பது போர்களும்.*
302-1	ர	ய	...	8-3	15	1 24	1 89.0	1 60	837	வி. ஆறுமுகம்.
-2	ர	ய	...	8-3	15	1 24	1 47.5	1 82	889	க. பெருமான்(1), க. வடிவேல்(2).
-3	ர	ய	...	8-3	15	1 24	3 01.5	3 71	1450	க. பெருமான் மற்றும் ஐந்து போர்களும்.*
-4	அ	யுற	...	...	...	...	0 11.0	...	.....	வசைடிப் பாதை.
							5 89.5	7 13		
303-1	ர	ய	...	8-3	15	1 24	0 71.5	0 88	899	ச. துள்ளாவி கவுண்டர் (1), வி. ஆறுமுகம்(2).
(2)	ர	ய	...	8-3	15	1 24	0 45.5	0 56		
-3	அ	யுற	...	...	...	...	0 21.5	0 88	837	வி. ஆறுமுகம் கவுண்டர்.
							0 71.5	0 80		
-3	அ	யுற	...	...	...	...	0 05.5	...	.....	வசைடிப் பாதை.
-4	ர	ய	...	8-3	15	1 24	0 09.5	0 12	837	வி. ஆறுமுகம்.
							1 32.0	1 56		
304-1	ர	ய	...	8-3	15	1 24	0 54.0	0 67	858	ம. பெருமான் சக்கிலி.
-2	க	யுற	...	...	...	...	0 11.5	...	.....	வசைடிப் பாதை.
-3	அ	யுற	...	...	...	...	6 12.0	...	.....	தாரிக் குட்டை.
							6 67.5	0 67		
205-1	ர	ய	...	8-3	15	1 24	1 67.5	2 07	1516	க. பெருமான் மற்றும் எட்டு போர்களும்.*
-2	ர	யுற	...	8-3	13	7 41	0 08.0	0 60	1307	வி. ஆறுமுகம் மற்றும் மத்து போர்களும்.*
-3	ர	ய	...	8-3	13	1 24	0 30.0	0 37	1516	க. பெருமான் மற்றும் எட்டு போர்களும்.*
-4	ர	யுற	...	8-3	13	7 41	0 17.0	1 26	1307	வி. ஆறுமுகம் மற்றும் மத்து போர்களும்.*

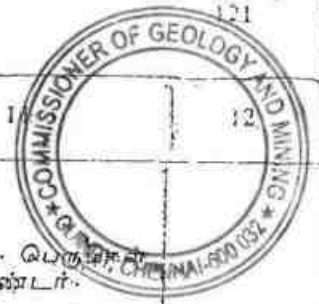
4.66  
5.32

ம. பெருமான் கவுண்டர் மற்றும் ஐந்து போர்களும்.\*  
3.4.23/884/20  
3.4.15.7.20  
கு. வ. ப. கவுண்டர்

வசைடிப் பாதை.  
தாரிக் குட்டை.

க. பெருமான் மற்றும் எட்டு போர்களும்.\*  
Kallai Village Administrative Office  
Kulithalai Taluk  
Kallar District @ 639 110

அ. - காரிக் குட்டை ஐந்தாவது வகுப்பு. @ - சொந்தபராமரிப்பு ஆயக்கட்டில் சேர்ந்தது. \* - விவரப்பட்டியலைப் பார்க்கவும்.



	2	3	4	5	6	7	8	9	10	11	12
5B	298-5பா	ர	4	...	8-3	15	1 24	0 04.5	0 06	851 பெ. பெருமாள் கவுண்டர்.	
5C	-5பா	ர	4	...	8-3	15	1 24	0 05.0	0 06	864 பெ பொன்னு சாமி.	
5D	-5பா	ர	4	...	8-8	15	1 24	0 03.5	0 06	851 பெ. பெருமாள் கவுண்டர்.	
6A	-6பா	ர	4	...	8-3	15	1 24	0 12.5	0 16	1312 க. வடிவேல் மற்றும் மூன்று பேர்களும்.	
6B	-6பா	ர	4	...	8-3	15	1 24	0 29.0	0 36	387 க. பெருமாள்(1), க. பொன்னு சாமி(2).	
6C	-6பா	ர	4	...	8-3	15	1 24	0 07.5	0 09	851 பெ. பெருமாள் கவுண்டர்.	
7A	-7பா	ர	4	...	8-3	15	1 24	0 19.0	0 24	851 பெ. பெருமாள் கவுண்டர்.	
7B	-7பா	ர	4	...	8-3	15	1 24	0 23.0	0 29	864 பெ. பொன்னு சாமி.	
7C	-7பா	ர	4	...	8-3	15	1 24	0 39.0	0 48	851 பெ. பெருமாள் கவுண்டர்.	
								2 80.5	3 31		
199 1	7	4	...	8-3	15	1 24	0 48.0	0 59	887 க. பெருமாள் கவுண்டர்(1), க. பொன்னு சாமி(2).		
2A	-2பா	ர	4	...	8-3	15	1 24	0 34.0	0 42	887 க. பெருமாள்(1), க. பொன்னு சாமி(2).	
2B	-2பா	ர	4	...	8-3	15	1 24	0 34.5	0 43	889 க. வடிவேல்(1), க. பெருமாள்(2).	
3	-3	அ	4	...	...	...	...	0 10.5	...	வண்டிப் பாதை.	
4	-4	ர	4	...	8-3	15	1 24	0 02.5	0 06	339 க. வடிவேல்(1), க. பெருமாள்(2).	
5A	-5பா	ர	4	...	8-3	15	1 24	0 08.0	0 10	880 நா. வீரப்பன் கவுண்டர்.	
5B	-5பா	ர	4	...	8-3	15	1 24	0 09.0	0 11	878 நா. இரங்கசாமி.	
5C	-5பா	ர	4	...	8-3	15	1 24	0 20.0	0 25	880 நா. வீரப்பன் கவுண்டர்.	
5D	-5பா	ர	4	...	8-3	15	1 24	0 21.5	0 27	878 நா. இரங்கசாமி கவுண்டர்.	

*(Handwritten signature)*  
 Administrative Officer

Kallai Village,  
 Pulithalai Taluk  
 District - 620 110

\* விவரப்பட்டியலைப் பார்க்கவும்.





தமிழ்நாடு தமில்நாடு TAMIL NADU

9386

சா

7.7.2014 APPLE GRANITES

ICARUR

CONSENT LETTER

01AB 376719  
T. Meenadharan Bharath

மதுரை மதுரை மதுரை  
15/3, அண்ணா நகர்  
மதுரை மதுரை மதுரை-2  
RC. No. 1761/B1/97-17

1. I.R.SUBBURAMAN S/o.Ramasamy, aged about 56 years, residing at No:8/122 Pattiadikan Patti, Keelaiyur Post, Melur(Tk) Madurai District,
2. I, K.PARAMASIVAM S/o.Krishnasamy, aged about 50 years, residing at Mullai Nagar, Perudurai, Erode District,
3. I, R.SUDALAI MUTHU S/o Ramasamy, aged about 54 years, residing at 3, Chokalinga Nagar 4<sup>th</sup> Street, Bye Pass Road, Madurai District,
4. I, A.MEGANATHAN S/o.Angathevar, aged about 53 years, residing at 27, New Jail Road, Grammarpuram Madurai District,



1. *[Signature]*

3. *[Signature]*

2.

*[Signature]*

4.

*[Signature]*



தமிழ்நாடு தமில்நாடு TAMIL NADU  
 9387 C2  
 7.7.2014 APPLE GRANITES  
 (KARUR)

01AB 376720  
 T. Moenah Bharath  
 T. சீமோன் பாரதீ  
 முத்திரைக்காரர் அபிப்பிராயம்  
 19/8, சூரிய நகர்  
 (காரூர் ஜில்லா, தமிழ்நாடு-2  
 RC. No. 1761 / B1 / 97-17

: 2 :

We do hereby give our consent to M/s.APPLE GRANITES having office at , S.No.299/1, 299//2, & Etc, of Kallai Village, Kulithalai Taluk, Karur District, to apply and quarry colour granite in S.F.No.299/1(P),299/2A(P),299/2B(P),301(P),302/2(P),302/3(P) over an extent of 2.97.0 hectare in Kallai Village, Kulithalai Taluk, Karur District

This agreement shall be in force for a period of 35 years from the 7<sup>th</sup> day of JULY 2014

1. R. Sathish  
 2. [Signature]



N. PANDIAN, B.A., B.L.,  
 ADVOCATE / NOTARY  
 G.O. Ms. No: 283, Law Dept. 15-07-2013  
 ENRT No. 416 Dated:- 28-06-1989  
 L3/2, Pothigai Nagar 5th Street  
 TNHB Colony, MADURAI-625 018

## DEPARTMENT OF GEOLOGY AND MINING

From  
Dr.R.Palaniswamy, I.A.S.,  
Commissioner of Geology and Mining,  
Industrial Estate,  
Guindy, Chennai-600 032.

To  
The Principal Secretary  
to Government,  
Industries Department,  
Secretariat,  
Chennai-600 009



Lr.No.269/MM2/2017 dated 21.09.2017.

Sir,

Sub: Mines and Quarries - Multi colour granite - Mines and Quarries - Multicolour granite - Karur District - Kulithalai Taluk - Kallai Village - S.F.Nos. 299/1(Part), 299/2A (Part) 299/2B (Part), 301 (Part), 302/2 (Part) and 302/3 (Part) over an extent of 2.97.0 hecets. of patta lands - Quarry lease application M/s. Apple Granites - precise area communicated by the Government - Approved Mining Plan called for - Mining Plan submitted for approval - approval accorded - Approved Mining Plan forwarded to Government - Regarding.

- Ref:
- 1) Granite Quarry lease application of M/s. Apple Granites, dated 04.08.2014.
  - 2) The District Collector, karur letter Rc. No. 923/Mines/2014, dated 08.01.2017.
  - 3) Government Letter No.3648/MMB.2/2017, dated.24.08.2017.
  - 4) M/s. Apple Granites, letter dated 04.09.2017.
  - 5) Assistant Director, (G&M) Karur letter Rc. No. 923/Mines/2014, dated 05.09.2017.

\*\*\*\*\*

Kind attention is invited to the references cited above.

The Government in the reference 3<sup>rd</sup> cited have communicated precise area to the applicant M/s. Apple Granites, with a direction to produce Approved Mining Plan and Environmental clearance in respect of the area applied for grant of quarry lease for quarrying multi-colour granite over an extent of 2.97.0 of patta lands in S.F.Nos. 299/1(Part)(0.46.0 Hecets.), 299/2A (Part)(0.03.5 Hecets.), 299/2B (Part)(0.03.0 Hecets.), 301 (Part)(0.31.0 Hecets.), 302/2 (Part)(0.43.0 Hecets.) and 302/3 (Part)(1.70.5 Hecets.) of Kallai Village, Kulithalai Taluk, Karur District within a period of 3 months as per sub-rule (13)

of Rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 by incorporating the conditions stipulated in the Government letter dated 24.08.2017.



2) In response to the precise area communicated, the applicant firm in the reference 4<sup>th</sup> cited has submitted five copies of mining plan duly prepared by the Recognized Qualified Person for approval.

3) The Assistant Director of Geology and Mining, Karur in the reference 5<sup>th</sup> cited has forwarded the mining plan for approval stating that the details such as Geological Reserves, Mineable Reserves, year wise production and development programme have been incorporated in the mining plan. He has further reported that the Geological reserves in the Technical report has been estimated as 81,000 cbm with a recovery of 50% and the mineable reserves in the mining plan has been estimated as 78,000 cu.mtrs. for a depth persistence of 23 mtrs. with a recovery of 50%.

4) The draft mining plan submitted in respect of the precise area communicated and the report of the Assistant Director of Geology and Mining, Karur have been examined with reference to the provisions of Rule 12, 13 and 15 of the Granite Conservation and Development Rules, 1999 and the following are observed:-

- i) All the conditions stipulated in the Government Letter No.3648/MMB2/2017 Industries Department, dated 24.08.2017 have been incorporated in the mining plan.
- ii) The DGPS readings for the entire boundary pillars of the area have been incorporated and shown in the mining plan.
- iii) The total quantity of mineable recoverable reserve of multi-colour granite has been estimated as 78,000 cbm for a depth persistence of 23 meters with a recovery of 50%.





- iv) The Assistant Director of Geology and Mining, Karur has forwarded the mining plan with his recommendations for approval under Rule 15 of the Granite Conservation and Development Rules, 1999.

5) Therefore, in exercise of the powers conferred under Rules 12,13 and 15 of the Granite Conservation and Development Rules, 1999 read with G.O.Ms.No.87, Industries (MMC1) Department Dated 22.2.2001, the mining plan is approved subject to the following conditions:-

- (i) A safety distance of 7.5 meters should be provided for the adjacent patta lands.
- ii) A safety distance of 10 meters has to be provided for the Vadipathai (S.F.No.299/3, 302/4) situated on the southern side of the area.
- iii) A safety distance of 50 meters should be left out for tiled house located at a distance of 46 meters from the boundary in Nallur Village on the North-Western corner of the applied area.
- iv) The waste material generated during the time of quarrying should be dumped only within the lease hold area that will be earmarked for the purpose in the mining plan as per Rule 31 of Granite Conservation Development and Regulations Act, 1999.
- v) No hindrance shall be caused to the adjacent pattadars lands
- vi) The applicant should fence the lease granted area with Barbed wire before the execution of lease deed as follows:-
  - The pillar post shall be firmly grounded with concrete foundation of height not less than 2 meters with a distance between two pillars shall not be more than 3 meters.
  - The applicant shall incorporate the DGPS readings for the entire boundary Pillars of the area and the same should be clearly shown in the mining plan.
- vii) Environment Clearance should be obtained from the District Level Environment Impact Assessment Authority as per Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959,
- viii) The lessee shall strictly adhere to the statutory and safety requirements.
- ix) Quarrying shall be done as per the approved Mining Plan



and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

- x) The lease grantee shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
- (xi) The District Collector, Karur shall obtain a sworn-in-affidavit from the appellant containing the above conditions before execution of lease deed and also ensure that they are complied with.

Further, the lessee / Firm will furnish a declaration in the lease deed agreement as per the Government letter No.12789/MMB.2/2002-7, Industries Department, dated 09.01.2003 stating that the lessee/firm will mine only in the lease hold area and will not undertake any quarrying activity in the adjoining poramboke land. Further, the lessee/ firm will fence the lease hold area separating it from the adjoining poramboke land. If any illegal mining is undertaken, the lessee /firm will be held responsible for those activities and will be subjected to the action taken by the Government in this regard.

6) A copy of the Approved Mining Plan is sent herewith for further necessary action.

Encl: Approved mining plan.

Sd/- R. Palaniswamy  
Commissioner of Geology and Mining

Forwarded / By Order

*A. K. P. S. S. S.*  
27/9/2017  
Deputy Director

- Copy to: ✓ M/s. Apple Granites,  
No.95/2, Perur Udaiyappaty,  
Gudalur Village,  
Kulithalai Taluk,  
Karur District.
- 2) The District Collector, Karur (with AMP)
  - 3) The Directorate of Mines Safety,  
Chennai-40 (with AMP).

भारतीय गैर न्यायिक INDIA NON JUDICIAL

रु.  
25000

पच्चीस हजार रुपये

Rs.  
25000

TWENTY FIVE THOUSAND RUPEES

INDIA



தமிழ்நாடு தமில்நாடு TAMILNADU

C 609484

871 Rs. 25000  
15-02-2018

APPLE GRANITES  
Kallai  
KARUR

மா. இளங்கோவன்  
மு.த.வி  
L.No:9/2011  
காரூர் - 639 004.

SANCTIONED IN G.O.(G.D.)No.3, INDUSTRIES (MMB2) DEPARTMENT  
DATED: 25.01.2018 FOR A PERIOD OF TWENTY YEARS.  
APPENDIX - V

(See Rule 19A & 33 of TNMMCR-1959)

FORM OF JOINT AGREEMENT FOR QUARRYING AND CARRYING AWAY  
MINOR MINERALS BY LESSEES IN RYOTWARI LANDS IN WHICH THE  
MINERALS BELONG TO GOVERNMENT.  
(Collector Ref: 923/Mines/2014)

THIS AGREEMENT MADE the 21<sup>th</sup> day of February 2018, between (1) Thiru. I.R. Subburaman, S/o. Ramasamy, No.8/122, Partiadikan Patti, Keeaiyur Post, Melur Taluk, Madurai District (2) Thiru. I.K. Paramasivam, S/o. Krishnasamy, Mellai Nagar, Perudurai, Erode District. (3) Thiru. I.R. Sudalai Muthu, S/o. Ramasamy, No.3, Chokalinga Nagar, 4<sup>th</sup> Street, Bye Pass Road, Madurai District. (4) Thiru. I.A. Meganathan, S/o. Angathevan, 27, New Jail Road, Grammarpuram Madurai District (hereinafter referred as "the Registered holder" which expression shall where

R. Sullan

K.P. Perumal

R. S. S. S.

REGISTERED HOLDER

Document No. 473 of 2018 of Book  
I. Contains 32 Sheets 1<sup>st</sup> Sheet  
Registering Officer

District Collector, KARUR.

For APPLE GRANITES  
R. Sullan  
Managing Partner  
LESSEE



காரைக்காலம் தமில்நாடு TAMILNADU

C 609485

872 ரூ 25000  
15.08.2018

Apple Granites  
Kallai  
Karur

*J. Jeyaraj*  
ம.ப. இளங்கோவன்  
மு.த.வி  
L.No:9/2011  
கனம் 639 004.

the context so admits include their heirs, executors, administrators, legal representatives and assigns) of the first part and M/s.Apple Granites, S.No.299/1, 299/2&etc, Kalai Village, Kulithalai Taluk, Karur District represented by its Managing Partner Thiru.L.R.Subburaman, S/o.Ramasamy, No.8/122, Pattiadikan Patti, Keelaiyur Post, Melur Taluk, Madurai District (hereinafter referred to as "the Lessee" which expression shall where the context so admits shall include his heirs, executors, administrators, legal representatives and assigns) of the second part, the Governor of Tamil Nadu (hereinafter referred to as the Government which expression shall where the context so admits shall include his successors in office and assigns) of the third part.

WHEREAS the Registered holder holds the lands described in the schedule hereto and intended, to lease out to the Lessee of the said lands for the purpose of quarrying Multi Colour Granite in the said lands and to deposit mining waste in the said lands and has lodged with the District Collector the lease and accurate map or sketch of the said lands.

R. Sullan

Document No. 473	of 2018	of Book
5		Contains 32 Sheets 2 <sup>nd</sup> Sheet
<i>J. Jeyaraj</i> Registering Officer		

K.P. ...

R. ...

*R. Sullan*

REGISTERED HOLDER

For APPLE GRANITES

*R. Sullan*  
Managing Partner  
LESSEE

*J. Jeyaraj*  
DISTRICT COLLECTOR,  
KARUR.





भारतीय गैर न्यायिक INDIA NON JUDICIAL

रु.  
25000

पच्चीस हजार रुपये



Rs.  
25000

TWENTY FIVE THOUSAND RUPEES

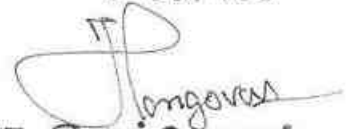


தமிழ்நாடு தமில்நாடு TAMILNADU

873  
15.02.2018 ரூ 25000

C 609486

Apple Granites  
Kallai  
Karur

  
மர். இளங்கோவன்  
மு.தா.வி  
L.No:9/2011  
காரூர் - 639 004.

AND WHEREAS, Lessee or tenant of the Registered holder has made application to the Government through the District Collector of the district of Karur (hereinafter referred to as "the Collector") seeking grant of quarrying lease for quarrying Multi Coloured Granite in the said lands and to deposit mining waste in the said lands and has lodged with the District Collector an accurate map or sketch of the said lands;

AND WHEREAS, the Government has granted a quarrying lease to the Lessee or tenant of the Registered holder and allowed him to commence quarrying operations for Multi Coloured Granite in the said lands and to deposit mining waste thereon by the Lessee or tenant of the Registered holder;

AND WHEREAS the State Government is prepared to allow the said tenant of the Registered holder or Lessee to commence mining operations and to deposit mining waste in or on the said lands described in the schedule for a term of Twenty years beginning on


R. Sullan

K.P. Sullan

R. Sullan



REGISTERED HOLDER

Document No. 473 of 2018 of Book I Contains 32 Sheets 3 <sup>rd</sup> Sheet
 Registering Officer

  
DISTRICT COLLECTOR,  
KARUR.

For APPLE GRANITES

R. Sullan  
Managing Partner  
LESSEE





தமிழ்நாடு தமில்நாடு TAMILNADU

C 609487

874 ரூ 25000  
15.02.2018

Apple Granites  
Kallai  
Karur

மா. இளங்கோவன்  
மு.தா.னி  
L.No:9/2011  
காரூர் - 639 004.

the 21<sup>th</sup> day of February 2018 upon the tenant of the Registered holder and the Lessee entering into the agreement herein contained.

AND WHEREAS, the tenant of the Registered holder or Lessee has deposited with the District Collector the sum of Rs.40,000/-remitted at State Bank of India, Thanthoni in Chalan No.Nil, Dated: 15.2.2018 as security for the due performance of the covenants, agreements and provisos or damage which may be incurred by the Government by reason of any of the said lands described in the schedule hereto being rendered unfit for cultivation by the mining operations therein or by the deposit of mining waste thereon by either the Registered holder or the Lessee.

AND WHEREAS, the Lessee has at the request of the Registered holder and in consideration of such approval by the District Collector of the mining operations as hereinbefore recited agreed to join in these presents for the purpose of entering into covenants, agreements and provisos hereinafter contained as surety for the Registered holder.

R. Shulan

K. Parvathi

R. Shulan

REGISTERED HOLDER

Document No. <u>472</u> of <u>2018</u> of Book
<u>I</u> Contains <u>32</u> Sheets <u>10</u> Sheet
 Registering Officer

DISTRICT COLLECTOR,  
KARUR.

For APPLE GRANITES

R. Shulan  
Managing Partner

LESSEE



தமிழ்நாடு தமிழ்நாடு TAMILNADU

C 188538

875 ரூ 1000  
15.08.2018

Apple Granites  
kallai  
karur

மா. இளங்கோவன்  
மு.தா.வி  
L.No:9/2011  
காரூர் - 639 004.

I. NOW THESE PRESENTS WITNESS and the Registered holder and the Lessee do hereby jointly and severally and each of them doth individually hereby covenant and agree with the Government as follows:-

1. To carry on mining operations during the said term in a proper and workman like manner and to deposit mining waste on the lands described in the schedule here and to answer and to account at all reasonable times to the Government for all acts and defaults committed by any servants, agents or workmen employed by the Registered holder or Lessee in carrying on such operations or in making such deposits.

2. To pay on the 20th day of February 2018 next and on the 20th day of February of every succeeding year so long as the operations aforesaid are carried on, into the State Bank of India, Thanthoni Branch in Karur District to the credit of the Government in addition to the land assessment for the time being payable in respect of the said lands Seigniorage on the minerals mined at the rates prescribed by the Government from time to time.

1. R. Sullan  
2. K. Parand  
3. R. ...  
REGISTERED HOEDER

Document No. 673 of 2018 of Book  
I Contains 32 Sheets 5 Sheet  
Registering Officer

DISTRICT COLLECTOR,  
KARUR.

For APPLE GRANITES  
R. Sullan  
Managing Partner  
LESSEE



தமிழ்நாடு தமிழ்நாடு TAMILNADU

876 ரூ.1000  
15.02.2018

AK 614349

Apple Granites  
Kallai  
Karur

*J. Jeyaraman*  
ம.நா.பி  
L.No:9/2011  
எண் - 639 004.

3 To abide by the Rules prescribed by the Government from time to time regarding quarrying of minor minerals (Multicoloured Granite)

4. To keep correct accounts in such form as the District Collector shall from time to time require and direct showing the quantities and other particulars of all minerals obtained by the Registered holder or the Lessee from the said lands and also the number of persons employed in carrying on the said mining operations therein and to prepare and maintain from time to time when so directed by the said District Collector, Karur complete and correct plans of all mines and working in the said lands and to allow any officer thereunto authorised by the Commissioner/Director of Geology and Mining, Tamil Nadu, from time to time and at all times to examine such accounts and any such plans and to supply and furnish when so required all such information and returns regarding all or any of the matters aforesaid as the Government may from time to time require and direct.

*R. Sullam*

Document No. 473 of 2012 of Book  
E Contains 32 Sheets 6 Sheet

*K. P. ...*

*[Signature]*  
Registering Officer

*R. A. ...*

*[Signature]*  
DISTRICT COLLECTOR,  
KARUR.

REGISTERED HOLDER

For APPLE GRANITES

*R. Sullam*  
Managing Partner

LESSEE





5. To allow any officer authorized by the Commissioner, Director of Geology and Mining, Tamil Nadu in that behalf from time to time and at all times to enter upon any part of the said lands where mining operations may be carried on for the purpose of inspecting the same.

6. To forthwith send to the District Collector, Karur a report of any accident which may occur at or in the said land and also of the discovery therein of any minerals other than Multi Coloured Granite.

7. Not to claim any remission of assessment in respect of any of the said lands which shall be rendered unfit for surface cultivation by the carrying on of any mining operations or by the deposit of mining waste unless thirty times of the assessment thereon has been deducted under proviso 2 hereunder.

II. PROVIDED ALWAYS and it is hereby further agreed by and between the parties as follows:-


1. That it shall be lawful for the Registered holder or Lessee as the case may be at any time to cease mining operations under these presents provided the Registered holder or Lessee shall pay the Government or the District Collector the land assessment, cess and seigniorage payable by the Registered holder or the Lessee under these presents upto the end of the year in which the Registered holder or the

Lessee shall cease such minimum operations and shall restore the said lands fence or fill in abandoned pits and excavations therein if required by the District Collector as next hereinafter provided and upon the Registered holder or the Lessee so doing these presence shall cease and determine.

That in case the Registered holder shall relinquish the whole or part of the said lands in case or the expiry or sooner determination of this agreement then and in any such case, the Registered holder in the case of relinquishment and the Registered holder and the Lessee in other cases shall restore said lands or the area relinquished or so much thereof as the District Collector shall require to be restored to a state fit for cultivation and shall securely and permanently fence or fill in all abandoned pits and excavation therein as the District Collector shall require to be so fenced or filled in and in case the Registered holder or the Lessee shall be fail, or neglect any such lands with the Registered holder or the Lessee be required to restore to a state fit for cultivation or to so fence or fill in any such abandoned pit or excavation which the Registered holder or the Lessee shall be required to so fence or fill them and in any such case it shall be lawful for the District Collector to so restore any such lands or as the case may be so fence or fill in

1 R. Sullan  
2 K. Parameswar  
3 R. A. M.  
4   
REGISTERED HOLDER

Document No. 423 of 2012 of Book  
1 Contains 32 Sheets 7<sup>th</sup> Sheet

  
9/24  
Registering Officer  
DISTRICT COLLECTOR,  
KARUR.

PLATINUM GRANITE  
R. Sullan  
Managing Partner  
LESEE



any pit or excavation at the expense of the Registered holder or the Lessee and to apply the said sum of Rs.40,000/- so deposited in or towards the cost of so doing and to deduct from the amount of the said deposit and retain on behalf of the Government a sum equal to thirty times the assessment of the said lands which shall have been rendered unfit for cultivation. If, however the amount of deposit is not sufficient to cover the cost of such restoration of fencing or filling as the case may be or to meet thirty times the assessment in the area rendered uncultivable, it shall be lawful for the Government to recover the balance by resort to Civil Court.



3. That all land assessment, cess and seigniorage payable under these presents shall be recoverable under the provisions of the Tamil Nadu Revenue Recovery Act, 1864, or any subsisting statutory modification thereof, as if the same were arrear of land revenue.

4. That in the event of any breach of the Registered holder or any of the conditions of these presents, it shall be lawful for the Government to levy enhanced seigniorage subject to the maximum of fifteen times the normal rate or for the District Collector to give notice in writing to the Registered holder of his intention to cancel these presents whereupon the same shall stand cancelled but without prejudice to any rights which the Government may have against the Registered holder in respect of any antecedent claim or breach of covenant or condition.

5. That any notice to be given to the Registered holder or the Lessee may be addressed to his last known place of abode and where a notice has been so addressed it shall be deemed to have been duly served for the purpose of these presents.

6. Should any question or dispute arise regarding an agreement executed in pursuance of these Rules or any matter or thing connected therewith or the powers of the

Registered holder there under, the amount or payment of the seigniorage fee or area assessments made payable thereby, the matter in issue shall be decided by the Commissioner/Director of Geology and Mining. In case the Registered holder or the Lessee are not satisfied with decision of the Commissioner/Director of Geology and Mining, the matter shall be referred to the State Government.


**CONDITIONS SPECIFIED IN GO.(3D)NO.3, INDUSTRIES (MMB2)  
DEPARTMENT, DATED 25.01.2018**

- 1) The applicant shall execute an agreement within one month from the date of receipt of the Government order.
- 2) The date of commencement of the period of lease shall be the date on which the agreement is executed.

1. R. Sullan  
2. K. Patil  
3. R. Sullan  
4.   
REGISTERED HOLDER

Document No. .... 423 ... of ... 2018 ... of Book
..... I ... Contains ... 32 ... Sheets ... 2 ... Sheet

For APPLE GRANITES  
R. Sullan  
Managing Partner  
**LESSEE**


  
Registering Officer  
DISTRICT COLLECTOR,  
KARUR.





- 3) The applicant shall pay seigniorage or dead rent whichever is more in respect of the actual quantity of granite removed at the rate prescribed from time to time in Appendix-II of the Tamil Nadu Minor Mineral Concession Rules, 1959.
- 4) The applicant should keep correct accounts showing the quantities and other particulars of all minerals obtained from the lands permitted to quarry.
- 5) The applicant should also allow any officer authorized by the District Collector or any other officer authorized by the State Government in this behalf to inspect the area and verify records and accounts and furnish such information under the terms as may be required by them.
- 6) The applicant shall carry out the quarrying operations in skilful, scientific systematic manner keeping in view, the proper safety of the labour conservation of minerals and preservation of environment ecology.
- 7) The applicant shall allow any officer authorized by the District Collector and Director of Geology and Mining to enter upon the area and inspect for the purpose mentioned in conditions 4 and 6 above and also carry out the directions issued to the satisfaction of the above said authorities.
- 8) No quarrying activities connected thereto shall be done before the execution of the agreement and registration is at the cost of the applicant.
- 9) No hindrance shall be caused to the adjoining pattadars or public.
- 10) The applicant should restrict his mining operation strictly within the permitted area as defined in the sketch.
- 11) The terms and conditions area also subject to such further modifications, deletion and additions alternation as may be ordered by the Government to be included in the agreement to be executed for this purpose.
- 12) The applicant should maintain at his cost proper signboards indicating the survey numbers, years of the lease, name of the lease holder and the leased period to the satisfaction of the District Collector, Director of Geology and Mining and maintain it all time at the quarry site.
- 13) No quarrying shall be done within a distance of 7.5 metres of the boundaries of the permitted area.
- 14) The applicant should make his own arrangements to form the approach road from the public road to the place of his quarry.
- 15) The lessee shall strictly adhere to the statutory and safety requirements.
- 16) The waste materials generated during quarrying operation shall be dumped only in the area granted under lease.

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**REGISTERED HOLDER**

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**Registering Officer, DISTRICT COLLECTOR, KARUR.**

For APPLE GRANITES  
  
Managing Partner  
**LESSEE**



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17) 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.

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

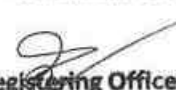
19) That the mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.



**SPECIAL CONDITIONS IMPOSED IN G.O.(3D) NO.3 Industries (MMB2)**  
**Department, Dated:25.01.2018**

1. A safety distance of 7.5 meters has to be provided for the adjacent patta lands.
2. A safety distance of 10 meters has to be provided for the Vandipathai (S.F.No.299/3, 302/4) situated on the southern side of the area.
3. A safety distance of 50 meters should be left out for tiled house located at a distance of 46 meters from the boundary in Nallur Village on the North - Western corner of the applied area.
4. The waste material generated during the time of quarrying should be dumped only within the lease hold area that will be earmarked for the purpose in the mining plan as per Rule 31 of Granite Conservation Development and Regulations Act, 1999.
5. No hindrance shall be caused to the adjacent pattadars lands.
6. The applicant should fence the lease granted area with Barbed wire before the execution of lease deed as follows:-
  - (i) The pillar posts shall be firmly grounded with concrete foundation of height not less than 2 meters with a distance between two pillars shall not be more than 3 meters.
  - (ii) The applicant shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly showed in the mining plan.
7. The lessee shall strictly adhere to the statutory and safety requirements.

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 Registering Officer

  
DISTRICT COLLECTOR,  
KARUR.

R. Sullan  
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8. Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
9. The lease grantee shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
10. The District Collector, Karur shall obtain a sworn-in-affidavit from the appellant containing the above conditions before execution of lease deed and also ensure that they are complied with. Further, the lessee / firm will furnish a declaration in the lease deed agreement as per the Government Letter No.12789/MMB.2/2002-7, Dated:9.1.2003 stating that the lessee / firm will mine only in the lease hold area and will not undertake any quarrying activity lease hold area and will not undertake any quarrying activity in the adjoining poramboke land. Further, the lessee / firm will fence the lease hold area separating it from the adjoining poramboke land. If any illegal mining is undertaken, the lessee/ firm will be held responsible for those activities and will be subjected to the action taken by the Government in this regard.



Conditions imposed by the District Level Environment Impact  
Assessment Authority  
DEIAA-DIA/TN/MIN/9629/2017-KRR Ec.No.88/2017/Mines,  
Dated:18.1.2018

1. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
2. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
3. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
4. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
5. The proponent shall ensure that First Aid Box is available at site.
6. The excavation activity shall not alter the natural drainage pattern of the area.
7. The excavated pit shall be restored by the project proponent for useful purposes.
8. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.

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Registering Officer  
For APPLE GRANITES  
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**LESSEE**

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9. The quarrying operation shall be restricted between 7AM and 5 PM.
10. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
11. A minimum distance of 15 mts. from any civil structure shall be kept from the periphery of any excavation area.
12. Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.
13. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
14. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
15. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
16. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
17. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
18. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
19. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
20. The following measures are to be implemented to reduce Air Pollution during transportation of mineral ]
  - i. Roads shall be graded to mitigate the dust emission.
  - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust.
21. The following measures are to be implemented to reduce Noise Pollution
  - i. Proper and regular maintenance of vehicles and other equipment
  - ii. Limiting time exposure of workers to excessive noise.
  - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
  - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
22. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, GoI to control noise to the prescribed levels.
23. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
24. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
25. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.

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Registering Officer

FOR APPLE GRANITES

R. Sullan

Managing Partner

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DISTRICT COLLECTOR,  
KARUR.



26. The following measures are to be adopted to control erosion of dumps:-
  - i. Retention toe walls shall be provided at the foot of the dumps.
  - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
27. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
28. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
29. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
30. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
31. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
32. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
33. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
34. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.
35. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500m radius from the periphery of the quarry site.
36. Ground water quality monitoring should be conducted once in 3 Months.
37. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
38. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
39. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI..
40. Bunds to be provided at the boundary of the project site.
41. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place and progress report shall be submitted once in 3 months.

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Registering Officer

For Asst ...  
 R. Sullan  
 Managing Partner  
**LESSEE**

*[Signature]*  
 DISTRICT COLLECTOR  
 KARUR.

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42. At least 10 Neem trees should be planted around the boundary of the quarry site.
43. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
44. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity.
45. The Project Proponent shall provide solar lighting system to the nearby villages.
46. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
47. Rainwater shall be pumped out Via Settling Tank only.
48. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
49. As per MoEF&CC, GoI. Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from standing committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.
50. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
51. Safety equipments to be provided to all the employees.
52. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai.
53. The Deputy Superintendent of Police, Revenue Divisional Officer, and the Tahsildar concerned shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
54. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
55. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining lease.
56. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before commencing mining operation.
57. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
58. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
59. Blasting shall be carried out after announcing to the public through adequate public address system to avoid any accident.
60. Proper sanitation measures, first aid kit and protected drinking water should be provided to the labourers.
61. The Environmental norms shall be monitored by the District Environmental Engineer, Tamil Nadu Pollution Control Board, Karur.
62. Periodical medical examination of the quarry workers should be carried out by a registered medical practitioner and the report should be filed in the quarry office in a separate file and copy should be sent to the Deputy Director, Health Services, Karur.
63. Artificial recharge structure should be constructed nearby the lease area to harvest the rain water.

**General Conditions:**

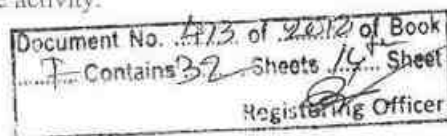
- 1) EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
- 2) The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.

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K. R. S. S. S.

R. S. S. S.

REGISTERED HOLDER



For and on Behalf of LESSEES

R. Sullan

Managing Partner

LESSEE

DISTRICT COLLECTOR,  
KARUR.





- 3) No change in mining technology and scope of working should be made without prior approval of the DEIAA, Karur District, Tamil Nadu.
- 4) No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
- 5) Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- 6) Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
- 7) A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
- 8) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
- 9) Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
- 10) Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
- 11) All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
- 12) Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
- 13) Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
- 14) The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
- 15) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
- 16) The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
- 17) This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.
- 18) The DEIAA, Karur District may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
- 19) The DEIAA, Karur District may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this



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2 K. Paramasivam

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 Registering Officer

For APPLE GRANITES

R. Sullan  
 Managing Partner


LESSEE

  
 DISTRICT COLLECTOR  
 KARUR.



- 3) No change in mining technology and scope of working should be made without prior approval of the DEIAA, Karur District, Tamil Nadu.
- 4) No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
- 5) Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- 6) Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
- 7) A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
- 8) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
- 9) Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
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- 12) Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
- 13) Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
- 14) The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
- 15) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
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- 18) The DEIAA, Karur District may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
- 19) The DEIAA, Karur District may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this



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 Registered Officer

  
 DISTRICT COLLECTOR,  
 KARUR. 18/24

FOR APPLICANT GRANTEE  
 R. Sullan  
 Managing Partner  
 LESSEE



BEIAA, Karur District that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.

- 20) Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
- 21) The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
- 22) Any other conditions stipulated by other Statutory/Government authorities shall be complied.
- 23) Any appeal against this environmental clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under section 16 of the National Green Tribunal Act, 2010.

II. 7) The Lessee shall strictly comply with the provisions of labour legislations such as:-

- i. Minimum Wages Act 1948 and Central Rules, 1950.
- ii. Payment of Wages Act 1936 and Mines rules, 1955.
- iii. Equal Remuneration act and Central Rules, 1976.
- iv. The Explosives Act, 1884 (Central Act IV of 1884)
- v. The Lessee shall pay minimum rates of wages fixed by the Government to the labourers and furnish a certificate every month before 10<sup>th</sup> of the following month to the District Collector, Karur that these wages are being paid. Non furnishing of this certificate will be taken as a violation of the conditions of this agreement. The Lessee should maintain the required registers as per labour laws. Any contravention of the provisions shall attract legal proceedings.

8) Any contravention of the Mines Act, 1952 shall amount to the cancellation of the lease.

9) Mining operations shall not be commenced/conducted unless a qualified manager and other supervisory staff appointed as required under the Metalliferous Mines Regulations 1961 and relevant notices to be sent to the Director General of Mines safety, Dhanbad with a copy of the same to the concerned Director of Mines safety, Chennai Region, Chennai.

10) The Lessee should not employ child labourers in Granite quarry works.

11) Any other conditions stipulated by other Statutory / Government authorities shall be complied.

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Registering Officer

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LESSEE

DISTRICT COLLECTOR  
KARUR.



For the purpose of calculation of stamp duty Under Article No.35 (a) (IV) of the Stamp Act, 1% of total sale/lease amount of Rs.18,10,38,000/-, area assessment for Twenty years Rs.11900/- and security deposit amount of Rs.40,000/- were taken into account.



In this regard for the total stamp paper value of Rs. 18, 11,000/- the lessee has submitted Stamp Paper worth of Rs.1,11,000/- only. The lessee should remit the remaining stamp duty of Rs.17,00,000/- in the Sub Registrar Office, Kulithalai.

If any illicit quarrying is found in the area in S.F.Nos. 299/1 (Part) (0.46.0 hecets), 299/2A (Part) (0.03.5 hecets), 299/2B (Part) (0.03.0 hecets), 301 (Part) (0.31.0 hecets), 302/2 (Part) (0.43.0 hecets), 302/3 (Part) (1.70.5 hecets) of Kallai Village, Kulithalai Taluk, Karur District before the date of execution of lease deed this lease deed is liable to be cancelled and criminal action will be initiated.

SCHEDULE

1. Name of the District : Karur
2. Name of the Taluk : Kulithalai
3. Name of the Village : Kallai
4. Name of the Sub Registration District : Kulithalai
5. Lease period : 20 years

From 2/2.2018 to 2/2.2038.

Survey Number	Extent in hectares	Area Assessment Rs. P.	BOUNDARIES			
			North By S.F.No.	South By S.F.No.	East By S.F.No.	West By S.F.No.
299/1(Part), 299/2A(Part), 299/2B(Part), 301(Part), 302/2(Part), 302/3(Part)	0.46.0 0.03.5 0.03.0 0.31.0 0.43.0 1.70.5	11900/- (Rs.200/- Per year Per hectare)	Nallur Village Patta lands	299/1(Part), 302/3(Part)- Patta lands  299/3,302/4- Vandipathai	299/2A, 299/2B, 301, 302/3-Patta lands	302/1,302/2- Patta lands
<b>Total</b>	<b>2.97.0</b>					

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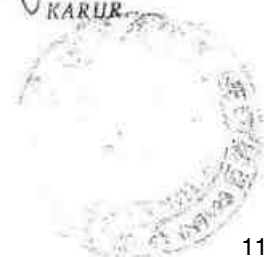
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Registering Officer

DISTRICT COLLECTOR,  
KARUR

For APPLE GRANITES  
R. Sullan  
Managing Partner  
**LESSEE**



IN WITNESS WHEREOF (1) Thiru.L.R.Subburaman, S/o.Ramasamy, No.8/122, Pattiadikani Patti, Keelair Post, Melur Taluk, Madurai District (2) Thiru.L.K.Paramasivam, S/o.Krishnasamy, Mullai Nagar, Perudurai, Erode District, (3) Thiru.L.R.Sudalai Muthu, S/o.Ramasamy, No.3, Chokalinga Nagar, 4<sup>th</sup> Street, Bye Pass Road, Madurai District. (4) Thiru.L.A.Meganathan, S/o.Angathevar, 27, New Jail Road, Grammarpuram Madurai District the Registered holders and M/s.Apple Granites, S.No.299/1, 299/2&etc, Kalai Village, Kulithalai Taluk, Karur District represented by its Managing Partner Thiru.L.R.Subburaman, S/o.Ramasamy, No.8/122, Pattiadikani Patti, Keelair Post, Melur Taluk, Madurai District the Lessee and Thiru.G.Govindaraj, I.A.S., the District Collector, Karur acting for and on behalf and by the order and direction of the Governor of Tamil Nadu have hereunto set their hands.



*[Signature]*  
DISTRICT COLLECTOR,  
KARUR.

Document No. 4230/... of Book  
1... Contains ... 32 ... sheets ... 19 ... Sheet  
Registering Officer

1. R. Sullan  
2. K. Parasuram  
3. R. Sullan  
4. *[Signature]*

For APPLE GRANITES  
*[Signature]*  
Managing Partner

**REGISTERED HOLDER**

**LESSEE**

Signed by the above named  
In the presence of

1. R. Soundarajan  
G. Udaya Patey  
Rakkan Patey Po  
Kulithalai TC  
Karur D.T

2. A. G. M. N. N. N.  
B. S. S. S. S. S.  
L. S. S. S. S. S.  
6807 - 20

Signed by the above named  
In the presence of

*[Signature]*  
DEPUTY DIRECTOR,  
GEOLOGY AND MINING,  
KARUR.

1.

2.

*[Signature]*  
21/05/24  
21/05/24  
21/05/24  
21/05/24  
21/05/24







Document No. 422 of 2018 of Book I Contains 32 Sheets 21 Sheet

Registering Officer

299

299/2.Am  
 299/2.Bm  
 299/2.Cm  
 299/2.Dm  
 299/2.Em  
 299/2.Fm  
 299/2.Gm  
 299/2.Hm  
 299/2.Im  
 299/2.Jm  
 299/2.Km  
 299/2.Lm  
 299/2.Mm  
 299/2.Nm  
 299/2.Om  
 299/2.Pm  
 299/2.Qm  
 299/2.Rm  
 299/2.Sm  
 299/2.Tm  
 299/2.Um  
 299/2.Vm  
 299/2.Wm  
 299/2.Xm  
 299/2.Ym  
 299/2.Zm

DEPUTY DIRECTOR,  
 GEOLOGY AND MINING,  
 KARUR.



FOR APPLE GRANITES  
 R. Sullon  
 Managing Partner  
 LESSEE

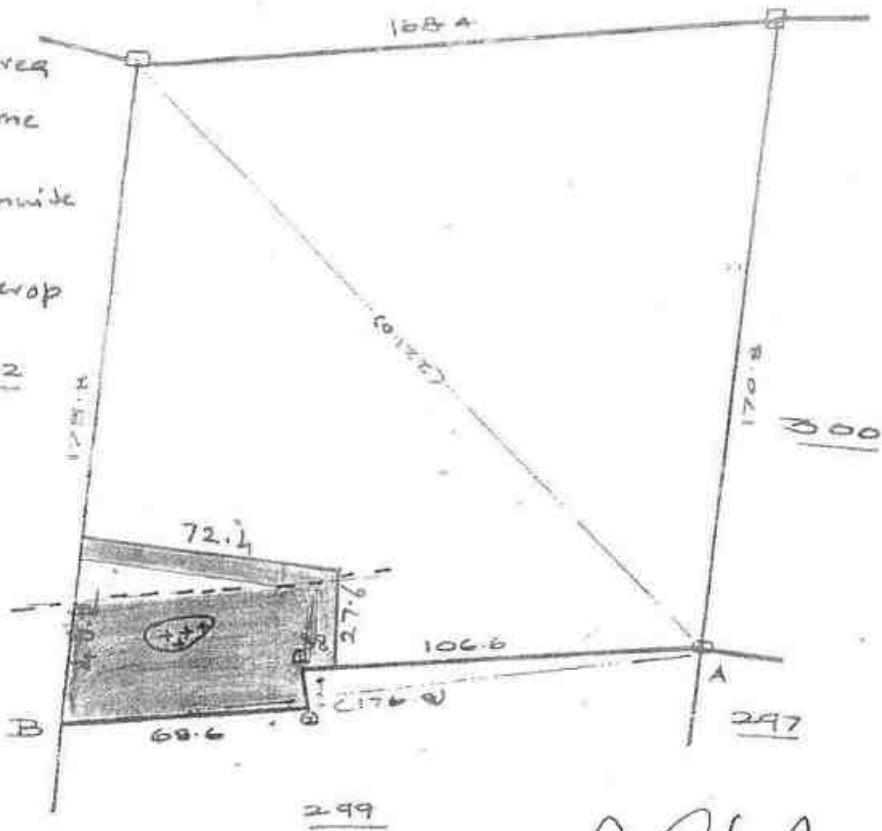
- Applied Area
- Safety Zone
- Calc. granite
- Cont. track
- 1 R. Sullon
- 2 K. P. S. S. S.
- 3 R. S. S. S.

REGISTERED HOLDER

R. S. S. S.  
 REGISTERED HOLDER



- Lease Applied Area
- Safety Zone
- Calc. granite
- Rock outcrop



- 1 R. Sullan
- 2 K. P. S. S. S.
- 3 R. S. S. S.
- 4

REGISTERED HOLDER



சுற்றுலா மற்றும் தொழில் நுட்ப அமைச்சு

மலர்: 301 0.31.0 சிவ  
 2/1 0.76 சிவ

*[Signature]*  
 DISTRICT COLLECTOR,  
 KARUR.

Document No. 173 of 2018 of Book  
 Contains 37 sheets of 20th Sheet

For APPLE GRANITES

R. Sullan  
 Managing Partner  
**LESSEE**

*[Signature]*  
 22/8/14  
 உதவி இயக்குநர்  
 மின்சாரத்துறை

DEPUTY DIRECTOR,  
 GEOLOGY AND MINING,  
 KARUR.

B	1880
B	108.6
A	106.2
A	



சுற்றுலா மற்றும் தொழில் நுட்ப அமைச்சு  
 மின்சாரத்துறை  
 சென்னை - 600 032

23.6.14  
 க. ம. 8





Handwritten text at the top of the page, including what appears to be a title and some administrative details.

□ - Applied Area

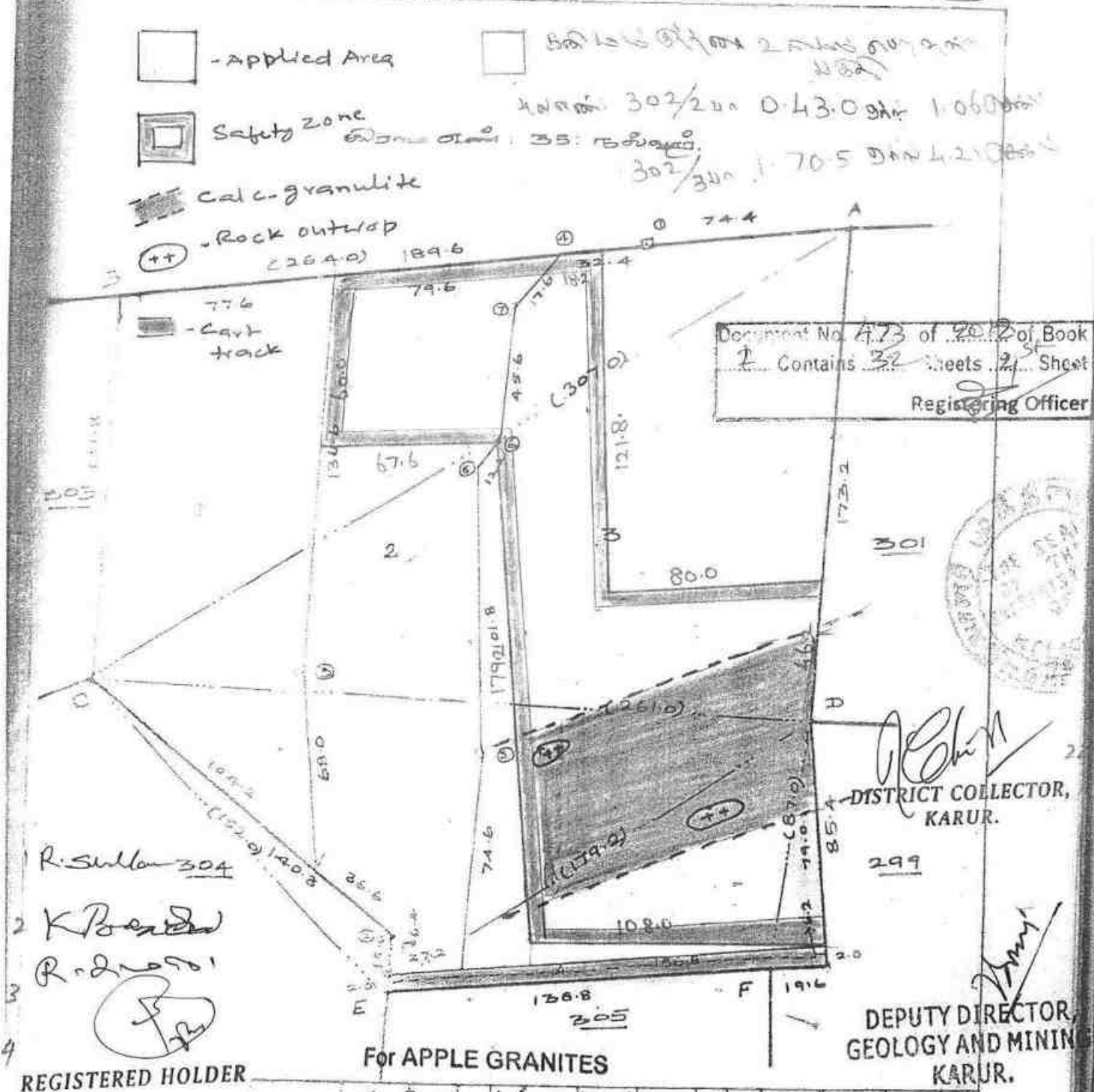
◻ Safety Zone

▨ Calc. granulite

⊕ Rock outcrop

▬ Cart track

Handwritten notes: 302/200 0.43.0 gha 1.0600 gha, 302/300 1.70.5 gha 4.2100 gha



Document No. 473 of 2012 of Book 2 Contains 32 sheets 2nd Sheet Registering Officer



*[Signature]*  
DISTRICT COLLECTOR, KARUR.

*[Signature]*  
DEPUTY DIRECTOR, GEOLOGY AND MINING, KARUR.

1 R. Sullan 304  
2 K. P. ...  
3 R. ...  
4 REGISTERED HOLDER

For APPLE GRANITES

A	R. Sullan (370)	40	19.2	4	(152.0)
F	Managing Partner				120 16.4 2
D	LESSEE				E
C	(261.0)	364	75.8		B
					(264.0)
					74.4 0.4 1
					A

*[Signature]*  
REGISTERED HOLDER

118A  
Handwritten text at the bottom right corner.



भारत सरकार  
GOVERNMENT OF INDIA

Subburaman Ramasamy  
DOB: 04/06/1957  
SEX: MALE



8997 9055 5443



Subburaman Ramasamy



भारतीय पहचान प्रमाणिका  
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

Address:  
S/O Ramasamy 18/29,  
MANAGERI 2ND STREET,  
Chevandan, Madurai, Tamil Nadu - 625020

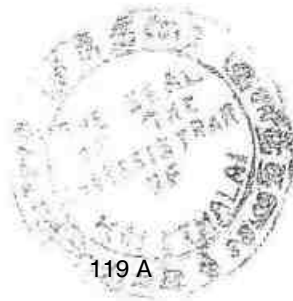


119 A

119 A

R. Sullon

Document No. 473 of 2018 of Book  
Contains 32 Sheets 22 Sheet  
Registering Officer



119 A



भारत सरकार  
GOVERNMENT OF INDIA



பெயர் / Name  
R Sudalai Muthu  
பிறந்த நாள் / Year of Birth - 1959  
பாலினம் / Male



5236 8905 9254

- சாதாரண மனிதனின் அதிகாரம்



இந்திய தனிப்பயன் அடையாளம்  
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

முகவரி:  
S/O ச ராமசாமி, 8 ஏ. 4 வது  
பெரு, சோக்கலிங்க நகர்,  
சோக்கலிங்க நகர், மதுரை,  
அரசாட்சி, தமிழ் நாடு, 625016

Address:  
S/O S Ramasamy, 8A, 4th  
street, chokkalinga nagar,  
chokkalinga nagar, Madurai,  
Arasaradi, Tamil Nadu,  
625016



R. S. M.

Document No. 473 of 2018 of Book  
I Contains 32 Sheets 23<sup>rd</sup> Sheet  
Registering Officer





இந்திய அரசாங்கம்  
Government of India



மெகாஜியன் ஆங்கடேவர்  
Megadevan Angadevar  
தந்தை ஆங்கடேவர்  
Father: ANGADEVAR  
பிறந்ததேதி: 16 / Year of Birth: 1961  
ஆண்/மல் / Male



5788 0646 5697

சாதாரண மனிதனின் அதிகாரம்

*Handwritten signature/initials*

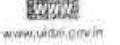


Unique Identification Authority of India

முகவரி:  
S/O ஆங்கடேவர், எண் 27,  
புதுஜெயில்ரோடு, கிராமர்புரம்,  
மதுரை தெற்கு, அரசராடி, மதுரை,  
தமிழ்நாடு. 625016

Address:  
S/O Angadevar, no 27, NEW JAIL  
ROAD, GRAMMARPURAM,  
Madurai South, Arasaradi,  
Madurai, Tamil Nadu, 625016

5788 0646 5697



Document No. 423 of 2018 of Book  
I Contains 32 Sheets 29 Sheet  
Registering Officer



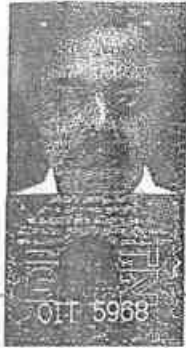


India Patent Office  
Date: 08/11/1982

Pat. No. TN33 19820001742  
Applicant: PARAMASIVAMI K  
Inventor: KRISHNASAMY GOUNDER P

Address: DOOR NO 135 MULLAI NAGAR  
OLD BUS STAND ROAD  
PERUNDURAI 638052

Phone No: 0645-1963



*[Faint handwritten notes and signatures]*

*K. Paramasivami*

Document No. 423 of 2018 of Bent  
I Contains 32 Sheets 25 Sheet  
Registering Officer





भारत सरकार  
GOVERNMENT OF INDIA



செந்திராஜன் ரா  
Soundarajan R  
தந்தை : ராசு கருப்புடையார்  
Father : RASU KARUPPUDAIYAR  
பிறந்தவருடம் / Year of Birth : 1985  
ஆண்பால் / Male



4619 2567 7279

ஆதார் - சாதாரண மனிதனின் அதிகாரம்



இந்திய தனிப்பட்ட அடையாளக் கையெழுத்து  
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

ஆதாரி:  
S/O ராசு, க.என் 191,  
கடையாப்பட்டி, திதற்கு,  
கூடலூர், ராக்கம்பட்டி, கரூர்,  
தமிழ்நாடு, 639120

Address:  
S/O RASU, NO 191, G  
UDAIYAMPATTI, SOUTH  
Gudalur, Rakkampatti, Karur,  
Tamil Nadu, 639120



1947  
1800 100 1947



help@uidai.gov.in



www.uidai.gov.in

P.O. Box No. 1947,  
Bengaluru-560 001

R. S. [Signature]

Document No. 473 of 2018 of Book  
..... Contains 32 Sheets 16 Sheet  
.....  
Registering Officer





India Driving Licence (Tamil Nadu)  
Form 7  
DOI 12/12/1995

D.L. No. TN63 1995003254  
Name: ARUL RAJA  
NOM of: ALAGARSAMY  
Address:  
300 SEEMAN NAGAR  
MADURAI  
MADURAI 625020  
Tamil Nadu

D.O.B. 05/06/1975

Photograph

End No. TN59 DL RAO/2485/2015 18/12/2015 12:23:57 PM  
Licensed to drive throughout India, vehicles of the following descriptions  
MOTORCYCLE 18/12/1995 TN59 18/12/1995 TN59

New Transport Vehicle Valid till 01/06/2025  
Pres. DL Exp. Date - 01/05/2015

ARUL RAJAS  
18/12/2015  
KTO MADURAI

ARUL RAJAS

Document No. 473 of 2012 of Book  
1 Contains 32 Sheets 27<sup>th</sup> Sheet

*[Signature]*  
Registering Officer



R/குளித்தலை/புத்தகம்-1/473/2018



1899ம் ஆண்டு இந்திய முத்திரைச் சட்டம் 42வது பிரிவின் கீழான சான்று

2018ம் ஆண்டு வரிசை எண் 210

Alavanthan, Managiri 2nd Street, மதுரை, தமிழ்நாடு, இந்தியா, 625070-ல் வசிக்கும் திரு SUBBURAMAN என்பவரிடமிருந்து ₹ 20,26,000/- (ரூபாய் இருபது இலட்சத்து இருபத்தாறாயிரம் மட்டும்) இந்த ஆவணத்திற்காக இந்திய முத்திரைச் சட்டம் 41வது பிரிவின் படி குறைவாயிருந்த முத்திரைக் கட்டணம் வசூலிக்கப்பட்டது என நான் இதன் மூலம் சான்றளிக்கிறேன்.

சார்பதிவாளர் : குளித்தலை  
நாள் 12/03/2018

சார்பதிவாளர் மற்றும் இந்திய முத்திரைச் சட்டம் பிரிவு  
41ன் படி ஆட்சியர்

2018 ஆம் ஆண்டு மார்ச் மாதம் 12ம் தேதி பி.ப. 01:40 மணியளவில் குளித்தலை சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 20,435/- செலுத்தியவர்.

இடது பெருவிரல்



R. Sullan

கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி

எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்  
இடது பெருவிரல்



R. Sullan

கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி

எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர்  
இடது பெருவிரல்




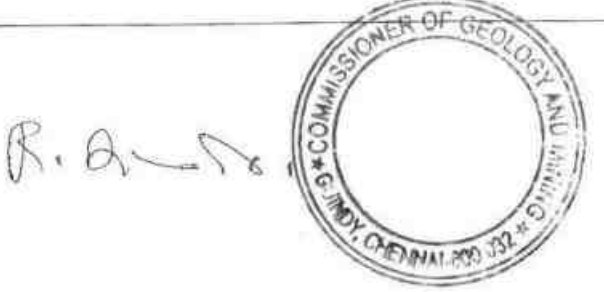





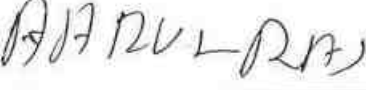
K Parimozan

கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி



Document No. .... 473 ... of ... 2018 ... of Book  
..... 1 ... Contains ... 32 ... Sheets ... 28 ... Sheet  
Registering Officer

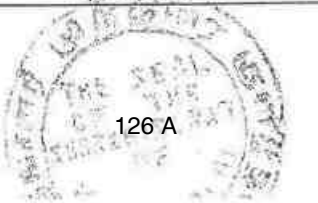




<p>எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்</p> 	 <p>சுட்டுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி.</p>
<p>எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்</p> 	 <p>சுட்டுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி.</p>
<p>எழுதி வாங்கியதாக ஒப்புக் கொண்டவர் இடது பெருவிரல்</p> 	 <p>சுட்டுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி.</p>
<p>பதிவுச் சட்டம் பிரிவு 88(1)ன் கீழ் நேரில் வருவதனிலிருந்து விலக்களிக்கப்பட்ட திரு P. S. S., கருர், தமிழ்நாடு, இந்திய (OA, கருர்) அவர்களால், இந்த ஆவணம் எழுதிக் கொடுத்தமை குறித்து நான் மனநிறைவடைந்துள்ளேன்.</p> <p style="text-align: right;"><b>சுட்டுதல்</b> சார்பதிவாளர் - குளித்தலை</p>	
<p>இன்னாரென்று நிரூபித்தவர்கள்</p> <p>1.  திரு செளந்தராஜன் தபெ ராக 191, கூடலூர், குளித்தலை, கருர், தமிழ்நாடு, இந்தியா, 639120</p> <p>2.  திரு அருள்ராஜ் தபெ அழகர்சாமி 300, மதுரை, தமிழ்நாடு, இந்தியா, 625020</p>	

2018 ஆம் ஆண்டு மார்ச் மாதம் 12ம் நாள்

<p>Document No. <u>473</u> of <u>2018</u> of Book <u>1</u> Contains <u>32</u> Sheets <u>29<sup>th</sup></u> Sheet</p> <p style="text-align: center;"> Registering Officer</p>	<p style="text-align: right;"> சார்பதிவாளர் குளித்தலை</p>
--	--




R/குளித்தலை/புத்தகம்-1/473/2018

R/குளித்தலை/புத்தகம்-1/473/2018 எண்ணாகப் பதிவு செய்யப்பட்டது.

நாள்: 12/03/2018

குளித்தலை



Document No. <u>473</u> of <u>2018</u> of Book
<u>1</u> Contains <u>32</u> Sheets <u>30</u> Sheet
 Registering Officer



From  
Thiru.G.Govindaraj, I.A.S.,  
District Collector,  
Karur District,  
Karur

To  
The Sub-Registrar,  
Kulithalai,  
Karur District.



**Rc.No.923/Mines/2014, Dated: 22.02.2018.**

Sir,

Sub : Mines and Minerals - Karur District - Kulithalai Taluk - Kallai Village Patta lands in S.F.Nos.299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P) over an extent of 2.97.0 hecets - Multicoloured Granite Lease granted to M/s.Apple Granites - Registration of Lease deed- regarding.

Ref : G.O.3(D) No.3, Industries (MMB2), Department,  
Dated:25.01.2018.

\*\*\*\*\*

M/s.Apple Granites, No.95/2, PerurUdayappatti, Gudalur Village, Kulithalai Taluk, Karur District have been granted a lease to quarry Multicoloured granite in S.F.Nos.299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P) over an extent of 2.97.0 hecets in Kallai Village, Kulithalai Taluk, Karur District for a period of 20 (Twenty) years vide the G.O., cited above. Based on the G.O., the lease deed executed on 21.02.2018. The lease deed having pages from 1 to 21 is herewith sent.

1. Anticipated seigniorage fee for the entire : Rs.18,10,38,000/-  
lease period of 20 years
2. Area Assessment @ Rs.200/- per Hec., : Rs. 11880/-  
per year
3. Security Deposit paid by way of chalan : Rs. 40,000/-

The District Collector is exempted from appearing in person under section 88(1) of the Registration Act. I request you to register the lease deed and return the documents through the lessee. If any deficit in stamp duty, found, you are instructed to collect the same from the lessee at the time of registration of lease deed.

Encl: lease deed having pages  
from 1 to 21 pages.

**Copy to:-**

M/s.Apple Granites, No.95/2, PerurUdayappatti, Gudalur Village, Kulithalai Taluk, Karur District ( is requested to register the lease deed at their own expenses and return the original document).

*For Collector,*  
Karur.

*22.2.18*



Document No. 423 of 2018 of Book
I Contains 32 Sheets 32nd Sheet
<i>8</i> Registering Officer







தமிழ்நாடு தமில்நாடு TAMILNADU

4799  
6.2014

100  
APPLE GRANITES  
KARUR :: 2 :: -

AR 547859  
T. Manalan Bharathi  
T. ஜெனரல் பாரதி  
முத்தையாத்தாள் வீடுபுலமல்லாளன்  
1973, கரூர் சென்டர்  
கோக்ஸே ரோடு, மதுரை-2  
RC. No. 9764 / B1 / 97-17

3. Sri.R.SUDALAIMUTHU, Son of Sri.S.Ramasamy, aged about 54 years, residing at 3, Chokkalinga Nagar 4th Street, Madurai- 625010, Tamilnadu hereinafter called as the **THIRD PARTY**;

4. Sri.A.MEGANATHAN, Son of Sri.Angathevar, aged about 53 years, residing at 27, New Jail Road, Grammarpuram, Madurai- 625016, Tamilnadu hereinafter called as the **FOUTH PARTY**;

AND WHEREAS the above four parties to this agreement have decided to carry on the business of partnership under the name and style of "M/s. APPLE GRANITES" with effect from **08th Day of JUNE 2014** and in order to put the terms & conditions in writing they are desirous of to have this written instrument of Partnership Deed.

1. R. Subburaman  
(R.Subburaman)

3. R. Sudalaimuthu  
(R.Sudalaimuthu)

2. K. Paramasivam  
(K.Paramasivam)

4. A. Meganathan  
(A.Meganathan)

A. Hester  
A. M. M. A  
R. MUHAMED YOUSUFF, B.A., B.L.,  
ADVOCATE & NOTARY,  
Reg. No: 5792/88,  
En. Roll. No. No 1212/92  
No: 77, Coval Road, Healdanara Bank,  
KARUR - 639 002, T.M.



தமிழ்நாடு தமிழ்நாடு TAMILNADU

800 6100  
6.2.2014 APPLE GRANITES  
KARUR

--: 3 ::--

AR 547860

T. Meenakshi Bharathi

T. சீமையாசுவாமி  
முத்தையாத்தாள் வீற்பலையாள்  
19/3, சரண் சென்டர்  
கோகலே ரோடு, மதுரை-2  
RC. No. 1761 / B1 / 97-17



NOW THIS DEED OF PARTNERSHIP WITNESSES AS FOLLOWS:-

1. This Partnership Deed shall come in to force on and from the 08th Day of JUNE 2014.
2. The name and style of the firm shall be "M/s. APPLE GRANITES" and/or such other name or names as the parties may mutually agree from time to time.
3. The Registered Office of the firm shall be situated at S.No.299/1, 299/2 & Etc., of Kallai Village, Kulithalai Taluk, Karur District, Tamilnadu. However with the mutual consent of the parties herein this may be shifted to any other place.

1. R. Subburaman  
(R.Subburaman)

3. R. Sudalaimuthu  
(R.Sudalaimuthu)

2. K. Paramasivam  
(K.Paramasivam)

4. A. Meganathan  
(A.Meganathan)

A. MUHAMED YOUSUFF, B.A., B.L.,  
ADVOCATE & NOTARY,  
Reg. No: 5293/88,  
En. No: 13/122/92  
Carora Bank



4. The main business of the firm shall be excavation / manufacture / trade by cutting / purchase and sale of multi coloured dimensional blocks of granite in and outside India. The firm shall carry on the execution of raising contracts for excavation of granite stones and civil contract work or labour etc., for Central and State Government Department and others. The firm shall also carry on manufacture / trade by cutting / purchase and sale of multi coloured dimensional blocks of granite in and outside India. The firm can also carry on the following as its subsidiary or ancillary business to the attainment of the objects of its main business.


The firm can acquire obtain on lease under licence or assignment or otherwise secure lands of every description and mines and running rights quarries, and to mine, win, exercise, undertake and carry on the business of mining in all its branches, if any. To carry on the work of raising agent for a fixed sum agreed by an written agreement from time to time. To manufacture polished, semi-polished products and to do purchase and sale of mining lands and also install polishing unit for processing.

5. The duration of the partnership is one at WILL.


6. The total capital of the firm shall be Rs. 10,00,000/- on the date of this agreement which shall be contributed by the parties as follows:-


First Party	-	Sri. R.Subburaman	-	Rs. 2,50,000/-
Second Party	-	Sri. K.Paramasivam	-	Rs. 2,50,000/-
Third Party	-	Sri. R.Sudalaimuthu	-	Rs. 2,50,000/-
Fourth Party	-	Sri.A.Meganathan	-	Rs. 2,50,000/-
				<hr/>
				Rs.10,00,000/-
				<hr/>

The amount standing to the credit of the capital / current accounts of the respective partners as at beginning of the every accounting year shall be treated as the capital balance of the respective partners. The interest on capital shall be calculated on this balance in accordance with clause No.7.

1.   
(R.Subburaman)

3.   
(R.Sudalaimuthu)

2.   
(K.Paramasivam)

4.   
(A.Meganathan)

M.HAMED YOUSUFF, B.A., B.L.  
ADVOCATE & NOTARY,  
Reg. No: 5293/09,  
En. Roll. No. 1212/92  
77, Coval Road, Near Coovara Bus  
KARUR - 6132 A2, T.S.



- 5 -

7. It is agreed that whenever there is a credit balance in the current account of the partners, such balance can be transferred from the current account to capital account of the respective partner on every first day of April and such increased balance in the capital account as above, shall be treated as the capital balance of the partners as on the first day of every accounting year and shall be entitled for interest at the maximum rate specified in the Income Tax Act, 1961, which rate at present is 12% simple interest per annum. Provided that no interest shall be charged if there is loss before making any provision for interest or the parties decided not to take interest on their capital accounts.

8. The First Party Sri.R.Subburaman shall be the Managing Partner of this firm. The Managing Partner shall be vested with all the powers to manage the day to day business affairs of the firm. All the other partners are working partners of the firm. The Other working partners shall be vested with the regular duties in addition to the other duties which may be assigned to them from time to time. For managing the day to day business and other duties the Managing and working partners are entitled to remuneration of Rs.25000/- each per month.


However in the event of total remuneration payable to all the Working Partners exceeds the maximum allowable remuneration in the hands of the firm in accordance with the provisions of Section 40(b) of the Income Tax Act, 1961 and or other amendments come into force from time to time, the total remuneration payable to the above partners shall be restricted to the books profits of the firm and shall be divided in **EQUAL RATIO**.


9. Bank account or accounts shall be opened in the name of the firm and it shall be operated by First Party of Mr.R.Subburaman & Third Party of Mr.R.Sudalaimuthu on "JOINTLY".

1.   
(R.Subburaman)

3.   
(R.Sudalaimuthu)

2.   
(K.Paramasivam)

4.   
(A.Meganathan)

  
A. MOHAMED YOUSUFF, B.A., B.L.,  
ADVOCATE & NOTARY  
Reg. No. 5293/08,  
En. Roll. No. No. 1212/92  
No. 77, Corai Road, Near Capet Bank,  
KARUR - 639 002.





- :: 6 :: -

10. The firm has power to borrow monies from the banks and other financial institutions or from private parties at such rates of interest as may be agreed upon by the parties for the proper conduct of the firm.

11. All assets purchased out of the funds of the firm are treated as the assets of the firm in its accounts and shall belong to the firm irrespective of the fact that such assets stand in the individual names of any one of the partners. Contracts taken in the individual names of the parties referred to above shall also be the business of the firm.

12. The partners shall also have the right to convert or bring in the assets standing in their individual names in to the business of the firm as their initial or additional capital contribution, as may be agreed by the parties.

13. Licences and Permits necessary for carrying on the business of the firm may stand either in the name of the firm or in the name of any one of the partners. No partner without the permission of the other partner shall transfer the above licenses / permit in favor of outsiders.


14. Proper books of accounts shall be maintained and the books so maintained shall be closed on 31st March of every year to ascertain the profit or loss of the firm. The profit or loss so arrived after considering all the expenses including interest on capital of partners and remuneration payable, if any, to working partners, shall be divided by the parties in EQUAL ratio.


15. Death or Retirement of the parties herein shall not dissolve the firm and the other parties are entitled to continue the business.

16. All the parties herein can carry on any business anywhere and this firm shall not have any right or liability on such other business.

1.   
(R. Subburaman)

3.   
(R. Sudalaimuthu)

2.   
(K. Paramasivam)

4.   
(A. Meganathan)

MUHAMMED YOUSUFF, B.A., B.L.  
ADVOCATE & NOTARY,  
Reg. No: 5293/58.  
En. No. 1212/92  
No: 77, Coval Road, Coimbatore Bank,  
RAJUR - 549 002, T.N.




- :: 7 :: -


17. All disputes which may arise during the continuance of the firm or afterwards between the partners shall be referred to one or more arbitrators to be selected by the parties themselves whose decision shall be final and binding on the parties.

18. Any of the clauses may be altered, modified, substituted or new clauses added to this partnership deed with the consent of all the partners and such clauses though may not be embodied in the deed it shall have the same effect as if it were contained as a clause of this deed and the provisions of the Indian Partnership Act, 1932 shall apply in all matters not provided herein.

IN WITNESS WHEREOF the parties hereto have signed this deed in token of their acceptance of the above terms and conditions.


  
1. R. SUBBURAMAN  
(First Party)


  
2. K. PARAMASIVAM  
(Second Party)


  
3. R. SUDALAIMUTHU  
(Third Party)

  
4. A. MEGANATHAN  
(Fourth Party)

WITNESSES:-

1)   
V. GURUPRASAD,  
12, J.P. Nagar,  
Madurai.

2)   
K. RAGHINAM  
133 Annasankari patti St  
Pappalayam

Attest  
  
A. MUHAMED YOUSUFF, B.A., B.L.,  
ADVOCATE & NOTARY,  
Reg. No: 5293/88,  
En. Roll. No. Ms. 1212/92  
No: 77, Coval Road, Near Canara Bank,  
KARUR - 639 002, T.N.



தமிழ்நாடு தமில்நாடு TAMILNADU

4801

7.6.2014

₹100

APPLE GRANITES  
KARUR

AR 547861  
T. Moonesul Bharath  
T. சோமசுப்ரமணியன்  
முத்தியைத்தாள் வீற்பலையாணி  
15/3, சரண் விலாஸ்  
கோயிலை ரோடு, மதுரை-2  
Ph. No. 9764 / 811 / 92-19

M/s. APPLE GRANITES  
KARUR

CODICIL DEED

THIS DEED of Codicil Executed on this 23rd day of June 2014, between

1. Sri.R.SUBBURAMAN, Son of Sri.Ramasamy, aged about 56 years, residing at No.8/122, Patti Adaikkan Patti, Keelaiyur Post, Melur Taluk, Madurai – 625106, Tamilnadu hereinafter called as the **FIRST PARTY**;

2. Sri.K.PARAMASIVAM, Son of Sri.Krishnaswamy aged about 50 years, Mullai Nagar, Perundurai, Erode, hereinafter called as the **SECOND PARTY**;

R. Subburaman  
(R.Subburaman)

2. K. Paramasivam  
(K.Paramasivam)

R. Sudalaimuthu  
(R.Sudalaimuthu)

4. A. Meganathan  
(A.Meganathan)



தமிழ்நாடு தமிழ்நாடு TAMILNADU  
 48021 100  
 7.6.2014 APPLE GRANITES  
 KARUR

T. Meenakshi Bharathi  
 AR 547862  
 T. சீவாச்சாரி  
 19/3, சரஸ்வதி தெரு  
 கோல்கோடு கிராமம், மதுரை-2  
 PC. No. 4761 / BI / 87-87


- :: 2 :: -


3. Sri.R.SUDALAIMUTHU, Son of Sri.S.Ramasamy, aged about 54 years, residing at 3, Chokkalinga Nagar 4th Street, Madurai- 625010, Tamilnadu hereinafter called as the **THIRD PARTY**;

4. Sri.A.MEGANATHAN, Son of Sri.Angathevar, aged about 53 years, residing at 27, New Jail Road, Grammarpuram, Madurai- 625016, Tamilnadu hereinafter called as the **FOURTH PARTY**;

AND WHEREAS the above four parties to this agreement have decided to carry on the business of partnership under the name and style of "M/s. APPLE GRANITES" as per existing Partnership Deed dated 08th Day of JUNE 2014 and

1.   
(R.Subburaman)

2.   
(K.Paramasivam)

3.   
(R.Sudalaimuthu)

4.   
(A.Meganathan)

...3



WHEREAS the above parties have decided to alter the conditions of Clause No.08 of the original Partnership Deed dated 08.06.2014 and to have following substituted for the Clause No.08 and all the other clauses remain unchanged and in force.

**SUBSTITUTED CLAUSE NO.08**

08. The First Party Sri.R.Subburaman shall be the Managing Partner of this firm. The Managing Partner shall be vested with all the powers to manage the day to day business affairs of the firm. And the first party Sri.R.Subburaman shall have all the Powers of signing to execute any Mining Lease, Private/ Government tenders. Application for licences and all types of Government/ Private Contracts. All the other partners are working partners of the firm. The Other working partners shall be vested with the regular duties in addition to the other duties which may be assigned to them from time to time. For managing the day to day business and other duties the Managing and working partners are entitled to remuneration of Rs.25000/- each per month.

IN WITNESS WHEREOF the parties hereto have signed this deed in token of their acceptance on the day first mentioned above.

  
1. R.SUBBURAMAN  
(First Party)

  
2. K.PARAMASIVAM  
(Second Party)

  
3. R.SUDALAIMUTHU  
(Third Party)

  
4. A.MEGANATHAN  
(Fourth Party)

WITNESSES:-

1)

2)





⑥ तमिलनाडु TAMIL NADU  
 தமிழ்நாடு, ரூபாய் 20/-  
 வ.எண் 4750 தேதி 14.7.14  
 பெயர் சி.சுப்பிரமணியன் கிராமத்துறை  
 காரர் கடும

94AA 886170

G. RAJU, B. Com.,  
 S.V.L.No.:02/2008/NMKL  
 41/9E, Court Street  
 Paramathy (Namakkal)

M/s. APPLE GRANITES  
 KARUR

CODICIL DEED

THIS DEED of Codicil Executed on this 01<sup>st</sup> day of January 2016, between

Sri.R.SUBBURAMAN, Son of Sri.Ramasamy, aged about 60 years,  
 No.8/122, Patti Adaikkan Patti, Keelaiyur Post, Melur Taluk, Madurai - 625106,  
 hereinafter called as the FIRST PARTY;

Sri.K.PARAMASIVAM, Son of Sri.Krishnaswamy aged about 53 years,  
 Karur, Perundurai, Erode, hereinafter called as the SECOND PARTY;

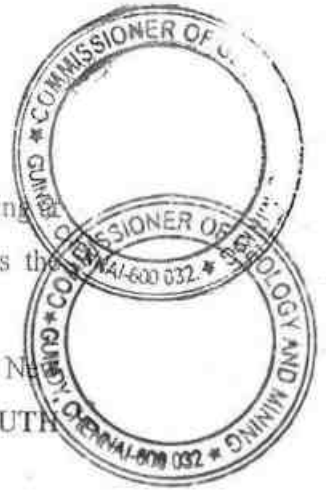
*R. Subburaman*  
 (R. Subburaman)

2. *K. Paramasivam*  
 (K. Paramasivam)

*R. Sudalaimuthu*  
 (R. Sudalaimuthu)

4. *A. Meganathan*  
 (A. Meganathan)

...2



3. Sri.R.SUDALAIMUTHU, Son of Sri.S.Ramasamy, aged about 57 years, residing at 3, Chokkalinga Nagar 4th Street, Madurai- 625010, Tamilnadu hereinafter called as the **THIRD PARTY;**

4. Sri.A.MEGANATHAN, Son of Sri.Angathevar, aged about 56 years, residing at 27, Nallur Road, Grammarpuram, Madurai- 625016, Tamilnadu hereinafter called as the **FOURTH PARTY;**

WHEREAS the above four parties were carrying on business in partnership under the name and style of "M/s. APPLE GRANITES" as per existing Partnership Deed dated 08.06.2014 and a Codicil Deed dated 23.06.2014 and

WHEREAS the above parties have decided to alter the conditions of Clause No.03 of the Original Partnership Deed dated 08.06.2014 and to have the following substituted for the Clause No.03 and all the other clauses of Original Partnership Deed dated 08.06.2014 and the Codicil Deed dated 23.06.2014 remain unchanged and in force.

SUBSTITUTED CLAUSE NO.03

03. The Registered Office of the firm shall be situated at No.95/2, Perur Udaiyappatty, Gudalur Village, Kulithalai Taluk, Karur – 639 120, Tamilnadu. However with the mutual consent of the parties herein this may be shifted to any other place.

IN WITNESS WHEREOF the parties hereto have signed this deed in token of their acceptance on the day first mentioned above.

2. K.PARAMASIVAM  
(Second Party)

4. A.MEGANATHAN  
(Fourth Party)

1. R.SUBBURAMAN  
(First Party)

3. R.SUDALAIMUTHU  
(Third Party)



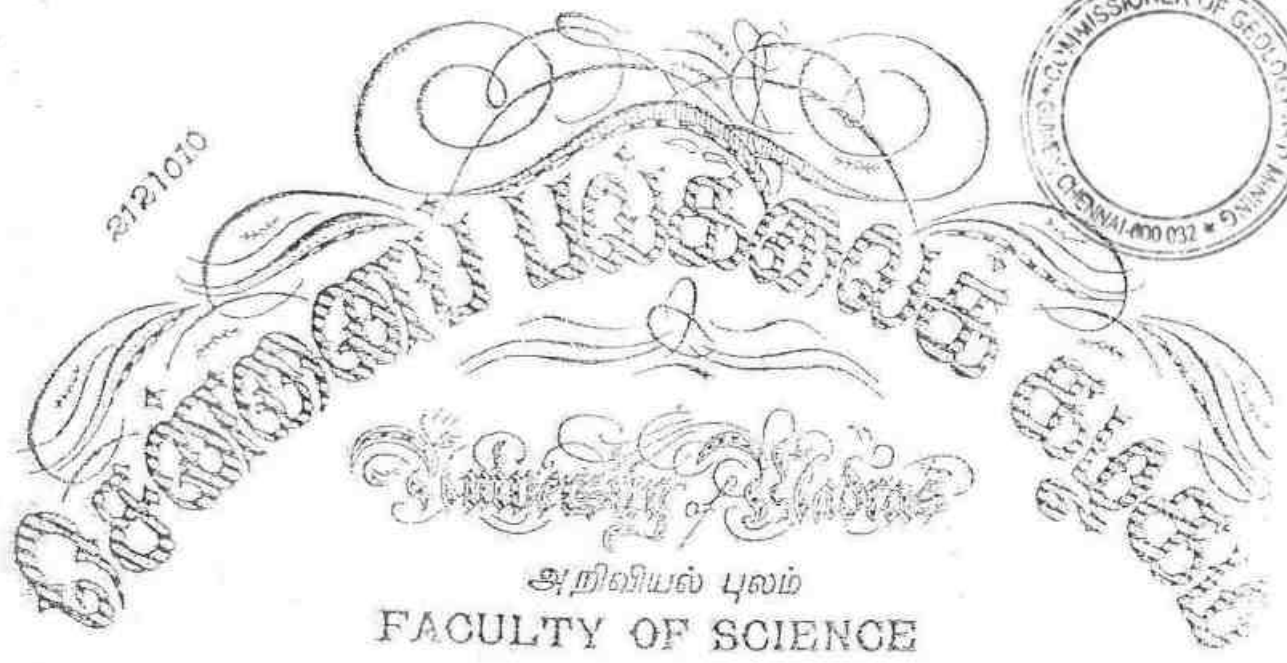
1) M.DHANAPAL M. Dhanya  
No. 21, Yoganatha Swamy Sarathi Street,  
Madurai - 625016.

2) K. VELMURUGAN  
No. 27, DEVI SIVANSAMY STREET,  
MADURAI - 625016

*Handwritten:* 2/11/16  
**N. PANDIAN, B.A., B.L.,**  
ADVOCATE / NOTARY  
G.O. Ms.No.293, Law Dept. 15-07-2013  
ENRT No. 416, Dated: 28-08-1989  
L3/2, Pothigai Nagar 5th Street,  
TNHB Colony, MADURAI-625 018







சென்னைப் பல்கலைக் கழகப் பரீட்சை 1994

குண்டு... எப்ரல்... மாதம் 1994... கதிமதியல்... சென்னை  
... வி. சந்திரசேகரன்... எல்.யார்... சென்னை... வகுப்பில்  
இவரது உயரநிலை என்று தக்க சேர்வாணிகள் சான்றிதழை அறிவியல் நிறைவு  
என்றும் பட்டத்தை அவருக்குப் பல்கலைக் கழக இலக்கணம்... ல் வழங்குகிறது.

The Senate of the UNIVERSITY OF MADRAS hereby makes known that... P. Sranganaraja... 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

சென்னை, சேப்பாடு  
சென்னை, மதுரை  
25-01-1999

பதிவுரை  
51

P. T. ...  
சென்னை  
142 A

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 / Overman's / Sirdar's / Mate's / Shift fixer's / Blower's Certificate of competency (Restricted) examination under the Metalliferous Mines Regulations 1961.

I T.VENKATARAJAGOPALAN being the Mines Agent of M/S.LIMENAPPI CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Thenmalai 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.

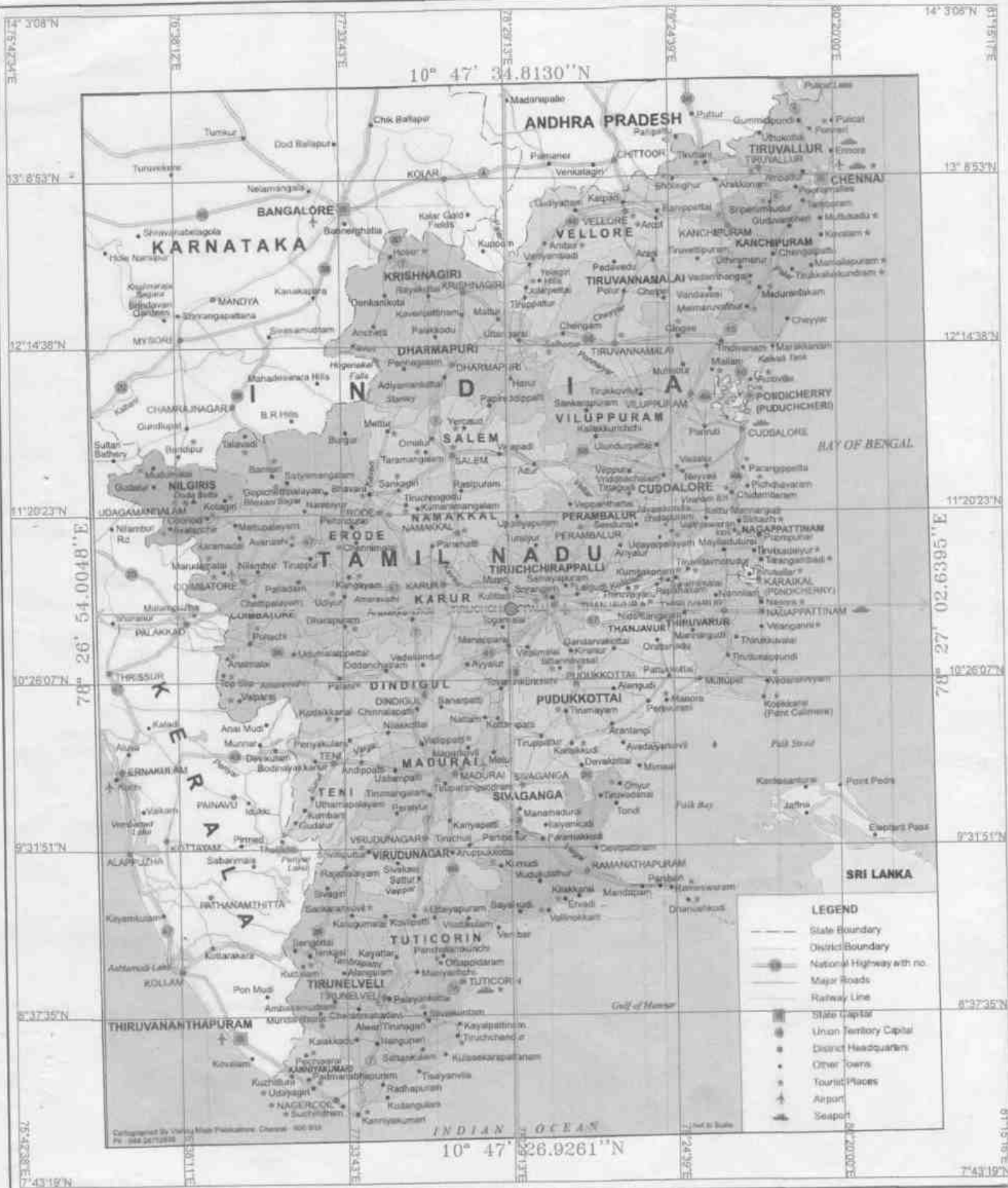
I believe him to be of good character and a fit and proper candidate to be examined for Certificate of Competency.

*(Signature)*  
10/6/96  
Agent (Mines)  
(Signature with date and official Seal)  
(T.VENKATARAJAGOPALAN)

Mines Agent:  
P.O. : ARUKANGULAM  
District : TIRUNELVELI  
State : TAMILNADU

*(Signature)*  
(Signature of Candidate)

(State name of Mineral) : LIMESTONE



**PLATE NO. I**

DATE OF SURVEY: 27.06.2022

**LESSEE:**

M/s. APPLE GRANITES,  
No. 95/2, PERUR UDAIYAPATTI,  
GUDALUR VILLAGE,  
KULITHALAI TALUK,  
KARUR DISTRICT-639120.

**LOCATION OF QUARRY:**

S.F.Nos. : 299/1(P), 299/2A(P), 299/2B(P),  
301(P), 302/2(P) and 302/3(p).

EXTENT : 2.97.0 Ha,  
VILLAGE : KALLAI,  
TALUK : KULITHALAI,  
DISTRICT : KARUR.

**INDEX**

Q. L. AREA : ●  
TOPO SHEET NO. : 58 - J/05  
LATITUDE : 10°47'26.9261"N to 10°47'34.8130"N  
LONGITUDE : 78°26'54.0048"E to 78°27'02.6395"E

**LOCATION PLAN**

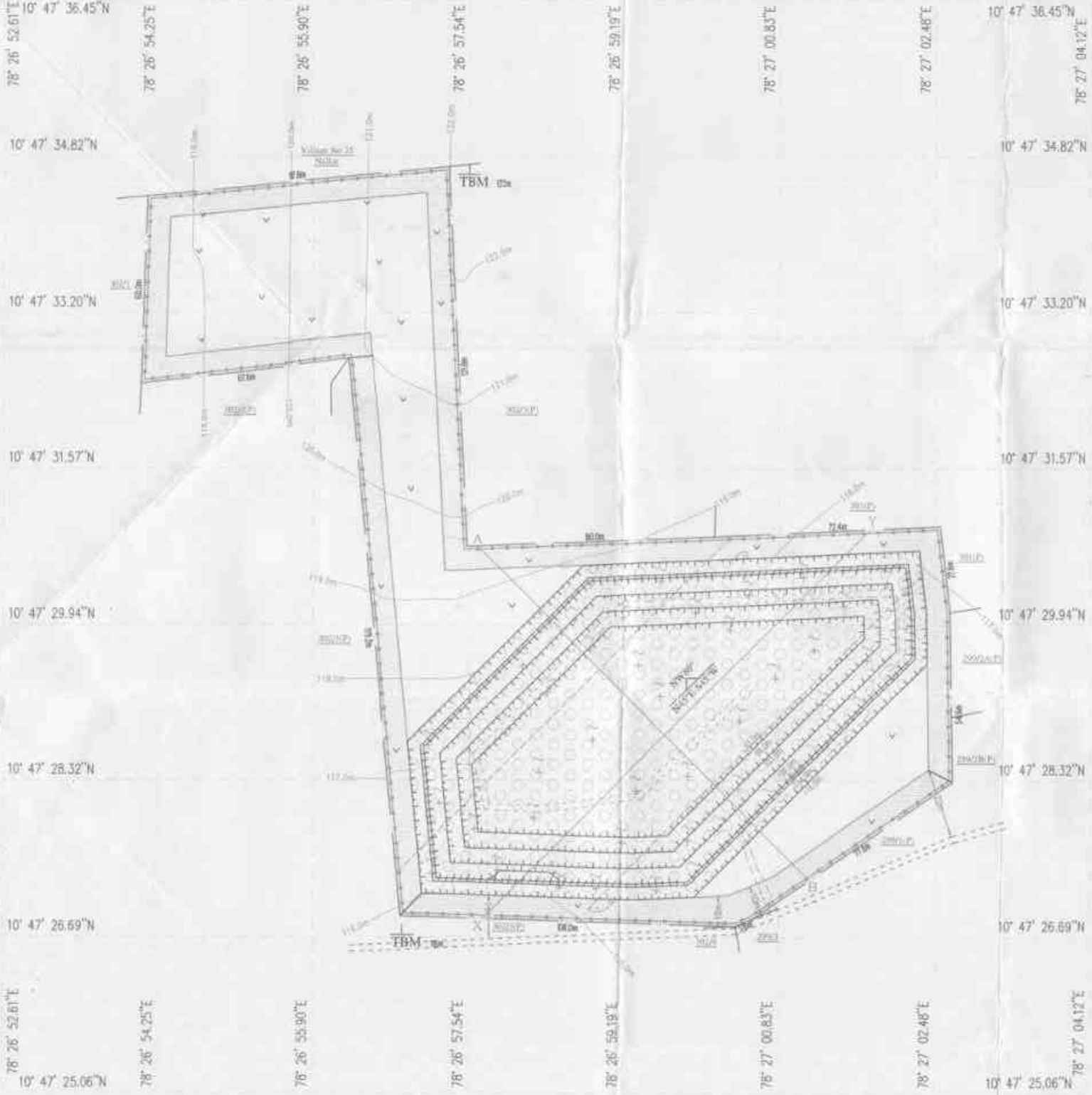
SCALE 1 : 24,00,000

**PREPARED BY :**

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS  
PLATE IS TRUE AND CORRECT TO THE  
BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP  
AUTHENTICATED  
BY STATE GOVERNMENT

*[Signature]*  
G. THANGARAJAN, I.A.S., P.O.,  
QUALIFIED PERSON



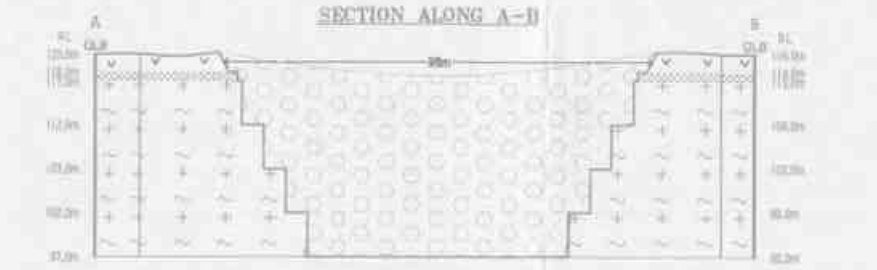


**PLATE NO. IX**  
DATE OF SURVEY: 27.06.2022

**APPLICANT:**  
M/S APPLE GRANITES,  
No. 95/2, PERUR UDAIYAPATTI,  
GUDALUR VILLAGE,  
KULITHALAI TALUK,  
KARUR DISTRICT-639120.

**LOCATION OF QUARRY:**  
S.F. Nos. : 299/1(P), 299/2A(P), 299/2B(P),  
301(P), 302/2(P) and 302/3(P).  
**EXTENT:** 2.87.0 Ha,  
**VILLAGE:** KALLAI,  
**TALUK:** KULITHALAI,  
**DISTRICT:** KARUR.

INDEX	
QUARRY LEASE APPLIED BOUNDARY	[Symbol]
7.5m, 10m & 50m SAFETY DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
TEMPORARY BENCH MARK	[Symbol]
VANDIYATHAI	[Symbol]
MINERAL CONTACT LINE	[Symbol]
TOP SOIL	[Symbol]
SCRUB	[Symbol]
STRIKE & DIP	[Symbol]
TOPOGRAPHICAL CONTOUR	[Symbol]
OUT CROPS	[Symbol]
MULTI-COLOUR GRANITE	[Symbol]
HORNBLende BIOTITE GNEISS	[Symbol]
WEATHERED ROCK	[Symbol]
BUND/FENCE	[Symbol]
PROPOSED BACK FILLING	[Symbol]
QUARRY ROAD	[Symbol]
QUARRY PIT	[Symbol]



1000-20' 1/2" APPROX. QUARRY  
2000-40' 1/2" APPROX. QUARRY  
3000-50' 1/2" APPROX. QUARRY

**WELL DEPOSED**  
A - 20' FACE  
B - 10' FACE AND 10' HIGH  
C - 10' FACE  
D - 10' FACE  
E - 10' FACE

SCALE 1:1000  
SECTION LINE  
WELL DEPOSED

**CONCEPTUAL PLAN & SECTIONS**

**PREPARED BY:**  
This is to certify that the information in this plan is true and correct to the best of my knowledge based upon the foregoing.  
BY STATE GOVERNMENT  
146 A





Existing R.L.	Pit R.L.	Area in Sq.m	Total Depth (m)	Granite in (Cu.m.)	Topsoil (2m)m <sup>3</sup>	Weathered (1m)m <sup>3</sup>	Side Burden (m <sup>3</sup> )
117	107	1276	10	7	2	1	-
117	111	204	6	-	2	1	3

**Existing Waste Dump**  
 Dump-1 582 Sq.m X2m(h)  
 Dump-2 438 Sq.m X2m(h)  
 Dump-3 3655 Sq.m X2m(h)  
 Topsoil Bund 985 Sq.m X5m(h)

**PLATE NO. III**  
 DATE OF SURVEY: 27.06.2022

**LESSEE:**  
 M/s. APPLE GRANITES,  
 No. 95/2, PERUR UDAYAPATTI,  
 GUDALUR VILLAGE,  
 KULITHALAI TALUK,  
 KARUR DISTRICT-639120.

**LOCATION OF QUARRY:**  
 S.F.Nos. : 299/1(P), 299/2A(P), 299/2B(P),  
 301(P), 302/2(P) and 302/3(P)  
 EXTENT : 2.97.0 Ha,  
 VILLAGE : KALLAI,  
 TALUK : KULITHALAI,  
 DISTRICT : KARUR.

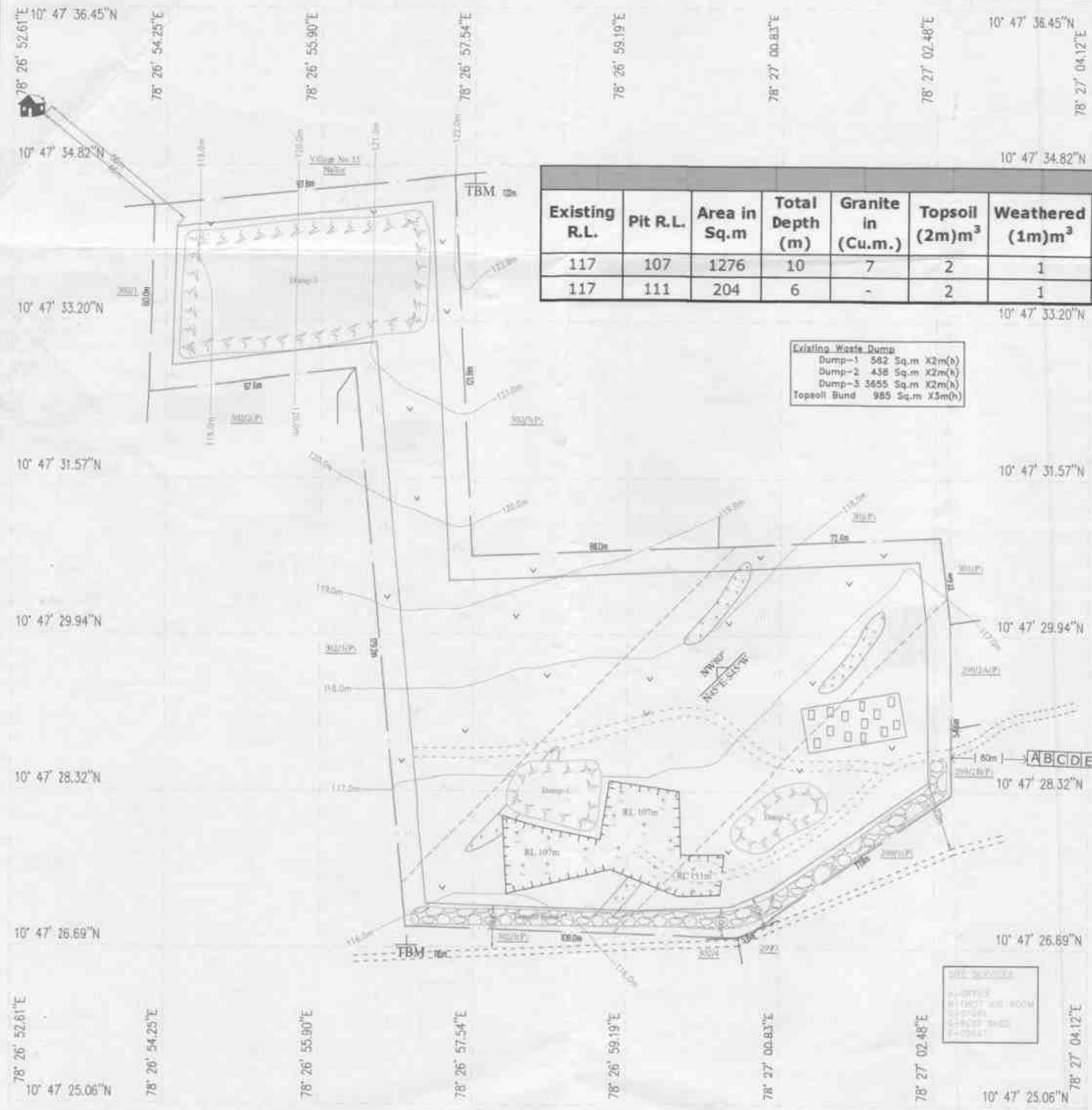
**INDEX**

QUARRY LEASE BOUNDARY	
7.5m, 10m & 50m SAFETY DISTANCE	
APPROACH ROAD	
TEMPORARY BENCH MARK	
VANDIPATHAI	
HOUSE	
MINERAL CONTACT LINE	
TOP SOIL	
SCRUB	
STRIKE & DIP	
TOPOGRAPHICAL CONTOUR	
OUT CROPS	
QUARRY PIT	
QUARRY ROAD	
DUMP	
STOCKING BLOCKS	

**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 LEASHP AUTHORIZED BY STATE GOVERNMENT

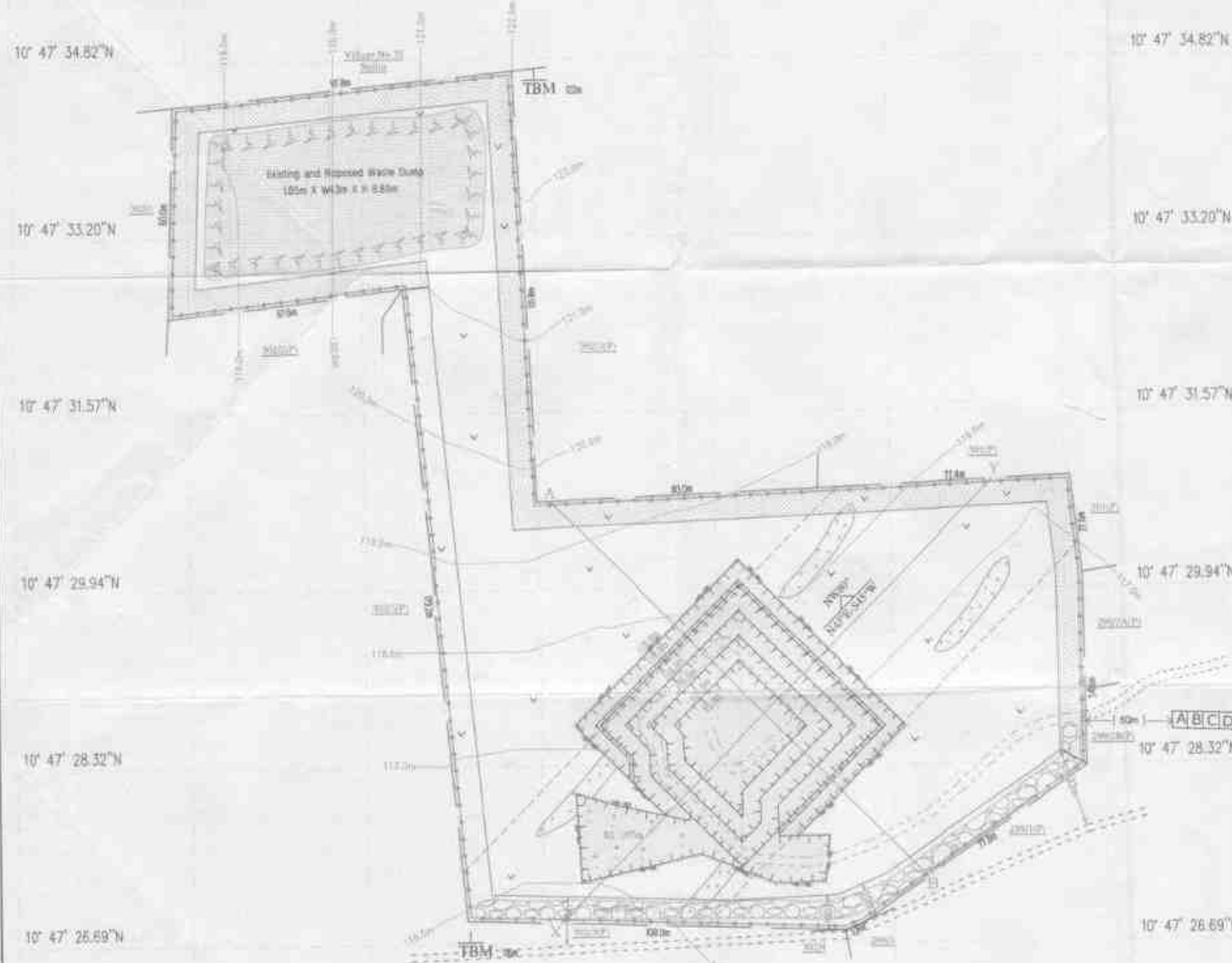
*[Signature]*  
 QUALIFIED PERSON



**SITE SERVICES**  
 A- OFFICE  
 B- FACT AND ROOM  
 C- STORE  
 D- STOCKING BLOCK  
 E- DUMP



78° 26' 52.61"E 10° 47' 36.45"N  
 78° 26' 54.25"E  
 78° 26' 55.90"E  
 78° 26' 57.54"E  
 78° 26' 59.19"E  
 78° 27' 00.83"E  
 78° 27' 02.48"E  
 10° 47' 36.45"N  
 10° 47' 34.82"N  
 10° 47' 33.20"N



78° 26' 52.61"E 10° 47' 35.06"N  
 78° 26' 54.25"E  
 78° 26' 55.90"E  
 78° 26' 57.54"E  
 78° 26' 59.19"E  
 78° 27' 00.83"E  
 78° 27' 02.48"E  
 10° 47' 31.57"N  
 10° 47' 29.94"N  
 10° 47' 28.32"N  
 10° 47' 26.69"N  
 10° 47' 25.05"N

**PLATE NO.VII**  
 DATE OF SURVEY: 27.06.2022

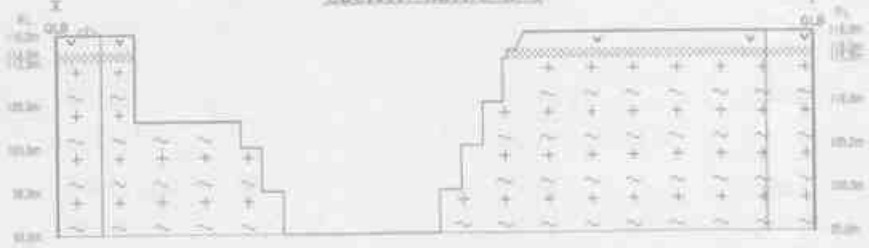
**LESSEE:**  
 M/s APPLE GRANITES,  
 No.95/2, FERUR UDAYAPATTI,  
 GUDALUR VILLAGE,  
 KULITHALAI TALUK,  
 KARUR DISTRICT-639120.

**LOCATION OF QUARRY:**  
 S.F. Nos. 298/1(P), 299/2A(P), 299/2B(P),  
 301(P), 302/1(P) and 302/3(P).  
**EXTENT:** 2.97.0 Ha,  
**VILLAGE:** KALLAI,  
**TALUK:** KULITHALAI,  
**DISTRICT:** KARUR.

**INDEX**

QUARRY LEASE BOUNDARY	[Symbol]
7.5m, 10m & 50m SAFETY DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
TEMPORARY BENCH MARK	[Symbol]
VANDIPATHAI	[Symbol]
MINERAL CONTACT LINE	[Symbol]
TOP SOIL	[Symbol]
SCRUB	[Symbol]
STRIKE & DIP	[Symbol]
TOPOGRAPHICAL CONTOUR	[Symbol]
OUT CROPS	[Symbol]
QUARRY PIT	[Symbol]
QUARRY ROAD	[Symbol]
DUMP	[Symbol]
BUND/FENCING	[Symbol]
PROPOSED GARLAND DRAIN	[Symbol]

**SECTION ALONG X-Y**



**SECTION ALONG A-B**



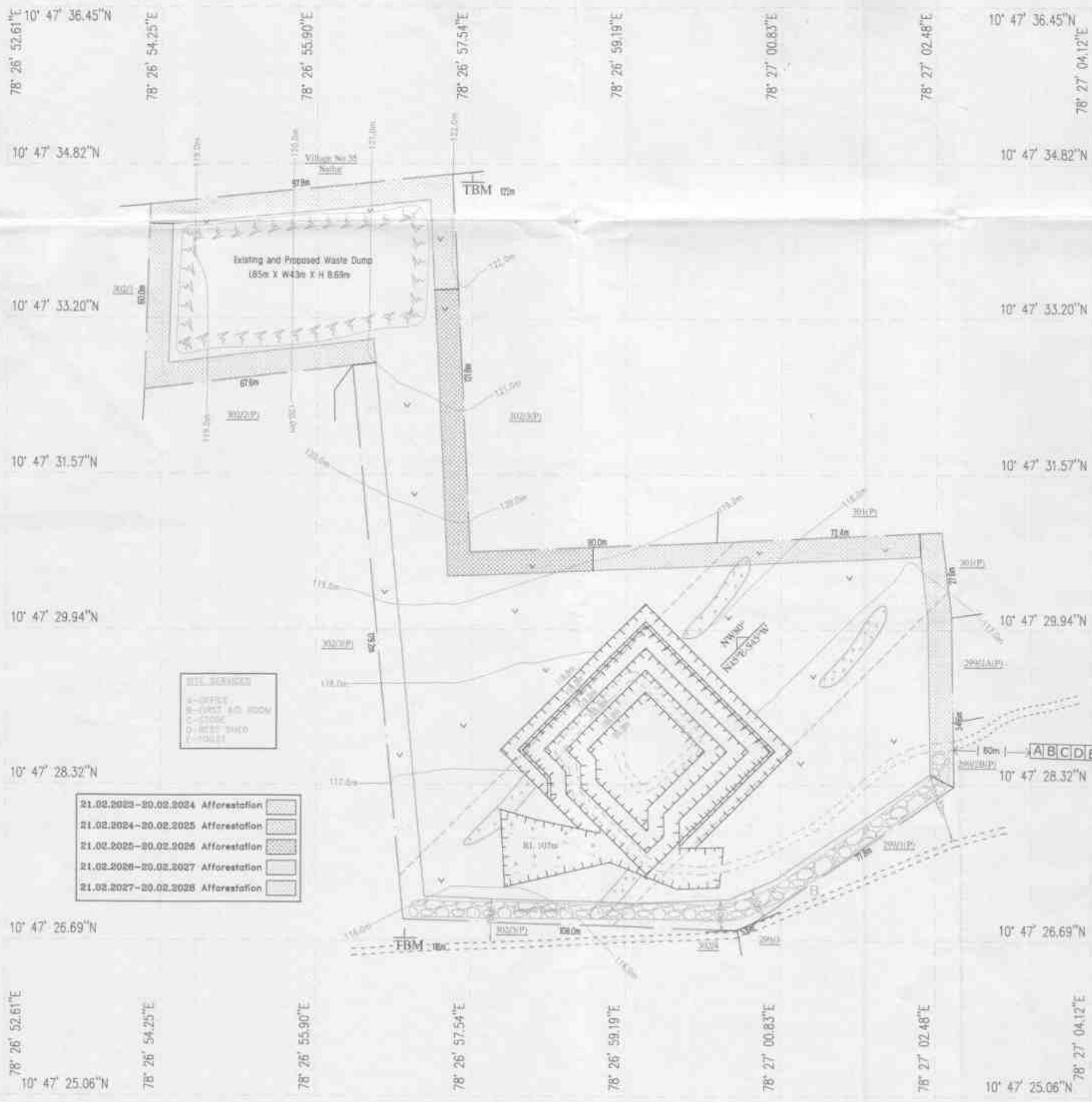
**LANDUSE PATTERN**

DESCRIPTION	PRESENT AREA (Ha)	AREA TO BE REMOVED AT THE PRESENT QUARRY (Ha)	AREA AT THE END OF LIFE OF QUARRY (Ha)	Color Code
AREA UNDER QUARRY	0.14.7	0.14.8	1.34.7	[Symbol]
DUMPS	0.04.4	Nil	0.04.4	[Symbol]
INFRASTRUCTURE	Nil	Nil	Nil	[Symbol]
ROADS	0.09.0	0.01.0	0.08.0	[Symbol]
GREEN BELT	Nil	0.42.3	0.42.3	[Symbol]
STOCKING BLOCKS	2.34.9	1.49.0	0.85.9	[Symbol]
TOTAL	2.97.0	2.11.9	2.69.0	

**PROGRESSIVE QUARRY CLOSURE PLAN AND SECTIONS**  
 SCALE 1:1000  
 (SECTION-HOR 1-200, VERT 1:500)

**PREPARED BY:**  
 I hereby certify that the information in this plan is true and correct to the best of my knowledge based upon the landward investigations by this Government.





**WELL SCHEDULE**

- A-OFFICE
- B-FIRST AID ROOM
- C-STORAGE
- D-BEST BINCO
- E-TOILET

21.02.2023-20.02.2024	Afforestation
21.02.2024-20.02.2025	Afforestation
21.02.2025-20.02.2026	Afforestation
21.02.2026-20.02.2027	Afforestation
21.02.2027-20.02.2028	Afforestation

<b>PLATE NO. VI</b>	
DATE OF SURVEY: 27.06.2022	
<b>LESSEE:</b> M/s. APPLE GRANITES, No. 95/2, PERUR UDAIYAPATTI, GUDALUR VILLAGE, KULITHALAI TALUK, KARUR DISTRICT-639120.	
<b>LOCATION OF QUARRY:</b> S.F.Nos. : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P). EXTENT : 2.97.0 Ha, VILLAGE : KALLAI, TALUK : KULITHALAI, DISTRICT : KARUR.	
<b>INDEX</b>	
QUARRY LEASE BOUNDARY	[Symbol]
7.5m, 10m & 50m SAFETY DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
TEMPORARY BENCH MARK	[Symbol]
VANDIPATHAI	[Symbol]
MINERAL CONTACT LINE	[Symbol]
TOP SOIL	[Symbol]
SCRUB	[Symbol]
STRIKE & DIP	[Symbol]
TOPOGRAPHICAL CONTOUR	[Symbol]
OUT CROPS	[Symbol]
QUARRY PIT	[Symbol]
QUARRY ROAD	[Symbol]
DUMP	[Symbol]

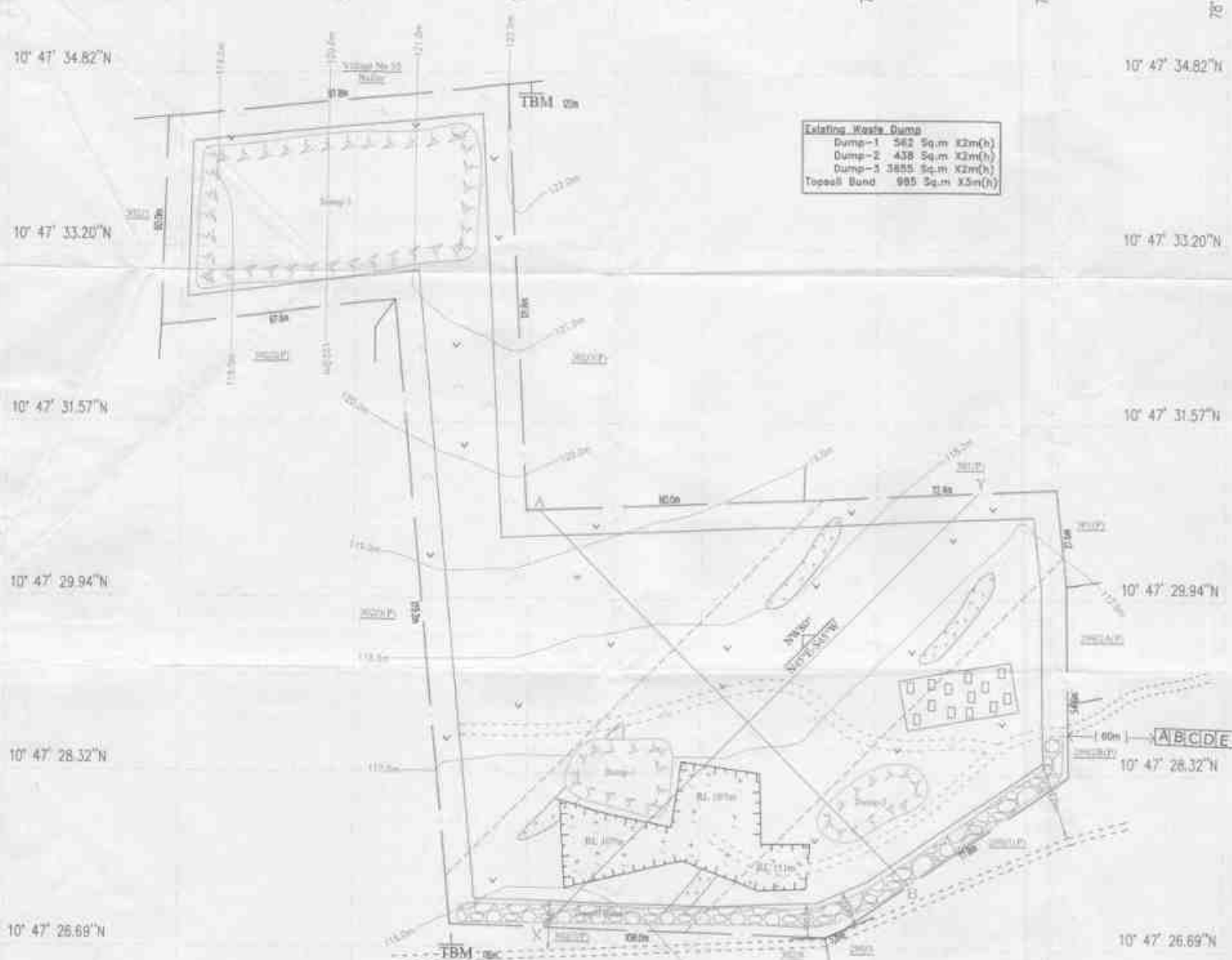
**QUARRY LAYOUT AND AFFORESTATION PLAN**  
SCALE 1:1000

**PREPARED BY:**  
[Signature]  
I hereby certify that the information in this plan is true and correct to the best of my knowledge based upon the LEASING AUTHORITY AUTHORIZED BY STATE GOVERNMENT.



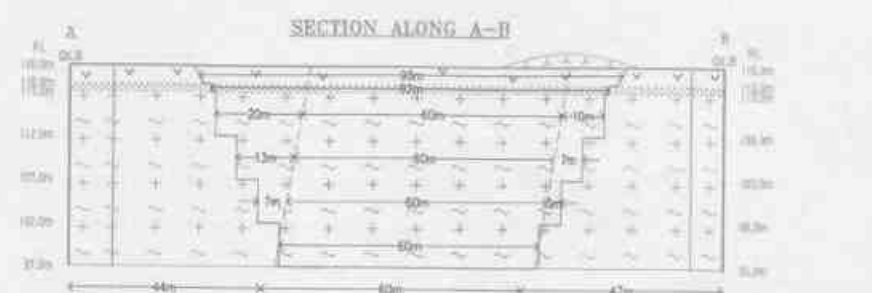
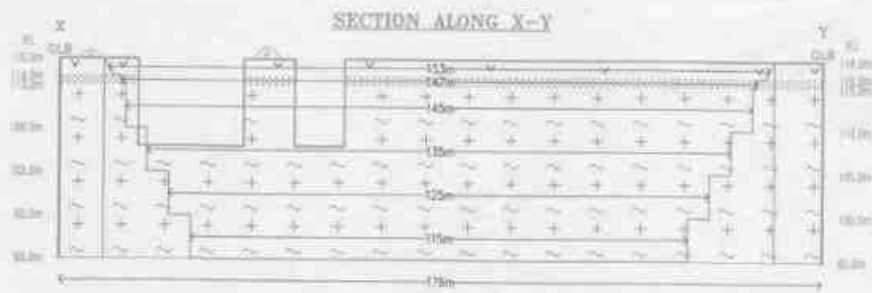


78° 26' 52.61"E 10° 47' 36.45"N  
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 78° 26' 59.19"E  
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 78° 27' 02.48"E  
 10° 47' 25.06"N  
 10° 47' 26.69"N

PLATE NO. IV	
DATE OF SURVEY: 27.06.2022	
<b>LESSEE:</b> M/S APPLE GRANITES, No. 95/2, PERUR UDAYAPATTI, GUDALUR VILLAGE, KULITHALAI TALUK, KARUR DISTRICT-639120.	
<b>LOCATION OF QUARRY:</b> S.F. Nos. : 299/1(P), 299/2A(P), 299/2B(P) 301(P), 302/2(P) and 302/3(P)	
EXTENT : 2.97.0 Ha, VILLAGE : KALLAI, TALUK : KULITHALAI, DISTRICT : KARUR.	
INDEX	
QUARRY LEASE BOUNDARY	[Symbol]
7.5m, 10m & 50m SAFETY DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
TEMPORARY BENCH MARK	[Symbol]
VANDIPATHAI	[Symbol]
MINERAL CONTACT LINE	[Symbol]
TOP SOIL	[Symbol]
SCURB	[Symbol]
STRIKE & DIP	[Symbol]
TOPOGRAPHICAL CONTOUR	[Symbol]
OUT CROPS	[Symbol]
QUARRY PIT	[Symbol]
QUARRY ROAD	[Symbol]
DUMP	[Symbol]
STOCKING BLOCKS	[Symbol]
GEOLOGICAL PLAN AND SECTIONS	
SCALE 1:1000 SECTION WORK 1:500, 1:200	
PREPARED BY:	



PREPARED BY:  
 THIS IS TO CERTIFY THAT THE INFORMATION IN THIS  
 PLAN IS TRUE AND CORRECT TO THE  
 BEST OF MY KNOWLEDGE BASED UPON THE LEADERSHIP  
 AUTHORITY  
 GOVERNMENT  
 152 A  
 [Signature]

சான்றிதழ்

கட்டுள் லாவுடலும் இரங்கீகணை வட்டும் சான்றிதழ்  
 திரைம 400 சாண் : 299/1 [0.41.0] 299/2A [0.34.0]  
 299/2B [0.34.0] 301/- [2.00] 302/2  
 [1.47.0] 302/1 [3.01.5] ஆக லாவுடலும்  
 பரமபி 8.52.0 ஆகும் பட்டம் சாண் 1826-0

ஆகீக கணை மகன் கலகலகல ① தாமதம் மகன்  
 கிலலை புகீது ② கிலகீகணை மகன் பரமபிவம் ③  
 ④ தாமதம் மகன் கலகலகல சாண் சாண் பட்டம்  
 உரிமம். ஆகும் புகீது சாண் 1046/2014-05-19  
 தாள்: 06/03/2014 திரைமம் சாண் தாமதம்  
 மகன் கலகலகல மகன் 3 தயர்கர் சாண்  
 திரைமம் சாண் APPLE GRANITES, சாண்  
 சாண் உரிமம் புகீது சாண் சாண், சாண்  
 திரைமம் திரைமம் திரைமம் சாண் சாண்  
 சாண் திரைமம் சாண் 500 பட்டம் சாண்  
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*(Handwritten Signature)*

கிராம நிர்வாக அலுவலர்  
 கள்ளை கிராமம்  
 குளித்தலை வட்டம்

TOPOGRAPHICAL VIEW OF KALLAI MULTI-COLOUR GRANITE  
QUARRY LEASE APPLIED AREA



Name of the Lessee : **M/s. Apple Granites,**  
Address : No.95/2, Perur Udaiyappatty,  
Gudalur Village,  
Kulithalai Taluk,  
Karur District,  
Tamilnadu -639 120.

LOCATION OF THE AREA:

Extent : 2.97.0Ha  
S.F.Nos. : 299/1 (Part), 299/2A (Part), 299/2B (Part), 301  
(Part), 302/2 (Part) and 302/3 (Part)  
Village : Kallai  
Taluk : Kulithalai  
District : Karur  
State : Tamilnadu

Signature of the Lessee  
For M/s. Apple Granites

  
(R. Subburaman)  
Managing Partner

  
Attestation  
(Village Administrative Officer)  
கள்ளை கிராமம்  
குளித்தலை வட்டம்

THIRU.G.GOVINDARAJ, I.A.S.,  
CHAIRMAN/  
DISTRICT COLLECTOR.

Karur District Environment Impact  
Assessment Authority,  
Room No.302,Collectorate,  
Karur.

**ENVIRONMENTAL CLEARANCE**

**Lr.No.DEIAA-DIA/TN/MIN/9629/2017-KRR Ec.No.88/2017/Mines, Dated: .01.2018**

To,

M/s.Apple Granites,  
No.95/2, Perur Udayappatti,  
Gudalur Village,  
Kulithalai Taluk,  
Karur District.

Sir,

Sub: DEIAA - Proposed - **Multicoloured Granite** - quarry at S.F.Nos. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P) over an extent 2.97.0 hecets of Kallai Village - Kulithalai Taluk - Karur District - by **M/s.Apple Granites** - Environmental Clearance - Reg.

Ref: 1. Your Application for Environment Clearance, Date of online application submitted to DEIAA, Dated:02.10.2017 and the date of receipt of application 09.10.2017.  
2. Minutes of the DEAC meeting No.3 held on date.11 .01.2018.  
3. Minutes of the DEIAA meeting No.3 held on date.18.01.2018.

-o0o-

**Details of Minor mineral Activity:-**

This has reference to your application first cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of category 'B2' minor minerals based on the particulars furnished in your application as shown below:

1.	Name of Project Proponent and address	:	M/s.Apple Granites, No.95/2, Perur Udayappatti, Gudalur Village, Kulithalai Taluk, Karur District.
2.	Location of the Proposed Activity	:	
	Survey Number	:	S.F.Nos. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P) Extent: 2.97.0 hecets



	Latitude and Longitude	:	10°47'26.86" N to 10°47'34.75" N  78°26'54.00" E to 78°27'02.64" E
	Village	:	Kallai
	Taluk	:	Kulithalai
	District	:	Karur
3.	<b>Proposed Activity</b>		
	i. Minor mineral	:	Multicoloured Granite
	ii. Mining Lease Area	:	2.97.0 hects
	iii. Approved quantity	:	Multicoloured Granite =19500 M <sup>3</sup> for first 5 years.
	iv. Depth of quarrying	:	13M below ground level
	v. Type of quarrying	:	Open cast, Semi-mechanized
	vi. Category (B1/B2)	:	"B2" category.
	vii. Precise Area Communication	:	Government letter No.3648/MMB.2/2017, Dated.24.08.2017.
	viii. Mining Plan approval	:	Commissioner of Geology and Mining, Chennai Letter No.269/MM2/2017 Dated.21.09.2017.
	ix. Quarrying lease period	:	20 Years Environment Clearance is granted for first 5 years only.
4.	Whether Project area attracts any general conditions specified in the EIA notification, 2006 as amended:-	:	Not attracted. Affidavit furnished
5.	Man Power requirement per day	:	38 Nos.
6.	<b>Utilities</b>		
	i. Source of Water	:	Water vendors / Existing borehole

5. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 15 mts. from any civil structure shall be kept from the periphery of any excavation area.
14. Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.
15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
19. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
20. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
21. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
22. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
  - i. Roads shall be graded to mitigate the dust emission.
  - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
23. The following measures are to be implemented to reduce Noise Pollution
  - i. Proper and regular maintenance of vehicles and other equipment
  - ii. Limiting time exposure of workers to excessive noise.



	ii.	Water requirement"	:	
		1. Drinking & domestic purposes (in KLD)	:	0.3 KLD & 0.3 KLD
		2. Dust suppression & Green Belt (in KLD)	:	0.4 KLD
	iii.	Power requirement	:	
		a. Domestic purpose	:	Fuel is used for operating machineries and vehicles during quarrying process and electricity will be used only for mines office.
		b. Industrial purpose	:	
7.	<b>Cost</b>			
	i.	Project Cost	:	Rs.2,97,50,000/-
	ii.	EMP Cost	:	Rs.2,55,000/-
8.	Public Consultation:-		:	Not required as per O.M. dated 24.12.2013 of MoEF, GOI
9.	Date of Appraisal by DEAC: Agenda No.		:	11.01.2018 4 <sup>th</sup> Meeting -1
10.	<b>Date of review / discussion by DEIAA and the Remarks:-</b> The proposal was placed before the DEIAA in its DEIAA meeting No.4 held on 18.01.2018 and the Authority after careful consideration, decided to grant Environmental Clearance to the said project Mining of "Multicoloured Granite" subject to the terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.			
11.	<b>Validity:</b> This Environmental Clearance is granted to Mining of "Multicoloured Granite" for the production quantity of 19500cbm, for the period of "five years" from the date of execution of the mining lease period.			

**Conditions to be Complied before commencing mining operations:-**

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
  - I. The project has been accorded Environmental Clearance.
  - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
  - III. Environmental Clearance may also be seen on the website of the DEIAA.
  - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the DEIAA.
2. The applicant has to obtain land use classification as industrial use before issue / renewal of mining lease.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.

- iii. The workers employed shall be provided with protection equipment and earmuffs etc.
- iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
24. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, GoI to control noise to the prescribed levels.
25. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
26. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
27. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
28. The following measures are to be adopted to control erosion of dumps:-
  - i. Retention/ toe walls shall be provided at the foot of the dumps.
  - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
29. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
30. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
31. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
32. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
33. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
34. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
35. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
36. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.
37. **It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500m radius from the periphery of the quarry site.**
38. Ground water quality monitoring should be conducted once in 3 Months.
39. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.

40. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
41. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
42. Bunds to be provided at the boundary of the project site.
43. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place and progress report shall be submitted once in 3 months.
44. At least 10 Neem trees should be planted around the boundary of the quarry site.
45. Floor of excavated pit to be leveled and sides to be sloped with gentle slope (Excepted granite quarries) in the mine closure phase.
46. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity.
47. The Project Proponent shall provide solar lighting system to the nearby villages.
48. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
49. Rainwater shall be pumped out Via Settling Tank only.
50. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
51. As per MoEF&CC, GoI, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from standing committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.
52. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
53. Safety equipments to be provided to all the employees.
54. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai.
55. The Deputy Superintendent of Police, Revenue Divisional Officer, and the Tahsildar concerned shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
56. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
57. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining lease.
58. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before commencing mining operation.
59. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
60. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
61. Blasting shall be carried out after announcing to the public through adequate public address system to avoid any accident.
62. Proper sanitation measures, first aid kit and protected drinking water should be provided to the labourers.
63. The Environmental norms shall be monitored by the District Environmental Engineer, Tamil Nadu Pollution Control Board, Karur.



64. Periodical medical examination of the quarry workers should be carried out by a registered medical practitioner and the report should be filed in the quarry office in a separate file and copy should be sent to the Deputy Director, Health Services, Karur.
65. Artificial recharge structure should be constructed nearby the lease area to harvest the rain water.

**General Conditions:**

- 1) EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
- 2) The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
- 3) No change in mining technology and scope of working should be made without prior approval of the DEIAA, Karur District, Tamil Nadu.
- 4) No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
- 5) Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- 6) Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
- 7) A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
- 8) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
- 9) Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
- 10) Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
- 11) All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
- 12) Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
- 13) Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
- 14) The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
- 15) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
- 16) The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.

- 17) This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance.
- 18) The DEIAA, Karur District may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
- 19) The DEIAA, Karur District may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this DEIAA, Karur District that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
- 20) Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provision of the Environment (Protection) Act, 1986.
- 21) The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Consolation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
- 22) Any other conditions stipulated by other Statutory/Government authorities shall be complied.
- 23) Any appeal against this environmental clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

  
 CHAIRMAN,  
 DEIAA,  
 KARUR.

Copy to:-

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi
2. The Principal Secretary, Environment and Forest Department, Government of Tamil Nadu, Tamil Nadu.
3. The Principal Secretary to Government, Industries Department, Government of Tamil Nadu, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building 1<sup>st</sup> & 2<sup>nd</sup> Floor, Cathedral Garden Road, Nungambakkam, Chennai-34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex East Arjun Nagar, New Delhi 110 032.
6. The Chairman Tamil Nadu Pollution Control Board, 76 Mount Salai (Cuindy, Chennai-32).
7. The Chairman, SEIAA, Panagal Building, Chennai.
8. The Commissioner of Geology and Mining, Guindy, Chennai-32
9. E1 Division, Ministry of Environment and Forests Paryavaran Bhawan, New Delhi
10. Spare.



Whereas the party of the 1st part required blasting to be done at mine to excavate the Quartz mineral. The blasting work is so intensive and large the party of the 1st part has decided to entrust the work involved to the party of the 2nd part on contract basis is follows;

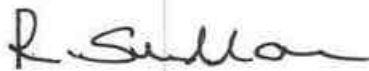
The party of the 1st part will allot the blasting operations in the above said areas to the party of the 2nd part who is responsible for blasting rocks and also making his own arrangements for the explosives and exploding equipment's required for the work. The entire blasting in the above mine under possession of the blasting equipment will be handled by the party of the blasting equipment will be handled by the party of the 2nd part having the valid explosives licence Nos.E/SC/TN /22/51(E10177),E/SC/TN/22/675(E94591), E/SC/TN/22/374(E94598), E/SC/TN/22/676(E94602),E/SC/TN/22/788(E138539) issued by joint chief controller of Explosives, South circle, Chennai and he hereby under take the responsibility for the work entrusted.

Payments will be made immediately after completion of the blasting by the party of the 1st part for the quantity used, explosives consumed and hours and time of the exploding equipment's put into use calculations will be made and settlement will be arrived immediately. The rates for the items of work will as mutually agreed as marginal cost which included blasting charges for blasting work. The agreement is made for all blasting done in the said area.

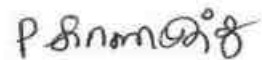
The second part is having rights to terminate the agreement with the first part if the first part violates or not abide the terms and conditions of the agreement and without Prior notice or intimation.

In where of both parties signed this deed on 12<sup>th</sup> day of June 2023 and this deed effective from 12/06/2023 to 06/05/2038.

**Party of the 1st part**



**Party of the 2nd part**



**For RUKMANI EXPLOSIVES**

Place :

Date :



### अनुज्ञापित प्ररूप एल. ई-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 का अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) स (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  
Licence to possess - (c) for use, explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazine

अनुज्ञापित सं. (Licence No.): E/SC/TN/22/51(E10177)  
वार्षिक फीस रूपए (Annual Fee Rs). 5400/-



1. Licence is hereby granted to

M/s. Rukmani Explosives (अधिकारी / Occupier : Sri. Kalimuthu), 274, KARUR ROAD MULANUR DHARAPURAM  
TALLIK - TIRUPUR DIST 638106, Town/Village - Mulanur, District-TIRUPUR, State-Tamil Nadu, Pincode - 638106

को अनुज्ञापित अनुदत्त की जाती है।

2. अनुज्ञापितारी की प्राप्ति (Status of licensee - Partnership Firm)

3. अनुज्ञापित निम्नलिखित प्रयोजनों के लिए विधिमान्य है।

Licence is valid only for the following purpose

4. अनुज्ञापित विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमान्य है।

Licence is valid for the following kinds and quantity of explosives - (क) (a)

क्र. सं.	नाम और विवरण	वर्ग और प्रभाग	उप-प्रभाग	मात्रा किसी एक समय में
Sr. No.	Name and Description	Class & Division	Sub-division	Quantity at any one time
1.	Nitrate Mixture	2.0	0	1000 Kg
2.	Safety Fuse	6.1	0	2500 Mtrs
3.	Detonating Fuse	6.2	0	21500 Mtrs
4.	Detonators	6.3	0	30000 Nos.

(ख) किसी एक कैलेंडर मास में सही जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञापित के लिए)  
(b) Quantity of explosives to be purchased in a calendar month (applicable for licensee under article 3(b) and (c))

25 times  
as above.

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञापित परिसर की पुष्टि होती है।

The licensed premises shall conform to the following drawing(s).

रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/51(E10177)  
दिनांक (Dated) 07/05/1999

6. अनुज्ञापित परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:

Survey No(s). 259, ग्राम (Town/Village): RANGAVALASU KIANGADAL

जिला (District)  
दूरभाष (Phone)

TIRUPUR

राज्य (State)  
ई.मेल (E-Mail)

Tamil Nadu

पोलिस थाना (Police Station): MOOLANUR  
पिनकोड (Pincode)  
फैक्स (Fax)

7. अनुज्ञापित परिसर में निम्नलिखित सुविधाएँ अंतर्भूत हैं।

The licensed premises consist of following facilities:

A MAIN GAZAZINE ROOM, LOBBY AND DETONATOR ROOM

8. अनुज्ञापित समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2008 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपायों 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:

- उपरोक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, संरचना संबंधी और अन्य विवरण दर्शाते करते हुए);  
Drawings (showing site, constructional and other details) as stated in serial No. 5 above.
- अनुज्ञापित प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञापित की शर्तों और अतिरिक्त शर्तों।  
Conditions and Additional Conditions of this licence signed by the licensing authority
- दूरी प्ररूप DE-2 | Distance Form DE-2

9. यह अनुज्ञापित तारीख 31 मार्च 2001 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2001.

यह अनुज्ञापित अधिनियम या उसके अधीन विरचित नियमों का अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपरोक्त इस अनुज्ञापित की शर्तों का अतिक्रमण करने या यदि अनुज्ञापित परिसर योजना या उससे संलग्न उपबंध में दर्शाए विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिबंधित की जा सकती है, जहाँ वह लागू हो।

This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 07/05/1999

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives  
South Circle, Chennai

50/-

#### Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 09/05/2014
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 24/07/2014
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 24/08/2016
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 06/04/2017
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 04/04/2018

#### Transfers :

- Change in Licensee Name/Address/Status dated : 13/02/2013

नवीनीकरण के पृष्ठानक के लिए स्थान  
Space for Endorsement of Renewal

नवीनीकरण की तारीख  
Date of Renewal

24/09/2020

समाप्ति की तारीख  
Date of Expiry

31/03/2025

अनुज्ञापन प्राधिकारी का हस्ताक्षर और स्टाम्प  
Signature of licensing authority and stamp

Jt. Chief Controller of Explosives, South Circle, Chennai

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.





# TAMILNADU POLLUTION CONTROL BOARD

Category of the Industry :

RED

CONSENT ORDER NO. 2208143249645 DATED: 16/02/2022.

PROCEEDINGS NO.F.0848KAR/RS/DEE/TNPCB/KAR/W/2022 DATED: 16/02/2022

**SUB:** Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT - M/s. APPLE GRANITES , S.F.No. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P), KALLAI village, Kuzhithalai Taluk and Karur District - Renewal of Consent for the operation of the plant and discharge of sewage and/or trade effluent under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act 6 of 1974) - Issued- Reg.

**REF:** 1.Unit Application through OCMMS No.43249645 Dated.02.02.2022  
2.CTO Proc No.F.0848KAR/RS/DEE/TNPCB/KAR/W&A/2018 Dated:22.05.2018.  
3.IR No:F.0848KAR/RS/AEE/KAR/2022 Dated:15.02.2022

RENEWAL OF CONSENT is hereby granted under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act, 6 of 1974) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Managing Partner  
M/s'APPLE GRANITES ,  
S.F.No. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P),  
KALLAI Village ,  
Kuzhithalai Taluk ,  
Karur District .

Authorising the occupier to make discharge of sewage and /or trade effluent.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This RENEWAL OF CONSENT is valid for the period ending February 20, 2023

RAVICHANDRAN  
KANDASAMY

Digitally signed by  
RAVICHANDRAN KANDASAMY  
Date: 2022.02.21 18:00:09 +05'30'

District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
KARUR



## TAMILNADU POLLUTION CONTROL BOARD

### SPECIAL CONDITIONS

1. This renewal of consent is valid for operating the facility for the manufacture of products/byproducts (Col. 2) at the rate (Col 3) mentioned below. Any change in the product/byproduct and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
<b>Product Details</b>			
1.	MULTICOLOURED GRANITE	19500	Cum over a period of five years

2. This renewal of consent is valid for operating the facility with the below mentioned outlets for the discharge of sewage/trade effluent. Any change in the outlets and the quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Outlet No.	Description of Outlet	Maximum daily discharge in KLD	Point of disposal
<b>Effluent Type : Sewage</b>			
1.	Sewage	0.5	On Industrys own land
<b>Effluent Type : Trade Effluent</b>			



## TAMILNADU POLLUTION CONTROL BOARD

### Additional Conditions:

1. The unit shall not generate trade effluent at any stage of its manufacturing process.
2. The unit shall treat and dispose the sewage generated from their premises through septic tank and soak pit arrangements.
3. The unit shall restrict the quarrying operations between 7 Am and 5 Pm.
4. The unit shall not invite any sort of complaint from the nearby public.
5. No change in mining technology or scope of working shall be made without prior permission approval of the DEIAA, Karur.
6. The unit shall comply with the conditions mentioned in the Environmental Clearance obtained from DEIAA vide Letter No.DEIAA-DIA/TN/MIN/9629/2017-KRR EC No.88/2017/Mines dated: 18.1.2018.

**RAVICHANDRA  
N KANDASAMY** Digitally signed by  
RAVICHANDRAN KANDASAMY  
Date: 2022.02.21 18:01:09  
+05'30'  
**District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
KARUR**

To  
The Managing Partner,  
M/s.APPLE GRANITES ,  
No. 95/2, Perur Udayappatti,  
Gudalur Village,  
Kulithalai Taluk,  
Karur District,  
Tamil Nadu,  
Pin: 639120

### Copy to:

1. The Commissioner, THOGAIMALAI-Panchayat Union, Kuzhithalai Taluk, Karur District .
2. Copy submitted to the Member Secretary, Tamil Nadu Pollution Control Board, Chennai for favour of kind information.
3. Copy submitted to the JCEE-Monitoring, Tamil Nadu Pollution Control Board, Salem for favour of kind information.
4. File



## TAMILNADU POLLUTION CONTROL BOARD

Category of the Industry :

RED

CONSENT ORDER NO. 2208243249645 DATED: 16/02/2022.

PROCEEDINGS NO.F.0848KAR/RS/DEE/TNPCB/KAR/A/2022 DATED: 16/02/2022

**SUB:** Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT -M/s. APPLE GRANITES , S.F.No. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P), KALLAI village, Kuzhithalai Taluk and Karur District - Renewal of Consent for the operation of the plant and discharge of emissions under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) -Issued- Reg.

**REF:** 1.Unit Application through OCMMS No.43249645 Dated:02.02.2022  
2.CTO Proc No.F.0848KAR/RS/DEE/TNPCB/KAR/W&A/2018 Dated:22.05.2018.  
3.IR No:F.0848KAR/RS/AEE/KAR/2022 Dated:15.02.2022

RENEWAL OF CONSENT is hereby granted under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Managing Partner  
M/s.APPLE GRANITES ,  
S.F.No. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P),  
KALLAI village,  
Kuzhithalai Taluk,  
Karur District.

Authorizing the occupier to operate the industrial plant in the Air Pollution Control Area as notified by the Government and to make discharge of emission from the stacks/chimneys.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This RENEWAL OF CONSENT is valid for the period ending February 20, 2023

RAVICHANDRAN  
KANDASAMY

Digitally signed by  
RAVICHANDRAN KANDASAMY  
Date: 2022.02.21 17:58:49 +05'30'

District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
KARUR



## TAMILNADU POLLUTION CONTROL BOARD

### SPECIAL CONDITIONS

1. This renewal of consent is valid for operating the facility for the manufacture of products (Col. 2), at the rate (Col. 3) mentioned below. Any change in the products and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
<b>Product Details</b>			
1.	MULTICOLOURED GRANITE	19500	Cum over a period of five years

2. This renewal of consent is valid for operating the facility with the below mentioned emission/noise sources along with the control measures and/or stack. Any change in the emission source/control measures/change in stack height has to be brought to the notice of the Board and fresh consent/Amendment has to be obtained.

<b>I Point source emission with stack :</b>				
Stack No.	Point Emission Source	Air pollution Control measures	Stack height from Ground Level in m	Gaseous Discharge in Nm <sup>3</sup> /hr
<b>II Fugitive/Noise emission :</b>				
Sl. No.	Fugitive or Noise Emission sources	Type of emission	Control measures	
1.	Top soil removal	Fugitive	Water sprinkler system	
2.	Drilling and Cutting operations	Fugitive	Water injection	
3.	Loading , unloading and hauling	Fugitive	Water Sprinklers using Tanker lorries	





## TAMILNADU POLLUTION CONTROL BOARD

### Special Additional Conditions:

The unit shall install the approved retrofit emission control device/equipment with at least 70% Particulate matter reduction efficiency on all DG sets with capacity of 125 KVA and above or otherwise the unit shall be shift to gas based generators within the time frame prescribed in the notification No. TNPCB/Labs/DD(L)02151/2019 dated 10.06.2020 issued by TNPCB.

### Additional Conditions:

1. The unit shall operate all the APC measures continuously and efficiently so as to achieve the AAQ/Emission standards prescribed by the Board.
2. The unit shall adhere to Ambient Noise level standards prescribed by the Board.
3. The unit shall restrict the quarrying operations between 7 Am and 5 Pm.
4. No change in mining technology or scope of working shall be made without prior permission approval of the SEIAA, Chennai.
7. The unit shall comply with the conditions mentioned in the Environmental Clearance obtained from DEIAA vide Letter No. DEIAA-DIA/TN/MIN/9629/2017-KRR EC No.88/2017/Mines dated: 18.1.2018.
8. The unit shall continue to develop green belt all along the boundary of the quarry lease area.
9. The unit shall not use "use and throwaway plastics" such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bags and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm, stainless steel, glass, porcelain plates/cups/cloth bag, jute bag etc.,

RAVICHANDRAN  
KANDASAMY

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RAVICHANDRAN KANDASAMY  
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District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
KARUR

To

The Managing Partner,  
M/s. APPLE GRANITES,  
No. 95/2, Perur Udayappatti,  
Gudalur Village,  
Kulithalai Taluk,  
Karur District,  
Tamil Nadu,  
Pin: 639120

### Copy to:

1. The Commissioner, THOGAIMALAI-Panchayat Union, Kuzhithalai Taluk, Karur District.
2. Copy submitted to the Member Secretary, Tamil Nadu Pollution Control Board, Chennai for favour of kind information.
3. Copy submitted to the JCEE-Monitoring, Tamil Nadu Pollution Control Board, Salem for favour of kind information.
4. File

From

Dr.P.Jayapal M.Sc., Ph.D.,  
Deputy Director,  
Geology and Mining,  
Karur.

To

M/s. Apple Granites,  
5/2, Perur Udaiyapatty,  
Gudalur Village,  
Kulithalai Taluk,  
Karur District

**Rc.No.511/Mines/2022, Dated: 04.09.2023.**

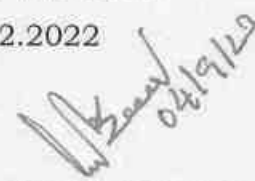
Sub: Mines and Quarries - Minor Mineral - Multicolour Granite - Karur District - Kulithalai Taluk- Kallai Village - S.F.Nos.299/1 (Part) (0.46.0 hecets), 299/2A (Part) (0.03.5 hecets), 299/2B(Part) (0.03.0 hecets), 301 (Part) (0.31.0 hecets), 302/2 (Part) (0.43.0 hecets) and 302/3 (Part) (1.70.5 hecets) over an extent of 2.97.0 hectares of patta lands -Quarry lease granted to M/s. Apple Granites - Requested for details of permit quantity - Reg.

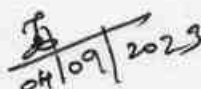
Ref: 1. G.O.(3D) No.03, Industries (MMB.2),  
Department, Dated:25.01.2018.  
2. M/s.Apple Granites, letter dated:01.09.2023.

\*\*\*\*\*

In the reference 1<sup>st</sup> cited, M/s.Apple Granites had been granted quarry lease for quarrying Multicoloured Granite in S.F.Nos.299/1 (Part) (0.46.0 hecets), 299/2A (Part) (0.03.5 hecets), 299/2B(Part) (0.03.0 hecets), 301 (Part) (0.31.0 hecets), 302/2 (Part) (0.43.0 hecets) and 302/3 (Part) (1.70.5 hecets) over an extent of 2.97.0 hectares of patta lands in Kallai Village, Kulithalai Taluk, Karur District. As requested by the lessee firm, the details of permitted quantity furnished below.

1. Approved Quantity As per : 19500 Cbm  
Environmental Clearance
2. Details of permit issued : 1005.590 Cbm  
quantity as on date
3. Balance Quantity : 18494.41 Cbm
4. Date of Last Permit issued : 30.12.2022

  
Deputy Director,  
Geology and Mining,  
Karur.

  
04/09/2023



भारतसरकार

GOVERNMENT OF INDIA

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय

MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE

Integrated Regional Office,

1<sup>st</sup> Floor, Additional Office Block for GPOA, Shastri Bhawan,

Haddows Road, Nungambakkam, Chennai – 600006



EP/12.1/2023-24/SEIAA/57/TN/913

28.07.2023

To

M/s. Apple Granites,  
No.95/2, Perur Udayappatti,  
Gudalur Village, Kulithalai Taluk,  
Karur District,  
Pincode – 639 120.

**Subject:** DEIAA-Proposed Multi Colour Granite Quarry at S.F.No's. 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) of Kallai village, Kulithalai Taluk, Karur District.– by M/s. Apple Granites - Environmental Clearance – Reg.

**Reference No:** Lr. No. DEIAA-DIA-TN/MIN/9629/2017-KRR Ec.No.88/2017/Mines  
**Dated:** 18.01.2018

**Your Letter dated** 03.07.2023.

Sir,

With reference to the above mentioned subject, please find enclosed herewith a Certified Copy of the Compliance Report. This has been approved by the DDGF(C) vide diary no. 561B dated 26.07.2023

**Encl:** As above.

Yours faithfully,

*e. palpandi*  
28-07-2023  
**(Dr. C. Palpandi)**  
**Scientist 'D'**

Dr. C. Palpandi,  
Scientist "D"

Government of India

Min. of Environment Forest and Climate Change

Integrated Regional Office

1<sup>st</sup> Floor, Additional Office Block for GPOA,

Shastri Bhawan, Haddows Road

Nungambakkam, Chennai - 600 006.

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## CERTIFIED COMPLIANCE REPORT

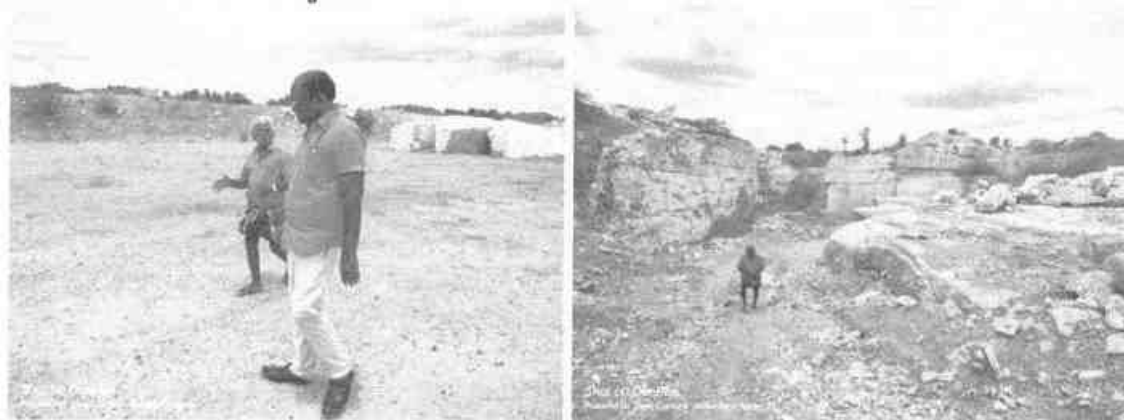
### PART - II

**Subject:** DEIAA-Proposed Multi Colour Granite Quarry at S.F.No's. 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) of Kallai village, Kulithalai Taluk, Karur District.- by M/s. Apple Granites - Environmental Clearance – Reg.

**EC Ref. No:** Lr. No.DEIAA-TN/ MIN/ 9629/ 2017-KRR EC.No.88/2017/Mines. dated: 18.01.2018.

**Project Proponent:** M/s. Apple Granites  
No.95/2, Perur Udayappatti  
Gudalur Village, Kulithalai Taluk,  
Karur District.

#### **Present Status of the Project:**



The District Level Environment Impact Assessment Authority (DEIAA-Karur) Tamil Nadu accorded Environmental Clearance (EC) on 18.01.2018 to the Multi Colour Granite quarry of M/s. Apple Granite Quarry, Karur District, Tamil Nadu. It is an open cast semi-mechanized mining with approved depth of mine is 13m below ground level. Now they had mined up to a depth of 10meters below ground level. The present mining has not intersected the ground water table. The total Mine Lease (ML) Area is 2.97.0 Ha. Out of this, the broken-up area is 0.14.7Ha. As informed by the Project Proponent(PP), the mining work started on 21.02.2018. There is no over burden as well as over burden dump. The project cost is Rs. 2,97,50,000/-, EMP cost is Rs. 2,55,000/-.

Environmental Clearance was issued by DEIAA Tamil Nadu vide ref. no. DEIAA-TN/MIN/ 9629/ 2017-KRR EC.No.88/2017/Mines dated 18.01.2018 is valid up to 19.01.2023. As informed by the Project Proponent, the mining work has stopped on 20.02.2023. The mine had valid lease from 21.2.2018 to 20.02.2038. Now, they had applied for renewal of EC with SEIAA -TN.

The PP has obtained Consent to Operate (CTO) for Air vide proceedings No.F.0848KAR/RS/DEE/TNPCB/KAR/A/2022 dated 16.02.2022 and Water vide proceeding No.F.0848KAR/RS/DEE/TNPCB/KAR/W/2020 dated 16.02.2022 from Tamil Nadu Pollution Control Board (TNPCB), Karur and is valid up to 20.02.2023.

During the visit, it was observed that the wire fencing was not maintained. The benches in the quarry pit were not set up and the PP agreed to set up the wire fencing and benches.

The PP stated that, there is no habitation and approved layouts are situated within a radius of 300metres from the lease area. The Nearest Railway station is Trichy which is located about 26 km on the Eastern side of the area. The Nearest National Highway (NH- 83) Chennai-Trichy road is situated about 14 km on the Southeastern side of the quarry lease area. The State Highway (SH-71) Kulithalai-Mannaparai road is situated about 6 km on the Southwestern side of the quarry lease area.

There is no reserve forest / social forest / wildlife sanctuary observed within 1 km radius of the quarry lease area. There is no temple or any other archeological importance within the radius of 300 meters from the lease area. The Kaveri river is situated at the distance of 12 km on the Northern side of the quarry lease area.

Environmental monitoring was carried out in the lease area by a NABL accredited laboratory. Ambient Air Quality (AAQ) was carried out at 3 locations in the quarry site. Results of all parameters are well within the prescribed limits of NAAQ standards 2009. Noise level monitoring was carried out at in the quarry site. The monitoring results are within prescribed limits as per MoEF&CC/ CPCB norms. A Water sample was collected from a bore well near the quarry and analyzed as per Indian Standard (IS). Results of all parameters are well within the permissible limits of IS: 10500:2012.

The PP has requested the Integrated Regional Office, Ministry of Environment, Forest & Climate Change (MoEF&CC), Chennai to provide Certified Compliance Report on Environmental Clearance towards renewal of EC with the SEIAA-TN.

The above project was monitored on 24.07.2023 along with the representative of the Project Proponent. The status of compliance on the stipulated conditions contained in the EC cited above is given as Part III.

Date of Monitoring: **24.07.2023.**

### **PART – III**

#### **Environment Clearance Conditions:**

#### **Conditions to be Complied before Commencing Mining Operations:-**

<b>S. No.</b>	<b>EC CONDITIONS</b>	<b>COMPLIANCE STATUS</b>
1.	The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that I. The project has been accorded Environmental Clearance. II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.	<b>Refer below.</b>  Advertisements were not given in two local Newspapers.

S. No.	EC CONDITIONS	COMPLIANCE STATUS
	<p>III. Environmental Clearance may also be seen on the website of the DEIAA.</p> <p>IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the DEIAA.</p>	
2.	The applicant has to obtain land use classification as industrial use before issue/renewal of quarrying lease.	<p><b>Refer below.</b></p> <p>The PP informed that the land use classification as industrial use will be obtained before renewal of mining lease.</p>
3.	NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.	<p><b>Complied.</b></p> <p>During the visit, it was observed that there is no Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves) are available within 10 Km radius of the project site. Hence NBWL Clearance is not required.</p>
4.	The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.	<p><b>Refer below.</b></p> <p>The PP informed that the stipulated conditions laid down in Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959, Drilling, Blasting, Loading (at mines) and Transport are being complied.</p>
5.	A copy of the Environmental Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayath/Panchayath union, Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.	<p><b>Reportedly complied.</b></p> <p>The PP informed that a copy of the EC was submitted to the local Panchayat by hand.</p> <p>The PP also claimed that no suggestion / representation from public and local NGO were received while processing the proposal.</p> <p>The PP has agreed to place the Environmental clearance letter on their</p>

S. No.	EC CONDITIONS	COMPLIANCE STATUS
		website at the earliest.
6.	Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.	<p><b>Complied.</b></p> <p>During the visit, it was observed that quarry lease area is demarcated on the ground with boundary pillars and show the boundary of the lease area on all sides. PP agreed to erect the wire fencing on all sides of the quarry lease area.</p> <p>Refer in <b>Annexure – I.</b></p>
7.	The proponent shall ensure that First Aid Box is available at site.	<p><b>Complied.</b></p> <p>First Aid Box is available at the quarry office.</p>
8.	The excavation activity shall not alter the natural drainage pattern of the area.	<p><b>Complied.</b></p> <p>No alteration of drainage pattern of the lease area was observed during the visit.</p>
9.	The excavated pit shall be restored by the project proponent for useful purposes.	<p><b>Agreed to comply.</b></p> <p>After completion of the Project, the PP agreed to restore the excavated pit for useful purposes as per the mine closure plan.</p>
10.	The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.	<p><b>Complied.</b></p> <p>The PP is removed granite blocks as per the approved Mining Plan.</p>
11.	The quarrying operation shall be restricted between 7AM and 5 PM.	<p><b>Complied.</b></p> <p>As informed by the PP that the quarry operations are being carried out between 7 AM and 5 PM only.</p>
12.	The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.	<p><b>Complied.</b></p> <p>There is no approved habitation near to the quarry. Also the PP informed that there is no adverse impact due to quarrying operations to the Environment.</p>
13.	A minimum distance of 15mts. From any civil structure shall be kept from the periphery of any excavation area.	<p><b>Complied.</b></p> <p>During the visit, it was observed that there is no civil structure located within</p>

S. No.	EC CONDITIONS	COMPLIANCE STATUS
		15 m distance from periphery of quarry.
14.	Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.	<p><b>Complied.</b></p> <p>The approved depth of the quarry is 13 m below ground level. As informed by the PP, the Ground Water table is 55 m in Summer and at 50 m in rainy seasons. At present the depth of mining activity is 10 m, which is not intersected the ground water table. The PP assured that the quarrying will be 2 m above the ground water table / approved depth of mining whichever is lesser.</p>
15.	The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.	<p><b>Agreed to comply.</b></p> <p>Backfilling is not yet started and the PP has agreed to follow the backfilling as per the mine closure plan. Also have agreed to carryout landscaping and tree plantation after completion of the mining work.</p>
16.	Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.	<p><b>Complied.</b></p> <p>Wet drilling method is adopted to control the dust emission. Explosives are not used for Granite quarry operation. They are using Diamond wire saw cutting machine for production work instead of Blasting. Mild explosives will be used for development work only. So, the ground vibration is very least due to blasting.</p>
17.	Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.	<p><b>Complied.</b></p> <p>DGMS (Directorate General of Mines Safety) approved Mine's Manager and Mining Mate statutory personnel are employed to carry over supervision of drilling and blasting operation.</p>
18.	The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.	<p><b>Complied.</b></p> <p>The PP informed that the explosive material is not stored at the site and it was taken from licensed agent as and when it is required and used</p>



S. No.	EC CONDITIONS	COMPLIANCE STATUS
		<p>immediately.</p> <p>Agreement for blasting had been made M/s. Rukmani Explosives Company having PESO license No.E/SC/TN/22/51(E10177). Refer <b>Annexure - II.</b></p>
19.	Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.	<p><b>Complied.</b></p> <p>The PP informed that blasting was carried out after announcing the public through public address system, centrist, whistling, siren and posting red flags to avoid any accident.</p>
20.	A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.	<p><b>Refer below.</b></p> <p>No such study has been conducted to assess the optimum blast parameters and blast design and details in this regard were not made available by the PP. PP has informed to conduct the study in future.</p> <p>However, the vibration levels are monitored and observed Peak Particle Velocity value is within the limits as per DGMS standards, i.e 5.0 mm/sec.</p>
21.	The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, Gol on 16.11.2009.	<p><b>Complied.</b></p> <p>AAQ levels were monitored by PP through NABL accredited laboratory to comply with the revised NAAQ norms.</p> <p>AAQ Monitoring Reports is enclosed in <b>Annexure – III.</b></p>
22.	<p>The following measures are to be implemented to reduce Air Pollution during transportation of mineral</p> <ol style="list-style-type: none"> <li>i. Roads shall be graded to mitigate the dust emission.</li> <li>ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust.</li> </ol>	<p><b>Complied.</b></p> <p>The following measures are implemented to reduce Air Pollution.</p> <ol style="list-style-type: none"> <li>i. Roads were graded to reduce the dust emissions.</li> <li>ii. Water sprinkling was carried out on the main road and other service roads regularly to suppress dust.</li> </ol>

S. No.	EC CONDITIONS	COMPLIANCE STATUS
23.	<p>The following measures are to be implemented to reduce Noise Pollution.</p> <ul style="list-style-type: none"> <li>i. Proper and regular maintenance of vehicles and other equipment.</li> <li>ii. Limiting time exposure of workers to excessive noise.</li> <li>iii. The workers employed shall be provided with protection equipment and earmuffs etc.</li> <li>iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.</li> </ul>	<p><b>Complied.</b></p> <p>The following measures are implemented to reduce Noise Pollution.</p> <ul style="list-style-type: none"> <li>i. Proper and regular maintenance of vehicle and other equipments are carried out.</li> <li>ii. Limiting time exposure of workers to extensive noise is followed.</li> <li>iii. Personnel Protective Equipments (PPE) such as Helmet, Ear muff, Gloves and Safety shoes are provided to the workers.</li> <li>iv. Speed of vehicles is restricted to <u>25 kpmh</u> at quarry site.</li> </ul>
24.	<p>Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&amp;F, Gol to control noise to the prescribed levels.</p>	<p><b>Complied.</b></p> <p>Measures such as acoustic enclosures Inbuilt cabin facility in JCB &amp; Ear plugs / Muffs to the workers are provided.</p> <p>The noise levels in the quarry area were monitored through NABL accredited laboratory and the values are within the limit.</p> <p>Report is enclosed in <b>Annexure – IV.</b></p>
25.	<p>Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.</p>	<p><b>Agreed to comply.</b></p> <p>The PP informed that the rain water is collected in the quarry pit during rainy season and used for Green Belt and Dust Suppression. This is helping to augment the ground water. However, they have not consulted RD, CGWB.</p>
26.	<p>Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.</p>	<p><b>Complied.</b></p> <p>As informed by the PP, the Ground Water table is at 55 m in Summer and at 50 m in rainy seasons. Mining has been done up to 10 meters. There was no intersection of the ground water table. Hence, permission from the</p>

S. No.	EC CONDITIONS	COMPLIANCE STATUS
		Competent Authority was not obtained for drawl of ground water.
27.	Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.	<b>Complied.</b> As informed by the PP that whatever topsoil was removed the same was stacked and used for plantation purpose.
28.	The following measures are to be adopted to control erosion of dumps:- i. Retention/ toe walls shall be provided at the foot of the dumps. ii. Worked out slopes are to be stabilized by planting appropriate shrub/grass species on the slopes.	<b>Agreed to comply.</b> Reject materials are stored at identified place within ML area. These materials are lump sum and there is no chance of erosion. However, a protection bund is provided around reject materials storage.  The PP has agreed to plant trees on the worked slopes.
29.	Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.	<b>Complied.</b> As informed by PP, the waste oil is collected, stored and disposed through TNPCB authorized recyclers.
30.	Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.	<b>Agreed to comply.</b> The PP has agreed to comply with this condition.
31.	Rain water harvesting to collect and utilize the entire water falling in land area should be provided.	<b>Refer below.</b> The PP informed that the rain water is collected in the quarry pit during rainy season and allowed for percolation.
32.	Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt	<b>Agreed to comply.</b> The PP informed that the rain water is collected in the quarry pit and used for dust suppression as well as for green belt development.  No rain water is discharged directly to nearby stream or water body.



S. No.	EC CONDITIONS	COMPLIANCE STATUS
	water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.	
33.	The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.	<p><b>Complied.</b></p> <p>The mining activity has not intersected the ground water level. PP has undertaken adequate safeguard measures to protect hydrological regime of the Surrounding area of mine during extraction of material. In view of this, the PP informed that the hydro-geological regime of the surrounding area was not affected.</p> <p>Water Quality and Ground Water level was regularly monitored through third party NABL accredited laboratory once in 6 months and as per the report there is no adverse impact was noticed.</p> <p>The PP has assured that in case of any adverse impact is noticed, appropriate measures will be taken immediately.</p> <p>The test report is enclosed in <b>Annexure – V.</b></p>
34.	No tree-felling shall be done in the leased area, except only with the permission from competent Authority.	<p><b>Complied.</b></p> <p>The PP informed that no tree was cut in the mining lease area.</p>
35.	To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.	<p><b>Agreed to comply.</b></p> <p>Environmental Monitoring is being carried out before, during and after the mining activities through a third party NABL accredited laboratory. The monitored data shows that the values are within the limits. Flora and Faunal study were also conducted.</p> <p>The monitoring reports are given in <b>Annexure – III, IV, V &amp; VIII.</b></p>

S. No.	EC CONDITIONS	COMPLIANCE STATUS
36.	It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.	<p><b>Agreed to comply.</b></p> <p>The PP informed that there are three quarries are located within 500m radius from the periphery of this quarry and the total extent of the quarries are 8.29.0 Ha, which is not exceeding 25 hectares. Hence it is complied.</p> <p>The Extent certificate issued by the Dept. of Geology and Mining, Karur District.</p> <p>Refer in <b>Annexure – VI.</b></p>
37.	It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500 m radius from the periphery of the quarry site.	<p><b>Refer below.</b></p> <p>It was observed that there is no human habitation within 300 m radius from the periphery of the quarry site.</p> <p>The PP informed that no hindrance was occurred due to quarry activity and also agreed to ensure that no hindrance will be caused to the people of the habitation located within 500 m radius from the periphery of the quarry site.</p> <p>Refer in <b>Annexure -VIII.</b></p>
38.	Ground water quality monitoring should be conducted once in 3 months.	<p><b>Refer below.</b></p> <p>The PP informed that the monitoring of ground water quality is carried out one location through external laboratory on half yearly basis.</p>
39.	Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.	<p><b>Reportedly complied.</b></p> <p>The PP informed that the transportation of the quarried materials were done in the covered truck and there was no hindrance to the village people/existing Village road.</p>
40.	Free Silica test should be conducted and reported to Tamil Nadu Pollution Control Board, Tiruppur and Regional Director, MoEF, GOI.	<p><b>Complied.</b></p> <p>Free Silica test was conducted as per NIOSH guidelines and report will be submitted to TNPCB, Department of Geology and Mining and Regional</p>

S. No.	EC CONDITIONS	COMPLIANCE STATUS
		<p>Director, MoEF&amp;CC, GOI as informed.</p> <p>Report is enclosed in <b>Annexure – VIII.</b></p>
41.	Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.	<p><b>Complied.</b></p> <p>The PP has monitored the AAQ levels through NABL accredited laboratory to comply with the revised NAAQs norms. The report indicates that the AAQ levels are within the permissible limits.</p>
42.	Bunds to be provided at the boundary of the project site.	<p><b>Complied.</b></p> <p>The PP has provided bunds at the boundary of the project site.</p>
43.	The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place and progress report shall be submitted once in 3 months.	<p><b>Complied.</b></p> <p>Plantation/afforestation activities are carried by planting the native species on all side of the lease area.</p> <p>The PP Informed that more trees will be planted in future.</p>
44.	At least 10 Neem trees should be planted around the boundary of the quarry site.	<p><b>Complied.</b></p> <p>During the visit, it was observed that more than 10 neem trees around the boundary of the quarry site were planted.</p>
45.	Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.	<p><b>Refer below.</b></p> <p>This condition does not apply to granite quarries. However, PP has agreed to follow mine closure plan.</p>
46.	The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity	<p><b>Complied.</b></p> <p>The PP informed during the visit that an amount of Rs.1,21,975/- had been spent for CSR activities (2.5% of annual turnover for FY 2022 - 23).</p> <p>Refer in <b>Annexure – IX.</b></p>
47.	The Project Proponent shall provide solar lighting system to the nearby villages.	<p><b>Agreed to comply.</b></p>

S. No.	EC CONDITIONS	COMPLIANCE STATUS
		The PP has not provided solar lighting system to the nearby villages. During the site inspection, they have agreed to provide the same.
48.	The project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.	<b>Agreed to comply.</b>  It was submitted that this condition is noted and assured to abide by this condition.
49.	Rainwater shall be pumped out Via Settling Tank only.	<b>Complied.</b>  Rainwater is pumped out via settling tank only.
50.	Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.	<b>Complied.</b>  Earthen bunds around the pits with green belt all along the boundary was developed and maintained.  The PP has agreed to provide wire fencing on boundary of the lease area.
51.	As per MoEF&CC, Gol, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from obtaining committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10 Km from National Park and Sanctuaries.	<b>Refer below.</b>  The PP informed during the visit that clearance from forestry and wildlife angle is not applicable to them due to following:  ➤ No forest land is involved in their lease area. ➤ No wildlife sanctuary/critically polluted area/ecologically sensitive zone within 10 km from the boundary of the ML area.
52.	The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.	<b>Agreed to comply.</b>  It was submitted that this condition is noted and assured to abide by this condition.
53.	Safety equipments to be provided to all the employees.	<b>Complied.</b>  The PP has provided with safety equipments to all the employees.
54.	Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai.	<b>Refer below.</b>  During the visit, it was observed that

S. No.	EC CONDITIONS	COMPLIANCE STATUS
		there is no water body and railway line within 50 m distance from the boundary of the lease area.
55.	The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.	<b>Complied.</b>  DGMS (Director General of Mines Safety), Dhanbad approved Mine's Manager and mining MATE statutory personals are employed to carry over supervision of blasting operation.
56.	The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.	<b>Complied.</b>  The PP has done the baseline study before execution of mining operation.
57.	The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electrically before execution of mining lease.	<b>Complied.</b>  During the visit, it was observed that pillars were erected according to the rules for depicting GPS details within the allotted boundary of the quarry site.
58.	The Proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before commencing mining operation.	<b>Agreed to comply.</b>  It was submitted that this condition is noted and assured to abide by this condition.
59.	The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.	<b>Complied.</b>  The Name board showing the details of the project was displayed on the front of the quarry site.  Refer photos is in <b>Annexure – X.</b>
60.	Heavy earth machinery equipment if utilized, after getting approval from the competent authority.	<b>Agreed to comply.</b>  The PP informed that heavy earth-machinery equipment will be used only after obtaining permission from the Competent Authority.
61.	Blasting shall be carried out after announcing to the public through adequate public address system to avoid any accident.	<b>Complied.</b>  The PP informed that blasting is carried out after announcing the public through public address system and posting red flags to avoid any accident.
62.	Proper sanitation measures, first aid kit and protected drinking water should be	<b>Complied.</b>

S. No.	EC CONDITIONS	COMPLIANCE STATUS
	provided to the labourers.	Workers are provided with proper sanitation, first aid kit and protected drinking water.
63.	The Environmental norms shall be monitored by the District Environmental Engineer, Tamil Nadu Pollution Control Board, Karur.	<b>Agreed to comply.</b> It was submitted that this condition is noted and assured to abide by this condition.
64.	Periodical medical examination of the quarry workers should be filed in the quarry office in a separate file and copy should be sent to the Deputy Director, Health Services, Karur.	<b>Complied.</b> Regular medical examinations of the workers are being carried out and records are maintained. The health checkup is being carried out as per the schedule drawn by them.
65.	Artificial recharge structure should be constructed nearby the lease area to harvest the rain water.	<b>Agreed to comply.</b> An artificial recharge structure will be constructed near the lease area to collect rainwater.

**GENERAL CONDITIONS:**

S. No.	EC CONDITIONS	COMPLIANCE STATUS
1.	EC is given only on the factual records, documents and the commitment furnished in non-judicial stamp paper by the proponent.	<b>Agreed to comply.</b> It was submitted that this condition is noted and assured to abide by this condition.
2.	The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.	<b>Complied.</b> The PP has not obtained Consent to Establishment (CTE) from Tamil Nadu Pollution Control Board. However, the PP has obtained Consent to Operate (CTO) for Air vide proceedings No.F.0848KAR/RS/DEE/TNPCB/KAR/A/2022 dated 16.02.2022 and Water vide proceeding No.F.0848KAR/RS/DEE/TNPCB/KAR/A/2022 dated 16.02.2022 from Tamil Nadu Pollution Control Board (TNPCB), Karur and is valid up to <b>20.02.2023.</b>



S. No.	EC CONDITIONS	COMPLIANCE STATUS
		Enclosed CTO as <b>Annexure –XI.</b>
3.	No change in mining technology and scope of working should be made without prior approval of the DEIAA, Karur District, Tamil Nadu .	<b>Complied.</b> There is no change in mining technology and scope of working.
4.	No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.	<b>Complied.</b> There is no change in the calendar plan including excavation, quantum of mineral (minor mineral) made.
5.	Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	<b>Complied.</b> The PP is carrying out the following pollution control measures during the quarry operation. <ul style="list-style-type: none"> <li>• Water sprinkling carried out on haul roads at regular intervals by water tanker to control dust generation.</li> <li>• Periodic Monitoring of Ambient Air Quality and Noise level are performed by a third party NABL accredited laboratory on half yearly basis. Monitoring Reports indicates that AAQ and Noise levels are within the permissible limits.</li> </ul>
6.	Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.	<b>Complied.</b> There is no water body around this quarry. However the PP has taken vector controlled activities in the project area.
7.	A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.	<b>Agreed to comply.</b> A berm will be left from the boundary of adjoining field.
8.	Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	<b>Complied.</b> No dust extraction system is provided in the mineral handling area. However, the PP is carrying out water sprinkling activities to control the dust levels in the project area.
9.	Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered	<b>Complied.</b> The PP informed that all the vehicles used in the project area having valid

S. No.	EC CONDITIONS	COMPLIANCE STATUS
	trucks only and the vehicles carrying the mineral shall not be overloaded.	Pollution Under Control (PUC) Certificates. Regular maintenance of vehicles is being carried out. Further, the PP informed that the mineral loaded vehicles/trucks are covered with tarpaulin and not over loaded.
10.	Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.	<b>Agreed to comply.</b>  It was submitted that this condition is noted and assured to abide by this condition.
11.	All Personnel shall be provided with protective respiratory devices including safety shoes, Masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	<b>Complied.</b>  The PP has provided PPE's such as safety shoes, masks, and gloves etc., and they are using the PPE's.  Supervisory people have been provided with adequate training on safety and health aspects.  The occupational health surveillance is done periodically as per the DGMS norms to observe any contradictions due to dust exposure. No abnormalities have been reported so far.
12.	Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.	<b>Complied.</b>  Regular medical examination of the workers is being carried out and records are maintained. The health checkup is being carried out as per the schedule drawn by them.
13.	Workers/labourer shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.	<b>Agreed to comply.</b>  The PP informed that workers were provided with safe drinking water and sanitation facilities were provided to workers.  Photos enclosed in <b>Annexures – XII.</b>
14.	The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.	<b>Complied.</b>  PP ensured that there was no child labour on the project site.



S. No.	EC CONDITIONS	COMPLIANCE STATUS
15.	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to ministry of Environment and Forest and its Regional Office located at Chennai.	<p><b>Agreed to comply.</b></p> <p>The PP has earmarked an amount Rs.2,55,000/- for Environmental management purposes and it is being incurred. There is no separate account maintained.</p> <p>The PP has agreed to submit the year wise EMP expenditure to the Integrated Regional Office (IRO), MoEF&amp;CC, Chennai.</p>
16.	The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.	<p><b>Agreed to comply.</b></p> <p>It was submitted that this condition is noted and assured to abide by this condition.</p>
17.	This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance	<p><b>Agreed to comply.</b></p> <p>It was submitted that this condition is noted and assured to abide by this condition.</p>
18.	The DEIAA, Karur District may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.	<p><b>Agreed to comply.</b></p> <p>It was submitted that this condition is noted and assured to abide by this condition.</p>
19.	The DEIAA, Karur District may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this DEIAA, Karur District that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.	<p><b>Agreed to comply.</b></p> <p>It was submitted that this condition is noted and assured to abide by this condition.</p>

S. No.	EC CONDITIONS	COMPLIANCE STATUS
20.	Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.	<b>Agreed to Comply.</b>  In general, the PP is implementing all the stipulated conditions made in the EC.
21.	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, draft Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.	<b>Complied.</b>  The consents are valid upto <b>20.02.2023</b> . The PP stated that Public Liability Insurance Act, 1991, along with their amendments are complied. However, no details were made available regarding required insurance. Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for Protection of Child Right Rules, 2006 and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other courts of Law relating to the subject matter complied as informed.
22.	Any other conditions stipulated by other Statutory/Government authorities shall be complied.	<b>Agreed to comply.</b>  It was submitted that this condition is noted and assured to abide by this condition.
23.	Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	<b>Complied.</b>  The PP informed that there is no appeal lying with National Green Tribunal (NGT) against this Environmental Clearance as on date.

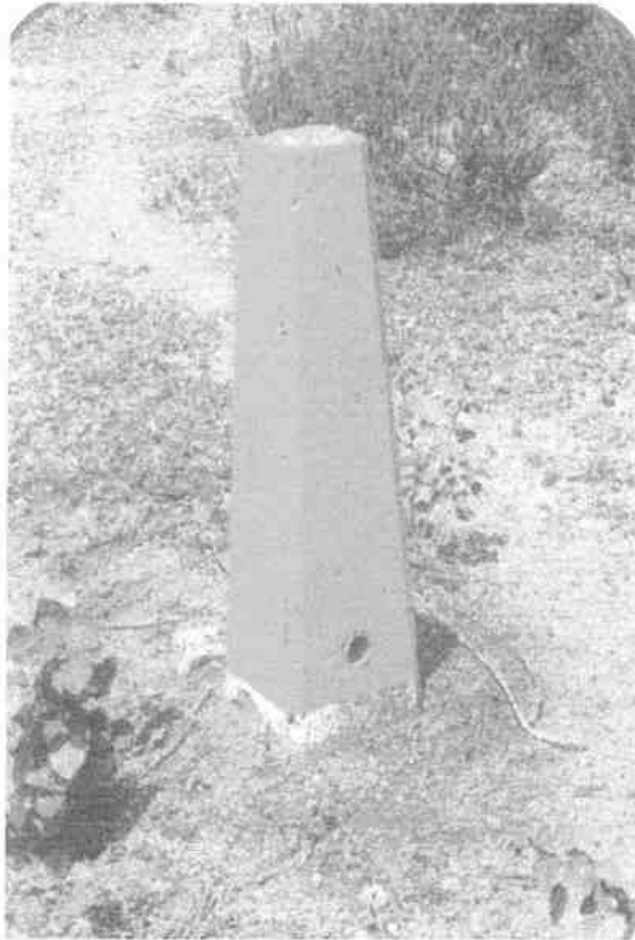
This has the approval of the Competent Authority vide diary No. 561/B dated 26.07.2023

*C. Palpandi*  
**(Dr. C. Palpandi)**  
**Scientist 'D'**

Dr. C. Palpandi,  
Scientist "D"  
Government of India  
Min. of Environment Forest and Climate Ch  
Integrated Regional Office  
1st Floor, Additional Office Block for GPC  
Shastri Bhawan, Haddows Road  
Nungambakkam, Chennai - 600 006.

**PHOTOS OF BOUNDARY PILLAR**

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தமிழ்நாடு தாமலநாடு TAMIL NADU ரூ 20 22AC 049896

AR-11-1-1-1

12.6.2023

Rukmani Explosives  
Mulanur

அ.ரா.கவின் அமர்நாத்  
முத்திரைத்தாள் விற்பனையாளர்  
142, சுருர் மெயின் ரோடு,  
மூலனூர் - 638 106.  
ச.ரி.மம் எண்: 17/2021/TPR

**DEED OF AGREEMENT**

This agreement entered into Mulanur on this 12th June 2023 between the Manager of M/s.Apple Granites Quarry(Mr.Subburaman Ramasamy), Resident of 8/122,Pattidaikkanpatti,Melur Taluk, Keelaiyur, Madurai District herein after referred to as party of the 1st part and M/s.Rukmani explosives, No:274, Main Road Mulanur,Tirupur District having explosive licence Nos. E/SC/TN /22/51(E10177), E/SC/TN/22/675(E94591), E/SC/TN/22/674(E94598), E/SC/TN/22/676(E94602), E/SC/TN/22/788(E138539), Mulanur here in after referred to as party of the 2nd part.

The party of the 1st part is operating the Quartz Mine of M/s.Apple Granites Quarry in the area S. F. Nos: 299/1(P),299/2A(P),299/2B(P),301(P), 302/2(P), & 302/3(P) to the extent of 2.97.0 hectares in Kallai village, Kulithalai Taluk, Karur District. The lease having the mining lease from the Industries (MMA-1) Department Government of Tamilnadu G.O.3(D)No.3/Ind(MMA-1)Dept., dated 25/01/2018

Party of the 1st part

*R. Subburaman*

Party of the 2nd part

*P. Rukmani*

**For RUKMANI EXPLOSIVES**

Whereas the party of the 1st part required blasting to be done at mine to excavate the Quartz mineral. The blasting work is so intensive and large the party of the 1st part has decided to entrust the work involved to the party of the 2nd part on contract basis is follows;

The party of the 1st part will allot the blasting operations in the above said areas to the party of the 2nd part who is responsible for blasting rocks and also making his own arrangements for the explosives and exploding equipment's required for the work. The entire blasting in the above mine under possession of the blasting equipment will be handled by the party of the blasting equipment will be handled by the party of the 2nd part having the valid explosives licence Nos.E/SC/TN /22/51(E10177),E/SC/TN/22/675(E94591), E/SC/TN/22/374(E94598), E/SC/TN/22/676(E94602),E/SC/TN/22/788(E138539) issued by joint chief controller of Explosives, South circle, Chennai and he hereby under take the responsibility for the work entrusted.

Payments will be made immediately after completion of the blasting by the party of the 1st part for the quantity used, explosives consumed and hours and time of the exploding equipment's put into use calculations will be made and settlement will be arrived immediately. The rates for the items of work will as mutually agreed as marginal cost which included blasting charges for blasting work. The agreement is made for all blasting done in the said area.

The second part is having rights to terminate the agreement with the first part if the first part violates or not abide the terms and conditions of the agreement and without Prior notice or intimation.

In where of both parties signed this deed on 12<sup>th</sup> day of June 2023 and this deed effective from 12/06/2023 to 06/05/2038.

Party of the 1st part



Party of the 2nd part



For RUKMANI EXPLOSIVES

Place :  
Date :

**अनुमोदी प्रारूप एल. ई-3 | LICENCE FORM EE-3**  
(विस्फोटक नियम, 2008 का अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) या (घ) द्वारा)

(See article 3(a) to (g) of Part 1 of Schedule IV of Explosives Rules, 2008)  
(ग) उपरोक्त के लिए एक समूह पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी वैकल्पिक वर्ग 4, 2, 3, 4, 5, 6 या 7 का मिश्रण  
Licence to possess (g) for the explosives of class 1, 2, 3, 4, 5, 6 or 7 in a mixture

अनुमोदी सं. (Licence No.): ENCTN/2281(E10177)  
वार्षिक फीस रुपये (Annual Fee Rs): 5000/-



1. Licence is hereby granted to:

**M/S. Rukmani Explosives (श्रीपिथोरी) (Occupier: Sri. Kalimuthu), 274, KARUR ROAD SHE ANUR DHARAPURAM  
TAMILNADU - THIRUPUR DIST 638106, Town/Village - Malalur, District-THIRUPUR, State-Tamil Nadu, Pincode - 638106**

को अनुमति अनुदत्त की जाती है।

2. अनुमतिधारक की प्रकृति (Status of licensee - Partnership Firm)

3. अनुमति निम्नलिखित प्रकारों के लिए विधिवत है।  
(Licence is valid only for the following purpose)

4. अनुमति विस्फोटक के निम्नलिखित विवरण प्रकार और मात्रा के लिए प्रमाणित है।  
(Licence is valid for the following kinds and quantity of explosives - (a))

पैसज के लिए: Nitrate Mixture, Safety Fuse, Detonating Fuse, Detonators, के उपयोग के लिए

क्र. सं. (Sl. No.)	नाम और विवरण (Name and Description)	वर्ग और प्रकार (Class & Division)	उप-प्रमाण (Sub-division)	मात्रा (किसी एक समय में) (Quantity at any one time)
1	Nitrate Mixture	2.0	0	1000 Kg
2	Safety Fuse	6.1	0	2500 Mtrs
3	Detonating Fuse	6.2	0	21000 Mtrs
4	Detonators	6.3	0	25000 Nos

(क) विस्फोटक कठोर मास या सखी को मात्र निम्नलिखित सीमा में अनुमोदी करे। और (घ) के अंतर्गत अनुमोदी है।  
(The quantity of explosives to be purchased in a calendar month applicable for licence holder article 4(b) and (c))

5. निम्नलिखित शर्तों के अधीन (Conditions) से अनुमति प्राप्त की जाती है।  
The licensed premises shall conform to the following stipulations

6. अनुमोदी परिसर निम्नलिखित पते पर स्थित है - The licensed premises are situated at following address:  
Survey No. 259, 301, Town/Village - RANGAVALEM KIL ANSADAL

रजिस्ट्रार के (Drawing No: ENCTN/2281(E10177)  
दिनांक (Dated: 07/08/2019)

पिनकोड (District)  
फोन (Phone)

THIRUPUR

राज्य (State)  
ई. कोड (Code)

Tamil Nadu

पुलिस थाना (Police Station): MOOLANUR  
पिनकोड (Pincode):  
फोन (Fax):

7. अनुमोदी परिसर से निम्नलिखित सुविधाएं आती हैं।  
The licensed premises consist of following facilities

A MAIN GAZETINE ROOM, LOBBY AND DETONATOR ROOM

8. अनुमोदी दरम - समूह पर मासिक/मासिक विस्फोटक अधिग्रहण (1854 और उसके अर्धे) निम्नलिखित विस्फोटक नियम, 2008 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपबंधों के अधीन रहते हुए अनुदत्त की जाती है।  
The licence is granted subject to the provision of Explosives Act 1884 (amended from time to time) and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures

1. ड्राइंग्स क्रम सं. 3 में चर्चा किये गए शर्तों (स्थान, अधिग्रहण सुविधा और अन्य विवरण) दर्शाते हैं।  
Drawings (showing site, constructional and other details as stated in serial No. 3 above)
2. अनुमोदी प्रक्रिया के अंतर्गत होने वाले अनुमोदी की शर्तों और अतिरिक्त शर्तों।  
Conditions and Additional Conditions at this licence signed by the licensing authority
3. दूरी प्रारूप (M-2) Distance Form M-2

9. मा अनुमोदी तारीख 31 मार्च 2001 तक विधिवत रहेगी। This licence shall remain valid till 31st day of March 2001.

इस अनुमोदी अधिनियम का उल्लंघन अर्थात् निम्नलिखित विधियों या अनुसूची 4 के भाग 1 के प्रथम निर्दिष्ट सेट (A) के अधीन तथा उपरोक्त द्वारा अनुमोदी की शर्तों का उल्लंघन करने का कोई अनुमोदी परिसर या पंजीकृत स्थान या पंजीकृत स्थान का उपयोग करके अनुमोदी के अधिनियम के अंतर्गत नष्ट या क्षतिग्रस्त होने का कारण बनने पर निम्नलिखित प्रावधानों के अधीन कार्य किया जा सकता है, जहां यह लागू हो।  
This licence is liable to be suspended or removed for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Ser VIII, wherever applicable, covered 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 thereto

दिनांक (The Date - 07/08/2019)

संपुष्ट मुख्य विस्फोटक नियंत्रक / Joint Chief Controller of Explosives  
South Circle, Chennai

**Amendments:**

- Amendment of Quantity of Explosives Monthly Purchase Limit dated 09/05/2014
- Amendment of Quantity of Explosives Monthly Purchase Limit dated 29/07/2014
- Amendment of Quantity of Explosives Monthly Purchase Limit dated 23/08/2016
- Amendment of Quantity of Explosives Monthly Purchase Limit dated 05/04/2017
- Amendment of Quantity of Explosives Monthly Purchase Limit dated 04/04/2018

**Transfers:**

- Change in Licensee Name/Address/Status Dated: 13/02/2015

नवीकरण के प्रमाणन के लिए स्थान  
Space for Endorsement of Renewal

नवीकरण की तारीख  
Date of Renewal

समाप्त होने की तारीख  
Date of Expiry

अनुमोदी प्राधिकरण के हस्ताक्षर और मुद्रा  
Signature of Licensing authority and stamp

24/09/2020

31/04/2025

Jt. Chief Controller of Explosives, South Circle, Chennai

*(Handwritten Signature)*

**कानूनी चेतावनी - विस्फोटकों को गलत ढंग से चलाने या उनका दुरुपयोग विधि के अधीन गंभीर दण्डित अपराध होगा।**  
Statutory Warning: Mishandling and misuse of explosives shall constitute serious criminal offence under the law.





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Phone: 0427 - 2970989 / +91 70944 53636

E-Mail: lab@glcs.in

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## TEST REPORT

Report Number: GLCS/TR/3711/2022-23

Report Date: 21.09.2022

<b>Issued To :</b> Apple Granites, No.95/2, Perur Udayapatti, Gudalur Village, Kulithalai Taluk, Karur District.		<b>Site Address:</b> Multicoloured Granite Quarry at S.F.Nos.299/1(p),299/2A(p), 299/2B(p), 301(p), 302/2(p) and 302/3(p) of extent of 2.97.0Ha of Kallai village , Kulithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sampling Condition</b>	Good – Active
<b>Customer Ref.No.</b>	TRF No : 1252	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Air Quality Monitoring	<b>Sampling Method</b>	GLCS/SOP/AAQ/015
<b>Sample Description</b>	Ambient Air Quality	<b>Sample Code</b>	GLCS / 3711
<b>Location Name</b>	AAQ1- Core Zone (South east Corner of Quarry)	<b>Date of Analysis</b>	15.09.2022
<b>Sampling Hours</b>	09.00 am – 05.00pm	<b>Date of Completion</b>	21.09.2022
<b>Sampling Date</b>	14.09.2022	<b>Avg Temperature</b>	31.6°C
<b>Sample Receipt Date</b>	15.09.2022	<b>Avg Humidity</b>	64.2%
<b>Discipline</b>	Chemical	<b>Group</b>	Atmospheric Pollution

SI. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Particulate matter (Size less than 10 µm/PM <sub>10</sub> )	IS 5182 Part23:2007 (RA 2017)	µg/m <sup>3</sup>	61.5	100
2	Particulate matter (Size less than 2.5 µm/PM <sub>2.5</sub> )	GLCS/SOP/AAQ/017	µg/m <sup>3</sup>	19.8	60
3	Sulphur dioxide as SO <sub>2</sub>	IS 5182 Part2: 2001(RA 2007)	µg/m <sup>3</sup>	BDL(DL:8.0)	80
4	Nitrogen dioxide as NO <sub>2</sub>	IS 5182 Part:6: 2007(RA 2007)	µg/m <sup>3</sup>	18.2	80
5	Ozone as O <sub>3</sub>	GLCS/SOP/AAQ/002	µg/m <sup>3</sup>	BDL(DL:5.0)	180
6	Ammonia as NH <sub>3</sub>	GLCS/SOP/AAQ/001	µg/m <sup>3</sup>	BDL(DL:5.0)	400
7	Carbon Monoxide as CO	IS 5182 Part10:1999 (RA 2009)	mg/m <sup>3</sup>	BDL(DL:1.0)	4.0
8	Lead as Pb	IS 5182 Part22:2004 (RA 2009)	µg/m <sup>3</sup>	BDL(DL:0.01)	1.0
9	Benzene as C <sub>6</sub> H <sub>6</sub>	IS 5182 Part11:2007	µg/m <sup>3</sup>	BDL(DL:1.0)	5.0
10	Benzo(a)Pyrene as BaP	IS 5182 Part07:2004	ng/m <sup>3</sup>	BDL(DL:0.1)	1.0
11	Arsenic as As	IS 5182 Part22:2004 (RA 2009)	ng/m <sup>3</sup>	BDL(DL:1.0)	6.0
12	Nickel as Ni	IS 5182 Part22:2004 (RA 2009)	ng/m <sup>3</sup>	BDL(DL:1.0)	20

Note: BDL- Below Detection Limit; DL- Detection Limit

\* NAAQS – National Ambient Air Quality Standard Issued by CPCB (Central Pollution Control Board) in 2009.

  
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\*\*\*\*\*End of Report\*\*\*\*\*  
Page 1 of 1

For Global Lab and Consultancy Services

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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Salem - 636 016, Tamil Nadu.

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## TEST REPORT

Report Number: GLCS/TR/3712/2022-23

Report Date: 21.09.2022

<b>Issued To :</b> Apple Granites, No.95/2, Perur Udayapatti, Gudalur Village, Kulithalai Taluk, Karur District.		<b>Site Address:</b> Multicoloured Granite Quarry at S.F.Nos.299/1(p),299/2A(p), 299/2B(p), 301(p), 302/2(p) and 302/3(p) of extent of 2.97.0Ha of Kallai village , Kulithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sampling Condition</b>	Good – Active
<b>Customer Ref.No.</b>	TRF No : 1252	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Air Quality Monitoring	<b>Sampling Method</b>	GLCS/SOP/AAQ/015
<b>Sample Description</b>	Ambient Air Quality	<b>Sample Code</b>	GLCS / 3712
<b>Location Name</b>	AAQ2- Core Zone (South West Corner of Quarry)	<b>Date of Analysis</b>	15.09.2022
<b>Sampling Hours</b>	09.25am – 05.25 pm	<b>Date of Completion</b>	21.09.2022
<b>Sampling Date</b>	14.09.2022	<b>Avg Temperature</b>	31.8°C
<b>Sample Receipt Date</b>	15.09.2022	<b>Avg Humidity</b>	65.0%
<b>Discipline</b>	Chemical	<b>Group</b>	Atmospheric Pollution

Sl. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Particulate matter (Size less than 10 µm/PM <sub>10</sub> )	IS 5182 Part23:2007 (RA 2017)	µg/m <sup>3</sup>	58.2	100
2	Particulate matter (Size less than 2.5 µm/PM <sub>2.5</sub> )	GLCS/SOP/AAQ/017	µg/m <sup>3</sup>	20.6	60
3	Sulphur dioxide as SO <sub>2</sub>	IS 5182 Part2: 2001(RA 2007)	µg/m <sup>3</sup>	10.5	80
4	Nitrogen dioxide as NO <sub>2</sub>	IS 5182 Part:6: 2007(RA 2007)	µg/m <sup>3</sup>	18.6	80
5	Ozone as O <sub>3</sub>	GLCS/SOP/AAQ/002	µg/m <sup>3</sup>	BDL(DL:5.0)	180
6	Ammonia as NH <sub>3</sub>	GLCS/SOP/AAQ/001	µg/m <sup>3</sup>	BDL(DL:5.0)	400
7	Carbon Monoxide as CO	IS 5182 Part10:1999 (RA 2009)	mg/m <sup>3</sup>	BDL(DL:1.0)	4.0
8	Lead as Pb	IS 5182 Part22:2004 (RA 2009)	µg/m <sup>3</sup>	BDL(DL:0.01)	1.0
9	Benzene as C <sub>6</sub> H <sub>6</sub>	IS 5182 Part11:2007	µg/m <sup>3</sup>	BDL(DL:1.0)	5.0
10	Benzo(a)Pyrene as BaP	IS 5182 Part07:2004	ng/m <sup>3</sup>	BDL(DL:0.1)	1.0
11	Arsenic as As	IS 5182 Part22:2004 (RA 2009)	ng/m <sup>3</sup>	BDL(DL:1.0)	6.0
12	Nickel as Ni	IS 5182 Part22:2004 (RA 2009)	ng/m <sup>3</sup>	BDL(DL:1.0)	20

Note: BDL- Below Detection Limit; DL- Detection Limit

\* NAAQS – National Ambient Air Quality Standard Issued by CPCB (Central Pollution Control Board) in 2009.

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\*\*\*\*\*End of Report\*\*\*\*\*

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Authorised Signatory

L. SUDHAPRIYA  
Technical Manager

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## TEST REPORT

Report Number: GLCS/TR/3713/2022-23

Report Date: 21.09.2022

<b>Issued To :</b> Apple Granites, No.95/2, Perur Udayapatti, Gudalur Village, Kulithalai Taluk, Karur District.		<b>Site Address:</b> Multicoloured Granite Quarry at S.F.Nos.299/1(p),299/2A(p), 299/2B(p), 301(p), 302/2(p) and 302/3(p) of extent of 2.97.0Ha of Kallai village , Kulithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sampling Condition</b>	Good – Active
<b>Customer Ref.No.</b>	TRF No : 1252	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Air Quality Monitoring	<b>Sampling Method</b>	GLCS/SOP/AAQ/015
<b>Sample Description</b>	Ambient Air Quality	<b>Sample Code</b>	GLCS / 3713
<b>Location Name</b>	AAQ3- Core Zone (North East Corner of Quarry)	<b>Date of Analysis</b>	15.09.2022
<b>Sampling Hours</b>	10.30 am – 06.30pm	<b>Date of Completion</b>	21.09.2022
<b>Sampling Date</b>	14.09.2022	<b>Avg Temperature</b>	32.4°C
<b>Sample Receipt Date</b>	15.09.2022	<b>Avg Humidity</b>	64.2%
<b>Discipline</b>	Chemical	<b>Group</b>	Atmospheric Pollution

Sl. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Particulate matter (Size less than 10 µm/PM <sub>10</sub> )	IS 5182 Part23:2007 (RA 2017)	µg/m <sup>3</sup>	48.4	100
2	Particulate matter (Size less than 2.5 µm/PM <sub>2.5</sub> )	GLCS/SOP/AAQ/017	µg/m <sup>3</sup>	23.0	60
3	Sulphur dioxide as SO <sub>2</sub>	IS 5182 Part2: 2001(RA 2007)	µg/m <sup>3</sup>	BDL(DL:8.0)	80
4	Nitrogen dioxide as NO <sub>2</sub>	IS 5182 Part:6: 2007(RA 2007)	µg/m <sup>3</sup>	18.8	80
5	Ozone as O <sub>3</sub>	GLCS/SOP/AAQ/002	µg/m <sup>3</sup>	BDL(DL:5.0)	180
6	Ammonia as NH <sub>3</sub>	GLCS/SOP/AAQ/001	µg/m <sup>3</sup>	BDL(DL:5.0)	400
7	Carbon Monoxide as CO	IS 5182 Part10:1999 (RA 2009)	mg/m <sup>3</sup>	BDL(DL:1.0)	4.0
8	Lead as Pb	IS 5182 Part22:2004 (RA 2009)	µg/m <sup>3</sup>	BDL(DL:0.01)	1.0
9	Benzene as C <sub>6</sub> H <sub>6</sub>	IS 5182 Part11:2007	µg/m <sup>3</sup>	BDL(DL:1.0)	5.0
10	Benzo(a)Pyrene as BaP	IS 5182 Part07:2004	ng/m <sup>3</sup>	BDL(DL:0.1)	1.0
11	Arsenic as As	IS 5182 Part22:2004 (RA 2009)	ng/m <sup>3</sup>	BDL(DL:1.0)	6.0
12	Nickel as Ni	IS 5182 Part22:2004 (RA 2009)	ng/m <sup>3</sup>	BDL(DL:1.0)	20

Note: BDL- Below Detection Limit; DL- Detection Limit

\* NAAQS – National Ambient Air Quality Standard Issued by CPCB (Central Pollution Control Board) in 2009.

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Authorised Signatory

L. SUDHAPRIYA  
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/3716/2022-23

Report Date: 21.09.2022

<b>Issued To :</b> Apple Granites, No.95/2, Perur Udayapatti, Gudalur Village, Kulithalai Taluk, Karur District.		<b>Site Address:</b> Multicoloured Granite Quarry at S.F.Nos.299/1(p),299/2A(p), 299/2B(p), 301(p), 302/2(p) and 302/3(p) of extent of 2.97.0Ha of Kallai village , Kulithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sampling condition</b>	Good – Ambient
<b>Customer Ref. No.</b>	TRF No : 1252	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014
<b>Sample description</b>	Sound Pressure Level	<b>Sample Code</b>	GLCS / 3716-3719
<b>Sampling Hours</b>	11.30 am – 02.30 pm	<b>Date of Analysis</b>	15.09.2022
<b>Sampling Date</b>	14.09.2022	<b>Date of Completion</b>	21.09.2022
<b>Sample Receipt Date</b>	15.09.2022		

Sl. No.	Location	Results in dB (A)
		Day time
<b>Ambient Noise Core Zone</b>		
1	Southwest Corner of Quarry	51.4
2	Northwest Corner of Quarry	49.5
3	Northeast Corner of Quarry	52.2
4	Southeast Corner of Quarry	51.6
<b>Limits as per The Noise Pollution ( Regulation &amp; Control ) Rules, 2010 of MoEFCC / CPCB ( Industrial )</b>		<b>Day Time : 75 dB (A)</b>
		<b>Night Time : 70 dB (A)</b>

Note: MoEFCC – Ministry of Environment Forest and Climate Change;  
CPCB – Central Pollution Control Board

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Page 1 of 1

Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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## TEST REPORT

Report Number: GLCS/TR/3717/2022-23

Report Date: 21.09.2022

<b>Issued To :</b> Apple Granites, No.95/2, Perur Udayapatti, Gudalur Village, Kulithalai Taluk, Karur District.		<b>Site Address:</b> Multicoloured Granite Quarry at S.F.Nos.299/1(p),299/2A(p), 299/2B(p), 301(p), 302/2(p) and 302/3(p) of extent of 2.97.0Ha of Kallai village , Kulithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sampling condition</b>	Good – Ambient
<b>Customer Ref. No.</b>	TRF No : 1251	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014
<b>Sample description</b>	Work Place Noise	<b>Sample Code</b>	GLCS / 3720-3724
<b>Sampling Hours</b>	11.30 am – 02.30 pm	<b>Date of Analysis</b>	15.09.2022
<b>Sampling Date</b>	14.09.2022	<b>Date of Completion</b>	21.09.2022
<b>Sample Receipt Date</b>	15.09.2022		

Sl. No.	Location	Results in dB (A)
		Day time
1	Excavator Operating Area - 1	73.2
2	Compressor Area	73.0
3	Excavator Operating Area - 2	72.5
4	Loader Operating Area	70.3
<b>Limits as per The Noise Pollution ( Regulation &amp; Control ) Rules, 2010 of MoEFCC / CPCB ( Industrial )</b>		<b>Day Time : 75 dB (A)</b>
		<b>Night Time : 70 dB (A)</b>

Note: MoEFCC – Ministry of Environment Forest and Climate Change;

CPCB – Central Pollution Control Board

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Authorised Signatory

L. SUDHAPRIYA  
Technical Manager

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TEST REPORT

Report Number: GLCS/TR/3718/2022-23

Report Date: 21.09.2022

<b>Issued To :</b> Apple Granites, No.95/2, Perur Udayapatti, Gudalur Village, Kulithalai Taluk, Karur District.		<b>Site Address:</b> Multicoloured Granite Quarry at S.F.Nos.299/1(p), 299/2A(p), 299/2B(p), 301(p), 302/2(p) and 302/3(p) of extent of 2.97.0Ha of Kallai village, Kulithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good - Active
<b>Customer Ref No</b>	TRF No : 1252	<b>Sample Quantity</b>	2 Litres
<b>Sample Name</b>	Borewell Water	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Sample Code</b>	GLCS / 3725	<b>Date of Analysis</b>	15.09.2022
<b>Sampling date</b>	14.09.2022	<b>Date of Completion</b>	21.09.2022
<b>Sample Receipt Date</b>	15.09.2022	<b>Group</b>	Water
<b>Discipline</b>	Chemical		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS	IS 10500:2012 Drinking Water	
					Acceptance Limit	Permissible Limit
1	Color	IS 3025 PART 4	Hazen	<5	5	15
2	Odor	IS 3025 PART 5	-	Agreeable	Agreeable	Agreeable
3	Taste	IS 3025 PART 7	-	Agreeable	Agreeable	Agreeable
4	pH	IS 3025 PART 11	-	7.35	6.5 - 8.5	No Relaxation
5	Electrical Conductivity	IS 3025 PART 14	µS/cm	1465	-	-
6	Turbidity	IS 3025 PART 10	NTU	<1	1	5
7	Total Dissolved Solids	IS 3025 PART 16	mg/l	919	500	2000
8	Total Solids	IS 3025 PART 15	mg/l	921	-	-
9	Total Suspended Solids	IS 3025 PART 17	mg/l	<2	-	-
10	P. Alkalinity	IS 3025 PART 23	mg/l	Nil	-	-
11	Total Alkalinity	IS 3025 PART 23	mg/l	136	200	600
12	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	129	200	600
13	Calcium as Ca	IS 3025 PART 40	mg/l	25.4	75	200
14	Magnesium as Mg	IS 3025 PART 46	mg/l	15.8	30	100
15	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	76.4	250	1000

For Global Lab and Consultancy Services

Prepared



Verified

Authorised Signatory

Page 1 of 2

L. SUDHAPRIYA  
Technical Manager

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# GLOBAL LAB AND CONSULTANCY SERVICES

(An ISO 17025:2017 / NABL accredited & FSSAI notified Laboratory)

S.F.No.92/3A2, Geetha Nagar,

Alagapuram Pudur,

Salem - 636 016, Tamil Nadu.

Phone: 0427 - 2970989 / +91 70944 53636

E-Mail: lab@glcs.in

Web: www.glcs.in

## TEST REPORT

Report Number: GLCS/TR/3718/2022-23

Report Date: 21.09.2022

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS	IS 10500:2012 Drinking Water	
					Acceptance Limit	Permissible Limit
16.	Sulphate as SO <sub>4</sub> <sup>-</sup>	IS 3025 PART 24	mg/l	13.6	200	400
17.	Iron as Fe	IS 3025 PART 53	mg/l	BDL(DL:0.1)	0.3	No Relaxation
18.	Sodium as Na	IS 3025 PART 45	mg/l	58.5	-	-
19.	Potassium as k	IS 3025 PART 45	mg/l	8.5	-	-
20.	Acidity as CaCO <sub>3</sub>	IS 3025 PART 22	mg/l	NIL	-	-
21.	Ammoniacal Nitrogen as NH <sub>3</sub> -N	IS 3025 Part 34	mg/l	BDL(DL:1)	0.5	No Relaxation
22.	Total Kjeldahl Nitrogen	IS 3025 Part 34	mg/l	BDL(DL:2)	-	-
23.	Boron as B	IS 3025 Part 57	mg/l	BDL(DL:0.01)	0.5	1
24.	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1)	1	1.5
25.	Fluoride as F	GLCS/SOP/W/015	mg/l	0.48	1	1.5
26.	Silica as Si	IS 3025 PART 35	mg/l	11.6	-	-
27.	Free Carbon Dioxide CO <sub>2</sub>	IS 3025 Part 61	mg/l	BDL(DL:1)	-	-
28.	Manganese as Mn	IS 3025 Part 59	mg/l	BDL(DL:0.1)	0.1	0.3
29.	Phosphate as PO <sub>4</sub>	IS 3025 PART 31	mg/l	BDL (DL:0.1)	--	--
30.	Carbonate	IS 3025 Part 51	mg/l	Nil	-	-
31.	Bicarbonate	IS 3025 Part 51	mg/l	136	-	-
32.	Nitrate as NO <sub>3</sub>	IS 3025 Part 34	mg/l	BDL (DL:2)	45	No Relaxation
33.	*Escherichia Coli	IS 1622 : 1981	MPN/100ml	Absent	Should be Absent	
34.	*Coliform Bacteria	IS 1622 : 1981	MPN/100ml	Absent		

Note:BDL- Below Detection Limit, DL- Detection Limit, MPN – Most probable number

\*These Parameters were Sub-Contracted to MoEF Laboratory

For Global Lab and Consultancy Services

Prepared



Verified

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

Authorised Signatory

L. SUDHAPRIYA  
Technical Manager

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BRANCH OFFICES: HOSUR ( Mobile : 70944 54645 ) & COIMBATORE ( Mobile : 70944 54646 )



From

Dr.P.Jayapal M.Sc., Ph.D.,  
Deputy Director,  
Geology and Mining,  
Karur.

To

M/s.Apple Granites,  
5/2, Perur Udaiyapatty,  
Gudalur Village,  
Kulithalai Taluk,  
Karur District

**R.C. No.511/Mines/2022, Dated:24.05.2023**

Sir,

Sub Mines and Minerals – Minor Mineral – Multicolour  
Granite – Karur District – Kulithalai Taluk – Kallai  
: Village - S.F.Nos. 299/1 (Part) (0.46.0 hecets),  
299/2A (Part) (0.03.5 hecets) 299/2B (Part) (0.03.0  
hecets), 301 (Part) (0.31.0 hecets), 302/2 (Part)  
(0.43.0 hecets), 302/3 (Part) (1.70.5 hecets) over an  
extent of 2.97.0 hectares of patta lands - quarry  
lease granted to M/s.Apple Granites - Requested  
for existing/proposed/expired and abandoned  
quarries situated within 500 mts radial distance -  
details furnished – Regarding.

- Ref: 1. G.O.(3D) No.03, Industries (MMB.2),  
Department, Dated:25.01.2018  
2. M/s.Apple Granites letter dated:23.05.2023.

In the reference 1<sup>st</sup> cited, M/s.Apple Granites had been granted quarry lease for quarrying Multicoloured Granite in S.F.Nos. 299/1 (Part) (0.46.0 hecets), 299/2A (Part) (0.03.5 hecets) 299/2B (Part) (0.03.0 hecets), 301 (Part) (0.31.0 hecets), 302/2 (Part) (0.43.0 hecets), 302/3 (Part) (1.70.5 hecets) over an extent of 2.97.0 hectares of patta lands in Kallai Village, Kulithalai Taluk, Karur District.

In this regard, M/s.Apple Granites have requested the Deputy Director, Geology and Mining, Karur to provide the details of existing/proposed/expired and abandoned quarries with 500 meter radial distance from the lease granted area.

As requested by the lessee firm the particulars furnished as detailed below.

**I. Existing Quarries: -**

Sl No.	Name of the lessee/firm it holder	Name of the Mineral	Taluk & Village	S.F.No.	Extent (hect)	Lease Period	Remarks
1	M/s Apple Granites S.F.No.299/1, 2 Kallai Village Kulithalai Taluk Karur District.	Multicoloured Granite	Kulithalai Taluk, Kallai Village	299/1 (P) 299/2A (P) 299/2B (P) 301/1 (P) 302/2 (P) 302/3 (P)	<b>2.97.0</b>	21.02.2018 to 20.02.2038	Scheme of Mining plan approved and proposed for Environ- mental Clearance
2	M/s V.B.S. Exports No.38, Srinivasa Nagar 1st street Thiran Nagar, Madurai District.		Kulithalai Taluk, Kallai Village	349/part 303/2A(P) 302/1(P) Total	<b>2.80.5</b>	21.02.2018 to 20.02.2038	Last permit obtained on 21.07.2022
3	Thiru.K.Sakthivel S/o. Karuppannan Porunthalur Village Kulithalai Taluk Karur District.		Kulithalai Taluk Nallur Village	351	<b>2.51.5</b>	05.09.2017 to 04.09.2037	Last permit obtained on 22.03.2022

**II. Proposed Quarries: -**


Sl No.	Name of the lessee/firm it holder	Name of the Mineral	Taluk & Village	S.F.No.	Extent (hect)	Lease Period
1	-- Nil--					


**III. Lease Expired Quarries : -**

Sl No.	Name of the lessee/firm it holder	Name of the Mineral	Taluk & Village	S.F.No.	Extent (hect)	Lease Period
1	-- Nil--					

**IV. Abandoned Quarries : -**

Sl No.	Name of the lessee/firm it holder	Name of the Mineral	Taluk & Village	S.F.No.	Extent (hect)	Lease Period
1	-- Nil--					

  
 Deputy Director,  
 Geology and Mining,  
 Karur.

  
 24/05/2023







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## GLOBAL LAB AND CONSULTANCY SERVICES

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Salem - 636 016. Tamil Nadu.

Phone: 0427 - 2970989 / +91 70944 53636

E-Mail: lab@glcs.in

Web: www.glcs.in

TEST REPORT

Report Number: GLCS/TR/3714/2022-23

Report Date: 21.09.2022

<b>Issued To :</b> Apple Granites, No.95/2, Perur Udayapatti, Gudalur Village, Kulithalai Taluk, Karur District.		<b>Site Address:</b> Multicoloured Granite Quarry at S.F.Nos.299/1(p),299/2A(p), 299/2B(p), 301(p), 302/2(p) and 302/3(p) of extent of 2.97.0Ha of Kallai village , Kulithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sampling Condition</b>	Good – Active
<b>Customer Ref.No.</b>	TRF No : 1252	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Air Quality Monitoring	<b>Sampling Method</b>	GLCS/SOP/PEM/022
<b>Sample Description</b>	Personal Exposure Monitoring	<b>Sample Code</b>	GLCS / 3714
<b>Location Name</b>	Drilling Area & Driller operator cabin	<b>Date of Analysis</b>	15.09.2022
<b>Sampling Hours</b>	09.15 am – 05.15 pm	<b>Date of Completion</b>	21.09.2022
<b>Sampling Date</b>	14.09.2022	<b>Avg Temperature</b>	32.6°C
<b>Sample Receipt Date</b>	15.09.2022	<b>Avg Humidity</b>	64.0%
<b>Discipline</b>	Chemical	<b>Group</b>	Atmospheric Pollution

Sl. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Respirable Dust	GLCS/SOP/PEM/022	mg/m <sup>3</sup>	0.31
2	Free Silica	GLCS/SOP/PEM/023	mg/m <sup>3</sup>	BDL (DL:0.05)

BDL – Below Detection Limit, DL – Detection Limit

For Global Lab and Consultancy Services

Prepared



Verified

Authorised Signatory

L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

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BRANCH OFFICES: HOSUR ( Mobile : 70944 54645 ) &amp; COIMBATORE ( Mobile : 70944 54646 )



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Salem - 636 016, Tamil Nadu.

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E-Mail: lab@glcs.in

Web: www.glcs.in

## TEST REPORT

Report Number: GLCS/TR/3715/2022-23

Report Date: 21.09.2022

<b>Issued To :</b> Apple Granites, No.95/2, Perur Udayapatti, Gudalur Village, Kulithalai Taluk, Karur District.		<b>Site Address:</b> Multicoloured Granite Quarry at S.F.Nos.299/1(p),299/2A(p), 299/2B(p), 301(p), 302/2(p) and 302/3(p) of extent of 2.97.0Ha of Kallai village , Kulithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sampling Condition</b>	Good – Active
<b>Customer Ref.No.</b>	TRF No : 1252	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Air Quality Monitoring	<b>Sampling Method</b>	GLCS/SOP/PEM/022
<b>Sample Description</b>	Personal Exposure Monitoring	<b>Sample Code</b>	GLCS / 3715
<b>Location Name</b>	Loading area &Excavator operator cabin	<b>Date of Analysis</b>	15.09.2022
<b>Sampling Hours</b>	09.20 am – 05.20 pm	<b>Date of Completion</b>	21.09.2022
<b>Sampling Date</b>	14.09.2022	<b>Avg Temperature</b>	31.6°C
<b>Sample Receipt Date</b>	15.09.2022	<b>Avg Humidity</b>	63.5 %
<b>Discipline</b>	Chemical	<b>Group</b>	Atmospheric Pollution

Sl. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULT
1	Respirable Dust	GLCS/SOP/PEM/022	mg/m <sup>3</sup>	0.34
2	Free Silica	GLCS/SOP/PEM/023	mg/m <sup>3</sup>	BDL (DL:0.05)

BDL – Below Detection Limit , DL – Detection Limit

For Global Lab and Consultancy Services

Prepared



Verified

Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

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BRANCH OFFICES: HOSUR ( Mobile : 70944 54645 ) & COIMBATORE ( Mobile : 70944 54646 )

இராஜசி ஆன்ரீய ரொடகீகரிபரீர்  
தோணகமணல

சிஷ்டிபுரூ :

பா. ருயமணர்  
தலைமை ஆசிரியர்  
ஊ. ஆ. ரொ. பரீர்  
தோணகமணல  
தோணகமணல ஆன்ரீயம்  
கரூர் லாவுடபம்.

உபநூரூ :-

லாநீல சரீரூசீகரூதல் தாகீக மதிபரீடு தீணையர்  
உசரீணல .

தீயா.

உபநூரூ :-

பரீரீகீக மரூம் ரகூதல், பரூலாரிபு, மரீலரூகூ உசரீ,  
Ro water treatment plant உசரீகணல உசரீது  
கூர தீணகூதல்

பரீணகீகரூ :-

கரூர் லாவுடபம், தோணகமணல ஆன்ரீயம், தீரூதூணகப்பபு  
புடலா சரீகூல ரண 299/1, 299/2A, 299/2B, 301, 302/2,  
302/3 ரண உலாகீதம் 2.97.0 உரூகீகரூ ரீலம்  
apple grants தீடு R.சுபிராமன் சரூகரீ தலைணரீ  
கரீகூலார ரீரூஉணகீகரூ ரூகீகரீ பரீலகூ மரீரீகூரூ  
உசரீகணல உசரீது தீடுமபு கரீடதண கோரீ மரீரூபு  
பரீணய உசரீது கரீ சம்மதீகூ பரீணய தூவரீகியுரீரூரூ,  
ரீணபணல கரீண ரீலம் ரூரீரூகூகீகரூகரூகீரூ.

ரூரூ : 26.6.2023

தீயம் : தோணகமணல

கூப்புகூடு  
பா. ருயமணர்  
26.6.2023  
தலைமை ஆசிரியர்  
ஊ. ஆ. ரொ. பரீர்  
தோணகமணல-621312  
கரூர் லாவுடபம்

**NAME BOARD PHOTOS**



Category of the Industry :

RED

CONSENT ORDER NO. 2208243249645 DATED: 16/02/2022.

PROCEEDINGS NO.F.0848KAR/RS/DEE/TNPCB/KAR/A/2022 DATED: 16/02/2022

**SUB:** Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT -M/s. APPLE GRANITES , S.F.No. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P), KALLAI village, Kuzhithalai Taluk and Karur District - Renewal of Consent for the operation of the plant and discharge of emissions under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) -Issued- Reg.

**REF:** 1.Unit Application through OCMMS No.43249645 Dated.02.02.2022  
2.CTO Proc No.F.0848KAR/RS/DEE/TNPCB/KAR/W&A/2018 Dated:22.05.2018.  
3.IR No:F.0848KAR/RS/AEE/KAR/2022 Dated:15.02.2022

RENEWAL OF CONSENT is hereby granted under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Managing Partner  
M/s.APPLE GRANITES ,  
S.F.No. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P),  
KALLAI village,  
Kuzhithalai Taluk,  
Karur District.

Authorizing the occupier to operate the industrial plant in the Air Pollution Control Area as notified by the Government and to make discharge of emission from the stacks/chimneys.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

**This RENEWAL OF CONSENT is valid for the period ending February 20, 2023**

RAVICHANDRAN  
KANDASAMY

Digitally signed by  
RAVICHANDRAN KANDASAMY  
Date: 2022.02.21 17:58:49 +05'30'

**District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
KARUR**

**SPECIAL CONDITIONS**

1. This renewal of consent is valid for operating the facility for the manufacture of products (Col. 2) at the rate (Col. 3) mentioned below. Any change in the products and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
<b>Product Details</b>			
1.	MULTICOLOURED GRANITE	19500	Cum over a period of five years

2. This renewal of consent is valid for operating the facility with the below mentioned emission/noise sources along with the control measures and/or stack. Any change in the emission source/control measures/change in stack height has to be brought to the notice of the Board and fresh consent/Amendment has to be obtained.

<b>I Point source emission with stack :</b>				
Stack No.	Point Emission Source	Air pollution Control measures	Stack height from Ground Level in m	Gaseous Discharge in Nm <sup>3</sup> /hr
<b>II Fugitive/Noise emission :</b>				
Sl. No.	Fugitive or Noise Emission sources	Type of emission	Control measures	
1.	Top soil removal	Fugitive	Water sprinkler system	
2.	Drilling and Cutting operations	Fugitive	Water injection	
3.	Loading , unloading and hauling	Fugitive	Water Sprinklers using Tanker lorries	



**Special Additional Conditions:**

The unit shall install the approved retrofit emission control device/equipment with at least 70% Particulate matter reduction efficiency on all DG sets with capacity of 125 KVA and above or otherwise the unit shall be shift to gas based generators within the time frame prescribed in the notification No. TNPCB/Labs/DD(L)02151/2019 dated 10.06.2020 issued by TNPCB.

**Additional Conditions:**

- 1.The unit shall operate all the APC measures continuously and efficiently so as to achieve the AAQ/Emission standards prescribed by the Board.
- 2.The unit shall adhere to Ambient Noise level standards prescribed by the Board.
- 3.The unit shall restrict the quarrying operations between 7 Am and 5 Pm.
- 4.No change in mining technology or scope of working shall be made without prior permission approval of the SEIAA, Chennai.
- 7.The unit shall comply with the conditions mentioned in the Environmental Clearance obtained from DEIAA vide Letter No. DEIAA-DIA/TN/MIN/9629/2017-KRR EC No.88/2017/Mines dated: 18.1.2018.
- 8.The unit shall continue to develop green belt all along the boundary of the quarry lease area.
- 9.The unit shall not use "use and throwaway plastics" such as plastic sheets used for food wrapping , spreading on dining table etc., plastic plates , plastic coated tea cups, plastic tumbler , water pouches and packets, plastic straw, plastic carry bags and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm, stainless steel, glass, porcelain plates/cups/cloth bag, jute bag etc.,

RAVICHANDRAN  
KANDASAMY

Digitally signed by  
RAVICHANDRAN KANDASAMY  
Date: 2022.02.21 17:59:13 +05'30'

**District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
KARUR**

To

The Managing Partner,  
M/s.APPLE GRANITES ,  
No. 95/2, Perur Udayappatti,  
Gudalur Village,  
Kulithalai Taluk,  
Karur District,  
Tamil Nadu,  
Pin: 639120

**Copy to:**

- 1.The Commissioner, THOGAIMALAI-Panchayat Union, Kuzhithalai Taluk, Karur District .
  2. Copy submitted to the Member Secretary, Tamil Nadu Pollution Control Board, Chennai for favour of kind information.
  3. Copy submitted to the JCEE-Monitoring, Tamil Nadu Pollution Control Board, Salem for favour of kind information.
  4. File
-

Category of the Industry :

RED

CONSENT ORDER NO. 2208143249645 DATED: 16/02/2022.

PROCEEDINGS NO.F.0848KAR/RS/DEE/TNPCB/KAR/W/2022 DATED: 16/02/2022

**SUB:** Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT – M/s. APPLE GRANITES , S.F.No. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P), KALLAI village, Kuzhithalai Taluk and Karur District - Renewal of Consent for the operation of the plant and discharge of sewage and/or trade effluent under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act 6 of 1974) – Issued- Reg.

**REF:** 1.Unit Application through OCMMS No.43249645 Dated:02.02.2022  
2.CTO Proc No.F.0848KAR/RS/DEE/TNPCB/KAR/W&A/2018 Dated:22.05.2018.  
3.IR No:F.0848KAR/RS/AEE/KAR/2022 Dated:15.02.2022

RENEWAL OF CONSENT is hereby granted under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act, 6 of 1974) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Managing Partner  
M/s.APPLE GRANITES ,  
S.F.No. 299/1 (P), 299/2A (P), 299/2B (P), 301 (P), 302/2 (P) and 302/3 (P),  
KALLAI Village ,  
Kuzhithalai Taluk ,  
Karur District .

Authorising the occupier to make discharge of sewage and /or trade effluent.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

**This RENEWAL OF CONSENT is valid for the period ending February 20, 2023**

RAVICHANDRAN  
KANDASAMY

Digitally signed by  
RAVICHANDRAN KANDASAMY  
Date: 2022.02.21 18:00:09 +05'30'

**District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
KARUR**

**SPECIAL CONDITIONS**

1. This renewal of consent is valid for operating the facility for the manufacture of products/byproducts (Col. 2) at the rate (Col 3) mentioned below. Any change in the product/byproduct and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
<b>Product Details</b>			
1.	MULTICOLOURED GRANITE	19500	Cum over a period of five years

2. This renewal of consent is valid for operating the facility with the below mentioned outlets for the discharge of sewage/trade effluent. Any change in the outlets and the quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Outlet No.	Description of Outlet	Maximum daily discharge in KLD	Point of disposal
<b>Effluent Type : Sewage</b>			
1.	Sewage	0.5	On Industrys own land
<b>Effluent Type : Trade Effluent</b>			

**Additional Conditions:**

- 1.The unit shall not generate trade effluent at any stage of its manufacturing process.
- 2.The unit shall treat and dispose the sewage generated from their premises through septic tank and soak pit arrangements.
- 3.The unit shall restrict the quarrying operations between 7 Am and 5 Pm.
- 4.The unit shall not invite any sort of complaint from the nearby public.
- 5.No change in mining technology or scope of working shall be made without prior permission approval of the DEIAA, Karur.
- 6.The unit shall comply with the conditions mentioned in the Environmental Clearance obtained from DEIAA vide Letter No.DEIAA-DIA/TN/MIN/9629/2017-KRR EC No.88/2017/Mines dated: 18.1.2018.

**RAVICHANDRA  
N KANDASAMY** Digitally signed by  
RAVICHANDRAN KANDASAMY  
Date: 2022.02.21 18:01:00  
+05'30'  
**District Environmental Engineer,  
Tamil Nadu Pollution Control Board,  
KARUR**

To  
The Managing Partner,  
M/s.APPLE GRANITES ,  
No. 95/2, Perur Udayappatti,  
Gudalur Village,  
Kulithalai Taluk,  
Karur District,  
Tamil Nadu,  
Pin: 639120

**Copy to:**

- 1.The Commissioner, THOGAIMALAI-Panchayat Union, Kuzhithalai Taluk, Karur District .
2. Copy submitted to the Member Secretary, Tamil Nadu Pollution Control Board, Chennai for favour of kind information.
3. Copy submitted to the JCEE-Monitoring, Tamil Nadu Pollution Control Board, Salem for favour of kind information.
4. File  
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**PHOTOS OF WORKERS / LABORERS FACILITIES**

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Industries (MMB.2) Department,  
Secretariat, Chennai 600 009



**Letter No.11329/MMB.2/2016-1, Dated: 17.10.2016**

From  
Thiru. Vikram Kapur, I.A.S.,  
Principal Secretary to Government.

To  
Thiru. K. Sakthivel,  
S/o. Karuppannan,  
Ponnampatti,  
Perunthalur Village,  
Kulithalai Taluk,  
Karur District.

Sir,

Sub: Mines and Quarries – Minor Mineral – Multi colour Granite –  
Karur District – Kulithalai Taluk, Nallur Village – S.F. No.351 over  
an extent of 2.51.5 Hects of patta land – Quarry Lease  
Application of Thiru. K. Sakthivel – Mining Plan and Environment  
Clearance Certificate – Called for – Regarding.

- Ref: 1. Your Quarry Lease Application Dated: 5.2.2016.  
2. From the District Collector, Karur, Letter Rc. No.163/Mines/  
2016, Dated: 5.8.2016.  
3. From the Commissioner of Geology and Mining, Chennai,  
File No.5369/MM2/2016, Dated: 23.8.2016.

I am directed to invite attention to the references second and third cited wherein the District Collector, Karur and the Commissioner of Geology and Mining have recommended your quarry lease application for grant of quarry lease for quarrying Multi colour Granite over an extent of 2.51.5 hectares of patta land in S.F. No.351 of Nallur Village, Kulithalai Taluk, Karur District for a period of 20 years under rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959.

2. In this connection, I am directed to request you to furnish the approved Mining Plan and Environment Clearance Certificate for the above said area by incorporating the following conditions to the Government through the Commissioner of Geology and Mining within a period of 3 months as per sub-rule (13) of Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959.

- 1) 7.5 meter safety distance should be provided for the adjacent patta lands.
- 2) 10 meters safety distance should be provided for the adjacent Tharisu poramboke land in S.F. No.352/1 lying on the eastern side of the applied area.

- 3) No hindrance shall be caused to the adjacent patta and poramboke land while quarrying and transportation of Granite.
- 4) The applicant should fence the lease granted area with barbed wire before the execution of lease deed as follows:-
  - The pillar post shall be firmly grounded with concrete foundation height not less than 2 meters with a distance between two pillars shall not be more than 3 meters.
  - The applicant shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly shown in the mining plan.
- 5) Environment Clearance should be obtained from the State Level Environment Impact Assessment Authority in respect of the area applied for quarry lease as per the orders of the Hon'ble Supreme Court of India, dated 27.2.2012 in I.A. No.12-13/2011 in SLP(C) No.19629/2009 and Office Memorandum No.L.11011/47/2011-1A II(M), Dated: 18.5.2012 of the Ministry of Environment & Forests, Government of India and as required under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959.
- 6) The lessee shall strictly adhere to the statutory and safety requirements.
- 7) The waste materials generated during quarrying operation shall be dumped only in the area granted under lease.
- 8) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- 9) The lease grantee shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
- 10) The District Collector, Karur shall obtain a sworn-in-affidavit from the appellant containing the above conditions before execution of lease deed and also ensure that the instructions issued in Government Letter No.12789/MMB.2/2002-7, Industries Department, Dated: 9.1.2003 are complied with.



Yours faithfully,

*[Signature]*  
for Principal Secretary to Government

Copy to:  
The Commissioner of Geology and Mining,  
Guindy, Chennai - 600 032.

✓ The District Collector,  
Karur.





Industries (MMB.2) Department,  
Secretariat, Chennai - 600 009

Letter No.14504/MMB.2/2017 - 1, Dated: 07.12.2017

From

Thiru. Atulya Misra, I.A.S.,  
Principal Secretary to Government.

To

M/s. VBS Exports,  
No.38, Srinivasa Nagar,  
1<sup>st</sup> Street,  
Thirunagar,  
Madurai - 625 006.



Sir,

Sub: Mines and Quarries - Minor Mineral -  
Multi Colour Granite - Karur District -  
Kulithalai Taluk - Nallur and Kallai Villages  
over an extent of 2.80.5 hecets of patta land  
in S.F. No. 349(Part) (1.84.0 hecets) of Nallur  
Village and S.F.Nos.303/2A (Part) (0.33.5  
Hecets), 302/1(Part) (0.63.0 Hecets) of Kallai  
Village - Quarry Lease Application of  
M/s. VBS Exports - Mining Plan and  
Environment Clearance Certificate -  
Called for.

- Ref: 1. Your Quarry Lease Application dated:  
04.08.2017.  
2. From the District Collector, Karur,  
Letter Rc.No.898/Mines/2017, dated  
30.09.2017.  
3. From the Commissioner of Geology and  
Mining, Chennai, File No. 7903/ MM2/  
2017, dated 30.10.2017.

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I am directed to invite attention to the references second and third cited wherein the District Collector, Karur and the Commissioner of Geology and Mining have recommended your quarry lease application for grant of quarry lease for quarrying Multi Colour Granite over an extent of 2.80.5 hectares of patta land in S.F. No. 349(Part) (1.84.0 hecets) of Nallur Village and S.F.Nos.303/2A (Part) (0.33.5 Hecets), 302/1(Part)

(0.63.0 Hects) of Kallai Village, Kulithalai Taluk, Karur District for a period of 20 years under rule 19A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

2. In this connection, I am directed to request you to furnish the approved mining plan through the Commissioner of Geology and Mining and environmental clearance certificate obtained from the Competent Authority for the above said area by incorporating the following conditions to the Government within a period of 3 months as per sub-rule (13) of Rule 19A of the Tamil Nadu Minor Mineral Concession Rules, 1959.



1. A safety zone of 7.5 meters distance to be provided adjoining patta lands all along the boundary of lease applied area.
2. The waste material generated during the time of quarrying should be dumped only within the lease hold area that will be earmarked for the purpose in the mining plan as per Rule 31 of Granite Conservation Development and Regulations, 1999.
3. The applicant should fence the lease granted area with barbed wire before the execution of lease deed.
4. As per rule 12 (v) of Mineral (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules 2016, the lessee shall at his own expense, erect, maintain and keep in repair all boundary pillars.
5. The applicant shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly show the Mining Plan and submit in CD/DVD form to the Assistant Director (Mines) Karur.
6. Environment Clearance should be obtained from the Competent Authority in respect of the subject area as per rule 42 of the Tamil Nadu Minor Mineral Concession Rules, 1959.
7. The lessee shall strictly adhere to the statutory and safety requirements.
8. Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

9. The lease grantee shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
10. The District Collector, Karur shall obtain in a sworn in-affidavit from the appellant containing the above conditions before execution of lease deed and also ensure that they are complied with. Further, the lessee / firm will furnish a declaration in the lease deed agreement as per the Government Letter No.12789/MMB.2/2002-7, Dated 9.1.2003 stating that the lessee / firm will mine only in the lease hold area and will not under take any quarrying activity in the adjoining poramboke land. Further the lessee/ firm will fence the lease hold area separating it from the adjoining poramboke land. If any illegal mining is undertaken, the lessee/ firm will be held responsible for those activities and will be subjected to the action taken by the Government in this regard.



Yours faithfully,

*M. Senthil Kumar*  
7.12.17  
for Principal Secretary to Government  
7.12.2017

Copy to:  
The Commissioner of Geology and Mining,  
Guindy, Chennai - 32.

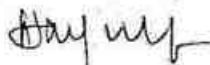
The District Collector,  
Karur.

S.No	Particulars of practical Experience (a)	Place of Experience (b)	Period of practical experience(c)		Total Experience (e)		
			From	To	Yr.	Month	Day
01.	As a Trainee in Drilling Operation.	Semi Mechanised Opencast working	02.05.1994	15.07.1995	01	02	14
02.	As a Trainee in Blasting Operation.		16.07.1995	10.12.1996	01	04	25
03.	Exploration		11.12.1996	31.01.1998	01	01	20
04.	Surveying		01.02.1998	25.06.1998	00	04	25
05.	Sampling Quality control and		26.06.1998	20.07.1999	01	00	24
06.	Supervision in HEMM Operation.		21.07.1999	30.12.1999	00	05	10
<b>GRAND TOTAL</b>					<b>05</b>	<b>07</b>	<b>28</b>
<b>(Five Years Seven Months Twenty Eight Days Only)</b>							

AVERAGE MONTHLY OUTPUT (D) / AVERAGE DAILY EMPLOYMENT (e) DURING THE ABOVE PERIOD IS GIVEN BELOW :

In below ground working	In open - cast working	In all
Nil	35	35
Nil		

or THENMALAI LIME STONE MINES

  
Signature of Candidate

  
Signature of Manager with (Date & Seal)  
[T.VENKATARAJAGOPALAN]

Name of the Mine :

**Instructions :-**

01. State clearly the nature of duties
02. State whether on surface, in open cast workings or below ground.
03. State specifically the period spent by the applicant in different mining operations, or surveying operations, as the case may be. If the employment has not been such as to involve continuous attendance of the applicant at the mine, it must be stated how many days a week he was employed at the mine, whether underground or above ground and in what capacity.
04. Delete if the mine is a Metalliferous mine.
05. Delete if the mine is a Coal mine.



### TEST REPORT

ULR-TC60602400001322F

Report Number: GLCS/TR/8248/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kuliithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha, S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3960	Sample Quantity	2Liters
Sample Name	Surface Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Sample Code	GLCS /8248	Sample Receipt Date	27.11.2023
Location Name	SW -1 – Lake Near nallur	Date of Analysis	28.11.2023
Sampling Date	25.11.2023	Date of Completion	14.12.2023
Location Co-ordinates	10°49'37.67"N 78°27'7.14"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	10
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	7.77
4	Electrical Conductivity	IS 3025 PART14	µS/cm	878
5	Turbidity	IS 3025 PART10	NTU	4.9
6	Total Dissolved Solids	IS 3025 PART16	mg/l	518
7	Total Alkalinity as CaCO <sub>3</sub>	IS 3025 PART 23	mg/l	196.98
8	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	204
9	Calcium as Ca	IS 3025 PART40	mg/l	56.11



For Global Lab and Consultancy Services

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Page 1 of 3

**Note:** The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

223 A

### TEST REPORT

ULR-TC606024000001322F

Report Number: GLCS/TR/8248/2023-24(1)

Report Date: 12.01.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	15.56
11	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	99.97
12	Sulphate as SO <sub>4</sub> <sup>-</sup>	IS 3025 PART 24	mg/l	19.96
13	Iron as Fe	IS 3025 PART 53	mg/l	0.28
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
15	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.55
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)
18	Nitrate as NO <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL :2.0)
19	Dissolved Oxygen	IS 3025 PART 38	mg/l	4.9
20	Bio-Chemical Oxygen Demand @ 27°C for 3 days	IS 3025 PART 44	mg/l	9.6
21	Chemical Oxygen Demand	IS 3025 PART 58	mg/l	28
22	Ammonia as NH <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL:1.0)

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services



  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Page 2 of 3

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224 A

### TEST REPORT

ULR-TC606024000001322F

Report Number: GLCS/TR/8248/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sample Receipt Condition	Good
Customer Ref No	3960	Sample Quantity	300 ml
Sample Name	Surface Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS /8248	Date of Analysis	27.11.2023
Location Name	SW -1 - Lake Near nallur	Date of Completion	04.12.2023
Sample Receipt Date	27.11.2023	Location Co-ordinates	10°49'37.67"N 78°27'7.14"E

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS 1622	MPN/100ml	50
2	<i>Escherichia coli</i>	IS 1622	MPN/100ml	<2

Note: MPN- Most Probable Number..



For Global Lab and Consultancy Services

*L. Dinesh Kumar*  
**Authorised Signatory**  
**L. DINESHKUMAR**  
 Technical Manager-Microbiology

\*\*\*\*\*End of Report\*\*\*\*\*

Page 3 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

225 A



**TEST REPORT**

Report Number: GLCS/TR/8248/2023-24(2)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District - 639		<b>Site Address :</b> Lease Area - 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient - Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2Liters
<b>Sample Name</b>	Surface Water -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Sample Code</b>	GLCS /8248	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	SW -1 - Lake Near nallur	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	14.12.2023
<b>Location Co-ordinates</b>	10°49'37.67"N 78°27'7.14"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Suspended Solids	IS 3025 PART 17	mg/l	8.0
2	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)
3	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL(DL:0.05)
4	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
5	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)
6	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
7	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
8	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
9	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
10	Aluminium as Al	GLCS/SOP/W/62	mg/l	0.038
11	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
12	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
13	Chromium as Cr 6 <sup>+</sup>	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
14	Barium as Ba	GLCS/SOP/W/62	mg/l	0.036
15	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
16	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)

Note : BDL - Below Detection Limit, DL - Detection Limit.



For Global Lab and Consultancy Services

Authorised Signatory

L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

### TEST REPORT

ULR-TC606024000001323F

Report Number: GLCS/TR/8249/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kullithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2Liters
<b>Sample Name</b>	Surface Water -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Sample Code</b>	GLCS /8249	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	SW-2- Lake Near Makalipatti	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	14.12.2023
<b>Location Co-ordinates</b>	10°45'53.76"N 78°22'55.87"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	7.61
4	Electrical Conductivity	IS 3025 PART14	µS/cm	987
5	Turbidity	IS 3025 PART10	NTU	3.1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	582
7	Total Alkalinity as CaCO <sub>3</sub>	IS 3025 PART 23	mg/l	225.12
8	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	236
9	Calcium as Ca	IS 3025 PART40	mg/l	60.92

For Global Lab and Consultancy Services



Page 1 of 3

  
**Authorised Signatory**  
L. SUDHAPRIYA  
Technical Manager

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227 A

### TEST REPORT

ULR-TC606024000001323F

Report Number: GLCS/TR/8249/2023-24(1)

Report Date: 12.01.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	20.43
11	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	117.96
12	Sulphate as SO <sub>4</sub> <sup>-</sup>	IS 3025 PART24	mg/l	30.4
13	Iron as Fe	IS 3025 PART 53	mg/l	0.28
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
15	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	0.32
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)
18	Nitrate as NO <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL :2.0)
19	Dissolved Oxygen	IS 3025 PART 38	mg/l	4.6
20	Bio-Chemical Oxygen Demand @ 27°C for 3 days	IS 3025 PART 44	mg/l	15.6
21	Chemical Oxygen Demand	IS 3025 PART 58	mg/l	56
22	Ammonia as NH <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL:1.0)

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services



  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Page 2 of 3

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228 A

### TEST REPORT

ULR-TC606024000001323F

Report Number: GLCS/TR/8249/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	300 ml
<b>Sample Name</b>	Surface Water -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/M/SOP-05
<b>Sample Code</b>	GLCS /8249	<b>Date of Analysis</b>	27.11.2023
<b>Location Name</b>	SW-2- Lake Near Makalipatti	<b>Date of Completion</b>	04.12.2023
<b>Sample Receipt Date</b>	27.11.2023	<b>Location Co-ordinates</b>	10°45'53.76"N 78°22'55.87"E

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS 1622	MPN/100ml	70
2	<i>Escherichia coli</i>	IS 1622	MPN/100ml	<2

Note: MPN- Most Probable Number.



For Global Lab and Consultancy Services

*L. Dineshkumar*  
**Authorised Signatory**  
**L. DINESHKUMAR**  
 Technical Manager-Microbiology

\*\*\*\*\*End of Report\*\*\*\*\*

Page 3 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

229 A



**TEST REPORT**

Report Number: GLCS/TR/8249/2023-24(2)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2Liters
<b>Sample Name</b>	Surface Water -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Sample Code</b>	GLCS /8249	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	SW-2- Lake Near Makalipatti	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	14.12.2023
<b>Location Co-ordinates</b>	10°45'53.76"N 78°22'55.87"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Suspended Solids	IS 3025 PART 17	mg/l	5.0
2	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)
3	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL(DL:0.05)
4	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
5	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)
6	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
7	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
8	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
9	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
10	Aluminium as Al	GLCS/SOP/W/62	mg/l	0.045
11	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
12	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
13	Chromium as Cr 6+	ITC/CHN/FD/STP/020	mg/l	BDL(DL:0.01)
14	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
15	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
16	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)

Note : BDL – Below Detection Limit, DL – Detection Limit.



For Global Lab and Consultancy Services

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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230 A

### TEST REPORT

ULR-TC606024000001324F

Report Number: GLCS/TR/8250/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kuliithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2Liters
<b>Sample Name</b>	Well Water -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Sample Code</b>	GLCS /8250	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	Near Project Area	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	14.12.2023
<b>Location Co-ordinates</b>	10°47'16.29"N 78°26'54.34"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	<5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	7.02
4	Electrical Conductivity	IS 3025 PART14	µS/cm	1144
5	Turbidity	IS 3025 PART10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	675
7	Total Alkalinity as CaCO <sub>3</sub>	IS 3025 PART 23	mg/l	285.42
8	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	272
9	Calcium as Ca	IS 3025 PART40	mg/l	65.73



For Global Lab and Consultancy Services

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Page 1 of 3

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231 A

### TEST REPORT

ULR-TC606024000001324F

Report Number: GLCS/TR/8250/2023-24(1)

Report Date: 12.01.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	26.26
11	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	149.95
12	Sulphate as SO <sub>4</sub> <sup>-</sup>	IS 3025 PART24	mg/l	31.26
13	Iron as Fe	IS 3025 PART 53	mg/l	BDL(DL:0.1)
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
15	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	BDL(DL:0.1)
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)
18	Nitrate as NO <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL :2.0)
19	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL:2.0)

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services



  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Page 2 of 3

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232 A



### TEST REPORT

ULR-TC606024000001324F

Report Number: GLCS/TR/8250/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sample Receipt Condition	Good
Customer Ref No	3960	Sample Quantity	300 ml
Sample Name	Well Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS /8250	Date of Analysis	27.11.2023
Location Name	Near Project Area	Date of Completion	28.11.2023
Sample Receipt Date	27.11.2023	Location Co-ordinates	10°47'16.29"N 78°26'54.34"E

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS 15185	Per 100ml	Absent
2	<i>Escherichia coli</i>	IS 15185	Per 100ml	Absent

For Global Lab and Consultancy Services



  
Authorised Signatory  
L. DINESHKUMAR  
Technical Manager-Microbiology

\*\*\*\*\*End of Report\*\*\*\*\*

Page 3 of 3

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233 A

**TEST REPORT**

Report Number: GLCS/TR/8250/2023-24(2)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2Liters
<b>Sample Name</b>	Well Water -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Sample Code</b>	GLCS /8250	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	Near Project Area	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	14.12.2023
<b>Location Co-ordinates</b>	10°47'16.29"N 78°26'54.34"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)
2	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL(DL:0.05)
3	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
4	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1)
5	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
6	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
7	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
8	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
9	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
10	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
11	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
12	Chromium as Cr 6+	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
13	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
14	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
15	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
16	Ammonia as NH <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL:1.0)

Note : BDL – Below Detection Limit, DL – Detection Limit.



For Global Lab and Consultancy Services

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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234 A

### TEST REPORT

ULR-TC606024000001325F

Report Number: GLCS/TR/8251/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2Liters
<b>Sample Name</b>	Well Water -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Sample Code</b>	GLCS /8251	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	Periyaputhur	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	14.12.2023
<b>Location Co-ordinates</b>	10°46'10.05"N 78°29'25.86"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	<5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART11	-	6.97
4	Electrical Conductivity	IS 3025 PART14	µS/cm	1042
5	Turbidity	IS 3025 PART10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART16	mg/l	615
7	Total Alkalinity as CaCO <sub>3</sub>	IS 3025 PART 23	mg/l	237.18
8	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	240
9	Calcium as Ca	IS 3025 PART40	mg/l	59.32



For Global Lab and Consultancy Services

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
Technical Manager

Page 1 of 3

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235 A

### TEST REPORT

ULR-TC606024000001325F

Report Number: GLCS/TR/8251/2023-24(1)

Report Date: 12.01.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
10	Magnesium as Mg	IS 3025 PART 46	mg/l	22.37
11	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	127.96
12	Sulphate as SO <sub>4</sub> <sup>-</sup>	IS 3025 PART24	mg/l	17.94
13	Iron as Fe	IS 3025 PART 53	mg/l	BDL(DL:0.1)
14	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
15	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)
16	Fluoride as F	GLCS/SOP/W/015	mg/l	BDL(DL:0.1)
17	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)
18	Nitrate as NO <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL :2.0)
19	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL :2.0)

Note: BDL – Below Detection Limit, DL – Detection Limit.

For Global Lab and Consultancy Services



  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Page 2 of 3

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236 A



### TEST REPORT

ULR-TC606024000001325F

Report Number: GLCS/TR/8251/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sample Receipt Condition	Good
Customer Ref No	3960	Sample Quantity	300 ml
Sample Name	Well Water -2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS /8251	Date of Analysis	27.11.2023
Location Name	Periyaputhur	Date of Completion	28.11.2023
Sample Receipt Date	27.11.2023	Location Co-ordinates	10°46'10.05"N 78°29'25.86"E

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS 15185	Per 100ml	Absent
2	<i>Escherichia coli</i>	IS 15185	Per 100ml	Absent



For Global Lab and Consultancy Services

  
Authorised Signatory

L. DINESHKUMAR  
Technical Manager-Microbiology

\*\*\*\*\*End of Report\*\*\*\*\*

Page 3 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting an E-mail request with report number and report date along with report copy.

237 A

**TEST REPORT**

Report Number: GLCS/TR/8251/2023-24(2)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kullithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2Liters
<b>Sample Name</b>	Well Water -2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Sample Code</b>	GLCS /8251	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	Periyaputhur	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	14.12.2023
<b>Location Co-ordinates</b>	10°46'10.05"N 78°29'25.86"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Phenolic Compounds	IS 3025 PART 43	mg/l	BDL(DL:0.1)
2	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL(DL:0.05)
3	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
4	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1)
5	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.001)
6	Mercury (Hg)	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
7	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
8	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
9	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
10	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
11	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
12	Chromium as Cr 6 <sup>+</sup>	GLCS/SOP/W/62	mg/l	BDL(DL:0.1)
13	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
14	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
15	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
16	Ammonia as NH <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL:1.0)

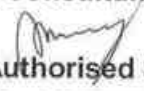
Note : BDL – Below Detection Limit, DL – Detection Limit.



For Global Lab and Consultancy Services

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

  
 Authorised Signatory

 L. SUDHAPRIYA  
 Technical Manager

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238 A

### TEST REPORT

ULR-TC606024000001326F

Report Number: GLCS/TR/8252/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>TRF No.</b>	3960	<b>Sample Quantity</b>	2liters
<b>Sample Name</b>	Borewell Water -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Location</b>	Kulandaipatti	<b>Date of Analysis</b>	28.11.2023
<b>Sample Code</b>	GLCS /8252	<b>Date of Completion</b>	14.12.2023
<b>Sample Receipt Date</b>	27.11.2023		
<b>Location Co-ordinates</b>	10°47'14.64"N 78°27'0.56"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	< 5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART 11	-	7.22
4	Electrical Conductivity	IS 3025 PART 14	µS/cm	1092
5	Turbidity	IS 3025 PART 10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART 16	mg/l	644
7	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL :2.0)

Note: BDL- Below Detection Limit, DL- Detection Limit.

For Global Lab and Consultancy Services



Page 1 of 3

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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239 A



### TEST REPORT

ULR-TC606024000001326F

Report Number: GLCS/TR/8252/2023-24(1)

Report Date: 12.01.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
8	Total Alkalinity	IS 3025 PART 23	mg/l	261.3
9	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	268
10	Calcium as Ca	IS 3025 PART 40	mg/l	64.13
11	Magnesium as Mg	IS 3025 PART 46	mg/l	26.26
12	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	143.95
13	Sulphate as SO <sub>4</sub> <sup>-</sup>	IS 3025 PART 24	mg/l	28.33
14	Iron as Fe	IS 3025 PART 53	mg/l	BDL(DL:0.1)
15	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
16	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)
17	Fluoride as F	GLCS/SOP/W/015	mg/l	BDL(DL:0.1)
18	Nitrate as NO <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL :2.0)
19	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)

Note: BDL- Below Detection Limit, DL- Detection Limit

For Global Lab and Consultancy Services



Page 2 of 3

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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240 A

### TEST REPORT

ULR-TC606024000001326F

Report Number: GLCS/TR/8252/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sample Receipt Condition	Good
TRF No.	3960	Sample Quantity	300 ml
Sample Name	Borewell Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS /8252	Date of Analysis	27.11.2023
Location	Kulandaipatti	Date of Completion	28.11.2023
Sample Receipt Date	27.11.2023	Location Co-ordinates	10°47'14.64"N 78°27'0.56"E

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS 15185	Per 100ml	Absent
2	<i>Escherichia coli</i>	IS 15185	Per 100ml	Absent



For Global Lab and Consultancy Services

  
Authorised Signatory  
**L. DINESHKUMAR**  
Technical Manager-Microbiology

\*\*\*\*\*End of Report\*\*\*\*\*

Page 3 of 3

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy. 241 A

## TEST REPORT

Report Number: GLCS/TR/8252/2023-24(2)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sample Receipt Condition	Good
TRF No.	3960	Sample Quantity	2liters
Sample Name	Borewell Water -1	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	Kulandaipatti	Date of Analysis	28.11.2023
Sample Code	GLCS /8252	Date of Completion	14.12.2023
Sample Receipt Date	27.11.2023		
Location Co-ordinates	10°47'14.64"N 78°27'0.56"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
2	Ammonia (NH <sub>3</sub> )	IS 3025 PART 34	mg/l	BDL(DL:1.0)
3	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
4	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
5	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
6	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
7	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
8	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)

Note : BDL – Below Detection Limit, DL – Detection Limit;



For Global Lab and Consultancy Services

Page 1 of 2

Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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242 A

## TEST REPORT

Report Number: GLCS/TR/8252/2023-24(2)

Report Date: 12.01.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
10	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL(DL:0.05)
11	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
12	Phenolic Compounds	IS 3025 PART 43	mg/l	BDQ(DL:0.1)
13	Chromium as Cr 6 <sup>+</sup>	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
14	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)
15	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
16	Mercury as Hg	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)

Note : BDL – Below Detection Limit, DL – Detection Limit;

For Global Lab and Consultancy Services



**Authorised Signatory**  
**L. SUDHAPRIYA**  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

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243 A

### TEST REPORT

ULR-TC606024000001327F

Report Number: GLCS/TR/8253/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kullithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sample Receipt Condition	Good
TRF No.	3960	Sample Quantity	2liters
Sample Name	Borewell Water - 2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/SOP/W/028
Location	Onanthampatti	Date of Analysis	28.11.2023
Sample Code	GLCS /8253	Date of Completion	14.12.2023
Sample Receipt Date	27.11.2023		
Location Co-ordinates	10°49'24.76"N 78°28'26.86"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Color	IS 3025 PART 4	Hazen	< 5
2	Odor	IS 3025 PART 5	-	Agreeable
3	pH	IS 3025 PART 11	-	7.30
4	Electrical Conductivity	IS 3025 PART 14	µS/cm	1073
5	Turbidity	IS 3025 PART 10	NTU	<1
6	Total Dissolved Solids	IS 3025 PART 16	mg/l	633
7	Total Suspended Solids	IS 3025 PART 17	mg/l	BDL(DL :2.0)

Note: BDL- Below Detection Limit, DL- Detection Limit.



Page 1 of 3

For Global Lab and Consultancy Services

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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244 A



### TEST REPORT

ULR-TC606024000001327F

Report Number: GLCS/TR/8253/2023-24(1)

Report Date: 12.01.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
8	Total Alkalinity	IS 3025 PART 23	mg/l	273.36
9	Total Hardness as CaCO <sub>3</sub>	IS 3025 PART 21	mg/l	252
10	Calcium as Ca	IS 3025 PART 40	mg/l	56.11
11	Magnesium as Mg	IS 3025 PART 46	mg/l	27.24
12	Chloride as Cl <sup>-</sup>	IS 3025 PART 32	mg/l	131.95
13	Sulphate as SO <sub>4</sub> <sup>-</sup>	IS 3025 PART 24	mg/l	19.07
14	Iron as Fe	IS 3025 PART 53	mg/l	BDL(DL:0.1)
15	Boron as B	IS 3025 PART 57	mg/l	BDL(DL:0.1)
16	Free Residual Chlorine as Cl <sub>2</sub>	IS 3025 PART 26	mg/l	BDL(DL:1.0)
17	Fluoride as F	GLCS/SOP/W/015	mg/l	BDL(DL:0.1)
18	Nitrate as NO <sub>3</sub>	IS 3025 PART 34	mg/l	BDL(DL :2.0)
19	Manganese as Mn	IS 3025 PART 59	mg/l	BDL(DL:0.1)

Note: BDL- Below Detection Limit, DL- Detection Limit

For Global Lab and Consultancy Services



Page 2 of 3

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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245 A

### TEST REPORT

ULR-TC606024000001327F

Report Number: GLCS/TR/8253/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P),302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sample Receipt Condition	Good
TRF No.	3960	Sample Quantity	300 ml
Sample Name	Borewell Water - 2	Sampled by	Laboratory
Sample Description	Liquid	Sampling Method	GLCS/M/SOP-05
Sample Code	GLCS /8253	Date of Analysis	27.11.2023
Location	Onanthampatti	Date of Completion	28.11.2023
Sample Receipt Date	27.11.2023	Location Co-ordinates	10°49'24.76"N 78°28'26.86"E

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Total Coliforms	IS 15185	Per 100ml	Absent
2	<i>Escherichia coli</i>	IS 15185	Per 100ml	Absent



For Global Lab and Consultancy Services

  
Authorised Signatory  
L. DINESHKUMAR  
Technical Manager-Microbiology

\*\*\*\*\*End of Report\*\*\*\*\*

Page 3 of 3

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246 A



## TEST REPORT

Report Number: GLCS/TR/8253/2023-24(2)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Good
<b>TRF No.</b>	3960	<b>Sample Quantity</b>	2liters
<b>Sample Name</b>	Borewell Water - 2	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Liquid	<b>Sampling Method</b>	GLCS/SOP/W/028
<b>Location</b>	Onanthampatti	<b>Date of Analysis</b>	28.11.2023
<b>Sample Code</b>	GLCS /8253	<b>Date of Completion</b>	14.12.2023
<b>Sample Receipt Date</b>	27.11.2023		
<b>Location Co-ordinates</b>	10°49'24.76"N 78°28'26.86"E		

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Arsenic as As	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
2	Ammonia (NH <sub>3</sub> )	IS 3025 PART 34	mg/l	BDL(DL:1.0)
3	Zinc as Zn	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
4	Aluminium as Al	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
5	Cadmium as Cd	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
6	Molybdenum as Mo	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
7	Selenium	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)
8	Lead as Pb	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)

Note : BDL – Below Detection Limit, DL – Detection Limit;

For Global Lab and Consultancy Services



Page 1 of 2

*[Signature]*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

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247 A

## TEST REPORT

Report Number: GLCS/TR/8253/2023-24(2)

Report Date: 12.01.2024

Sl. No.	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
9	Barium as Ba	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
10	Anionic Detergents	IS 13428 ANNEX K	mg/l	BDL(DL:0.05)
11	Cyanide	IS 3025 PART 27	mg/l	BDL(DL:0.02)
12	Phenolic Compounds	IS 3025 PART 43	mg/l	BDQ(DL:0.1)
13	Chromium as Cr 6 <sup>+</sup>	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
14	Sulphide	GLCS/SOP/W/66	mg/l	BDL(DL:1.0)
15	Copper as Cu	GLCS/SOP/W/62	mg/l	BDL(DL:0.01)
16	Mercury as Hg	GLCS/SOP/W/62	mg/l	BDL(DL:0.002)

Note : BDL – Below Detection Limit, DL – Detection Limit;

For Global Lab and Consultancy Services



*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

248 A

### TEST REPORT

ULR-TC606024000001328F

Report Number: GLCS/TR/8254/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil -1	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8254	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	Core Zone	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	20.12.2023
<b>Location Co-ordinates</b>	10°47'31.06"N 78°26'56.93"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.97
2	pH	IS 2720 PART 26	-	8.55
3	Specific Electrical Conductivity	IS 14767	µS/cm	435.1
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	13.2
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.17
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	6.2

For Global Lab and Consultancy Services



  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

### TEST REPORT

ULR-TC606024000001328F

Report Number: GLCS/TR/8254/2023-24(1)

Report Date: 12.01.2024

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	3.4
8	Sulphate as SO <sub>4</sub>	GLCS/SOP/S/009	mg/100g	15.66
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.9
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.055
11	Sand	GLCS/SOP/S/015	%	36.00
12	Slit	GLCS/SOP/S/015	%	35.25
13	Clay	GLCS/SOP/S/015	%	28.75
14	Water Holding Capacity	GLCS/SOP/S/016	%	46.2
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	326.144
16	Chloride	GLCS/SOP/S/004	meq/l	5.5

For Global Lab and Consultancy Services



  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

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250A

BRANCH OFFICES: CHENNAI ( Mobile : 70944 53636 ) & COIMBATORE ( Mobile : 70944 54646 )

## TEST REPORT

Report Number: GLCS/TR/8254/2023-24(2)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District - 639 120.		<b>Site Address :</b> Lease Area - 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sample Receipt Condition	Ambient - Good
Customer Ref No	3960	Sample Quantity	2 kg
Sample Name	Soil -1	Sampled by	Laboratory
Sample Description	Powder	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 8254	Sample Receipt Date	27.11.2023
Location Name	Core Zone	Date of Analysis	28.11.2023
Sampling Date	25.11.2023	Date of Completion	20.12.2023
Location Co-ordinates	10°47'31.06"N 78°26'56.93"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	38.9
2	Manganese as Mn	USEPA Method	mg/kg	13.74
3	Zinc as Zn	USEPA Method	mg/kg	19.49
4	Cadmium as Cd	USEPA Method	mg/kg	10.75
5	Chromium as Cr 6+	USEPA Method	mg/kg	11.75
6	Copper as Cu	USEPA Method	mg/kg	9.25
7	Lead as Pb	USEPA Method	mg/kg	1.25
8	Iron as Fe	USEPA Method	mg/kg	10.25
9	Organic Carbon	GLCS/SOP/S/003	%	1.14
10	Boron as B	USEPA Method	mg/kg	0.50

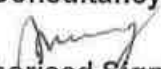
NOTE: BDL- Below Detection Limit; DL- Detection Limit

For Global Lab and Consultancy Services



\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

  
 Authorised Signatory

**L. SUDHAPRIYA**  
 Technical Manager

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251A



### TEST REPORT

ULR-TC606024000001329F

Report Number: GLCS/TR/8255/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3960	Sample Quantity	2 kg
Sample Name	Soil - 2	Sampled by	Laboratory
Sample Description	Powder	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 8255	Sample Receipt Date	27.11.2023
Location Name	Kulandaipatti	Date of Analysis	28.11.2023
Sampling Date	25.11.2023	Date of Completion	20.12.2023
Location Co-ordinates	10°49'29.54"N 78°28'22.29"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.13
2	pH	IS 2720 PART 26	-	8.37
3	Specific Electrical Conductivity	IS 14767	µS/cm	440
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	10.9
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.49
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	5.0

For Global Lab and Consultancy Services



  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

### TEST REPORT

ULR-TC606024000001329F

Report Number: GLCS/TR/8255/2023-24(1)

Report Date: 12.01.2024


SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	5.0
8	Sulphate as SO <sub>4</sub>	GLCS/SOP/S/009	mg/100g	10.4
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.3
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.025
11	Sand	GLCS/SOP/S/015	%	39.85
12	Slit	GLCS/SOP/S/015	%	38.20
13	Clay	GLCS/SOP/S/015	%	21.95
14	Water Holding Capacity	GLCS/SOP/S/016	%	49.6
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	464.128
16	Chloride	GLCS/SOP/S/004	meq/l	4.6

For Global Lab and Consultancy Services



\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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BRANCH OFFICES: CHENNAI ( Mobile : 70944 53636 ) & COIMBATORE ( Mobile : 70944 54646 )



## TEST REPORT

Report Number: GLCS/TR/8255/2023-24(2)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3960	Sample Quantity	2 kg
Sample Name	Soil - 2	Sampled by	Laboratory
Sample Description	Powder	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 8255	Sample Receipt Date	27.11.2023
Location Name	Kulandaipatti	Date of Analysis	28.11.2023
Sampling Date	25.11.2023	Date of Completion	20.12.2023
Location Co-ordinates	10°49'29.54"N 78°28'22.29"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	40.4
2	Manganese as Mn	USEPA Method	mg/kg	13.32
3	Zinc as Zn	USEPA Method	mg/kg	22.94
4	Cadmium as Cd	USEPA Method	mg/kg	10.85
5	Chromium as Cr 6 <sup>+</sup>	USEPA Method	mg/kg	14.55
6	Copper as Cu	USEPA Method	mg/kg	10.36
7	Lead as Pb	USEPA Method	mg/kg	BDL(DL:0.5)
8	Iron as Fe	USEPA Method	mg/kg	24.42
9	Organic Carbon	GLCS/SOP/S/003	%	0.66
10	Boron as B	USEPA Method	mg/kg	2.22



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L. SUDHAPRIYA

Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

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254 A

### TEST REPORT

ULR-TC606024000001330F

Report Number: GLCS/TR/8256/2023-24(1)

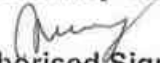
Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil - 3	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8256	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	Onanthampatti	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	20.12.2023
<b>Location Co-ordinates</b>	10°46'14.41"N 78°23'32.89"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.46
2	pH	IS 2720 PART 26	-	7.93
3	Specific Electrical Conductivity	IS 14767	µS/cm	457.6
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	7.0
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.26
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	5.6



For Global Lab and Consultancy Services

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Page 1 of 2

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255 A

### TEST REPORT

ULR-TC606024000001330F

Report Number: GLCS/TR/8256/2023-24(1)

Report Date: 12.01.2024

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	5.4
8	Sulphate as SO <sub>4</sub>	GLCS/SOP/S/009	mg/100g	6.68
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	16.6
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.009
11	Sand	GLCS/SOP/S/015	%	37.85
12	Slit	GLCS/SOP/S/015	%	35.84
13	Clay	GLCS/SOP/S/015	%	26.31
14	Water Holding Capacity	GLCS/SOP/S/016	%	51
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	426.496
16	Chloride	GLCS/SOP/S/004	meq/l	5.1

For Global Lab and Consultancy Services



\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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256 A

### TEST REPORT

Report Number: GLCS/TR/8256/2023-24(2)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil - 3	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8256	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	Onanthampatti	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	20.12.2023
<b>Location Co-ordinates</b>	10°46'14.41"N 78°23'32.89"E		

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	37.6
2	Manganese as Mn	USEPA Method	mg/kg	13.58
3	Zinc as Zn	USEPA Method	mg/kg	19.26
4	Cadmium as Cd	USEPA Method	mg/kg	10.62
5	Chromium as Cr 6 <sup>+</sup>	USEPA Method	mg/kg	11.60
6	Copper as Cu	USEPA Method	mg/kg	8.89
7	Lead as Pb	USEPA Method	mg/kg	0.74
8	Iron as Fe	USEPA Method	mg/kg	9.87
9	Organic Carbon	GLCS/SOP/S/003	%	0.85
10	Boron as B	USEPA Method	mg/kg	BDL(DL:0.5)

NOTE: BDL- Below Detection Limit; DL- Detection Limit



For Global Lab and Consultancy Services

*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

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257A



### TEST REPORT

ULR-TC606024000001331F

Report Number: GLCS/TR/8257/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil - 4	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8257	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	Thalayaripatti	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	20.12.2023
<b>Location Co-ordinates</b>	10°49'31.16"N 78°25'36.00"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.57
2	pH	IS 2720 PART 26	-	8.59
3	Specific Electrical Conductivity	IS 14767	µS/cm	500
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	13.1
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.34
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	7.0

For Global Lab and Consultancy Services



  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Page 1 of 2

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258 A

### TEST REPORT

ULR-TC606024000001331F

Report Number: GLCS/TR/8257/2023-24(1)

Report Date: 12.01.2024

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	5.2
8	Sulphate as SO <sub>4</sub>	GLCS/SOP/S/009	mg/100g	12.64
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	18.3
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.086
11	Sand	GLCS/SOP/S/015	%	31.66
12	Slit	GLCS/SOP/S/015	%	40.99
13	Clay	GLCS/SOP/S/015	%	27.35
14	Water Holding Capacity	GLCS/SOP/S/016	%	45.2
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	401.408
16	Chloride	GLCS/SOP/S/004	meq/l	5.7

For Global Lab and Consultancy Services



\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

  
Authorised Signatory

L. SUDHAPRIYA  
Technical Manager

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259 A

BRANCH OFFICES: CHENNAI ( Mobile : 70944 53636 ) & COIMBATORE ( Mobile : 70944 54646 )

## TEST REPORT

Report Number: GLCS/TR/8257/2023-24(2)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil - 4	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8257	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	Thalayaripatti	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	20.12.2023
<b>Location Co-ordinates</b>	10°49'31.16"N 78°25'36.00"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	38.7
2	Manganese as Mn	USEPA Method	mg/kg	BDL(DL:0.5)
3	Zinc as Zn	USEPA Method	mg/kg	23.74
4	Cadmium as Cd	USEPA Method	mg/kg	15.99
5	Chromium as Cr 6 <sup>+</sup>	USEPA Method	mg/kg	6.0
6	Copper as Cu	USEPA Method	mg/kg	7.25
7	Lead as Pb	USEPA Method	mg/kg	1.75
8	Iron as Fe	USEPA Method	mg/kg	21.99
9	Organic Carbon	GLCS/SOP/S/003	%	0.91
10	Boron as B	USEPA Method	mg/kg	4.75

Note : BDL – Below Detection Limit, DL – Detection Limit.



For Global Lab and Consultancy Services

Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

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260 A



### TEST REPORT

ULR-TC606024000001332F

Report Number: GLCS/TR/8258/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil - 5	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8258	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	Kallai	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	20.12.2023
<b>Location Co-ordinates</b>	10°47'45.98"N 78°28'33.03"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.96
2	pH	IS 2720 PART 26	-	8.84
3	Specific Electrical Conductivity	IS 14767	µS/cm	510.6
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	13.2
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.37
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	4.2

For Global Lab and Consultancy Services



### TEST REPORT

ULR-TC606024000001332F

Report Number: GLCS/TR/8258/2023-24(1)

Report Date: 12.01.2024

SI. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	5.4
8	Sulphate as SO <sub>4</sub>	GLCS/SOP/S/009	mg/100g	13.96
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	18.1
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.049
11	Sand	GLCS/SOP/S/015	%	36.18
12	Slit	GLCS/SOP/S/015	%	38.64
13	Clay	GLCS/SOP/S/015	%	25.19
14	Water Holding Capacity	GLCS/SOP/S/016	%	43.4
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	376.32
16	Chloride	GLCS/SOP/S/004	meq/l	3.8

For Global Lab and Consultancy Services

Authorised Signatory

L. SUDHAPRIYA

Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2



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262 A

## TEST REPORT

Report Number: GLCS/TR/8258/2023-24(2)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil - 5	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8258	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	Kallai	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	20.12.2023
<b>Location Co-ordinates</b>	10°47'45.98"N 78°28'33.03"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	40.5
2	Manganese as Mn	USEPA Method	mg/kg	7.74
3	Zinc as Zn	USEPA Method	mg/kg	14.97
4	Cadmium as Cd	USEPA Method	mg/kg	19.22
5	Chromium as Cr 6 <sup>+</sup>	USEPA Method	mg/kg	24.71
6	Copper as Cu	USEPA Method	mg/kg	10.23
7	Lead as Pb	USEPA Method	mg/kg	BDL(DL:0.5)
8	Iron as Fe	USEPA Method	mg/kg	40.43
9	Organic Carbon	GLCS/SOP/S/003	%	1.14
10	Boron as B	USEPA Method	mg/kg	2.75

Note : BDL – Below Detection Limit, DL – Detection Limit.



For Global Lab and Consultancy Services

*[Signature]*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

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263 A



### TEST REPORT

ULR-TC606024000001333F

Report Number: GLCS/TR/8259/2023-24(1)

Report Date: 12.01.2024

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sample Receipt Condition	Ambient – Good
Customer Ref No	3960	Sample Quantity	2 kg
Sample Name	Soil - 6	Sampled by	Laboratory
Sample Description	Powder	Sampling Method	GLCS/SOP/S/014
Sample Code	GLCS / 8259	Sample Receipt Date	27.11.2023
Location Name	Kalladai	Date of Analysis	28.11.2023
Sampling Date	25.11.2023	Date of Completion	20.12.2023
Location Co-ordinates	10°45'24.21"N 78°26'17.72"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Organic Matter	GLCS/SOP/S/003	%	1.21
2	pH	IS 2720 PART 26	-	8.07
3	Specific Electrical Conductivity	IS 14767	µS/cm	450.5
4	Available Phosphorous	GLCS/SOP/S/005	mg/kg	9.4
5	Available Potassium	GLCS/SOP/S/026	meq/l	1.38
6	Exchangeable Calcium (as Ca)	GLCS/SOP/S/020	meq/100g	5



For Global Lab and Consultancy Services

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

Page 1 of 2

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264 A

### TEST REPORT

ULR-TC606024000001333F

Report Number: GLCS/TR/8259/2023-24(1)

Report Date: 12.01.2024

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
7	Exchangeable Magnesium (as Mg)	GLCS/SOP/S/021	meq/100g	4.8
8	Sulphate as SO <sub>4</sub>	GLCS/SOP/S/009	mg/100g	17.12
9	Cation Exchange Capacity	GLCS/SOP/S/024	meq/100g	18.7
10	Bulk Density	GLCS/SOP/S/017	g/cc	1.055
11	Sand	GLCS/SOP/S/015	%	34.69
12	Slit	GLCS/SOP/S/015	%	43.27
13	Clay	GLCS/SOP/S/015	%	22.04
14	Water Holding Capacity	GLCS/SOP/S/016	%	47.2
15	Available Nitrogen as N	GLCS/SOP/S/029	Kg/ha	439.04
16	Chloride	GLCS/SOP/S/004	meq/l	4.4

For Global Lab and Consultancy Services



\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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BRANCH OFFICES: CHENNAI ( Mobile : 70944 53636 ) & COIMBATORE ( Mobile : 70944 54646 )



**TEST REPORT**

Report Number: GLCS/TR/8259/2023-24(2)

Report Date: 12.01.2024

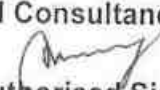
<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sample Receipt Condition</b>	Ambient – Good
<b>Customer Ref No</b>	3960	<b>Sample Quantity</b>	2 kg
<b>Sample Name</b>	Soil - 6	<b>Sampled by</b>	Laboratory
<b>Sample Description</b>	Powder	<b>Sampling Method</b>	GLCS/SOP/S/014
<b>Sample Code</b>	GLCS / 8259	<b>Sample Receipt Date</b>	27.11.2023
<b>Location Name</b>	Kalladai	<b>Date of Analysis</b>	28.11.2023
<b>Sampling Date</b>	25.11.2023	<b>Date of Completion</b>	20.12.2023
<b>Location Co-ordinates</b>	10°45'24.21"N 78°26'17.72"E		

Sl. No	TEST PARAMETERS	TEST METHOD	UNIT	RESULTS
1	Permiability	By Permeameter	%	41.7
2	Manganese as Mn	USEPA Method	mg/kg	0.50
3	Zinc as Zn	USEPA Method	mg/kg	19.41
4	Cadmium as Cd	USEPA Method	mg/kg	16.42
5	Chromium as Cr 6 <sup>+</sup>	USEPA Method	mg/kg	12.94
6	Copper as Cu	USEPA Method	mg/kg	1.0
7	Lead as Pb	USEPA Method	mg/kg	0.5
8	Iron as Fe	USEPA Method	mg/kg	14.68
9	Organic Carbon	GLCS/SOP/S/003	%	0.71
10	Boron as B	USEPA Method	mg/kg	0.75

NOTE: BDL- Below Detection Limit; DL- Detection Limit



For Global Lab and Consultancy Services

  
 Authorised Signatory
L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

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### TEST REPORT

ULR-TC606023000006631F

Report Number: GLCS/TR/6341/2023-24(1)

Report Date: 07.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapathy, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sampling Condition</b>	Active
<b>TRF No</b>	3604	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Air Quality Monitoring	<b>Sampling Method</b>	GLCS/SOP/AAQ/015
<b>Sample Description</b>	Ambient Air Quality	<b>Sample Code</b>	GLCS / 6341
<b>Location Name</b>	AAQ1 – Core Zone	<b>Date of Analysis</b>	17.10.2023
<b>Sampling Hours</b>	15.05 – 15.05 (24Hours)	<b>Date of Completion</b>	06.11.2023
<b>Sampling Date</b>	13.10.2023 - 14.10.2023	<b>Avg Temperature</b>	31.6 °C
<b>Sample Receipt Date</b>	16.10.2023	<b>Avg Humidity</b>	65.4 %

Sl. NO	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Particulate matter (Size less than 10 µm/PM <sub>10</sub> )	IS 5182 Part 23	µg/m <sup>3</sup>	45.17	100
2	Particulate matter (Size less than 2.5 µm/PM <sub>2.5</sub> )	GLCS/SOP/AAQ/017	µg/m <sup>3</sup>	18.29	60
3	Sulphur dioxide as SO <sub>2</sub>	IS 5182 Part 2	µg/m <sup>3</sup>	4.64	80
4	Nitrogen dioxide as NO <sub>2</sub>	IS 5182 Part 6	µg/m <sup>3</sup>	18.33	80
5	Ammonia as NH <sub>3</sub>	GLCS/SOP/AAQ/001	µg/m <sup>3</sup>	BDL(DL:5)	400
6	Ozone as O <sub>3</sub>	GLCS/SOP/AAQ/002	µg/m <sup>3</sup>	BDL(DL:5)	180
7	Carbon Monoxide as CO	GLCS/SOP/AAQ/018	mg/m <sup>3</sup>	BDL(DL:1.15)	4.0

Note: BDL- Below Detection Limit; DL- Detection Limit

\*NAAQS – National Ambient Air Quality Standard Issued by CPCB (Central Pollution Control Board) in 2009.



For Global Lab and Consultancy Services

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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## TEST REPORT

Report Number: GLCS/TR/6341/2023-24(2)

Report Date: 07.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapathy, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sampling Condition	Active
TRF No	3604	Sampled by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Method	GLCS/SOP/AAQ/015
Sample Description	Ambient Air Quality	Sample Code	GLCS / 6341
Location Name	AAQ1 – Core Zone	Date of Analysis	17.10.2023
Sampling Hours	15.05 – 15.05 (24Hours)	Date of Completion	06.11.2023
Sampling Date	13.10.2023 - 14.10.2023	Avg Temperature	31.6 °C
Sample Receipt Date	16.10.2023	Avg Humidity	65.4 %

SI. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Benzene as C <sub>6</sub> H <sub>6</sub>	IS 5182 Part 11	µg/m <sup>3</sup>	BDL(DL:1.0)	5.0
2	Benzo(a)Pyrene as BaP	GLCS/SOP/AAQ/019	ng/m <sup>3</sup>	BDL(DL:0.5)	1.0
3	Lead as Pb	USEPA Compendium method IO 3.4	µg/m <sup>3</sup>	BDL(DL:0.01)	1.0
4	Arsenic as As	USEPA Compendium method IO 3.4	ng/m <sup>3</sup>	BDL(DL:1.0)	6.0
5	Nickel as Ni	USEPA Compendium method IO 3.4	ng/m <sup>3</sup>	BDL(DL:1.0)	20

Note: BDL- Below Detection Limit; DL- Detection Limit

\*NAAQS – National Ambient Air Quality Standard Issued by CPCB (Central Pollution Control Board) in 2009.

For Global Lab and Consultancy Services



*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

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### TEST REPORT

ULR-TC606023000006632F

Report Number: GLCS/TR/6342/2023-24(1)

Report Date: 07.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapathy, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sampling Condition	Active
TRF No	3604	Sampled by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Method	GLCS/SOP/AAQ/015
Sample Description	Ambient Air Quality	Sample Code	GLCS / 6342
Location Name	AAQ2 – Kulandaipatti	Date of Analysis	17.10.2023
Sampling Hours	15.25 – 15.25 (24Hours)	Date of Completion	06.11.2023
Sampling Date	13.10.2023 - 14.10.2023	Avg Temperature	31.6 °C
Sample Receipt Date	16.10.2023	Avg Humidity	62.9 %

Sl. NO	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Particulate matter (Size less than 10 µm/PM <sub>10</sub> )	IS 5182 Part 23	µg/m <sup>3</sup>	42.49	100
2	Particulate matter (Size less than 2.5 µm/PM <sub>2.5</sub> )	GLCS/SOP/AAQ/017	µg/m <sup>3</sup>	18.71	60
3	Sulphur dioxide as SO <sub>2</sub>	IS 5182 Part 2	µg/m <sup>3</sup>	5.94	80
4	Nitrogen dioxide as NO <sub>2</sub>	IS 5182 Part 6	µg/m <sup>3</sup>	19.03	80
5	Ammonia as NH <sub>3</sub>	GLCS/SOP/AAQ/001	µg/m <sup>3</sup>	BDL(DL:5)	400
6	Ozone as O <sub>3</sub>	GLCS/SOP/AAQ/002	µg/m <sup>3</sup>	BDL(DL:5)	180
7	Carbon Monoxide as CO	GLCS/SOP/AAQ/018	mg/m <sup>3</sup>	BDL(DL:1.15)	4.0

Note: BDL- Below Detection Limit; DL- Detection Limit

\*NAAQS – National Ambient Air Quality Standard Issued by CPCB (Central Pollution Control Board) in 2009.



For Global Lab and Consultancy Services

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

Authorised Signatory  
L. SUDHAPRIYA

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## TEST REPORT

Report Number: GLCS/TR/6342/2023-24(2)

Report Date: 07.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapathy, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sampling Condition</b>	Active
<b>TRF No</b>	3604	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Air Quality Monitoring	<b>Sampling Method</b>	GLCS/SOP/AAQ/015
<b>Sample Description</b>	Ambient Air Quality	<b>Sample Code</b>	GLCS / 6342
<b>Location Name</b>	AAQ2 – Kulandaipatti	<b>Date of Analysis</b>	17.10.2023
<b>Sampling Hours</b>	15.25 – 15.25 (24Hours)	<b>Date of Completion</b>	06.11.2023
<b>Sampling Date</b>	13.10.2023 - 14.10.2023	<b>Avg Temperature</b>	31.6 °C
<b>Sample Receipt Date</b>	16.10.2023	<b>Avg Humidity</b>	62.9 %

SI. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Benzene as C <sub>6</sub> H <sub>6</sub>	IS 5182 Part 11	µg/m <sup>3</sup>	BDL(DL:1.0)	5.0
2	Benzo(a)Pyrene as BaP	GLCS/SOP/AAQ/019	ng/m <sup>3</sup>	BDL(DL:0.5)	1.0
3	Lead as Pb	USEPA Compendium method IO 3.4	µg/m <sup>3</sup>	BDL(DL:0.01)	1.0
4	Arsenic as As	USEPA Compendium method IO 3.4	ng/m <sup>3</sup>	BDL(DL:1.0)	6.0
5	Nickel as Ni	USEPA Compendium method IO 3.4	ng/m <sup>3</sup>	BDL(DL:1.0)	20

Note: BDL- Below Detection Limit; DL- Detection Limit

\*NAAQS – National Ambient Air Quality Standard Issued by CPCB (Central Pollution Control Board) in 2009.



For Global Lab and Consultancy Services

*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*  
 Page 1 of 1

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### TEST REPORT

ULR-TC606023000006633F

Report Number: GLCS/TR/6343/2023-24(1)

Report Date: 07.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapathy, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sampling Condition	Active
TRF No	3604	Sampled by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Method	GLCS/SOP/AAQ/015
Sample Description	Ambient Air Quality	Sample Code	GLCS / 6343
Location Name	AAQ3 – Onanthampatti	Date of Analysis	17.10.2023
Sampling Hours	15.50 – 15.50 (24Hours)	Date of Completion	06.11.2023
Sampling Date	13.10.2023 - 14.10.2023	Avg Temperature	30.9 °C
Sample Receipt Date	16.10.2023	Avg Humidity	66.1 %

Sl. NO	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Particulate matter (Size less than 10 µm/PM <sub>10</sub> )	IS 5182 Part 23	µg/m <sup>3</sup>	43.46	100
2	Particulate matter (Size less than 2.5 µm/PM <sub>2.5</sub> )	GLCS/SOP/AAQ/017	µg/m <sup>3</sup>	19.12	60
3	Sulphur dioxide as SO <sub>2</sub>	IS 5182 Part 2	µg/m <sup>3</sup>	4.91	80
4	Nitrogen dioxide as NO <sub>2</sub>	IS 5182 Part 6	µg/m <sup>3</sup>	22.98	80
5	Ammonia as NH <sub>3</sub>	GLCS/SOP/AAQ/001	µg/m <sup>3</sup>	BDL(DL:5)	400
6	Ozone as O <sub>3</sub>	GLCS/SOP/AAQ/002	µg/m <sup>3</sup>	BDL(DL:5)	180
7	Carbon Monoxide as CO	GLCS/SOP/AAQ/018	mg/m <sup>3</sup>	BDL(DL:1.15)	4.0

Note: BDL- Below Detection Limit; DL- Detection Limit

\*NAAQS – National Ambient Air Quality Standard Issued by CPCB (Central Pollution Control Board) in 2009.

For Global Lab and Consultancy Services



\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

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## TEST REPORT

Report Number: GLCS/TR/6343/2023-24(2)

Report Date: 07.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapathy, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sampling Condition	Active
TRF No	3604	Sampled by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Method	GLCS/SOP/AAQ/015
Sample Description	Ambient Air Quality	Sample Code	GLCS / 6343
Location Name	AAQ3 – Onanthampatti	Date of Analysis	17.10.2023
Sampling Hours	15.50 – 15.50 (24Hours)	Date of Completion	06.11.2023
Sampling Date	13.10.2023 - 14.10.2023	Avg Temperature	30.9 °C
Sample Receipt Date	16.10.2023	Avg Humidity	66.1 %

Sl. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Benzene as C <sub>6</sub> H <sub>6</sub>	IS 5182 Part 11	µg/m <sup>3</sup>	BDL(DL:1.0)	5.0
2	Benzo(a)Pyrene as BaP	GLCS/SOP/AAQ/019	ng/m <sup>3</sup>	BDL(DL:0.5)	1.0
3	Lead as Pb	USEPA Compendium method IO 3.4	µg/m <sup>3</sup>	BDL(DL:0.01)	1.0
4	Arsenic as As	USEPA Compendium method IO 3.4	ng/m <sup>3</sup>	BDL(DL:1.0)	6.0
5	Nickel as Ni	USEPA Compendium method IO 3.4	ng/m <sup>3</sup>	BDL(DL:1.0)	20

Note: BDL- Below Detection Limit; DL- Detection Limit

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For Global Lab and Consultancy Services

*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

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### TEST REPORT

ULR-TC606023000006634F

Report Number: GLCS/TR/6344/2023-24(1)

Report Date: 07.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapathy, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sampling Condition	Active
TRF No	3604	Sampled by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Method	GLCS/SOP/AAQ/015
Sample Description	Ambient Air Quality	Sample Code	GLCS / 6344
Location Name	AAQ4 – Kalugur Udayapatti	Date of Analysis	17.10.2023
Sampling Hours	16.15 – 16.15 (24Hours)	Date of Completion	06.11.2023
Sampling Date	13.10.2023 - 14.10.2023	Avg Temperature	31.9 °C
Sample Receipt Date	16.10.2023	Avg Humidity	62.7 %

Sl. NO	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Particulate matter (Size less than 10 µm/PM <sub>10</sub> )	IS 5182 Part 23	µg/m <sup>3</sup>	42.96	100
2	Particulate matter (Size less than 2.5 µm/PM <sub>2.5</sub> )	GLCS/SOP/AAQ/017	µg/m <sup>3</sup>	18.30	60
3	Sulphur dioxide as SO <sub>2</sub>	IS 5182 Part 2	µg/m <sup>3</sup>	BDL(DL:4.0)	80
4	Nitrogen dioxide as NO <sub>2</sub>	IS 5182 Part 6	µg/m <sup>3</sup>	20.08	80
5	Ammonia as NH <sub>3</sub>	GLCS/SOP/AAQ/001	µg/m <sup>3</sup>	BDL(DL:5)	400
6	Ozone as O <sub>3</sub>	GLCS/SOP/AAQ/002	µg/m <sup>3</sup>	BDL(DL:5)	180
7	Carbon Monoxide as CO	GLCS/SOP/AAQ/018	mg/m <sup>3</sup>	BDL(DL:1.15)	4.0

Note: BDL- Below Detection Limit; DL- Detection Limit

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For Global Lab and Consultancy Services



\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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## TEST REPORT

Report Number: GLCS/TR/6344/2023-24(2)

Report Date: 07.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapathy, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sampling Condition	Active
TRF No	3604	Sampled by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Method	GLCS/SOP/AAQ/015
Sample Description	Ambient Air Quality	Sample Code	GLCS / 6344
Location Name	AAQ4 – Kalugur Udayapatti	Date of Analysis	17.10.2023
Sampling Hours	16.15 – 16.15 (24Hours)	Date of Completion	06.11.2023
Sampling Date	13.10.2023 - 14.10.2023	Avg Temperature	31.9 °C
Sample Receipt Date	16.10.2023	Avg Humidity	62.7 %

Sl. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Benzene as C <sub>6</sub> H <sub>6</sub>	IS 5182 Part 11	µg/m <sup>3</sup>	BDL(DL:1.0)	5.0
2	Benzo(a)Pyrene as BaP	GLCS/SOP/AAQ/019	ng/m <sup>3</sup>	BDL(DL:0.5)	1.0
3	Lead as Pb	USEPA Compendium method IO 3.4	µg/m <sup>3</sup>	BDL(DL:0.01)	1.0
4	Arsenic as As	USEPA Compendium method IO 3.4	ng/m <sup>3</sup>	BDL(DL:1.0)	6.0
5	Nickel as Ni	USEPA Compendium method IO 3.4	ng/m <sup>3</sup>	BDL(DL:1.0)	20

Note: BDL- Below Detection Limit; DL- Detection Limit

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*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

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### TEST REPORT

ULR-TC606023000006635F

Report Number: GLCS/TR/6345/2023-24(1)

Report Date: 07.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapathy, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sampling Condition</b>	Active
<b>TRF No</b>	3604	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Air Quality Monitoring	<b>Sampling Method</b>	GLCS/SOP/AAQ/015
<b>Sample Description</b>	Ambient Air Quality	<b>Sample Code</b>	GLCS /6345
<b>Location Name</b>	AAQ5 – Periyaputhur	<b>Date of Analysis</b>	17.10.2023
<b>Sampling Hours</b>	16.40 – 16.40 (24Hours)	<b>Date of Completion</b>	06.11.2023
<b>Sampling Date</b>	13.10.2023 - 14.10.2023	<b>Avg Temperature</b>	32.3 °C
<b>Sample Receipt Date</b>	16.10.2023	<b>Avg Humidity</b>	66.6 %

Sl. NO	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Particulate matter (Size less than 10 µm/PM <sub>10</sub> )	IS 5182 Part 23	µg/m <sup>3</sup>	41.98	100
2	Particulate matter (Size less than 2.5 µm/PM <sub>2.5</sub> )	GLCS/SOP/AAQ/017	µg/m <sup>3</sup>	19.46	60
3	Sulphur dioxide as SO <sub>2</sub>	IS 5182 Part 2	µg/m <sup>3</sup>	6.80	80
4	Nitrogen dioxide as NO <sub>2</sub>	IS 5182 Part 6	µg/m <sup>3</sup>	22.78	80
5	Ammonia as NH <sub>3</sub>	GLCS/SOP/AAQ/001	µg/m <sup>3</sup>	BDL(DL:5)	400
6	Ozone as O <sub>3</sub>	GLCS/SOP/AAQ/002	µg/m <sup>3</sup>	BDL(DL:5)	180
7	Carbon Monoxide as CO	GLCS/SOP/AAQ/018	mg/m <sup>3</sup>	BDL(DL:1.15)	4.0

Note: BDL- Below Detection Limit; DL- Detection Limit

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For Global Lab and Consultancy Services



\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

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## TEST REPORT

Report Number: GLCS/TR/6345/2023-24(2)

Report Date: 07.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapathy, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sampling Condition</b>	Active
<b>TRF No</b>	3604	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Air Quality Monitoring	<b>Sampling Method</b>	GLCS/SOP/AAQ/015
<b>Sample Description</b>	Ambient Air Quality	<b>Sample Code</b>	GLCS /6345
<b>Location Name</b>	AAQ5 – Periyaputhur	<b>Date of Analysis</b>	17.10.2023
<b>Sampling Hours</b>	16.40 – 16.40 (24Hours)	<b>Date of Completion</b>	06.11.2023
<b>Sampling Date</b>	13.10.2023 - 14.10.2023	<b>Avg Temperature</b>	32.3 °C
<b>Sample Receipt Date</b>	16.10.2023	<b>Avg Humidity</b>	66.6 %

SI. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Benzene as C <sub>6</sub> H <sub>6</sub>	IS 5182 Part 11	µg/m <sup>3</sup>	BDL(DL:1.0)	5.0
2	Benzo(a)Pyrene as BaP	GLCS/SOP/AAQ/019	ng/m <sup>3</sup>	BDL(DL:0.5)	1.0
3	Lead as Pb	USEPA Compendium method IO 3.4	µg/m <sup>3</sup>	BDL(DL:0.01)	1.0
4	Arsenic as As	USEPA Compendium method IO 3.4	ng/m <sup>3</sup>	BDL(DL:1.0)	6.0
5	Nickel as Ni	USEPA Compendium method IO 3.4	ng/m <sup>3</sup>	BDL(DL:1.0)	20

Note: BDL- Below Detection Limit; DL- Detection Limit

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For Global Lab and Consultancy Services

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

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### TEST REPORT

ULR-TC606023000006636F

Report Number: GLCS/TR/6346/2023-24(1)

Report Date: 07.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapathy, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sampling Condition</b>	Active
<b>TRF No</b>	3604	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Air Quality Monitoring	<b>Sampling Method</b>	GLCS/SOP/AAQ/015
<b>Sample Description</b>	Ambient Air Quality	<b>Sample Code</b>	GLCS / 6346
<b>Location Name</b>	AAQ6 – Thalayaripatti	<b>Date of Analysis</b>	17.10.2023
<b>Sampling Hours</b>	17.00 – 17.00 (24Hours)	<b>Date of Completion</b>	06.11.2023
<b>Sampling Date</b>	13.10.2023 - 14.10.2023	<b>Avg Temperature</b>	31.5 °C
<b>Sample Receipt Date</b>	16.10.2023	<b>Avg Humidity</b>	63.8 %


Sl. NO	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Particulate matter (Size less than 10 µm/PM <sub>10</sub> )	IS 5182 Part 23	µg/m <sup>3</sup>	42.59	100
2	Particulate matter (Size less than 2.5 µm/PM <sub>2.5</sub> )	GLCS/SOP/AAQ/017	µg/m <sup>3</sup>	17.88	60
3	Sulphur dioxide as SO <sub>2</sub>	IS 5182 Part 2	µg/m <sup>3</sup>	6.27	80
4	Nitrogen dioxide as NO <sub>2</sub>	IS 5182 Part 6	µg/m <sup>3</sup>	20.93	80
5	Ammonia as NH <sub>3</sub>	GLCS/SOP/AAQ/001	µg/m <sup>3</sup>	BDL(DL:5)	400
6	Ozone as O <sub>3</sub>	GLCS/SOP/AAQ/002	µg/m <sup>3</sup>	BDL(DL:5)	180
7	Carbon Monoxide as CO	GLCS/SOP/AAQ/018	mg/m <sup>3</sup>	BDL(DL:1.15)	4.0

Note: BDL- Below Detection Limit; DL- Detection Limit

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For Global Lab and Consultancy Services

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

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**TEST REPORT**

Report Number: GLCS/TR/6346/2023-24(2)

Report Date: 07.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapathy, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
Attention	-	Sampling Condition	Active
TRF No	3604	Sampled by	Laboratory
Sample Name	Air Quality Monitoring	Sampling Method	GLCS/SOP/AAQ/015
Sample Description	Ambient Air Quality	Sample Code	GLCS / 6346
Location Name	AAQ6 – Thalayaripatti	Date of Analysis	17.10.2023
Sampling Hours	17.00 – 17.00 (24Hours)	Date of Completion	06.11.2023
Sampling Date	13.10.2023 - 14.10.2023	Avg Temperature	31.5 °C
Sample Receipt Date	16.10.2023	Avg Humidity	63.8 %

Sl. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Benzene as C <sub>6</sub> H <sub>6</sub>	IS 5182 Part 11	µg/m <sup>3</sup>	BDL(DL:1.0)	5.0
2	Benzo(a)Pyrene as BaP	GLCS/SOP/AAQ/019	ng/m <sup>3</sup>	BDL(DL:0.5)	1.0
3	Lead as Pb	USEPA Compendium method IO 3.4	µg/m <sup>3</sup>	BDL(DL:0.01)	1.0
4	Arsenic as As	USEPA Compendium method IO 3.4	ng/m <sup>3</sup>	BDL(DL:1.0)	6.0
5	Nickel as Ni	USEPA Compendium method IO 3.4	ng/m <sup>3</sup>	BDL(DL:1.0)	20

Note: BDL- Below Detection Limit; DL- Detection Limit

\*NAAQS – National Ambient Air Quality Standard Issued by CPCB (Central Pollution Control Board) in 2009.

For Global Lab and Consultancy Services



  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept only liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.



### TEST REPORT

**ULR-TC606023000006637F**

Report Number: GLCS/TR/6347/2023-24(1)

Report Date: 07.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapathy, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sampling Condition</b>	Active
<b>TRF No</b>	3604	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Air Quality Monitoring	<b>Sampling Method</b>	GLCS/SOP/AAQ/015
<b>Sample Description</b>	Ambient Air Quality	<b>Sample Code</b>	GLCS / 6347
<b>Location Name</b>	AAQ7 – Kallai	<b>Date of Analysis</b>	17.10.2023
<b>Sampling Hours</b>	17.20 – 17.20 (24Hours)	<b>Date of Completion</b>	06.11.2023
<b>Sampling Date</b>	13.10.2023 - 14.10.2023	<b>Avg Temperature</b>	32.1 °C
<b>Sample Receipt Date</b>	16.10.2023	<b>Avg Humidity</b>	66.5 %

Sl. NO	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Particulate matter (Size less than 10 µm/PM <sub>10</sub> )	IS 5182 Part 23	µg/m <sup>3</sup>	42.75	100
2	Particulate matter (Size less than 2.5 µm/PM <sub>2.5</sub> )	GLCS/SOP/AAQ/017	µg/m <sup>3</sup>	19.54	60
3	Sulphur dioxide as SO <sub>2</sub>	IS 5182 Part 2	µg/m <sup>3</sup>	BDL(DL:4.0)	80
4	Nitrogen dioxide as NO <sub>2</sub>	IS 5182 Part 6	µg/m <sup>3</sup>	20.53	80
5	Ammonia as NH <sub>3</sub>	GLCS/SOP/AAQ/001	µg/m <sup>3</sup>	BDL(DL:5)	400
6	Ozone as O <sub>3</sub>	GLCS/SOP/AAQ/002	µg/m <sup>3</sup>	BDL(DL:5)	180
7	Carbon Monoxide as CO	GLCS/SOP/AAQ/018	mg/m <sup>3</sup>	BDL(DL:1.15)	4.0

Note: BDL- Below Detection Limit; DL- Detection Limit

\*NAAQS – National Ambient Air Quality Standard Issued by CPCB (Central Pollution Control Board) in 2009.



For Global Lab and Consultancy Services

Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

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## TEST REPORT

Report Number: GLCS/TR/6347/2023-24(2)

Report Date: 07.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapathy, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	-	<b>Sampling Condition</b>	Active
<b>TRF No</b>	3604	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Air Quality Monitoring	<b>Sampling Method</b>	GLCS/SOP/AAQ/015
<b>Sample Description</b>	Ambient Air Quality	<b>Sample Code</b>	GLCS / 6347
<b>Location Name</b>	AAQ7 – Kallai	<b>Date of Analysis</b>	17.10.2023
<b>Sampling Hours</b>	17.20 – 17.20 (24Hours)	<b>Date of Completion</b>	06.11.2023
<b>Sampling Date</b>	13.10.2023 - 14.10.2023	<b>Avg Temperature</b>	32.1 °C
<b>Sample Receipt Date</b>	16.10.2023	<b>Avg Humidity</b>	66.5 %

Sl. NO.	TEST PARAMETER	TEST METHOD	UNITS	RESULT	NAAQ (2009)* LIMITS
1	Benzene as C <sub>6</sub> H <sub>6</sub>	IS 5182 Part 11	µg/m <sup>3</sup>	BDL(DL:1.0)	5.0
2	Benzo(a)Pyrene as BaP	GLCS/SOP/AAQ/019	ng/m <sup>3</sup>	BDL(DL:0.5)	1.0
3	Lead as Pb	USEPA Compendium method IO 3.4	µg/m <sup>3</sup>	BDL(DL:0.01)	1.0
4	Arsenic as As	USEPA Compendium method IO 3.4	ng/m <sup>3</sup>	BDL(DL:1.0)	6.0
5	Nickel as Ni	USEPA Compendium method IO 3.4	ng/m <sup>3</sup>	BDL(DL:1.0)	20

Note: BDL- Below Detection Limit; DL- Detection Limit

\*NAAQS – National Ambient Air Quality Standard Issued by CPCB (Central Pollution Control Board) in 2009.

For Global Lab and Consultancy Services



*(Signature)*  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 1 of 1

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

### TEST REPORT

**ULR-TC606023000007093F**

Report Number: GLCS/TR/7342/2023-24

Report Date: 21.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.		
<b>Attention</b>	Mr.A.Guna	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3812	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7342	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	06.11.2023	
<b>Sampling Date</b>	03.11.2023 -04.11.2023	<b>Date of Analysis</b>	06.11.2023	
		<b>Date of Completion</b>	20.11.2023	
<b>Location Name</b>		AN1- Core Zone		
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
1	06.15	32.9	36.1	34.79
2	07.15	37.8	42.3	40.61
3	08.15	38.9	45.7	43.51
4	09.15	40.5	47.9	45.62
5	10.15	39.9	50.1	47.49
6	11.15	42.1	53.3	50.61
7	12.15	41.3	52.2	49.53
8	13.15	40.9	51.7	49.04
9	14.15	42.5	52.2	49.63
10	15.15	41.1	50.6	48.05
11	16.15	38.9	49.8	47.13
12	17.15	37.5	46.3	43.83
13	18.15	37.1	51.2	48.36
14	19.15	38.5	49.2	46.54
15	20.15	36.9	47.6	44.94



For Global Lab and Consultancy Services

Page 1 of 2

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

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281 A



### TEST REPORT

ULR-TC606023000007093F

Report Number: GLCS/TR/7342/2023-24

Report Date: 21.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	Mr.A.Guna	<b>Sampling Condition</b>	Good - Active
<b>TRF No</b>	3812	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7342
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	06.11.2023
<b>Sampling Date</b>	03.11.2023 -04.11.2023	<b>Date of Analysis</b>	06.11.2023
		<b>Date of Completion</b>	20.11.2023

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.15	36.1	47.1	44.42
17	22.15	34.5	42.9	40.48
18	23.15	35.5	42.3	40.11
19	0.15	36.2	41.7	39.77
20	01.15	31.5	38.9	36.62
21	02.15	32.7	36.6	35.07
22	03.15	31.1	35.1	33.55
23	04.15	32.2	36.9	35.16
24	05.15	32.4	35.5	34.22
Day Mean dB(A)				45.88
Night Mean dB(A)				36.87

Limits as per The Noise Pollution ( Regulation & Control ) Rules, 2010 of MoEFCC / CPCB (Industrial )

Day Time : 75 dB (A)

Night Time : 70dB (A)

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Service:

  
Authorized Signatory

L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

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282 A

### TEST REPORT

**ULR-TC606023000007094F**

Report Number: GLCS/TR/7343/2023-24

Report Date: 21.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.		
<b>Attention</b>	Mr.A.Guna	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3812	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7343	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	06.11.2023	
<b>Sampling Date</b>	03.11.2023 -04.11.2023	<b>Date of Analysis</b>	06.11.2023	
		<b>Date of Completion</b>	20.11.2023	
<b>Location Name</b>		AN2- Kulandaipatti		
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
1	06.30	32.9	40.2	37.93
2	07.30	37.5	45.1	42.79
3	08.30	39.1	45.6	43.47
4	09.30	39.7	43.7	42.15
5	10.30	40.2	49.6	47.06
6	11.30	42.5	50.5	48.13
7	12.30	43.5	50.2	48.03
8	13.30	44.1	52.1	49.73
9	14.30	42.5	51.7	49.18
10	15.30	44.5	57.5	54.70
11	16.30	45.6	56.1	53.46
12	17.30	43.1	54.3	51.61
13	18.30	41.7	50.5	48.03
14	19.30	39.5	49.7	47.09
15	20.30	36.7	48.5	45.77



For Global Lab and Consultancy Services

Page 1 of 2

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

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283 A

### TEST REPORT

**ULR-TC606023000007094F**

Report Number: GLCS/TR/7343/2023-24

Report Date: 21.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	Mr.A.Guna	<b>Sampling Condition</b>	Good - Active
<b>TRF No</b>	3812	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7343
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	06.11.2023
<b>Sampling Date</b>	03.11.2023 -04.11.2023	<b>Date of Analysis</b>	06.11.2023
		<b>Date of Completion</b>	20.11.2023

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.30	37.1	45.5	43.08
17	22.30	36.6	44.4	42.06
18	23.30	33.5	43.2	40.63
19	0.30	32.8	41.1	38.69
20	01.30	32.2	38.5	36.40
21	02.30	33.1	39.2	37.14
22	03.30	32.4	36.6	34.99
23	04.30	33.6	35.5	34.65
24	05.30	34.1	37.1	35.85
Day Mean dB(A)				47.01
Night Mean dB(A)				38.17

Limits as per The Noise Pollution ( Regulation & Control ) Rules, 2010 of MoEFCC / CPCB (Industrial )

Day Time : 75 dB (A)  
Night Time : 70dB (A)

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Service:

  
Authorised Signatory  
L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*  
Page 2 of 2

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284 A

### TEST REPORT

ULR-TC606023000007095F

Report Number: GLCS/TR/7344/2023-24

Report Date: 21.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.		
<b>Attention</b>	Mr.A.Guna	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3812	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7344	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	06.11.2023	
<b>Sampling Date</b>	03.11.2023 -04.11.2023	<b>Date of Analysis</b>	06.11.2023	
		<b>Date of Completion</b>	20.11.2023	
<b>Location Name</b>		AN3- Onanthampatti		
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
1	06.00	32.2	37.8	35.85
2	07.00	35.6	44.1	41.66
3	08.00	34.9	43.2	40.79
4	09.00	35.1	41.9	39.71
5	10.00	38.5	48.2	45.63
6	11.00	40.5	50.5	47.90
7	12.00	40.3	51.6	48.90
8	13.00	41.5	50.3	47.83
9	14.00	42.3	50.7	48.28
10	15.00	41.7	53.4	50.67
11	16.00	41.6	51.5	48.91
12	17.00	42.5	50.8	48.39
13	18.00	41.3	49.5	47.10
14	19.00	40.6	50.1	47.55
15	20.00	38.9	47.5	45.05



For Global Lab and Consultancy Services

Authorised Signatory

L. SUDHAPRIYA  
Technical Manager

Page 1 of 2

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285 A



### TEST REPORT

ULR-TC606023000007095F

Report Number: GLCS/TR/7344/2023-24

Report Date: 21.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	Mr.A.Guna	<b>Sampling Condition</b>	Good - Active
<b>TRF No</b>	3812	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7344
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	06.11.2023
<b>Sampling Date</b>	03.11.2023 -04.11.2023	<b>Date of Analysis</b>	06.11.2023
		<b>Date of Completion</b>	20.11.2023

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.00	36.6	41.6	39.78
17	22.00	34.2	42.1	39.74
18	23.00	34.1	39.5	37.59
19	0.00	33.7	38.5	36.73
20	1.00	31.5	36.9	34.99
21	2.00	32.8	37.1	35.46
22	3.00	32.1	36.2	34.62
23	4.00	31.4	37.4	35.36
24	5.00	32.8	36.6	35.10
Day Mean dB(A)				44.93
Night Mean dB(A)				36.20

Limits as per The Noise Pollution ( Regulation & Control ) Rules, 2010 of MoEFCC / CPCB (Industrial )

Day Time : 75 dB (A)

Night Time : 70dB (A)

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Service:

Authorised Signatory

L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept only liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

286 A

### TEST REPORT

ULR-TC606023000007096F

Report Number: GLCS/TR/7345/2023-24

Report Date: 21.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.		
<b>Attention</b>	Mr. A. Guna	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3812	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7345	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	06.11.2023	
<b>Sampling Date</b>	03.11.2023 -04.11.2023	<b>Date of Analysis</b>	06.11.2023	
		<b>Date of Completion</b>	20.11.2023	
<b>Location Name</b>	AN4- Kalugur Udayapatti			
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
1	06.20	33.4	37.4	35.85
2	07.20	36.5	42.5	40.46
3	08.20	37.4	46.3	43.82
4	09.20	40.1	49.8	47.23
5	10.20	41.2	51.5	48.88
6	11.20	41.6	52.8	50.11
7	12.20	39.5	52.2	49.42
8	13.20	41.1	51.3	48.69
9	14.20	40.7	49.8	47.29
10	15.20	41.5	52.2	49.54
11	16.20	41.5	51.8	49.18
12	17.20	42.3	50.4	48.02
13	18.20	40.5	49.6	47.09
14	19.20	39.8	48.6	46.13
15	20.20	38.9	46.6	44.27



For Global Lab and Consultancy Services

Page 1 of 2

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

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287 A

### TEST REPORT

**ULR-TC606023000007096F**

Report Number: GLCS/TR/7345/2023-24

Report Date: 21.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	Mr.A.Guna	<b>Sampling Condition</b>	Good - Active
<b>TRF No</b>	3812	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7345
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	06.11.2023
<b>Sampling Date</b>	03.11.2023 -04.11.2023	<b>Date of Analysis</b>	06.11.2023
		<b>Date of Completion</b>	20.11.2023

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.20	36.1	45.5	42.96
17	22.20	35.7	44.3	41.85
18	23.20	36.6	41.0	39.33
19	0.20	35.5	40.5	38.68
20	01.20	31.4	37.4	35.36
21	02.20	30.9	37.1	35.02
22	03.20	31.1	36.6	34.67
23	04.20	30.5	35.2	33.46
24	05.20	31.4	36.3	34.51
Day Mean dB(A)				45.9
Night Mean dB(A)				36.6
<b>Limits as per The Noise Pollution ( Regulation &amp; Control ) Rules, 2010 of MoEFCC / CPCB (Industrial )</b>				<b>Day Time : 75 dB (A)</b>
				<b>Night Time : 70dB (A)</b>

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Service:

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

288 A



### TEST REPORT

ULR-TC606023000007097F

Report Number: GLCS/TR/7346/2023-24

Report Date: 21.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.		
<b>Attention</b>	Mr.A.Guna	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3812	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7346	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	06.11.2023	
<b>Sampling Date</b>	04.11.2023 -05.11.2023	<b>Date of Analysis</b>	06.11.2023	
		<b>Date of Completion</b>	20.11.2023	
<b>Location Name</b>		AN5- Periyaputhur		
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
1	06.00	32.5	37.2	35.46
2	07.00	31.6	38.9	36.63
3	08.00	36.1	42.3	40.22
4	09.00	36.9	43.5	41.35
5	10.00	39.5	45.7	43.62
6	11.00	40.4	51.1	48.44
7	12.00	41.5	53.6	50.85
8	13.00	42.7	51.7	49.20
9	14.00	40.5	52.1	49.38
10	15.00	41.1	49.2	46.82
11	16.00	40.6	50.4	47.82
12	17.00	39.8	45.9	43.84
13	18.00	40.5	49.1	46.65
14	19.00	38.5	50.2	47.47
15	20.00	40.1	51.2	48.51

For Global Lab and Consultancy Services



Page 1 of 2

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

**Note:** The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

289 A

### TEST REPORT

ULR-TC606023000007097F

Report Number: GLCS/TR/7346/2023-24

Report Date: 21.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kuliithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	Mr.A.Guna	<b>Sampling Condition</b>	Good - Active
<b>TRF No</b>	3812	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7346
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	06.11.2023
<b>Sampling Date</b>	04.11.2023 -05.11.2023	<b>Date of Analysis</b>	06.11.2023
		<b>Date of Completion</b>	20.11.2023

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.00	37.6	49.6	46.86
17	22.00	36.9	45.5	43.05
18	23.00	35.5	46.3	43.64
19	0.00	35.1	43.1	40.73
20	1.00	32.2	38.5	36.40
21	2.00	31.4	36.9	34.91
22	3.00	30.5	35.5	33.68
23	4.00	31.3	36.1	34.33
24	5.00	30.4	36.5	34.44
Day Mean dB(A)				45.2
Night Mean dB(A)				37.7

<b>Limits as per The Noise Pollution ( Regulation &amp; Control ) Rules, 2010 of MoEFCC / CPCB ( Industrial )</b>	<b>Day Time : 75 dB (A)</b>
	<b>Night Time : 70dB (A)</b>

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.

For Global Lab and Consultancy Service:



\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

  
**Authorised Signatory**  
**L. SUDHAPRIYA**  
 Technical Manager

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### TEST REPORT

**ULR-TC606023000007098F**

Report Number: GLCS/TR/7347/2023-24

Report Date: 21.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.		
<b>Attention</b>	Mr.A.Guna	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3812	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7347	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	06.11.2023	
<b>Sampling Date</b>	04.11.2023 -05.11.2023	<b>Date of Analysis</b>	06.11.2023	
		<b>Date of Completion</b>	20.11.2023	
<b>Location Name</b>		AN6- Thalayaripatti		
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
1	06.15	33.6	40.1	37.97
2	07.15	36.1	43.3	41.05
3	08.15	38.2	44.7	42.57
4	09.15	40.9	47.4	45.27
5	10.15	40.5	49.7	47.18
6	11.15	42.8	51.9	49.39
7	12.15	44.5	52.2	49.87
8	13.15	40.6	51.9	49.20
9	14.15	41.2	52.3	49.61
10	15.15	42.9	49.1	47.02
11	16.15	40.1	50.3	47.69
12	17.15	35.9	47.1	44.41
13	18.15	37.1	50.5	47.68
14	19.15	36.6	43.6	41.38
15	20.15	35.9	45.1	42.58



For Global Lab and Consultancy Services

Authorised Signatory

L. SUDHAPRIYA

Technical Manager

Page 1 of 2

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### TEST REPORT

**ULR-TC606023000007098F**

Report Number: GLCS/TR/7347/2023-24

Report Date: 21.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	Mr.A.Guna	<b>Sampling Condition</b>	Good - Active
<b>TRF No</b>	3812	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7347
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	06.11.2023
<b>Sampling Date</b>	04.11.2023 -05.11.2023	<b>Date of Analysis</b>	06.11.2023
		<b>Date of Completion</b>	20.11.2023

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.15	34.6	46.9	44.14
17	22.15	35.4	42.5	40.26
18	23.15	32.9	41.3	38.88
19	0.15	31.2	38.4	36.15
20	01.15	30.9	39.1	36.70
21	02.15	30.4	37.6	35.35
22	03.15	32.9	38.9	36.86
23	04.15	32.4	36.9	35.21
24	05.15	31.1	39.2	36.82
Day Mean dB(A)				45.44
Night Mean dB(A)				37.82

Limits as per The Noise Pollution ( Regulation & Control ) Rules, 2010 of MoEFCC / CPCB (Industrial)

Day Time : 75 dB (A)
Night Time : 70dB (A)

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Service:



Authorised Signatory

L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

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292 A



### TEST REPORT

ULR-TC606023000007099F

Report Number: GLCS/TR/7348/2023-24

Report Date: 21.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kullithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.		
<b>Attention</b>	Mr.A.Guna	<b>Sampling Condition</b>	Good - Active	
<b>TRF No</b>	3812	<b>Sampled by</b>	Laboratory	
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014	
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7348	
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	06.11.2023	
<b>Sampling Date</b>	04.11.2023 -05.11.2023	<b>Date of Analysis</b>	06.11.2023	
		<b>Date of Completion</b>	20.11.2023	
<b>Location Name</b>		AN7- Kallai		
<b>S. No</b>	<b>Time(Hrs)</b>	<b>Min dB(A)</b>	<b>Max dB(A)</b>	<b>Leq dB(A)</b>
1	06.25	40.5	48.1	45.79
2	07.25	41.6	49.2	46.89
3	08.25	42.8	51.5	49.04
4	09.25	41.7	53.1	50.39
5	10.25	43.2	55.8	53.02
6	11.25	43.1	54.2	51.51
7	12.25	41.6	54.8	51.99
8	13.25	41.1	53.9	51.11
9	14.25	40.5	51.2	48.54
10	15.25	39.5	47.4	45.04
11	16.25	40.3	51.6	48.90
12	17.25	37.5	48.1	45.45
13	18.25	35.6	32.6	34.35
14	19.25	34.3	41.4	39.16
15	20.25	32.8	39.5	37.33



For Global Lab and Consultancy Services

Page 1 of 2

  
**Authorised Signatory**  
L. SUDHAPRIYA  
Technical Manager

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293 A

### TEST REPORT

ULR-TC606023000007099F

Report Number: GLCS/TR/7348/2023-24

Report Date: 21.11.2023

<b>Issued To :</b> M/S. Apple Garanite, No. 95/2, Udaiyapatty, Gudalur Kulithalai Taluk, Karur District – 639 120.		<b>Site Address :</b> Lease Area – 2.97.0 Ha. S.F.No : 299/1(P), 299/2A(P), 299/2B(P), 301(P), 302/2(P) and 302/3(P) Kallai Village, Kullithalai Taluk, Karur District.	
<b>Attention</b>	Mr.A.Guna	<b>Sampling Condition</b>	Good - Active
<b>TRF No</b>	3812	<b>Sampled by</b>	Laboratory
<b>Sample Name</b>	Noise Level Monitoring	<b>Sampling Method</b>	GLCS/SOP/N/014
<b>Sample Description</b>	Ambient Noise	<b>Sample Code</b>	GLCS/7348
<b>Sampling Time</b>	Every 60 minutes	<b>Sample Receipt Date</b>	06.11.2023
<b>Sampling Date</b>	04.11.2023 -05.11.2023	<b>Date of Analysis</b>	06.11.2023
		<b>Date of Completion</b>	20.11.2023

S. No	Time(Hrs)	Min dB(A)	Max dB(A)	Leq dB(A)
16	21.25	31.7	39.5	37.16
17	22.25	30.5	36.1	34.15
18	23.25	32.7	38.1	36.19
19	00.25	31.7	36.6	34.81
20	01.25	30.6	36.4	34.40
21	02.25	30.5	36.1	34.15
22	03.25	32.6	37.9	36.01
23	04.25	31.5	37.4	35.38
24	05.25	31.8	36.6	34.83
Day Mean dB(A)				45.28
Night Mean dB(A)				35.23
<b>Limits as per The Noise Pollution ( Regulation &amp; Control ) Rules, 2010 of MoEFCC / CPCB (Industrial )</b>				<b>Day Time : 75 dB (A)</b>
				<b>Night Time : 70dB (A)</b>

Note: MoEFCC – Ministry of Environment Forest and Climate Change; CPCB – Central Pollution Control Board.



For Global Lab and Consultancy Service:

  
**Authorised Signatory**  
L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

Note: The test results are only to the sample submitted for test. Any Correction of the test report on full or part shall invalidate the report. Samples are not drawn by us unless otherwise stated. Sample will be retained for 14 days from the date of reporting except in case of regulatory samples or specifically instructed by client. Perishable samples will be discarded immediately after reporting. We do not accept any liability with regard to origin or source from which the samples are extracted. The Laboratory is not responsible for authenticity of photocopied test reports. Any holder of this report is advised that information contained here on reflects the laboratory's finding at the time of its intervention only and within the limits of client instructions. The authenticity of the test report's issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

294 A

## 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.