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

FOR OBTAINING

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

**“B1” CATEGORY – MINOR MINERAL — NON-FOREST LAND-PATTA LAND-  
LEASE PERIOD-5 YEARS**

**CLUSTER EXTENT – 12.13.33 Ha**

**(4 Proposed Quarries+ 1 Existing Quarry)**

**THIRU.V. SARAVANAN ROUGH STONE AND GRAVEL QUARRY**

| PROJECT PROPONENT                                                                                                                                                                                                                                                                                                                                                                                                                    | PROPOSED PROJECT                                                                                                                                                        | PROPOSED PRODUCTION                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Thiru.V.Saravanan<br>S/o Velusamy<br>No.3/165, Athikuttai Thottam<br>Idayarpalayam<br>Coimbatore District,<br>Tamil Nadu – 641 016                                                                                                                                                                                                                                                                                                   | Extent: 1.84.0 ha<br><br>S.F. Nos: 171/2(P) & 176/2<br>Idayarpalayam Village, Sulur<br>Taluk, Coimbatore District                                                       | Rough Stone= 127607m <sup>3</sup><br>Gravel =4640m <sup>3</sup><br>Peak Production =30920m <sup>3</sup><br>Proposed Depth=47m bgl<br>Existing Depth=22m bgl                                  |
| ToR obtained vide<br><b>File No. 10794 TOR Identification No. TO24B0108TN5892891N Dated:05.08.2024</b>                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                         |                                                                                                                                                                                              |
| <b>Environmental Consultant</b><br>GEO EXPLORATION AND MINING SOLUTIONS<br>Old No. 260-B, New No. 17,<br>Advaitha Ashram Road, Alagapuram,<br>Salem – 636 004, Tamil Nadu, India<br>Accredited for sector 1 Cat ‘A’, sector 31 & 38 Cat ‘B’<br>Certificate No : NABET/EIA/2225/RA 0276<br>Phone: 0427-2431989,<br>Email: ifthiahmed@gmail.com, geothangam@gmail.com<br>Web: <a href="http://www.gemssalem.com">www.gemssalem.com</a> |   | <b>Laboratory</b><br>GLOBAL LAB AND CONSULTANCY<br>SERVICES<br>Approved by ISO:9001:2015, NABL, FSSAI, Experts in<br>QHSE<br>S.F No:92/3A2, Geetha Nagar, Alagapuram Pudur,<br>Salem-636016. |
| <b>Baseline Monitoring Period</b><br><b>October 2024 to December 2024</b>                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                         |                                                                                                                                                                                              |
| <b>MARCH 2025</b>                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                         |                                                                                                                                                                                              |

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## **UNDERTAKING**

I Thiru. V.Saravanan given undertaking that this EIA & EMP report prepared for our Rough Stone and Gravel Quarry situated in S.F. No. 171/2(P) & 176/2 Idayarpalayam Village, Sulur Taluk, Coimbatore District based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide File No.10794 TOR Identification No TO24B0108TN5892891N Dated: 05.08.2024

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



Thiru.V.Saravanan

Place: Coimbatore

Dated:

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## **DECLARATION**

I Dr. M. Ifthikhar Ahmed – EIA Co Ordinator declare that the EIA & EMP report for the Rough Stone and Gravel Quarry situated in S.F. No. 171/2(P) & 176/2 Idayarpalayam Village, Sulur Taluk, Coimbatore District 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**

**Managing Partner**

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

Place : Salem

Dated :

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**For the easy representation the proposed, existing, abandoned and expired quarries are designated as below –**

| PROPOSED QUARRIES    |                                         |                                                                                          |              |                                                                                                          |
|----------------------|-----------------------------------------|------------------------------------------------------------------------------------------|--------------|----------------------------------------------------------------------------------------------------------|
| CODE                 | Name of the Proponent and Address       | S.F. Nos, Village & Taluk                                                                | Extent in Ha | Status                                                                                                   |
| P1                   | V.Saravanan                             | 171/2(P) & 176/2<br>Edayarpalayam Village, Sular Taluk                                   | 1.84.0       | ToR obtained vide<br>File No. 10794 TOR<br>Identification No.<br>TO24B0108TN5892891N<br>Dated:05.08.2024 |
| P2                   | Thiru.N. Kathiresh                      | 172/1B, 172/2 & 173/2A2<br>Edayarpalayam Village, Sular Taluk                            | 1.42.82      | SEAC Meeting completed                                                                                   |
| P3                   | M/s.Ultra Ready Mix<br>Concrete Pvt Ltd | 168/2A (P), 168/2B (P), 169/1C<br>(P) & 169/2A (P)<br>Edayarpalayam Village, Sular Taluk | 2.94.01      | Final EIA Submitted to SEIAA                                                                             |
| P4                   | Thiru.K. Ranganathan                    | 174/4 & 176/1 of<br>Edayarpalayam Village, Sular Taluk                                   | 2.28.0       | EC Under Process                                                                                         |
|                      | Total                                   |                                                                                          | 8.48.83      |                                                                                                          |
| EXISTING QUARRIES    |                                         |                                                                                          |              |                                                                                                          |
| CODE                 | Name of the Proponent and Address       | S.F.Nos , Village & Taluk                                                                | Extent in Ha | Lease Period                                                                                             |
| E1                   | Tmt. N. Chitradevi                      | 179/2(P), Edayarpalayam<br>Village, Sular Taluk                                          | 3.64.5       | 14.07.2021 to 13.07.2026                                                                                 |
|                      | Total                                   |                                                                                          | 3.64.5       |                                                                                                          |
| ABANDONED QURRIES    |                                         |                                                                                          |              |                                                                                                          |
| CODE                 | Name of the Proponent and Address       | S.F. Nos, Village & Taluk                                                                | Extent in Ha | Lease Period                                                                                             |
| A-1                  | Tmt. Ponnammal                          | 178/2, Edayarpalayam Village,<br>Sular Taluk                                             | 2.34.5       | -                                                                                                        |
| A-2                  | Government Quarry                       | 164/1, Edayarpalayam Village,<br>Sular Taluk                                             | 3.13.5       | -                                                                                                        |
|                      | Total                                   |                                                                                          | 5.48.0       |                                                                                                          |
| EXPIRED QURRIES      |                                         |                                                                                          |              |                                                                                                          |
| CODE                 | Name of the Proponent and Address       | S.F. Nos, Village & Taluk                                                                | Extent in Ha | Lease Period                                                                                             |
| Ex-1                 | B.Sakthivel                             | 164/6A, 164/7 Edayarpalayam<br>Village, Sular Taluk                                      | 1.19.5       | 07.10.2017 to 06.10.2022                                                                                 |
|                      | Total                                   |                                                                                          | 1.19.5       |                                                                                                          |
| TOTAL CLUSTER EXTENT |                                         |                                                                                          | 12.13.33     |                                                                                                          |

**Note:-**

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

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



## TERMS OF REFERENCE (ToR) COMPLIANCE

Thiru.V.Saravanan

**“ToR issued vide. File No.10794 TOR Identification No. TO24B0108TN5892891N Dated:05.08.2024”**

| SITE SPECIFIC CONDITIONS |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                        | For the existing quarry, the PP shall obtain a letter from the concerned AD (Mines) which shall also stipulate the following information:<br>i. Original pit dimension of the existing quarry<br>ii. Quantity achieved Vs EC Approved Quantity<br>iii. Balance Quantity as per Mineable Reserve calculated.<br>iv. Month wise Production details<br>v. Mined out Depth as on date Vs EC Permitted depth<br>vi. Details of illegal/illicit mining carried out, if any<br>vii. Non-compliance/Violation in the quarry during the past working.<br>viii. Quantity of material mined out outside the mine lease area (or) in the adjacent quarry/land.<br>ix. Existing condition of Safety zone/benches<br>x. Details of any penalties levied on the PP for any violation in the quarry operation by the Department of Geology and Mining. | <b>Noted and agreed</b><br><ul style="list-style-type: none"> <li>Existing Pit Dimension- 128m(L)*80m(W)*22m(D).</li> <li>There is no violation during the past quarrying activity.</li> <li>EC approved depth : 22m bgl</li> <li>Achieved depth : 22m bgl</li> <li>Previous Lessee: Thiru.V.Saravanan</li> <li>Previous Lease Period: 15.09.2017 to 14.09.2022, S.F. No 171/2(P) &amp; 176/2(P) (Extent: 1.22.5Ha)</li> <li>Environmental Clearance; Lr. No. SEIAA – TN/F.No.5719/EC/1(a)/3906/2016, dated: 13.06.2017</li> </ul> |
| 2                        | The PP shall submit the Certified Compliance Report (CCR) obtained from IRO(SZ), MoEF&CC with the status of non-compliance, and to furnish mitigation measures/remedial action plan with the budget allocation for the non-compliance stated in the CCR.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Noted and agreed</b><br>Certified Compliance Report will be submitted during the appraisal meeting.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 3                        | The PP shall furnish the consent agreement from the landowner registered with the concerned authority during the EIA appraisal.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Noted and agreed</b><br>The Consent agreement will be submitted during the appraisal meeting.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 4                        | The PP shall complete the fencing, tree plantation and photographs, videos of the same shall be furnished.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Noted and agreed.</b><br>PP erected wired fencing and green belt around the safety barrier and photographs furnished in chapter II.                                                                                                                                                                                                                                                                                                                                                                                             |
| 5                        | The PP shall mark the DGPS reference pillars painted with blue & white colour indicating the safety barrier of 7.5 m to be left under the Rule 13 (1) of MCDR, 1988 within the lease boundary and protective bunds, and provide the details during the EIA appraisal.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Noted and agreed.</b><br>PP agreed to install DGPS reference pillars for indicating the safety barrier of 7.5m to be left under the Rule 13 (1) of MCDR, 1988. Concerned photographs will be submitted during the appraisal meeting.                                                                                                                                                                                                                                                                                            |
| 6                        | The Proponent shall complete the garland drainage around the boundary of the proposed quarry and the photographs indicating the same shall be shown during the EIA appraisal.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Noted and agreed</b><br>PP agreed to construct garland drainage around the boundary of the proposed quarry and the photographs will be submitted during the appraisal meeting.                                                                                                                                                                                                                                                                                                                                                  |
| 7                        | The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc located within 1 km of the proposed quarry.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Noted and agreed</b><br>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                                                                                                                                                                                                                                                                                                     |

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|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | discussed under Chapter No. 3                                                                                                                                                                                                                      |
| 8  | The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.                                                                                                                                                                                                                            | <b>Noted and agreed</b>                                                                                                                                                                                                                            |
| 9  | The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, Schools/Colleges 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.                                                                                        | <b>Noted and agreed</b><br>The structure study has been carried out within the radius of 300m.<br>There is no habitation within the radius of 300m from the project site the details of the structures is given in the EIA report, Chapter No. III |
| 10 | The proponent shall furnish photographs and video showing the 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.                                                                                                                                                                                                                                                                                                                      | <b>Noted and agreed.</b><br>Greenbelt development and Fencing photographs furnished in chapter 2. The Barbed Wire fencing has been erected all around the boundary. No trees within the project site, hence transplantation not required.          |
| 11 | During the EIA appraisal, the PP shall furnish the affidavit stating that he will not employ any external agency for carrying out the blasting operation in the proposed quarry and he shall also install the temporary (or) permanent magazine approved by the concerned licensing authority before the execution of the lease, for storing the authorized explosives & detonators separately in accordance with the Explosive Rules, 2008.                                                                                                                                                 | <b>Noted and agreed</b><br>PP will submitted an affidavit stating that any external agency does not involved for carrying out the blasting operation, during the appraisal meeting                                                                 |
| 12 | During the EIA appraisal, the PP shall furnish the affidavit stating that he will appoint a First Class/Second Class Mine Manager for managing the quarrying operations before obtaining the CTO from the TNPCB. Further, the PP will also send the 'Notice of Opening' indicating the appointment of such Statutory officials and the proposed usage of HEMM shall be sent to the Director of Mines Safety, Chennai Region of the Mine under the provisions of MMR 1961 at least 30 days before the commencement of the mining operation after the execution of lease, if the EC is granted | <b>Noted and agreed</b><br>PP will appoint a Second Class Mine Manager for managing the quarrying operations before obtaining the CTO from the TNPCB.                                                                                              |
| 13 | Since the structures including the houses are situated within a radial distance of 500 m, the PP shall carry out the scientific studies to design the controlled blast parameters for reducing the cumulative blast-induced ground/air- vibrations and eliminating the fly rock from the blasting operations carried out in the cluster of quarries located in the region, and subsequently with proper validation of the design through trial blasts                                                                                                                                        | Noted and agreed                                                                                                                                                                                                                                   |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                        |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | in any of the existing & operating quarries to monitor the PPV produced from the blasting in the village (500m) and near the Temples (230 & 300 m), after obtaining the prior permission from the DMS / Chennai Region in accordance with DGMS Circular No. 7 of 1997, by involving anyone of these reputed Research and Academic Institution such as CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, IIT (ISM)/Dhanbad, IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. Further the report shall also include the actual data on the air dust particles produced at the time of blasting. A copy of such scientific study report shall be submitted to the SEIAA, MoEF as a part of EIA study during the appraisal and to the DMS/DGMS-Chennai Region while submitting the Notice of Opening, without any deviation.                                                                                 |                                                                                                                                                                                                                                                                                                                                        |
| 14 | Since the quarrying operations are proposed in an existing pit possessing the quarry wall of 25 to 27 m depth without adequate benches in accordance with the provisions of MMR, 1961, the PP shall carry out the scientific studies to assess the slope stability of the working benches and existing quarry wall for spelling out the stabilization measures to ensure the safety of the persons to be employed in the proposed quarry, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, IIT (ISM)/Dhanbad, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. A copy of such scientific study report shall be submitted to the SEIAA, MoEF as a part of EIA study during the appraisal and to the DMS/DGMS-Chennai Region while submitting the Notice of Opening, without any deviation. | <b>Noted and agreed</b><br>PP concurred to carried out the scientific studies to assess the slope stability of the working benches and existing quarry wall for spelling out the stabilization measures by any one of the reputed Research and Academic Institutions. The Study report will be submitted during the appraisal meeting. |
| 15 | The PP shall prepare the Standard Operating Procedures (SoP) for carrying out the 'Best Mining Practices' in the areas of drilling, blasting excavation, transportation and green belt development and provide the same during the EIA appraisal.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Noted and agreed</b><br>PP concurred to prepare Standard Operating Procedures (SoP) for carrying out the 'Best Mining Practices' and the report will be submitted during the appraisal meeting.                                                                                                                                     |
| 16 | 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><br>EMP for the entire life the mine, furnished in chapter 10.                                                                                                                                                                                                                                                  |

| <b>2.SEAC STANDARD CONDITIONS</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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:<br>(i) Original pit dimension<br>(ii) Quantity achieved Vs EC Approved Quantity<br>(iii) Balance Quantity as per Mineable Reserve calculated.<br>(iv) Mined out Depth as on date Vs EC Permitted depth<br>(v) Details of illegal/illicit mining<br>(vi) Violation in the quarry during the past working.<br>(vii) Quantity of material mined out outside the mine lease area<br>(viii) Condition of Safety zone/benches<br>(ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m. | <b>Noted and agreed</b><br>Existing quarry pit dimension is 128m(L)*80m(W)*22m(D)<br>There is no violation during the past quarrying activity.                                                                                                                                                                                                                             |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Noted &amp; agreed.</b><br>The PP obtained VAO Certificate regarding the location of habitations within 300m radius from the periphery of the site and enclosed with as annexure.                                                                                                                                                                                       |
| 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.                                                                                                                                                                                              | <b>Noted and agreed</b><br>The structure study has been carried out within the radius of 300m.<br>There is no habitation within the radius of 300m from the project site the details of the structures is given in the EIA report, Chapter No.III                                                                                                                          |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Noted and agreed</b><br>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<br><ul style="list-style-type: none"> <li>Niyaviyal Odai -50m Safety- South</li> <li>Odai-140m -NW</li> </ul> |
| 5                                 | The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Noted and agreed</b><br>Biodiversity study has been carried out by Functional Area Expert by the NABET accredited consultant.<br>The detailed study is given in the Chapter No.3                                                                                                                                                                                        |
| 6                                 | The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Noted and agreed</b><br>DFO letter will be submitted along with the Final EIA/EMP report                                                                                                                                                                                                                                                                                |
| 7                                 | In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic                                                                                                                                                                                                                                                                                                        | <b>Noted and agreed</b><br>Proponent requested as will be carrying the slope stability Plan after commencement of quarrying operation and ensure that the reports will be submitted along with HYCR.                                                                                                                                                                       |

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|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | 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.                                                                                                                                                                          | <b>Noted and agreed</b><br>Proponent requested as will be carrying the slope stability Plan after commencement of quarrying operation and ensure that the reports will be submitted along with HYCR.                                                                                                                                            |
| 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><br>Proponent given affidavit stating that the blasting will be carried out under the supervision of Competent person.                                                                                                                                                                                                   |
| 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><br>There is no other quarry except this proposal operated by Proponent Thiru .V.Saravanan                                                                                                                                                                                                                              |
| 12 | If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,                                                                                                                                                                                                                                            | Noted and agreed                                                                                                                                                                                                                                                                                                                                |
| 13 | What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?                                                                                                                                                                                                                                                                                                               | <b>Noted and agreed.</b><br>The AD letter will be submitted during the appraisal meeting.                                                                                                                                                                                                                                                       |
| 14 | Quantity of minerals mined out.<br>· Highest production achieved in any one year<br>· Detail of approved depth of mining.<br>· Actual depth of the mining achieved earlier.<br>· Name of the person already mined in that leases area.<br>· If EC and CTO already obtained, the copy of the same shall be submitted.<br>· Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches. | Existing depth of mining is 22m bgl <ul style="list-style-type: none"> <li>• Previous Lessee: Thiru.V.Saravanan</li> <li>• Previous Lease Period: 15.09.2017 to 14.09.2022, S.F. No 171/2(P) &amp; 176/2(P) (Extent: 1.22.5Ha)</li> <li>• Environmental Clearance; Lr. No. SEIAA – TN/F.No.5719/EC/1(a)/3906/2016, dated: 13.06.2017</li> </ul> |
| 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).                                                                               | <b>Noted and agreed</b><br>Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2, Figure No.2.2, Page No.11.<br>Geomorphology of the area is given in Chapter No 2, Figure No.2.10, Page No.23<br>Land use pattern of the project area is tabulated in the Chapter No.2. Table no 2.4, Pg.No.18    |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                               |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16 | The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Noted and agreed.</b><br>PP carried out the drone video survey and will be submitted during the appraisal while obtaining the EC.                                                                                                                          |
| 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.                                                                                                                                                                                                                                                                                                                                                          | <b>Noted and agreed</b><br>The area has been fenced and plantation activities carried out within the project site.                                                                                                                                            |
| 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.                                                                                                                                                                                                                                                                                                            | <b>Noted and agreed</b><br>The details of mineral reserves have been provided in Chapter No 1,<br>Mineable reserves– 1,27,607 m <sup>3</sup><br>Peak Production – 30,920m <sup>3</sup><br>Proposed Depth – 47m bgl                                            |
| 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.                                                                                                                                                                                                                                          | <b>Noted and agreed.</b><br>The PP provided 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                            |
| 20 | The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. | <b>Noted and agreed</b><br>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, |
| 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><br>Baseline Data were collected for One Season (Post Monsoon) Oct to Dec 2024 as per CPCB Notification and MoEF & CC Guidelines.<br>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><br>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,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Noted and agreed</b><br>Land use and land cover of the study area is                                                                                                                                                                                       |

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|    | 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.                                                                                                                                                                            | discussed in Chapter No. 3.<br>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.                                                                                                                                                                                                                                                                                                | Not applicable.                                                                                                                                                                                                                                                                                                                                                           |
| 26 | Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.                                                                                               | Not Applicable.<br>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><br>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.<br><br>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><br>Transportation details mentioned in Chapter -2                                                                                                                                                                                                                                                                                                 |
| 29 | A tree survey study shall be carried out (nos., name of the species, age, diameter etc.) both within the mining lease applied area & 300m buffer zone and its management during mining activity.                                                                                                                                                                                                                                                                                                           | <b>Noted and agreed</b><br>Details of the trees in the buffer zone given in Chapter No.3&4                                                                                                                                                                                                                                                                                |
| 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><br>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><br>Details are given in the Chapter No.3                                                                                                                                                                                                                                                                                                          |
| 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 | <b>Noted and agreed</b><br>Noted & agreed. It is proposed to plant a 920nos of trees in the 7.5m safety barrier and village roads.                                                                                                                                                                                                                                        |

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|    | mixed manner.                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                     |
| 33 | Taller/one-year-old Saplings raised in appropriate size of bags, preferably ecofriendly bagsshould 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 | <b>Noted and agreed</b><br>It is a Fresh Lease. No trees within the project site. it is proposed to plant 920 Nos of Trees in the safety barrier and Village roads. |
| 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><br>Disaster management Plan details in Chapter-7                                                                                            |
| 35 | A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period                                                                                                                                                                                                                                     | <b>Noted and agreed</b><br>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><br>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><br>No Public Health Implications anticipated due to this project.<br><br>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 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><br>It is explained in Chapter -3                                                                                                            |
| 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>Noted and agreed</b><br>No, Litigation 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><br>Chapter-8 discussed about benefits of projects.                                                                                          |
| 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><br>CCR will be submitted during the appraisal meeting.                                                                                   |
| 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><br>The EMP prepared for the life of the mine and discussed in chapter 10.                                                                   |



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| 43 | Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986. | Noted & agreed. |
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### SEIAA STANDARD CONDITIONS

| Cluster Management Committee |                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                         |
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| 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><br><br>The Cluster management committee has been formed covering the existing and proposed quarries in the cluster                                                              |
| 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><br><br>The information will be shared to the cluster management committee during the monthly meeting.                                                                           |
| 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><br><br>The list of members of the committee formed will be submitted to AD/Mines before resuming the mining operation.                                                          |
| 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><br><br>It is an existing Granite quarry the blasting will be used occasionally for the removal of overburden only the blasting frequency and usage of haul roads are discussed. |
| 5                            | The committee shall deliberate on risk & emergency management plan, fire safety & evacuation plan and sustainable development goals 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. | <b>Noted and agreed</b><br><br>The risk management plan and disaster management plan has been prepared and enclosed in this EIA report, Chapter No. 7.                                                  |
| 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 in the EIA Report.                                      | <b>Noted and agreed</b><br><br>Environmental policy of the cluster management committee is detailed in the EIA Report Chapter No. 6                                                                     |
| 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 and agreed</b><br><br>The Restoration strategy is discussed in the progressive mine closure plan and enclosed in Mining plan.                                                                  |

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| 8                                          | The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity.                                                                                                    | <b>Noted and agreed</b><br><br>The information on the health of the workers and the local people will be updated periodically along with medical examination.                                                                                                                                                                       |
| <b>Agriculture &amp; Agro-Biodiversity</b> |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                     |
| 9                                          | Impact on surrounding agricultural fields around the proposed mining Area.                                                                                                                                                                       | As the proposed lease area is dominantly surrounded by mining land, barren land, and fallow land, the impact on the surrounding agricultural fields if present is considerably low.<br><br>The Mining operation will be carried out to reduce the impact further to the level of negligence.                                        |
| 10                                         | Impact on soil flora & vegetation around the project site.                                                                                                                                                                                       | The vegetation details have been provided in chapter III. 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.             |
| 11                                         | Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP.                | <b>Noted and agreed</b><br><br>There are no trees within the existing quarry site, and therefore, no proposal for tree felling or removal is anticipated during the quarrying operations.                                                                                                                                           |
| 12                                         | The Environmental Impact Assessment should study the agro-biodiversity, agro-forestry, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. | <b>Noted and agreed</b><br><br>The details of the soil analysis and the impacts are given in the Chapter No 3 & 4.                                                                                                                                                                                                                  |
| 13                                         | Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.                                                                                                           | <b>Noted and agreed</b><br><br>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.<br><br>After completion of mining operation, the quarried-out pit will be facilitated to collect the rainwater to pit act as temporary reservoir |
| 14                                         | The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock                                                                                             | <b>Noted and agreed</b><br><br>The project area is situated centre part of the quarry lands. The proposed Rough Stone quarrying operation will employ the wet drilling method, which is expected to have negligible impacts on nearby agricultural lands.                                                                           |
| <b>Forests</b>                             |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                     |
| 15                                         | The project proponent shall detailed study on impact                                                                                                                                                                                             | <b>Noted and agreed.</b>                                                                                                                                                                                                                                                                                                            |

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|                          | of mining on Reserve forests and free ranging wildlife                                                                                                                                                                                                                                                                                                                                                                                                                                                            | There is no Reserve Forest within 1km radius from the project area. The mining operation will not cause any significant impact to the Reserve Forest and Wild life Sanctuaries                                                                                                                                                                                                                                                                                                                               |
| 16                       | The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.                                                                                                                                                                                                                                                                                                                                                                     | There is no forest/wildlife within 10km radius, chapter 3 details of Ecology and Biodiversity, and 4 endemic vulnerable and endangered indigenous flora and fauna.                                                                                                                                                                                                                                                                                                                                           |
| 17                       | The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection                                                                                                                                                                                                                                                                                                                                                           | Details are discussed in the Chapter No.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 18                       | The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site                                                                                                                                                                                                                                                                                                                                                   | Anticipated Environment Impact and Mitigation measures are detailed in Chapter No.4                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Water Environment</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 19                       | 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 | There are 9 open wells and 9 bore wells within the radius of 1km from the project area, Hydrogeological study has been conducted by the resistivity method                                                                                                                                                                                                                                                                                                                                                   |
| 20                       | Erosion Control measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Details discussed in the chapter No.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 21                       | Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.                                                                                                                                                                                                                                                                                                                               | Details in Chapter 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 22                       | The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir                                                                                                                                                                                                                                                                                                                                                                                            | 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. Whereas in this proposed project is for quarrying of Rough Stone and Gravel and is on a hard batholith formation where no diversion of any water bodies is proposed of there is no intersection of ground water table anticipated. |
| 23                       | The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.                                                                                                                                                                                                                                                                                                                                                                            | Details are given in the Chapter No 4.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

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| 24                    | 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.                                 | Details in Chapter 4 impact of bio diversity.                                                                                                                                                                                                                                                                                                                                               |
| 25                    | The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components                                                                                                                                                 | Details of impact on soil environment is detailed in Chapter No.4                                                                                                                                                                                                                                                                                                                           |
| 26                    | The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites                                                                                                                                                                                    | Bolampatti R.F. 18km -W<br><br>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 |
| 27                    | The EIA shall include the impact of mining activity on the following:<br><br>a) Hydrothermal/Geothermal effect due to destruction in the Environment.<br><br>b) Bio-geochemical processes and its foot prints including environmental stress.<br><br>c) Sediment geochemistry in the surface streams. | There are 9 open wells and 9 bore wells within the radius of 1km from the project area, Hydrogeological study has been conducted by the resistivity method                                                                                                                                                                                                                                  |
| <b>Energy</b>         |                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                             |
| 28                    | The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.                                                                                                                                                                 | Detailed discussed in chapter 4                                                                                                                                                                                                                                                                                                                                                             |
| <b>Climate Change</b> |                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                             |
| 29                    | 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                         | Noted and agreed.<br><br>Details discussed in chapter 4.                                                                                                                                                                                                                                                                                                                                    |
| 30                    | The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features                                                                                        | Detailed discussed in chapter 3.                                                                                                                                                                                                                                                                                                                                                            |
| 31                    | Impact of mining on pollution leading to GHGs emissions and the impact of the same on the                                                                                                                                                                                                             | 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                                                                                                                                                                                                                              |

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|                                 | local livelihood.                                                                                                                                                                                                                                                                                                                                                         | <p>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>)</p> <p>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 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> |
| <b>Mine Closure Plan</b>        |                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 32                              | Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.                                                                                                                                                                                                                                                          | 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>                      |                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 33                              | Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs                                                                                                                                                        | Detailed discussed in chapter 10.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 34                              | The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.                                                                                                                                                                                                    | Detailed discussed in chapter 10.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Risk Assessment</b>          |                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 35                              | To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.                                                                                                                                                                                                                            | A Risk Assessment and management Plan Chapter- 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Disaster Management Plan</b> |                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 36                              | 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 | Disaster management Plan details in Chapter-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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|               | order issued.                                                                                                                                                                                                                                                                                                        |                                                                            |
| <b>Others</b> |                                                                                                                                                                                                                                                                                                                      |                                                                            |
| 37            | 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.                                            | Letter obtained from the VAO regarding surface features within 300m radius |
| 38            | 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.                                                       | The issues raised during public hearing is addressed in chapter No.7       |
| 39            | 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 | Plastic waste management in the project area detailed in Chapter No.7.     |

| <b>Standard Terms of Reference for (Mining of minerals)</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                      |
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| <b>S.No</b>                                                 | <b>Terms of Reference</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Reply</b>                                                                                                                                                                                                                                                                                         |
| <b>1.1</b>                                                  | An EIA-EMP Report shall be prepared for peak capacity (.....MTPA) operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.                                                                                                                                                                                                                                                                                                                                                         | Peak Production – 30920m <sup>3</sup><br>Depth – 47m bgl<br>Mine Lease area – 1.84.0 Ha                                                                                                                                                                                                              |
| <b>1.2</b>                                                  | An EIA-EMP Report would be prepared for peak capacity operation to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for.... MTPA of mineral production based on approved project/Mining Plan for.... MTPA. Baseline data collection can be for any season (three months) except monsoon. | Peak capacity of 30920m <sup>3</sup> operation to cover the impacts and environment management plan in chapter- IV and Chapter 10 covered in project specific activities.<br><br>Baseline Data were collected for Post Monsoon Season Oct–Dec2024 as per CPCB Notification and MoEF & CC Guidelines. |
| <b>1.3</b>                                                  | Proper KML file with pin drop and coordinate of mine at 500-1000 m interval be provided.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Noted, Google earth image showing lease area with                                                                                                                                                                                                                                                    |

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| 1.4 | <p>A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines, and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also.</p> | <p>Land use and land cover of the 10km Radius of study area is discussed in Chapter No. III.</p> <p>Geology map of the project area covering 10km radius Figure No. 2.8. page No.22</p> <p>Geomorphology of the area is given in Chapter No 2 Figure No 2.9, page no.23</p> <p>There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project</p> |
| 1.5 | <p>Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>Land use and land cover of the study area is discussed in Chapter No. III with Physical features such as waterbodies, odai, canal etc.,</p>                                                                                                                                                                                                                                                                                            |
| 1.6 | <p>A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>DEM data using Drainage pattern around 10km radius showing streams and lakes etc., discussed in Chapter No. 3.</p>                                                                                                                                                                                                                                                                                                                     |
| 1.7 | <p>Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ river let system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/ river need elaboration in form of length, quantity and quality of water to be diverted.</p>                                                                                                                                                                                                                                                                                                                                                                                 | <p>Drainage pattern around 10km radius showing streams and lakes etc., is discussed in Chapter No. 3.</p>                                                                                                                                                                                                                                                                                                                                 |
| 1.8 | <p>(Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.</p>                                                                                                                                                  | <p>Details in chapter-2 showing the land features. And also enclosed Approved 3<sup>rd</sup> Scheme of mining plan in annexure.</p>                                                                                                                                                                                                                                                                                                       |

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                          |
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| 1.9  | Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>It is an opencast quarrying operation proposed to operate in Mechanized method.</p> <p>The height and width of the bench will be maintained as 5m with 90<sup>0</sup> bench angles.</p> <p>Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate.</p> |
| 1.10 | Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.                                                                                                                                                                                                                                                                                                                                                                                   | Impact Studies and Mitigation Measures of Water Environment including Surface Water and Ground Water are discussed in Chapter 4.                                                                                                                                                                                                         |
| 1.11 | A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channeling of the water courses, etc., approach roads, major haul roads, etc should be indicated. | <p>Not Applicable.</p> <p>The details of waste dump management are given in the Chapter No. 4</p>                                                                                                                                                                                                                                        |



| 1.12                                                                                                                                                                                                                                                                                                             | Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights                                                                                                                                                                                                                                                                                                                                                                                  | Land use and land cover of the study area is discussed in Chapter No. 3.<br><br>Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.5.                                                                                                                                                                                                                     |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
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|                                                                                                                                                                                                                                                                                                                  | <table><tr><th>Sno</th><th>ML. project Land use</th><th>Area under Surface Rights(ha)</th><th>Area Under Mining Rights(ha)</th><th>Area under Both (ha)</th></tr><tr><td>1</td><td>Agriculture Land</td><td></td><td></td><td></td></tr><tr><td>2</td><td>Forest Land</td><td></td><td></td><td></td></tr><tr><td>3</td><td>Grazing Land</td><td></td><td></td><td></td></tr><tr><td>4</td><td>Settlements</td><td></td><td></td><td></td></tr><tr><td>5</td><td>Others (Specify)</td><td></td><td></td><td></td></tr></table>                                                                                                                                                                                                                                                                                                                           | Sno                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ML. project Land use                          | Area under Surface Rights(ha) | Area Under Mining Rights(ha) | Area under Both (ha) | 1 | Agriculture Land |  |   |       | 2 | Forest Land |                  |  |  | 3     | Grazing Land |  |  |  | 4 | Settlements |  |  |  | 5 | Others (Specify) |  |  |  | <table><tr><th>Description</th><th>Present area in (Ha)</th><th>Area at the end of this quarrying period (Ha)</th></tr><tr><td>Area under Quarrying</td><td>1.10.3</td><td>1.35.3</td></tr><tr><td>Dumps</td><td>0.19.3</td><td>Nil</td></tr><tr><td>Infrastructure</td><td>Nil</td><td>0.01.0</td></tr><tr><td>Roads</td><td>0.01.0</td><td>0.03.0</td></tr><tr><td>Green Belt</td><td>Nil</td><td>0.35.8</td></tr><tr><td>Un-utilized Area</td><td>0.53.4</td><td>0.08.9</td></tr><tr><td>Grand Total</td><td>1.84.0</td><td>1.84.0</td></tr></table> | Description | Present area in (Ha) | Area at the end of this quarrying period (Ha) | Area under Quarrying | 1.10.3 | 1.35.3 | Dumps | 0.19.3 | Nil | Infrastructure | Nil | 0.01.0 | Roads | 0.01.0 | 0.03.0 | Green Belt | Nil | 0.35.8 | Un-utilized Area | 0.53.4 | 0.08.9 | Grand Total | 1.84.0 | 1.84.0 |
|                                                                                                                                                                                                                                                                                                                  | Sno                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ML. project Land use                                                                                                                                                                                                                                                                                                                                                                                                                                 | Area under Surface Rights(ha)                 | Area Under Mining Rights(ha)  | Area under Both (ha)         |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
|                                                                                                                                                                                                                                                                                                                  | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Agriculture Land                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
|                                                                                                                                                                                                                                                                                                                  | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Forest Land                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
|                                                                                                                                                                                                                                                                                                                  | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Grazing Land                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
|                                                                                                                                                                                                                                                                                                                  | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Settlements                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
|                                                                                                                                                                                                                                                                                                                  | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Others (Specify)                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
|                                                                                                                                                                                                                                                                                                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Present area in (Ha)                                                                                                                                                                                                                                                                                                                                                                                                                                 | Area at the end of this quarrying period (Ha) |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
|                                                                                                                                                                                                                                                                                                                  | Area under Quarrying                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.10.3                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1.35.3                                        |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
| Dumps                                                                                                                                                                                                                                                                                                            | 0.19.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Nil                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
| Infrastructure                                                                                                                                                                                                                                                                                                   | Nil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.01.0                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
| Roads                                                                                                                                                                                                                                                                                                            | 0.01.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.03.0                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
| Green Belt                                                                                                                                                                                                                                                                                                       | Nil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.35.8                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
| Un-utilized Area                                                                                                                                                                                                                                                                                                 | 0.53.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.08.9                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
| Grand Total                                                                                                                                                                                                                                                                                                      | 1.84.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1.84.0                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
| <table><tr><th>S.No</th><th>Details</th><th>Area (Ha)</th></tr><tr><td>1</td><td>Buildings</td><td></td></tr><tr><td>2</td><td>Infrastructure</td><td></td></tr><tr><td>3</td><td>Roads</td><td></td></tr><tr><td>4</td><td>Others (Specify)</td><td></td></tr><tr><td></td><td>Total</td><td></td></tr></table> | S.No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Details                                                                                                                                                                                                                                                                                                                                                                                                                                              | Area (Ha)                                     | 1                             | Buildings                    |                      | 2 | Infrastructure   |  | 3 | Roads |   | 4           | Others (Specify) |  |  | Total |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
| S.No                                                                                                                                                                                                                                                                                                             | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Area (Ha)                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
| 1                                                                                                                                                                                                                                                                                                                | Buildings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
| 2                                                                                                                                                                                                                                                                                                                | Infrastructure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
| 3                                                                                                                                                                                                                                                                                                                | Roads                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
| 4                                                                                                                                                                                                                                                                                                                | Others (Specify)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
|                                                                                                                                                                                                                                                                                                                  | Total                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
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| 1.13                                                                                                                                                                                                                                                                                                             | Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished. | 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.<br><br>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. |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |
| 1.14                                                                                                                                                                                                                                                                                                             | One-season (other than monsoon) primary baseline data on environmental quality - air (PM10, PM2.5, SOx, NOx and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided. The detail of NABL/ MoEF&CC certification of the respective laboratory and NABET accreditation of the consultant to be provided.                                                                                                                                                                                                                                                                                                                                                                                                  | Baseline Data were collected for Post Monsoon Season Oct– Dec 2024 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.                                                                                                                                                                                                                                                                                                      |                                               |                               |                              |                      |   |                  |  |   |       |   |             |                  |  |  |       |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |                      |                                               |                      |        |        |       |        |     |                |     |        |       |        |        |            |     |        |                  |        |        |             |        |        |

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| 1.15 | <p>Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air) / downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the</p> | <p>Details in chapter-3 showing the various sampling stations As per CPCB guidelines.</p>                                                                                                                                                                                           |
| 1.16 | <p>For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAMSQ shall be planned by the collection of air quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10km buffer zone i.e., dispersed in 10 km buffer area. In case of</p>                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Air Quality Modelling and wind rose pattern for prediction of incremental GLC's of pollutant was carried out using AERMOD view 13 Model.</p> <p>Details in Chapter No. 4.</p>                                                                                                    |
| 1.17 | <p>A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report.</p>                                                                                                                                                                                                                                                                                                                                                                                                | <p>Traffic density survey was carried out to analyses 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.</p> <p>Details in Chapter-II.</p>  |
| 1.18 | <p>The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status &amp; economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data to be provided and to link it with the initialization and quantification of need-based survey for CSR activities to be followed.</p>                                                                                                                                                                                                                   | <p>Detailed in chapter-3 socio-economic study with occupational status &amp; economic status of the study area.</p> <p>The study should also include the status of infrastructural facilities and amenities present in the study area</p> <p>CSR are discussed under Chapter 8.</p> |
| 1.19 | <p>The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>Detailed Ecology and biodiversity study in chapter-3</p>                                                                                                                                                                                                                         |
| 1.20 | <p>Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Detailed in chapter-4 population in the impact zone and measures for occupational health and safety and proposed</p>                                                                                                                                                             |

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| <b>1.21</b> | Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted.                                                                                                                                                                                                                    | Noted and agreed                                                                                                                                                                                                                                            |
| <b>1.22</b> | Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone. | The ground water table is at 62-67m below ground level.<br>In this project, ultimate depth is 47m Bgl<br><br>It is inferred the quarrying activities in the Cumulative EIA project (Quarry) will not intersect the Ground water table.                      |
| <b>1.23</b> | Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.                                                                                                                                                                                                                                          | Detailed in Chapter-IV Anticipated and mitigation measures of in the study area.                                                                                                                                                                            |
| <b>1.24</b> | Detailed water balance should be provided. The breakup of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.                                                        | Total Water Requirement: 1.5 KLD<br>Discussed under Chapter 2, Table No 2.15, The required water will be met from rainwater accumulated in mine pit (when available) and from the approved water vendors.                                                   |
| <b>1.25</b> | PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs                                                                                                                                                                                                             | Methodology And Instrument Used for Air Quality Analysis in chapter-3 and Air Pollution control equipment (APCEs) in chapter-10 sub 10.2                                                                                                                    |
| <b>1.26</b> | PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored.                                                                                                                                                                                                     | Details in Machinery and equipment details in Chapter-2 Table No 2.16                                                                                                                                                                                       |
| <b>1.27</b> | PP to evaluate the green house emission gases from the mine operation/ washery plant and corresponding carbon absorption plan.                                                                                                                                                                                                                                                                                     | Noted and agreed                                                                                                                                                                                                                                            |
| <b>1.28</b> | Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.                                                                                                                                                                                                                                                                    | A Risk Assessment and Disaster Preparedness and management Plan Chapter- 7                                                                                                                                                                                  |
| <b>1.29</b> | Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.                                                                                                                                                                                        | Detailed in Machinery and technology used Chapter-3 Table 3.17 – Methodology and Instrument Used for Air Quality Analysis<br>Detailed study in chapter-4 Impact of choice of mining method and impact on air quality and blasting and noise and vibrations. |

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| <b>1.30</b> | Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided. | Traffic density survey was carried out to analyse the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no much significant impact due to the proposed transportation from the project area. Details in Chapter 2. Infrastructure & other facilities will be provided to the Mine Workers |
| <b>1.31</b> | Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.                                                                                                                                                                                                                                                                                                                                                                                      | Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease and the same has been discussed in the                                                                                                                                                                                                  |
| <b>1.32</b> | The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.                                                                                                                                                                                                                                                                                                     | Detailed in chapter-2 for mineral transportation route with approach roads etc., and impacting air quality detailed given chapter-4                                                                                                                                                                                                            |
| <b>1.33</b> | Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined-out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.                                                                                                                               | Discussed under Chapter 2. Mine Closure Plan is a part of Approved Mining Plan enclosed as Annexure Volume – 1.                                                                                                                                                                                                                                |
| <b>1.34</b> | Adequate greenbelt nearby areas, mineral stock yard and transportation area of mineral shall be provided with details of species selected and survival rate Greenbelt development should be undertaken particularly around the transport route.                                                                                                                                                                                                                                                                                                                                  | Greenbelt Development Plan is discussed under Chapter 4                                                                                                                                                                                                                                                                                        |
| <b>1.35</b> | Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.                                                                                                                                                                                                                                                                                                                                                                                                                                                      | The total cost and the details are given in the Chapter No. 10                                                                                                                                                                                                                                                                                 |
| <b>1.36</b> | Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc. and costs along with the schedule of the implementation of the R&R Plan should be given.                                                                                | Not Applicable.<br><br>There are no approved habitations within a radius of 300 meters.<br><br>Therefore, R&R Plan / Compensation details for the Project Affected People (PAP) is not anticipated and Not Applicable for this project.                                                                                                        |
| <b>1.37</b> | CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.                                                                                                                                                                                                                                                                                                                                                                                                          | CSR are discussed under Chapter 8. And specific budgetary provisions (capital and recurring) for specific activities over the life                                                                                                                                                                                                             |
| <b>1.38</b> | Corporate Environment Responsibility:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | CER are discussed under Chapter                                                                                                                                                                                                                                                                                                                |

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| <b>1.39</b> | a) The Company must have a well laid down Environment Policy approved by the Board of Directors.                                                                                                                                                                                                                                                                                                                                                                               | Detailed in chapter-10 The Environment Policy                                                                                    |
| <b>1.40</b> | b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.                                                                                                                                                                                                                                                                                  |                                                                                                                                  |
| <b>1.41</b> | c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.                                                                                                                                                                                                                                                                                 | The Environment Monitoring Cell discussed under Chapter 6                                                                        |
| <b>1.42</b> | d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at                                                                                                                                                                                                                                       | The Environment Monitoring Cell discussed under Chapter 6                                                                        |
| <b>1.43</b> | e) Environment Management Cell and its responsibilities to be clearly spell out in EIA/ EMP report                                                                                                                                                                                                                                                                                                                                                                             | The Environment Monitoring Cell discussed under Chapter 6                                                                        |
| <b>1.44</b> | f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.                                                                                                                                                                                                                                                                                                                                                                       | The Environment Monitoring Cell discussed under Chapter 6                                                                        |
| <b>1.45</b> | Status of any litigations/ court cases filed/pending on the project should be provided.                                                                                                                                                                                                                                                                                                                                                                                        | No litigation is pending in any court against this project                                                                       |
| <b>1.46</b> | PP shall submit clarification from DFO that mine does not falls under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.                                                                                                                                                                                                                                                                                          | Nanjarayan Bird Sanctuary – 20.8km –NE<br>It will Submit final EIA/EMP report                                                    |
| <b>1.47</b> | Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable                                                                                                                                                                                                                                                                                             | Noted and agreed                                                                                                                 |
| <b>1.48</b> | Details on the Forest Clearance should be given as per the format given:<br>Total Mine lease area (ha):<br>Total Forest Land (Ha) :<br>Date of FC :<br>Extent of Forest Land :<br>Balance area for which FC is yet to be obtained:<br>Status of application for diversion of forest Land:                                                                                                                                                                                      | Boluvampatti R.F. 18km- W<br>Total Mine Lease area 1.84.0ha<br>Details on the Forest Clearance will Submit final EIA/EMP report. |
| <b>1.49</b> | In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report.                                                                                                                                                                                                                                                                                                                      | <b>Noted and agreed.</b>                                                                                                         |
| <b>1.50</b> | Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same. should be provided. | The outcome of public hearing will be updated in the final EIA/AMP report.                                                       |

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| <b>1.51</b> | PP shall carry out survey through drone highlighting the ground reality for at least 10 minutes.                                                                                                                                                                                                                                                                | Noted and agreed                                                                                                            |
| <b>1.52</b> | Detailed Chronology of the project starting from the first lease deed allotted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s), CGWA permissions, Power permissions, etc as per the requisites | It is a fresh lease.                                                                                                        |
| <b>1.53</b> | The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET accreditation) and Laboratory (NABL / MoEF & CC certification)                                                                                                                                                                           | <b>Noted and agreed.</b><br>As per detailed in front page of Draft EIA/EMP, NABET, NABL certification detailed given in the |
| <b>1.54</b> | The compliances of Tor must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report in all the chapters section.                                                                                                                                       | <b>Noted and agreed.</b><br>As per Tor compliance each chapter wise page and table, figure no given in the EIA/EMP report.  |

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## CHAPTER – 1: INTRODUCTION

### 1.0 Preamble

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

Rough Stone and Gravel are the major requirements for construction industry. This EIA report is prepared by considering Cumulative load of all proposed & existing quarries of Thiru V.Saravanan Rough Stone and Gravel Cluster Quarries consisting of four Proposed and three Existing Quarries with total extent of Cluster of 12.13.33 Ha in Edayarpalayam Village, Sulur Taluk, Coimbatore District and Tamil Nadu State cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1<sup>st</sup> July 2016.

This EIA Report is prepared in compliance with ToR obtained for the below proposals in Table 1.1 and the Baseline Monitoring study has been carried out during the period of Oct -Dec 2024

**TABLE 1.1: ToR OBTAINED FOR PROPOSED PROJECT**

| <b>Name of the proponent</b> | <b>Extent (Ha)</b> | <b>Terms of Reference (ToR)</b>                           |
|------------------------------|--------------------|-----------------------------------------------------------|
| Thiru.V.Saravanan            | 1.84.0             | File No.10794. TOR Identification No. TO24B0108TN5892891N |

Source: ToR Letters of the project proponent

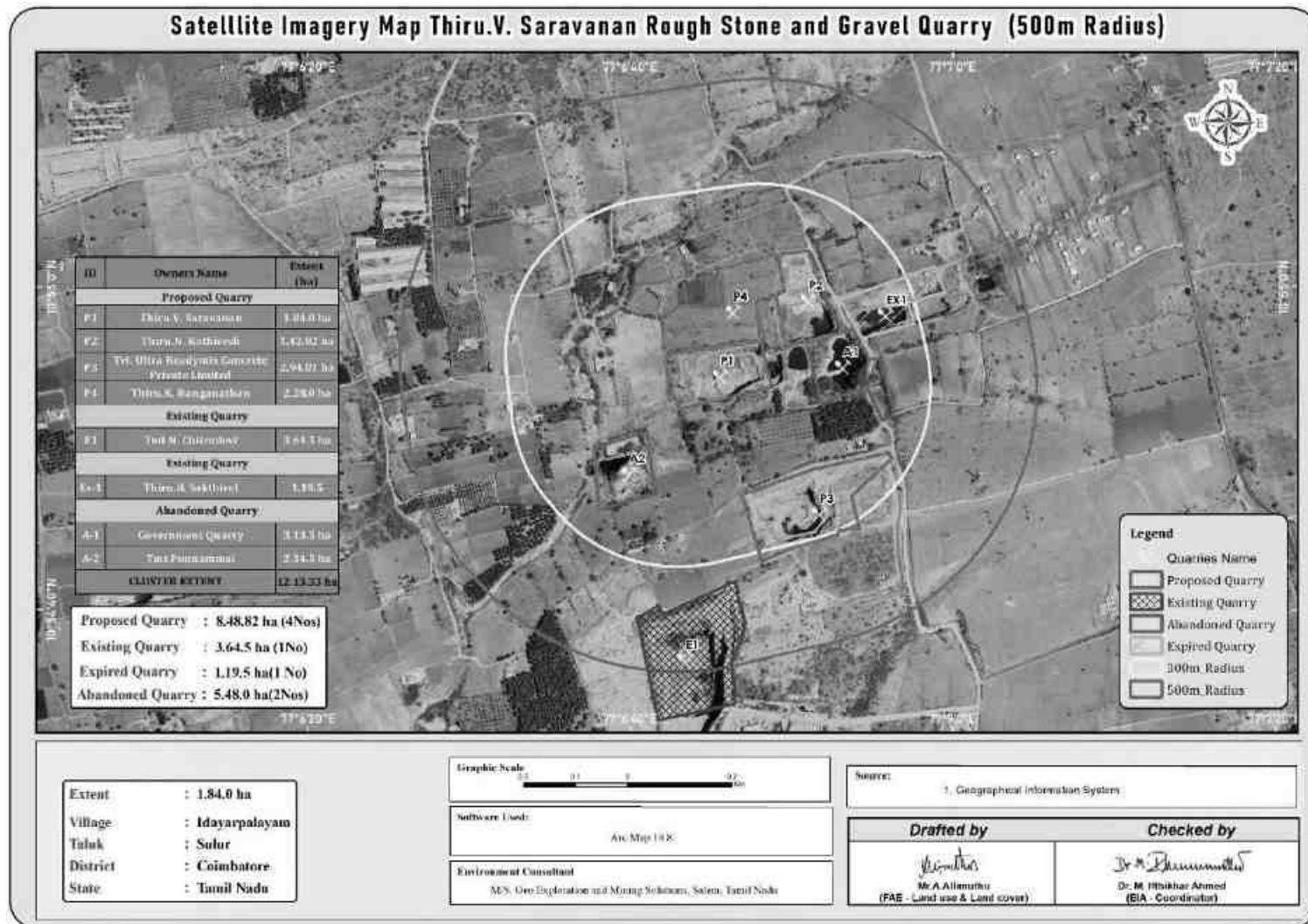
### 1.1 Purpose of the report

The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 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 ( $\leq$  250 Ha), and Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation in Appendix–XI.

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

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

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

**Figure 1.1. Satellite Imagery of Cluster quarries**

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

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

## 1.2 Identification of Project and Project Proponent

### 1.2.1 Identification of Project

The project area is a Patta Land, no forest land is involved

**TABLE 1.2: PROPOSED PROJECTS IN THE CLUSTER**

|                            |                                                |
|----------------------------|------------------------------------------------|
| <b>Name of the Project</b> | Thiru. V.Saravanan Rough Stone & Gravel Quarry |
| <b>S.F. No.</b>            | S.F.Nos. 171/2(P) & 176/2                      |
| <b>Extent</b>              | 1.84.0Ha                                       |
| <b>Village, Taluk</b>      | Edayarpalayam Village, Sulur Taluk             |
| <b>District</b>            | Coimbatore District                            |

Source: Approved Mining Plan

### 1.2.2 Identification of Project Proponent

**TABLE 1.3: DETAILS OF PROJECT PROPONENT**

|                              |                                                                                               |
|------------------------------|-----------------------------------------------------------------------------------------------|
| <b>Name of the Proponent</b> | Thiru.V.Saravanan                                                                             |
| <b>Address</b>               | S/o.Velusamy,<br>No.3/165, Athikuttai Thottam, Idayarpalayam,<br>Coimbatore District- 641 016 |
| <b>Mobile</b>                | +91 98422 97204                                                                               |
| <b>Email</b>                 | vmslorry@gmail.com                                                                            |
| <b>Status</b>                | Proprietor (Individual)                                                                       |

Source: Approved Mining Plan

## 1.3 Brief description of the project

### 1.3.1 Nature and size of the Project

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

**TABLE 1.4: SALIENT FEATURES OF THE PROPOSED PROJECTS IN CLUSTER**

|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Name of the Mine</b>                  | Thiru.V.Saravanan Rough Stone and Gravel Quarry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Land Type</b>                         | Patta Land                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>S.F. No.</b>                          | 171/2(P) & 176/2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Extent</b>                            | 1.84.0 Ha                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Previous quarry operation details</b> | <ul style="list-style-type: none"> <li>☞ The quarry lease was first granted in favour of Tmt.Sujatha Murugesan, R.C.No. 25095/1997/X1, dated:17.04.1997 for the period of five years from 17.04.1997 to 16.04.2002</li> <li>☞ Again the quarry lease was granted in Favour of Thiru. M.Velusamy, R.C.No. 977/2002/MM2, dated: 20.09.2002 for the period of five years from 20.09.2002 to 19.09.2007</li> <li>☞ Subsequently a quarry lease was again granted in Favour of Thiru. M.Velusamy, R.C.No. 1206/2007/X1, dated: 19.07.2008 for the period of five years from 19.07.2008 to 18.07.2013</li> <li>☞ A Quarry lease was again granted in Favour of Thiru.V.Saravanan, R.C.No. 472/Mines/2016, dated: 15.09.2017 for the period of five years from 15.09.2017 to 14.09.2022</li> <li>☞ Now the same applicant has again applied the Rough stone and Gravel quarry lease on 23.01.2023</li> </ul> |
| <b>Present quarry pit dimension</b>      | 128m (L) x 80m (W) x 22m(D)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Proposed Depth</b>                    | 47m bgl (2m Gravel + 45m Roughstone)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

|                                    |                                               |                                                              |             |
|------------------------------------|-----------------------------------------------|--------------------------------------------------------------|-------------|
| Existing Depth                     | 22m bgl                                       |                                                              |             |
| Geological Resources               | <b>Rough Stone</b>                            | <b>Gravel</b>                                                |             |
|                                    | 5,52,448m <sup>3</sup>                        | 7,788 m <sup>3</sup>                                         |             |
| Mineable Reserves                  | <b>Rough Stone</b>                            | <b>Gravel</b>                                                |             |
|                                    | 1,27,607 m <sup>3</sup>                       | 4,640 m <sup>3</sup>                                         |             |
| Proposed production for five years | 1,27,607 m <sup>3</sup>                       | 4,640 m <sup>3</sup><br>6048 m <sup>3</sup> -(Existing Dump) |             |
| Mining Plan Period / Lease Period  | 5 Years                                       |                                                              |             |
| Ultimate Pit Dimension             | 179m(L)                                       | 82m (W)                                                      | 47m bgl (D) |
| Toposheet No                       | 58 - F/01                                     |                                                              |             |
| Latitude                           | 10°54'52.4089"N to 10°54'56.6423"N            |                                                              |             |
| Longitude                          | 77°06'42.1340"E to 77°06'48.7539"E            |                                                              |             |
| Highest Elevation                  | 436m AMSL                                     |                                                              |             |
| Machinery                          | Jack Hammer                                   | 3                                                            |             |
|                                    | Compressor                                    | 1                                                            |             |
|                                    | Excavator with Bucket and Rock Breaker        | 1                                                            |             |
|                                    | Tippers                                       | 2                                                            |             |
| Blasting                           | Usage of Slurry Explosive with MSD detonators |                                                              |             |
| Manpower Deployment                | 18Nos                                         |                                                              |             |
| Water Bodies                       | Niyaviyal Odai                                | 50m Safety South                                             |             |
|                                    | Odai                                          | 140m NW                                                      |             |
|                                    | Odai                                          | 1.1Km SE                                                     |             |
|                                    | Pallapalayam Lake                             | 9Km NW                                                       |             |
|                                    | Kannampalayam Lake                            | 9.5Km NW                                                     |             |
|                                    | P.A.P Canal                                   | 9.3Km SE                                                     |             |
| Total Cost                         | Project Cost                                  | Rs. 65,47,000/-                                              |             |
|                                    | EMP Cost                                      | Rs. 3,80,000/-                                               |             |
|                                    | Total                                         | Rs. 69,27,000/-                                              |             |
| CER cost                           | Rs.5,00,000/-                                 |                                                              |             |
| Water Requirements                 | 1.5 KLD                                       |                                                              |             |
| Nearest Habitation                 | 510m-NE                                       |                                                              |             |

Source: Approved Mining Plan

### 1.3.2 Location of the project

The lease applied area is located about 21km Southeast of Coimbatore, 12km Southwest of Sular and 1km Southeast side of Edaiyarpalayam Village.

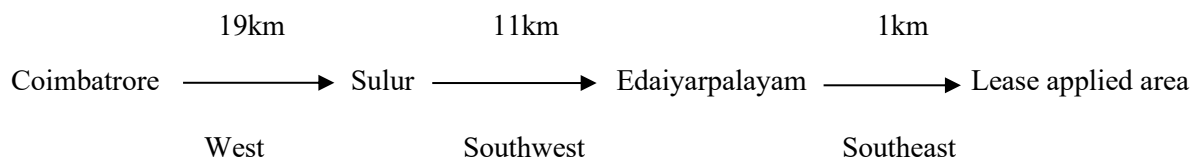


**FIG1.1A KEY MAP SHOWING THE LOCATION OF THE PROJECT SITE**

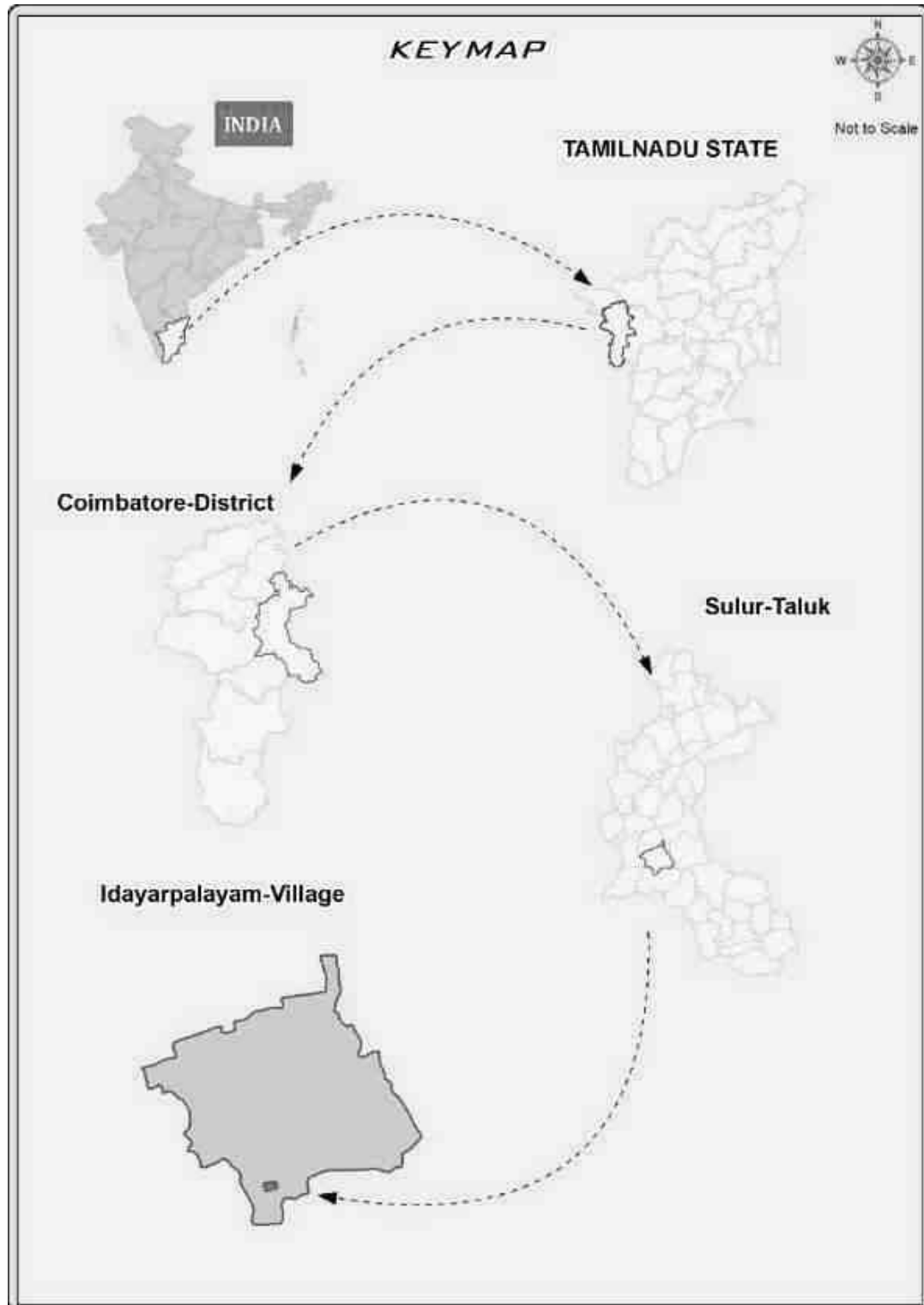


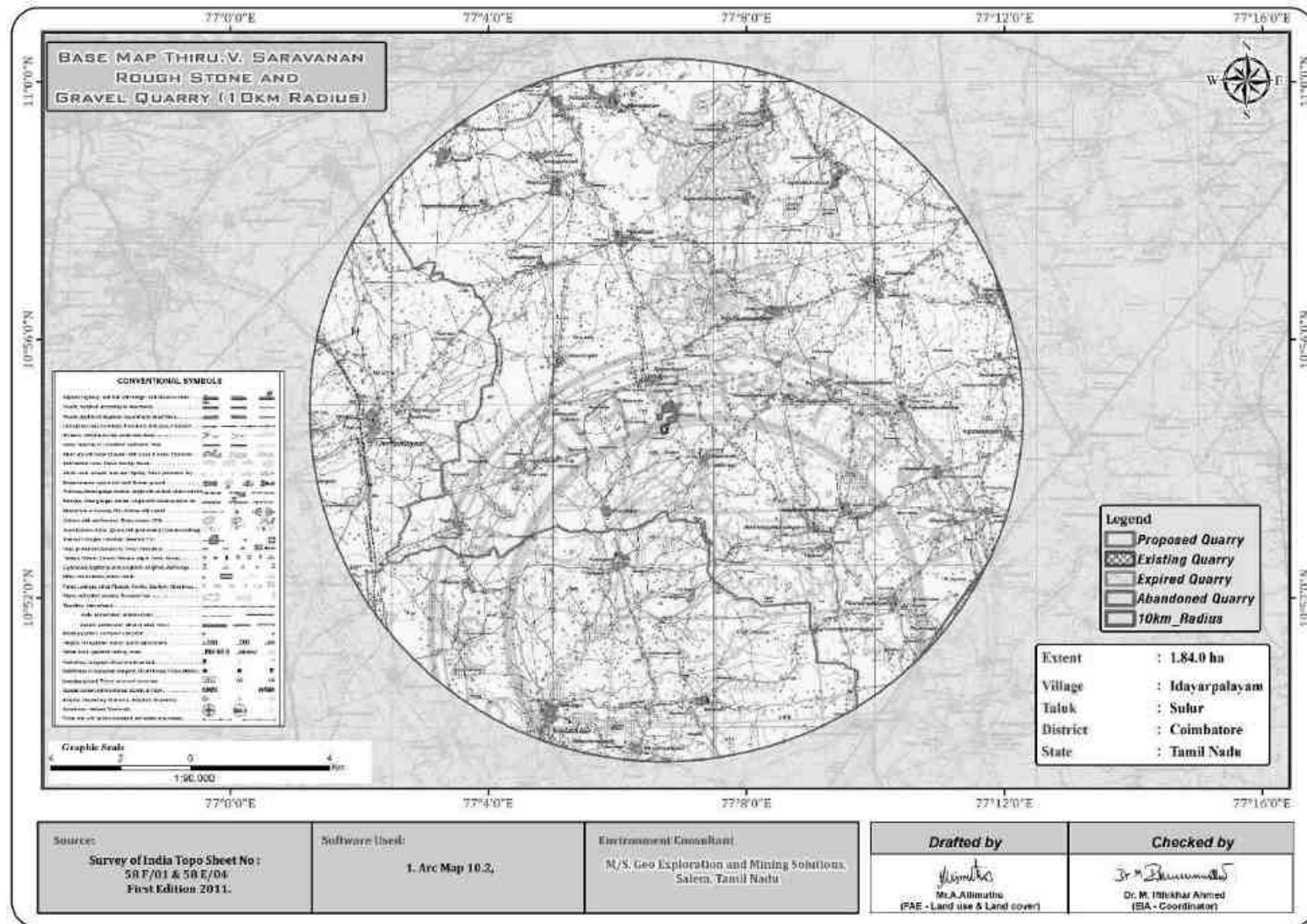
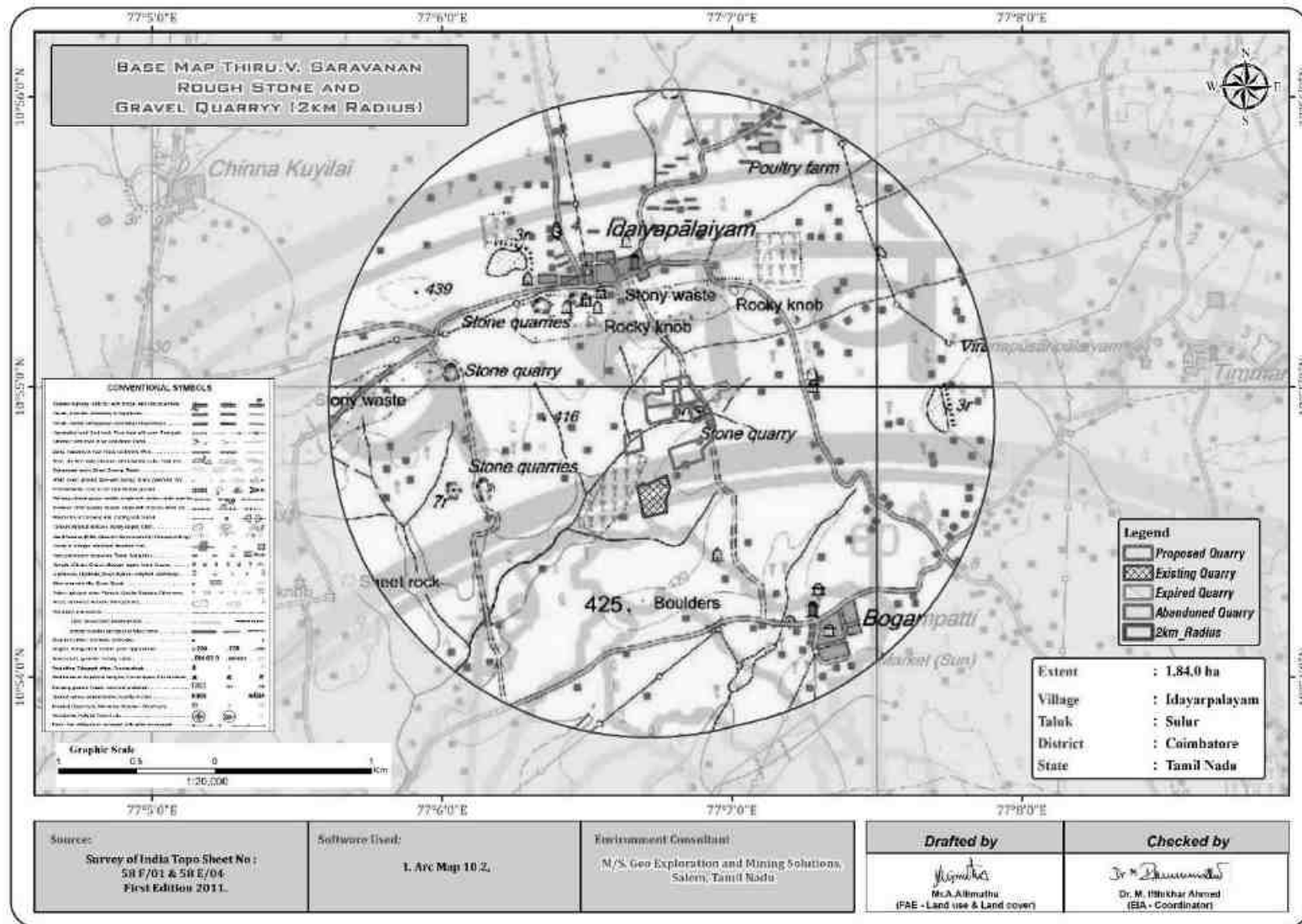
**FIGURE 1.2: TOPOSHEET SHOWING LOCATION OF THE PROJECT SITE AROUND 10 KM RADIUS**

**FIGURE 1.2: TOPOSHEET SHOWING LOCATION OF THE PROJECT SITE AROUND 2 KM RADIUS**

## **1.4 Environmental Clearance**

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

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

### **SCREENING –**

- The proponent applied for Rough Stone and Gravel Quarry Lease Date from 23.01.2023
- The precise area communication letter was received from the Assistant Director, Department of Geology and Mining, Coimbatore District vide Rc.No.93/Mines/2023, Dated: 23.05.2023.
- The Mining plan was approved by the Assistant Director, Department of Geology and Mining, Coimbatore vide Rc.No.93/Mines/2023, Dated: 23.06.2023
- Proponent applied for ToR for Environmental Clearance vides online No. SIA/TN/MIN/467246/2024, Dated:25.03.2024

### **SCOPING –**

- The proposal was placed in 464<sup>th</sup> SEAC meeting held on 03.05.2024 & 481<sup>st</sup> SEAC meeting held on 11.07.2024 and the committee recommended for issue of ToR.
- The proposal was considered in 723<sup>rd</sup> SEIAA meeting held on 27.05.2024 & 742<sup>nd</sup> SEIAA meeting held on 29.07.2024 & 30.07.2024 and issued ToR vide File No.10794. TOR Identification No. TO24B0108TN5892891N Dated:05.08.2024

### **Public Consultation –**

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

### **Appraisal –**

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

The report has been prepared using the following references:

- Guidance Manual of Environmental Impact Assessment for Mining of Minerals, Ministry of Environment and Forests, 2010
- EIA Notification, 14<sup>th</sup> September, 2006
- File No.10794. TOR Identification No. TO24B0108TN5892891N Dated:05.08.2024
- Approved Mining plan

## **1.5 Post Environment Clearance Monitoring**

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

## **1.6 Generic Structure of EIA Document**

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



**TABLE 1.5 – STRUCTURE OF THE EIA REPORT**

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

## 1.7 Scope of the Study

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the Post monsoon season (Oct – Dec 2024) for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project.

**TABLE 1.6 – ENVIRONMENT ATTRIBUTES**

| Sl.No. | Attributes           | Parameters                                                                   | Source and Frequency                                                                                                      |
|--------|----------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| 1      | Ambient Air Quality  | PM <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 8 locations                                                            |
| 2      | Meteorology          | Wind speed and direction, temperature, relative humidity and rainfall        | Near project site continuous for three months with hourly recording and from secondary sources of IMD station, Coimbatore |
| 3      | Water quality        | Physical, Chemical and Bacteriological parameters                            | Grab samples were collected at 5 ground water and 1 surface water locations once during study period.                     |
| 4      | Ecology              | Existing terrestrial and aquatic flora and fauna within 10 km radius circle. | Limited primary survey and secondary data was collected from the Forest department.                                       |
| 5      | Noise levels         | Noise levels in dB(A)                                                        | At 8 locations data monitored once for 24 hours during EIA study.                                                         |
| 6      | Soil Characteristics | Physical and Chemical Parameters                                             | Once at 6 locations during study period                                                                                   |

|    |                                              |                                                                                                        |                                                                                                |
|----|----------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 7  | Land use                                     | Existing land use for different categories                                                             | Based on Survey of India topographical sheet and satellite imagery and primary survey.         |
| 8  | Socio-Economic Aspects                       | Socio-economic and demographic characteristics, worker characteristics                                 | Based on primary survey and secondary sources data like census of India 2011.                  |
| 9  | Hydrology                                    | Drainage pattern of the area, nature of streams, aquifer characteristics, recharge and discharge areas | Based on data collected from secondary sources as well as hydro-geology study report prepared. |
| 10 | Risk assessment and Disaster Management Plan | Identify areas where disaster can occur by fires and explosions and release of toxic substances        | Based on the findings of Risk assessment done for the mining associated activities             |

Source: Field Monitoring Data

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

### 1.7.1 Regulatory Compliance & Applicable Laws/Regulations

- Application for Quarrying Lease as per Tamil Nadu Minor Mineral Concession Rules, 1959
- Obtained Precise Area Communication Letter as per Tamil Nadu Minor Mineral Concession Rules, 1959 for Preparation of Mining Plan and obtaining Environmental Clearance
- The Mining Plan of Rough Stone and Gravel quarry has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959
- ToR from SEIAA –
- ToR Letter No. File No.10794. TOR Identification No. TO24B0108TN5892891N Dated:05.08.2024
- Approved Mining Plan

## CHAPTER – 2: PROJECT DESCRIPTION

### 2.0 General

The Proposed Rough Stone and Gravel Quarry requires Environmental Clearance. There are four proposed and one existing quarry forming a cluster; calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1<sup>st</sup> July 2016 and the total extent of cluster is 12.13.33 ha.

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

### 2.1 Description of the Project

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

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

### 2.2 Location of the Project

- The Quarry is located in Edayarpalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu State.
- The project falls in Toposheet No: 58 F/01.
- The cluster areas fall in the Latitude between 10°54'52.4089"N to 10°54'56.6423" N and Longitude between 77°06'42.1340"E to 77°06'48.7539"E.
- The projects under the cluster are classified as patta land (Non-Forest Land) & does not fall within 10 km radius of any Eco – sensitive zone, Wild life Sanctuary, National Park, Tiger Reserve, Elephant Corridor and Biosphere Reserves.

**TABLE 2.1: SITE CONNECTIVITY TO THE QUARRY**

|                 |                                                                                          |
|-----------------|------------------------------------------------------------------------------------------|
| Nearest Roadway | NH544 - Thirussur – Coimbatore Road -10km-NW<br>SH163 - Kochi – Palladam Road – 4.0km-NE |
| Nearest Village | Idayarpalayam – 1.0Km- NW                                                                |
| Nearest Town    | Suler – 12.0Km – NE                                                                      |
| Nearest Railway | Chettipalayam Railway station – 8.0Km - West                                             |
| Nearest Airport | Coimbatore Airport – 21Km - NW                                                           |
| Seaport         | Kochi- 143 Km-SW                                                                         |

Source: Survey of India Toposheet

The cluster quarries corners co-ordinates are given below.

**TABLE 2.2 – BOUNDARY CO-ORDINATES OF PROPOSED PROJECT**

| Proposed Quarries-P1 |                 |                 |
|----------------------|-----------------|-----------------|
| S.No                 | Latitude        | Longitude       |
| 1                    | 10°54'52.4089"N | 77°06'42.9565"E |
| 2                    | 10°54'53.0497"N | 77°06'42.8421"E |
| 3                    | 10°54'52.9851"N | 77°06'42.4658"E |
| 4                    | 10°54'55.7901"N | 77°06'42.1340"E |
| 5                    | 10°54'56.6423"N | 77°06'48.0790"E |
| 6                    | 10°54'55.9479"N | 77°06'48.2251"E |
| 7                    | 10°54'54.7529"N | 77°06'48.5463"E |
| 8                    | 10°54'53.7995"N | 77°06'48.7539"E |
| Datum: UTM-WGS84     |                 |                 |

Source: Quarry Lease Plan

**FIGURE 2.1: TOPOGRAPHICAL VIEW OF THE PROJECT SITE**



**FIGURE 2.2: PHOTOGRAPHS OF FENCING & GREEN BELT**



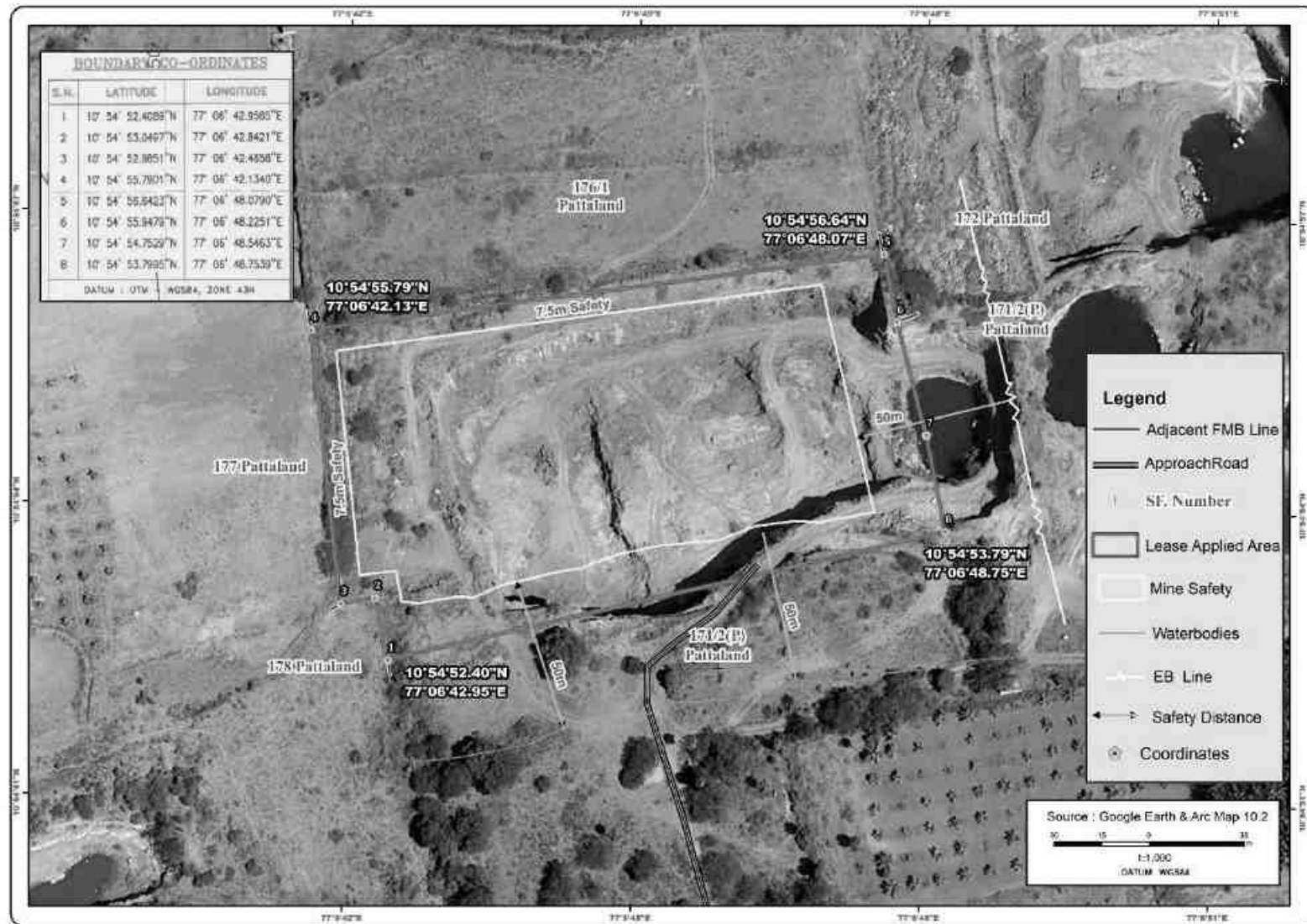
**FIGURE 2.2: SHOWING GOOGLE IMAGE ROUGH STONE AND GRAVEL QUARRY PROJECT AREAS**

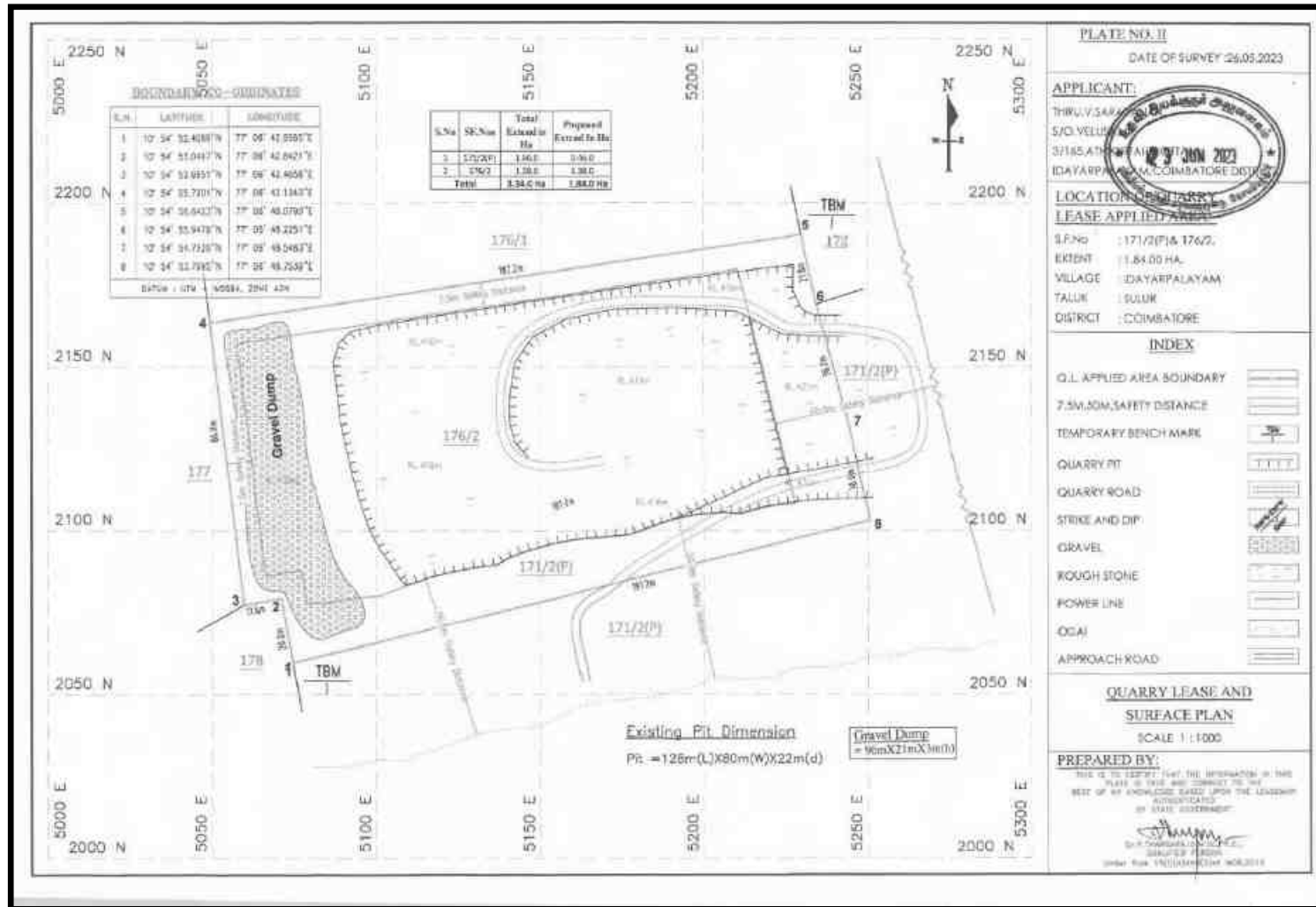
**FIGURE 2.3: QUARRY LEASE PLAN**

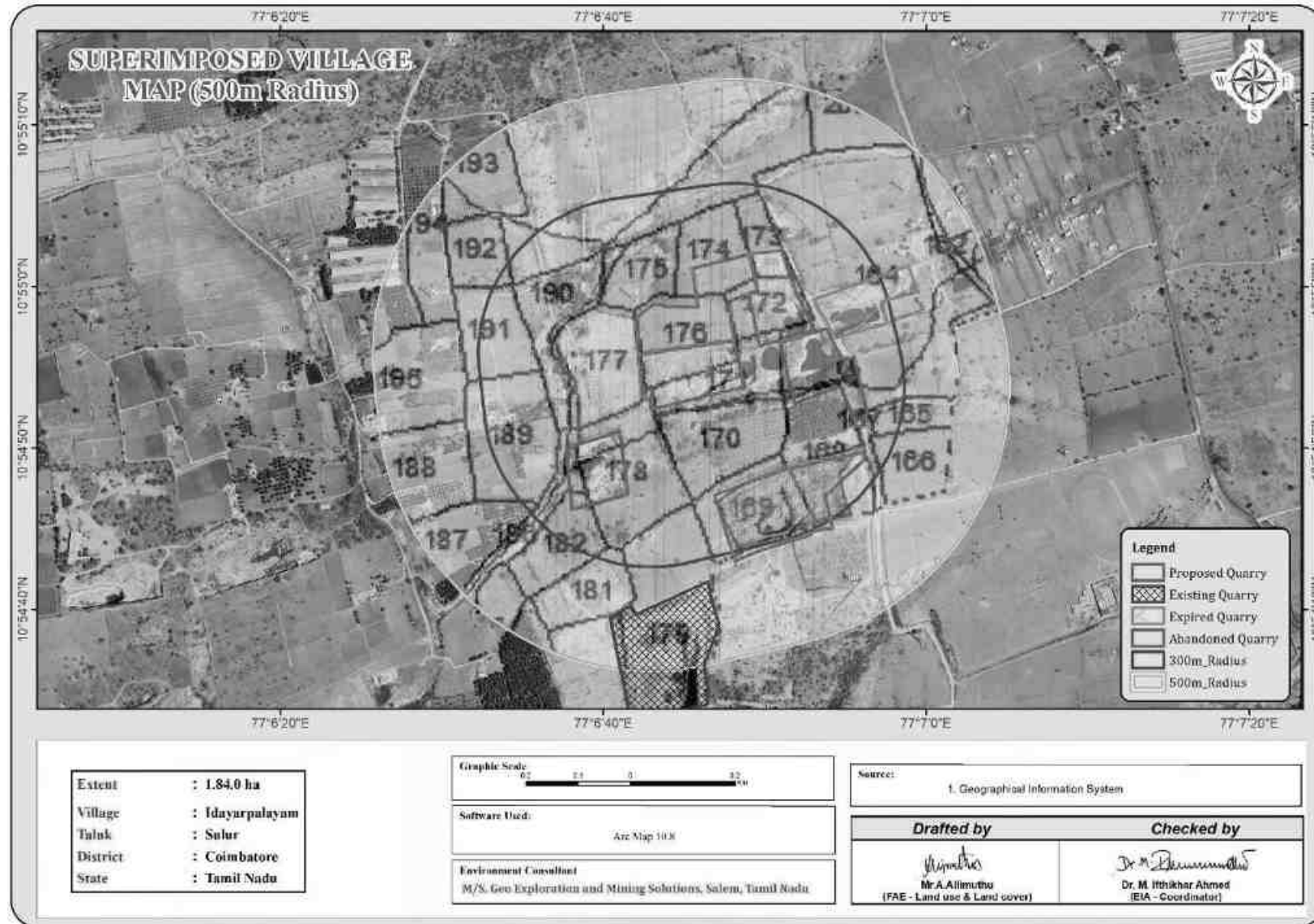
**FIGURE 2.4: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE**

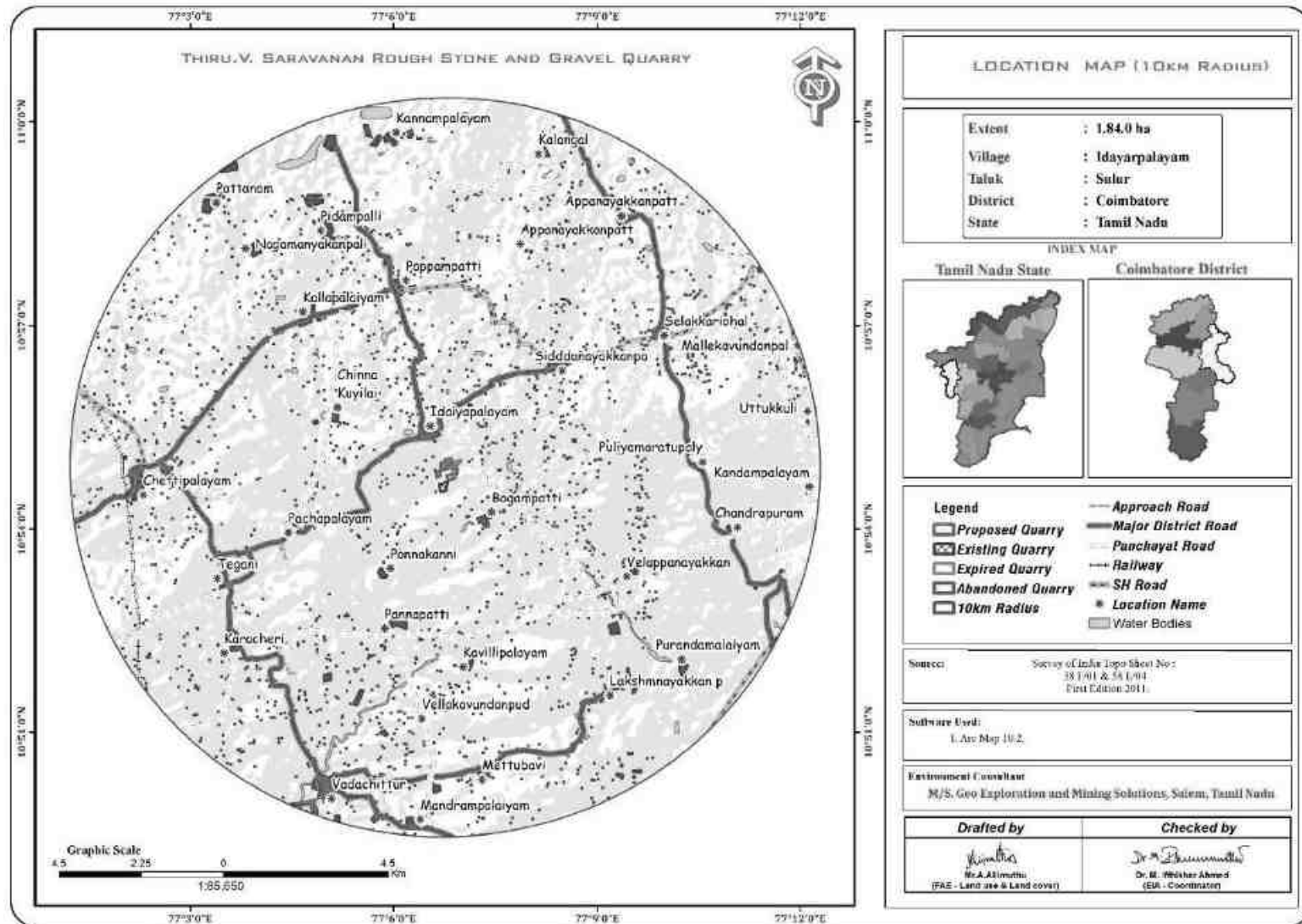
**FIGURE 2.5: DIGITIZED MAP OF THE STUDY AREA (10 KM RADIUS FROM PROJECT SITE)**



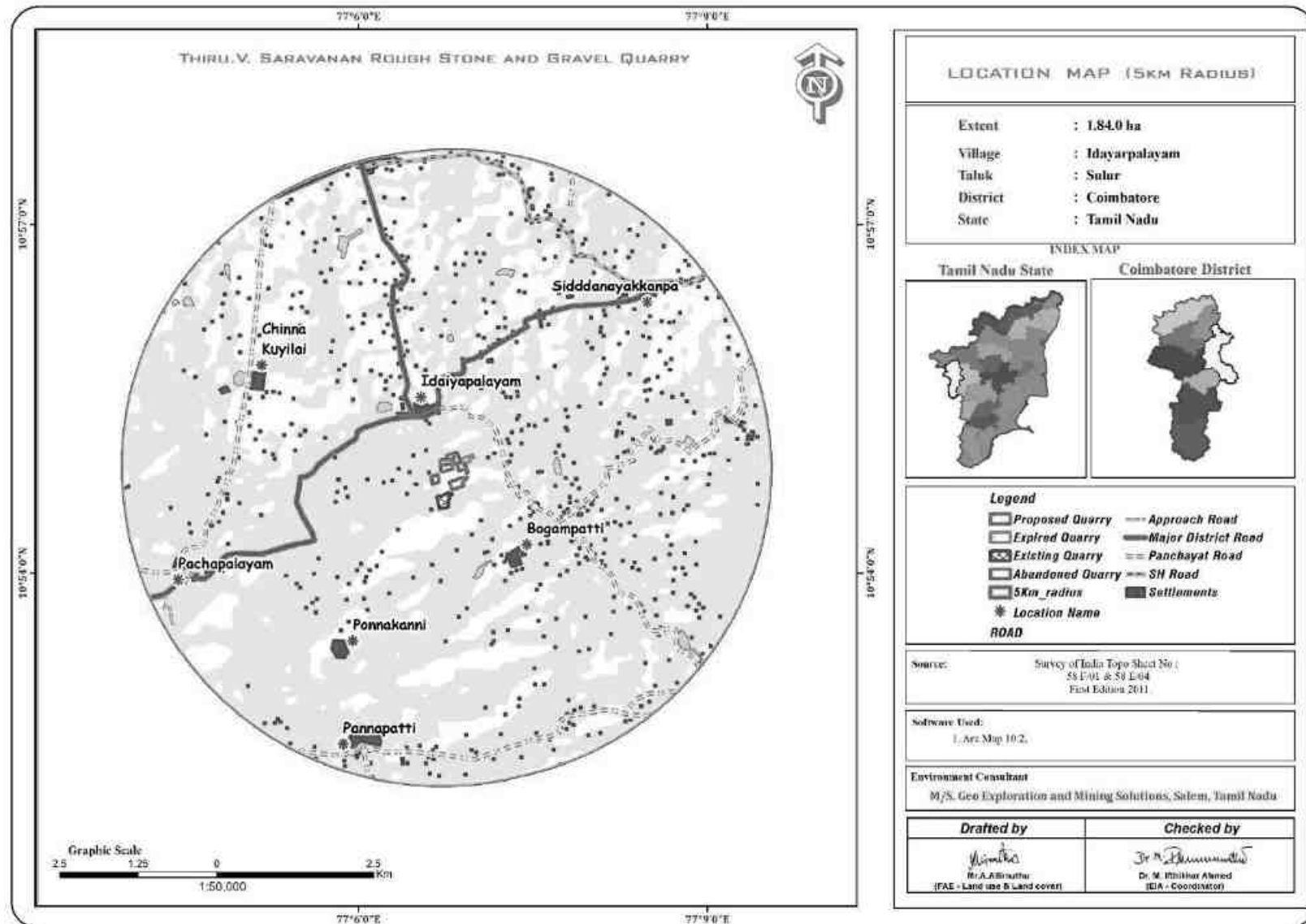
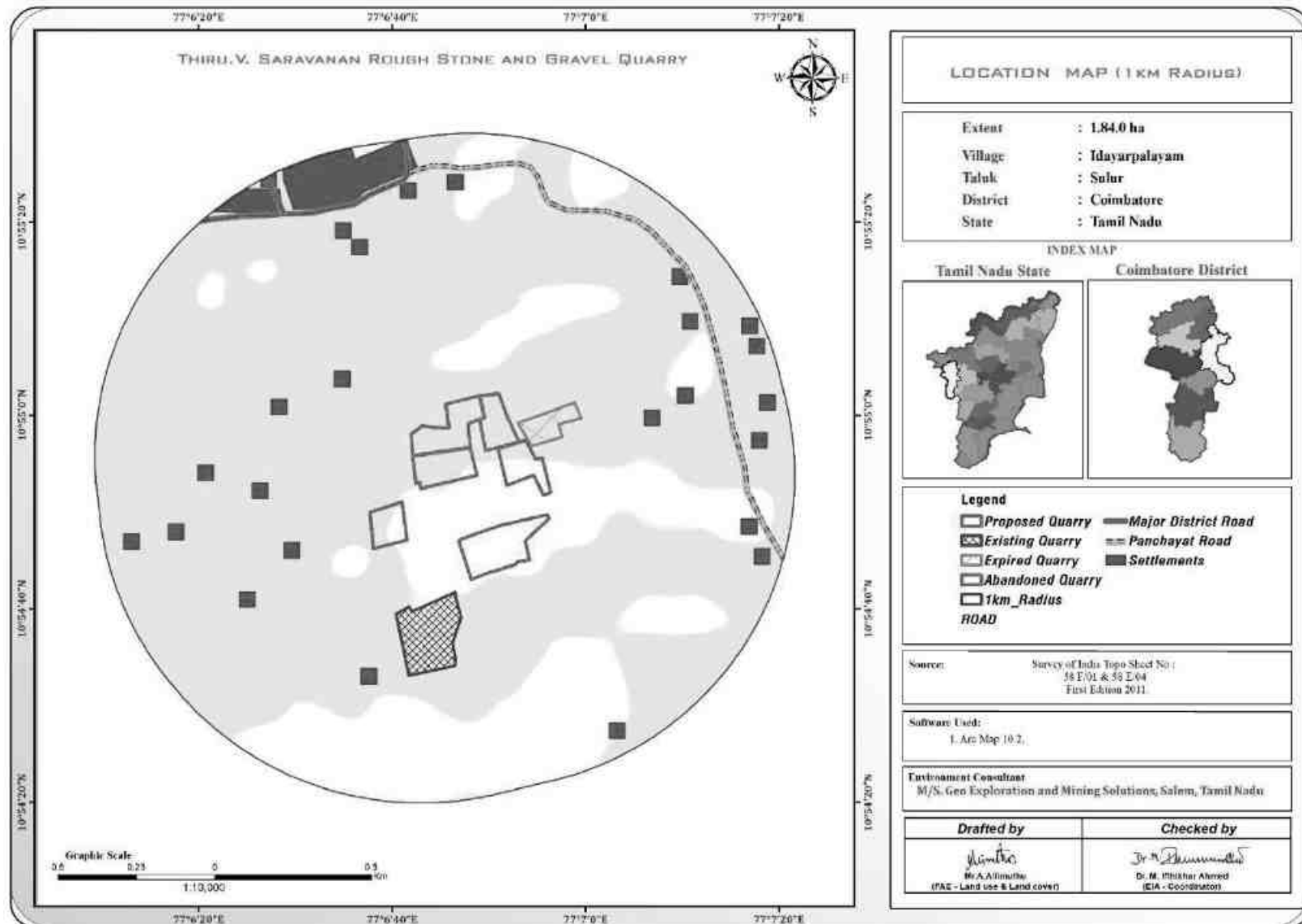
**FIGURE 2.6: DIGITIZED MAP OF THE STUDY AREA (5 KM RADIUS FROM PROJECT SITE)**

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

### 2.2.1 Project Area

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

**TABLE 2.3 – LAND USE PATTERN OF THE PROPOSED PROJECT**

| Description          | Present area in (ha) | Area at the end of life of quarry (Ha) |
|----------------------|----------------------|----------------------------------------|
| Area under quarrying | 1.10.3               | 1.35.3                                 |
| Dump                 | 0.19.3               | Nil                                    |
| Infrastructure       | Nil                  | 0.01.0                                 |
| Road                 | 0.01.0               | 0.03.0                                 |
| Green Belt           | Nil                  | 0.35.8                                 |
| Unutilized area      | 0.53.4               | 0.08.9                                 |
| <b>Grand Total</b>   | <b>1.84.0</b>        | <b>1.84.0</b>                          |

Source: Approved Mining Plan

### 2.2.2 Size or Magnitude of Operation

**TABLE 2.4: OPERATIONAL DETAILS FOR PROPOSED PROJECTS**

| PARTICULARS                                   | DETAILS                                              |                                                              |
|-----------------------------------------------|------------------------------------------------------|--------------------------------------------------------------|
|                                               | Rough Stone (m <sup>3</sup> )<br>(5Year Plan period) | Gravel (m <sup>3</sup> )<br>(1 Year Plan period)             |
| Geological Resources                          | 5,52,448m <sup>3</sup>                               | 7,788 m <sup>3</sup>                                         |
| Mineable Reserves                             | 1,27,607 m <sup>3</sup>                              | 4,640 m <sup>3</sup>                                         |
| Production for five years Plan                | 1,27,607 m <sup>3</sup>                              | 4,640 m <sup>3</sup><br>6048 m <sup>3</sup> -(Existing Dump) |
| Mining Plan Period / Lease Applied Period     | 5Years                                               |                                                              |
| Number of Working Days                        | 300 Days                                             |                                                              |
| Production per day                            | 85                                                   | 15                                                           |
| No of Lorry loads (12m <sup>3</sup> per load) | 7                                                    | 1                                                            |
| Total Depth of mining                         | 47m bgl (2m Gravel + 45m Rough stone)                |                                                              |

Source: approved mining plan

\* Gravel formation are proposed to excavate for first year only

## 2.3 Geology

### 2.3.1 Regional Geology

Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale the Charnockite body N30°E to S30°W with dipping SE60°.

#### Stratigraphy of the area –

↑ AGE FORMATION  
Recent - Quaternary weathered formation (Gravel)  
-----Unconformity-----  
Archaean - Charnockite  
Peninsular Gneiss complex Geologically, the district is covered by rocks belonging to Archean age comprising the khondalite group, Charnockite Group, migmatite group, Sathayamangalam group, Bhavani Group and Alkali complex of Proterozoic age and Recent to Late Pleistocene rocks of Cainozoic age.

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

The fissile homblende gneisses (Peninsular gneiss – younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsite – kyanite quartzites, ferruginous quartzite (Satya Mangalam Group) intruded by a number of ultramafic and basic rocks and granites are seen in the Northern portions of the

district especially around Mettupalayam and Northern areas of Coimbatore. The granites are Proterozoic age and occupy the Western end and Eastern Part of the District as separate bodies and are recognized as Maruthamalai Granite and Punjapuliampatti Granites respectively. The quaternary alluvium is seen in the Western areas of Coimbatore town. The alluvium is more than 30m thick in the Chinnathadagam valley northwest of Coimbatore and in the Siruvani valley west of Coimbatore.

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

### 2.3.2 Local Geology: -

The study area follows the regional trend and mainly comprises of Hard Rock Formation as a homogeneous formation / Batholith formation of Charnockite. All the project areas is plain terrain, all the project areas is covered with gravel formation of 2m to 3m thickness; Massive Charnockite formation is found after 2 m to 3 m gravel formation which is clearly inferred from the nearby existing quarry pit.

### 2.3.3 Hydrogeology

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

Quaternary - Laterites, Sands and Clays

Tertiary - Sandstone, Gravels and Clays

Cretaceous - Limestone, Calcareous Sandstone and Clay unconformity.

Archaean - Charnockites, Gneisses, Granites, Dolerites and Pegmatite

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

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

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

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

#### Aquifer Systems:

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

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

### Alluvial Formations

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

### Tertiary Cuddalore sandstone

Tertiary formations are represented by Cuddalore Sandstone and characterised as fluvial to brackish marine deposits. Predominantly this formation is divided into Lower and Upper Cuddalore formations. In the Upper Cuddalore formations the groundwater occurs in semi confined conditions, whereas in the Lower Cuddalore the groundwater occurs in confined condition with good groundwater potential.

### Cretaceous Formations

Groundwater occurring in the lens shape in the sandy clay lenses and fine sand is underlain by white and black clay beds which constitute phreatic aquifer depth which ranges 10m to 15m below ground level. Phreatic aquifer in Limestone is potential due to the presence of Oolitic Limestone.

### Hard Rock Formations

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

### Granitic Gneiss

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

### Charnockite

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

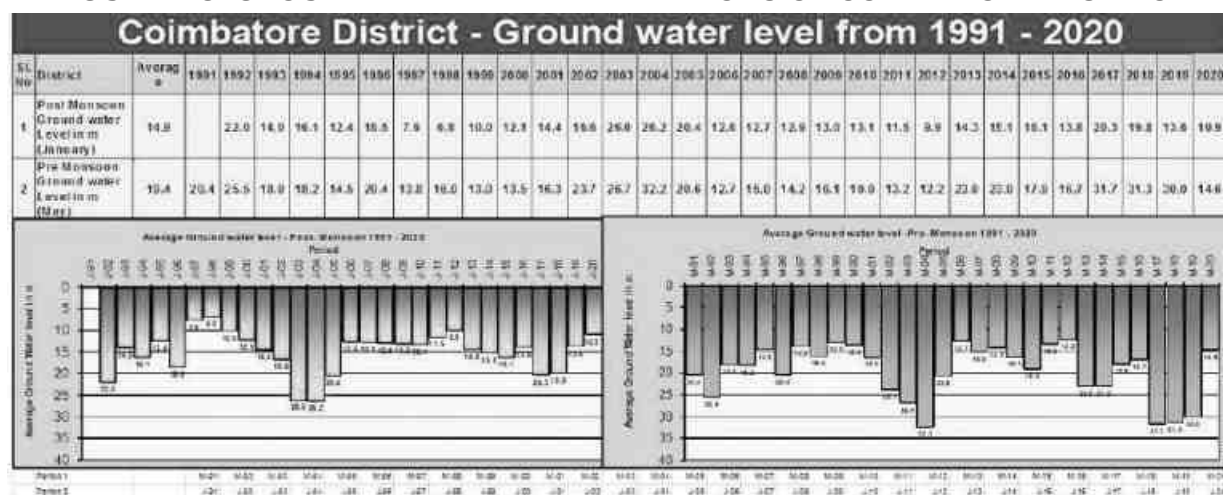
### Aquifer Parameters

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

**TABLE 2.5: RANGE OF AQUIFER PARAMETERS**

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

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

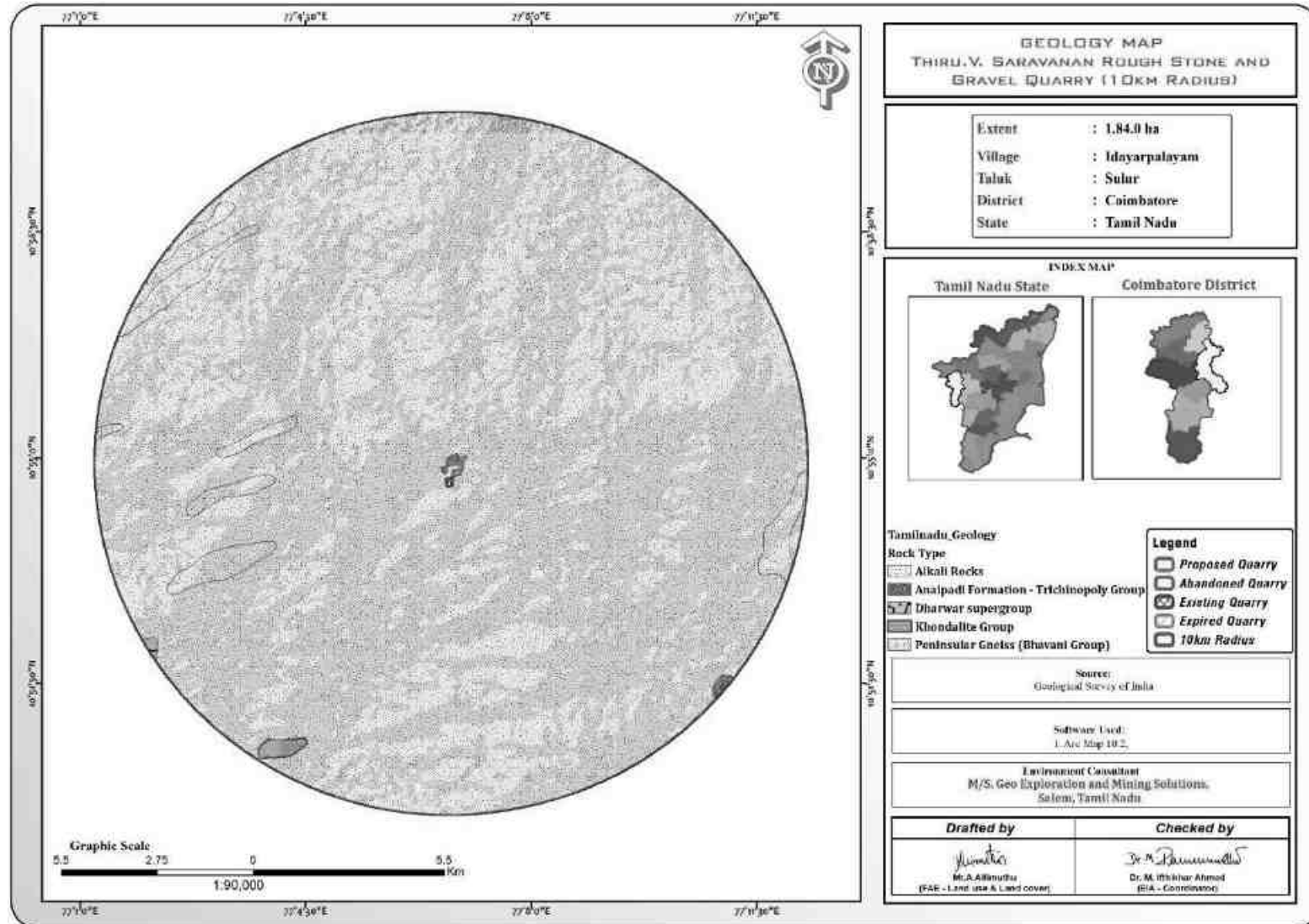
**FIGURE 2.8: GROUND WATER LEVEL VARIATIONS OF COIMBATORE DISTRICT**

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

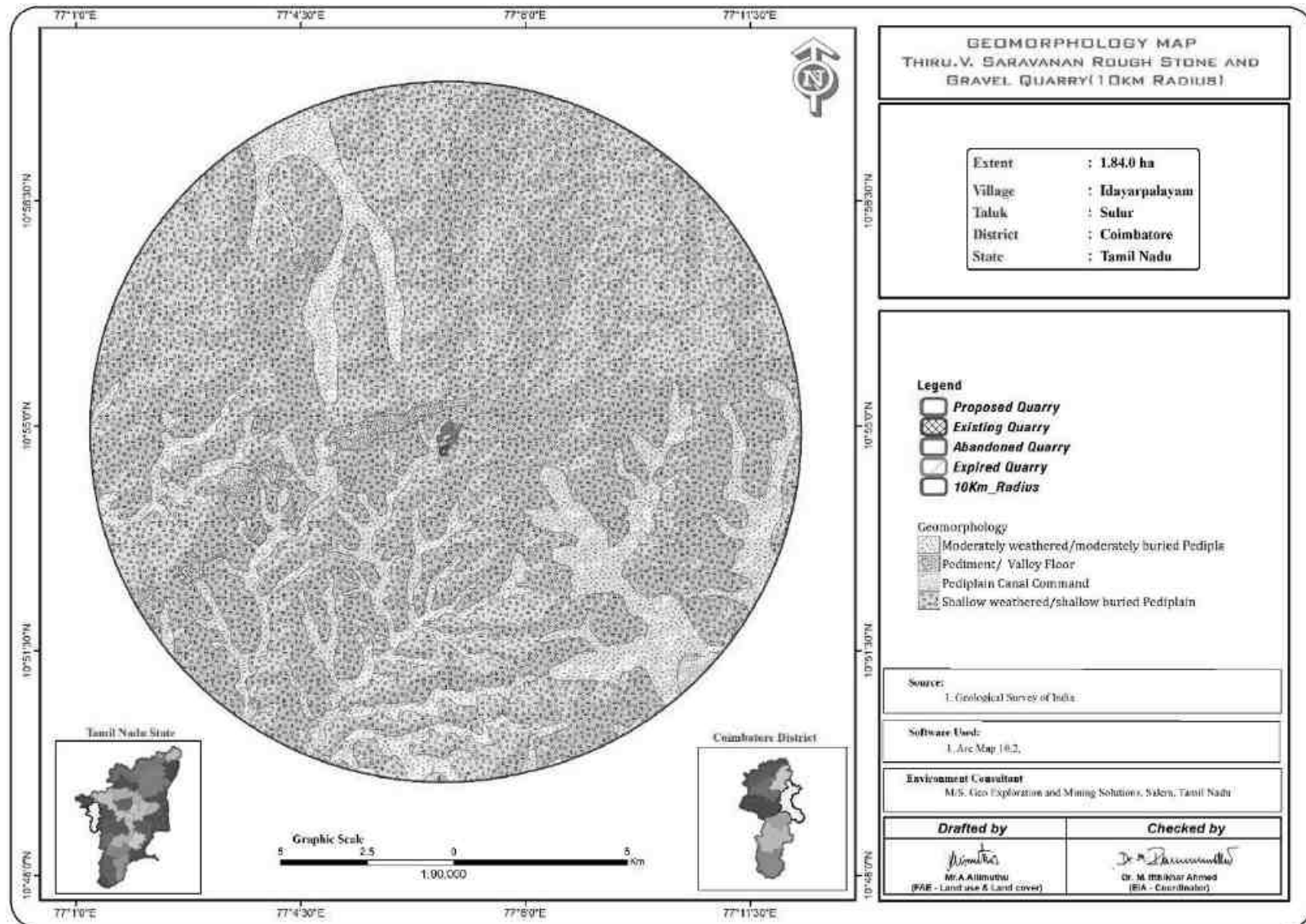
**TABLE 2.6: GROUND WATER LEVEL VARIATIONS OF COIMBATORE DISTRICT**

| Jan 2017 | May 2017 | Jan 2018 | May 2018 | Jan 2019 | May 2019 | Jan 2020 | May 2020 | Jan 2021 | May 2021 | 5 Years Pre Monsoon Average | 5Years Post Monsoon Average |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------------------------|-----------------------------|
| 20.4     | 29.6     | 19.8     | 22.3     | 13.7     | 17.6     | 109      | 14.6     | 9.3      | 13.0     | 16.5                        | 12.6                        |

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

**FIGURE 2.9: REGIONAL GEOLOGY MAP**

### FIGURE 2.10: GEOMORPHOLOGY MAP





[illegible]

## 2.4 Resources and Reserves of the Proposed Quarry

The available mineable reserves are calculated after leaving necessary safety distances prescribed in the Precise area communication letter.

**TABLE 2.7: AVAILABLE GEOLOGICAL RESOURCES OF PROPOSED PROJECT**

| Description                | Rough Stone quarry      | Gravel               |
|----------------------------|-------------------------|----------------------|
| <b>Geological Resource</b> | 5,52,448m <sup>3</sup>  | 7,788 m <sup>3</sup> |
| <b>Mineable Reserves</b>   | 1,27,607 m <sup>3</sup> | 4,640 m <sup>3</sup> |

Source: Approved Mining Plan

**TABLE 2.9: YEAR-WISE PROPOSAL FOR FIRST FIVE YEARS PRODUCTION PLAN**

| YEAR         | ROUGH STONE QUARRY (m <sup>3</sup> ) | GRAVEL (m <sup>3</sup> ) |
|--------------|--------------------------------------|--------------------------|
| <b>I</b>     | 19,284                               | 6,048 (Existing Dump)    |
| <b>II</b>    | 30,920                               | 4,640                    |
| <b>III</b>   | 25,643                               | -                        |
| <b>IV</b>    | 24,730                               | -                        |
| <b>V</b>     | 27,030                               | -                        |
| <b>TOTAL</b> | <b>1,27,607</b>                      | <b>10,688</b>            |

Source: Approved Mining Plan

### Disposal of Waste

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

### Conceptual Mining Plan/ Final Mine Closure Plan

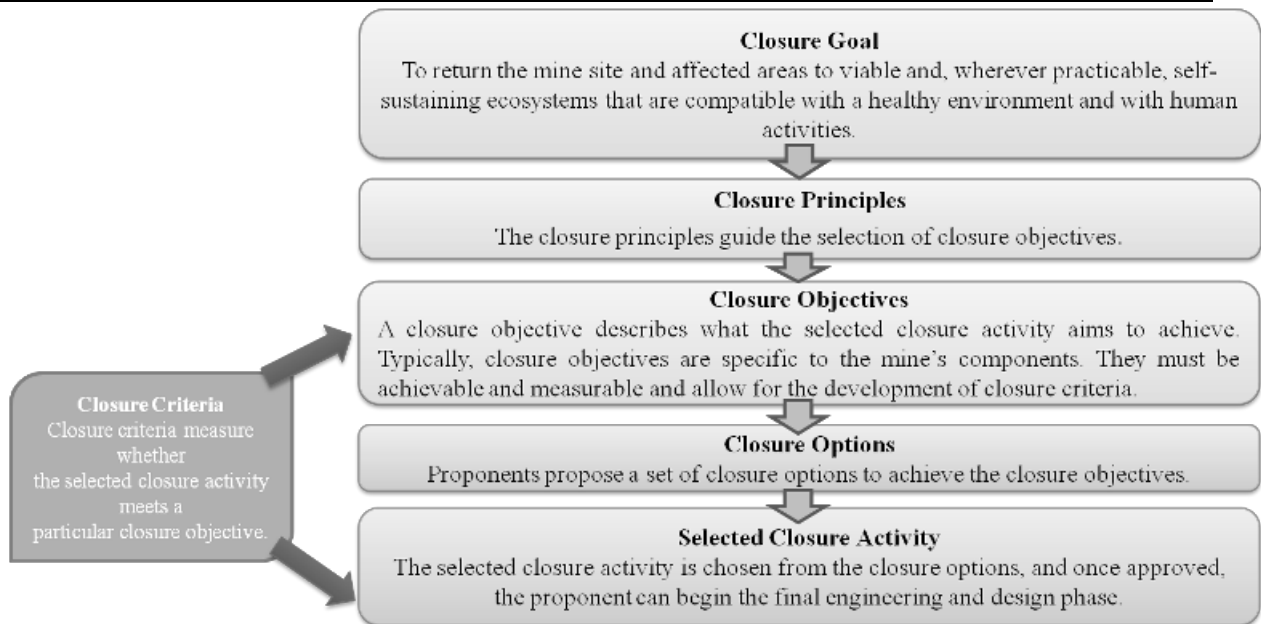
The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.

**TABLE 2.10: ULTIMATE PIT DIMENSIONS**

| Length (Max) (m) | Width (Max) (m) | Depth (Max) (m) |
|------------------|-----------------|-----------------|
| 179              | 82              | 47 m Bgl        |

Source: Approved Mining Plan

- At the end of life of mine, the excavated mine pit / void will act as artificial reservoir for collecting rain water and helps to meet out the demand or crises during drought season.
- After mine closure the greenbelt developed along the safety barrier and top benches and temporary water reservoir will enhance the ecosystem
- Mine Closure is a process of returning a disturbed site to its natural state or which prepares it for other productive uses that prevents or minimizes any adverse effects on the environment or threats to human health and safety.
- The principal closure objectives are for rehabilitated mines to be physically safe to humans and animals, geo-technically stable, geo-chemically non-polluting/ non-contaminating, and capable of sustaining an agreed post-mining land use.
- land use.

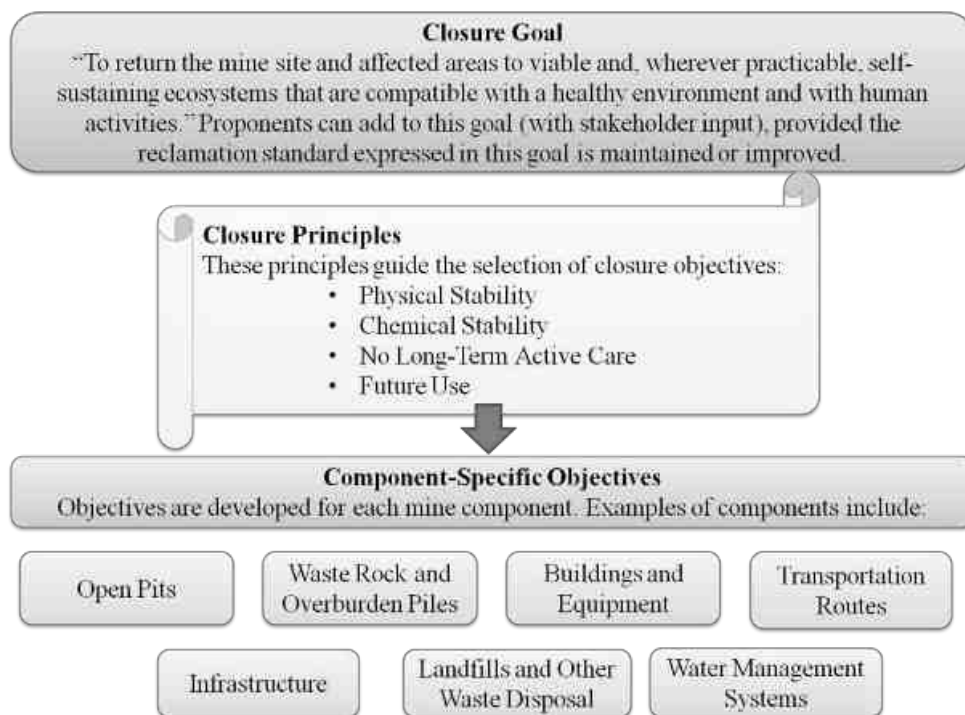


### Closure Objectives

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

### Closure Planning & Options Considerations in Mine Design –

- The closure of mine is well planned at the initial stage of planning & design consideration by the internal and external stake holders
- Construction of 2m height bund all along the mine pit boundary and ensure its stability all time & construction of garland drain along the natural slope to avoid sliding and collection of soil to the pit & surface runoff during rainfall
- After complete exploitation of mineral, the lowest bench foot wall side will be maintained as plain surface without any sump pits to avoid any accidents
- All the sharp edges will be dressed to smoother face before the closure of mine and ensure no loose debris on hanging wall side
- There is a river on southern side of the project area. The river will not be hindered by any of mine closure activities
- The project proponent as a part of social responsibilities assures to supply the stored mine pit water to the nearby villages after effective treatment process as per the standards of TNPCB & TWAD
- Native species will be planted in 3 row patterns on the boundary barriers and 1<sup>st</sup> bench, a full-time sentry will be appointed at the gate to prevent inherent entry of public & cattle.
- The access road to the quarry will be cut-off immediately after the closure
- The layout design shall be prepared and get approved from Department of Geology and Mining.
- The proponent is instructed to construct as per the layout approved
- Physical and chemical stability of structures left in place at the site, the natural rehabilitation of a biologically diverse, stable environment, the ultimate land use is optimized and is compatible with the surrounding area and the requirements of the local community, and taking the needs of the local community into account and minimizing the socio-economic impact of closure
- There will be a positive change in the environmental and ecology due to the mine closure



#### Post-Closure Monitoring –

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

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

**TABLE 2.11: MINE CLOSURE BUDGET**

| ACTIVITY                                                    |      | YEAR    |    |     |    |   | RATE                | AMOUNT (INR)         |
|-------------------------------------------------------------|------|---------|----|-----|----|---|---------------------|----------------------|
|                                                             |      | I       | II | III | IV | V |                     |                      |
| Plantation under safety zone                                | Nos. | 400     | -  | -   | -  | - | @100 Rs Per sapling | Rs.40,000/-          |
|                                                             | Cost | 40000/- | -  | -   | -  | - |                     |                      |
| Plantation in around approach road and nearby village roads | Nos  | 200     | -  | -   | -  | - |                     | Rs.20,000/-          |
|                                                             | Cost | 20000/- | -  | -   | -  | - |                     |                      |
| Wire Fencing (In Mtrs) 560 Mtrs                             |      | 168000  | -  | -   | -  | - | @300 Rs Per Meter   | Rs.1,68,000/-        |
| Garland drain (In Mtrs) 470 Mtrs                            |      | 141000  | -  | -   | -  | - | @300 Rs Per Meter   | Rs.1,41,000/-        |
| <b>TOTAL</b>                                                |      |         |    |     |    |   |                     | <b>Rs.3,69,000/-</b> |

## 2.5 Method of Mining

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

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

### 2.5.1 Drilling

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

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

### 2.5.2 Blasting

Blasting will be done as per details below: -

- Controlled blasting parameter: -

Spacing – 1.2m

Burden – 1.0 m

Depth of hole – 1.5 m

Charge per hole – 0.5Kg

Powder factor – 6.0 tonnes/kg

Dia of hole – 32 mm

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

No of Holes to be drilled per day: -

Volume of Rough Stone will be excavated from one hole = 3 Tonnes

Total Volume from two proposed quarries = 1,27,607 m<sup>3</sup>

= 1,27,607 /5

|                                    |   |                   |
|------------------------------------|---|-------------------|
|                                    | = | 25521 /300        |
|                                    | = | 85* 2.6           |
|                                    | = | 221Tonnes per day |
| Therefore, Number of Holes per day | = | 221/3             |
|                                    | = | 73 Holes per day  |

**Type of Explosives to be used –**

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

**2.5.3 Extent of Mechanization****TABLE 2.13 PROPOSED MACHINERY DEPLOYMENT**

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

Source: Approved Mining Plan

**2.6 General Features****2.6.1 Existing Infrastructures**

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

**2.6.1 Drainage Pattern**

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

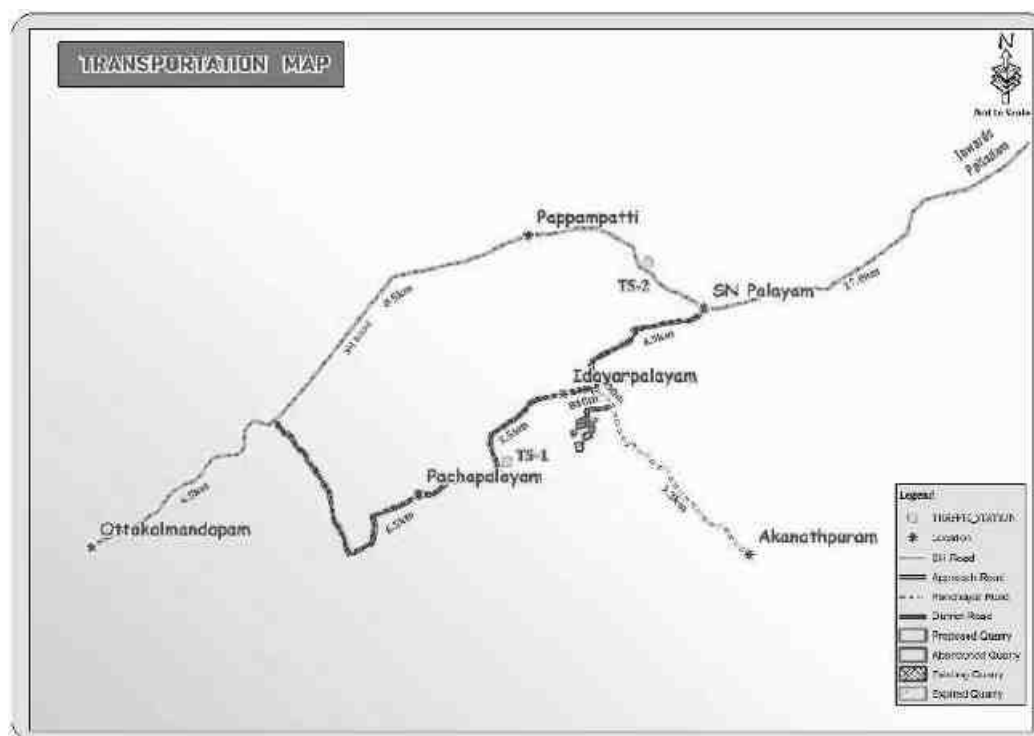
**2.6.2 Traffic Density**

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

**TABLE 2.14 – TRAFFIC SURVEY LOCATION'S**

| Station code | Station location                    | Distance and Direction | Type of Road         |
|--------------|-------------------------------------|------------------------|----------------------|
| TS1          | Pachapalaym to Ottakalmandapam Road | 2.5km- SW              | Major District Road_ |
| TS2          | Pappampatti to SN Palayam           | 4 Km-NE                | SH Road              |

Source: On-site monitoring by GEMS FAE & TM

**FIGURE 2.12: TRAFFIC SURVEY LOCATIONS & TRANSPORTATION ROUTE MAP**

(Source: Survey of India Toposheet)

**TABLE 2.15 – EXISTING TRAFFIC VOLUME**

| Station code | HMV (Hourly Average) |     | LMV hourly average |     | 2/3 Hourly average |     | Total PCU per hour |
|--------------|----------------------|-----|--------------------|-----|--------------------|-----|--------------------|
|              | No                   | PCU | No                 | PCU | No                 | PCU |                    |
| TS1          | 150                  | 450 | 125                | 125 | 140                | 70  | 645                |
| TS2          | 225                  | 675 | 200                | 200 | 180                | 90  | 965                |

Source: On-site monitoring by GEMS FAE &amp; TM

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

**TABLE 2.16 – ANTICIPATED TRAFFIC DUE TO THIS PROPOSED PROJECT**

| Transportation of Rough stone per day |                  |               |
|---------------------------------------|------------------|---------------|
| Capacity of trucks                    | Cumulative Trips | Volume in PCU |
| 10/20 tonnes                          | 20               | 60            |

Source: Anticipated based on Approved Mining Plan Production

**TABLE 2.17 – SUMMARY OF TRAFFIC VOLUME**

| Route | Existing traffic value in PCU | Incremental traffic from the quarry in PCU | Total traffic volume | Hourly Capacity in PCU as per IRC guidelines |
|-------|-------------------------------|--------------------------------------------|----------------------|----------------------------------------------|
| TS1   | 645                           | 156                                        | 801                  | 1200                                         |
| TS2   | 965                           | 156                                        | 1121                 | 1500                                         |

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

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

### 2.6.3 Mineral Beneficiation and Processing

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

### 2.6.4 Existing Infrastructure

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

## 2.6.2 Drainage Pattern

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

## 2.7 Project Requirement

### 2.7.1 Water Source & Requirement

Detail of Total water requirements in KLD as given below:

**TABLE 2.18 – WATER REQUIREMENT FOR THE CLUSTER PROJECT**

| *Purpose                      | Quantity       | Source                                                                                    |
|-------------------------------|----------------|-------------------------------------------------------------------------------------------|
| Dust Suppression              | 0.6 KLD        | From Existing bore wells from nearby area                                                 |
| Green Belt development        | 0.4 KLD        | From Existing bore wells from nearby area                                                 |
| Sanitation & Drinking purpose | 0.5 KLD        | From existing, bore wells and drinking water will be sourced from Approved water vendors. |
| <b>Total</b>                  | <b>1.5 KLD</b> |                                                                                           |

Source: Prefeasibility Report

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

### 2.7.2 Power and Other Infrastructure Requirement

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

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

### 2.7.3 Fuel Requirement

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

Average diesel consumption is around = 500 Liters of HSD / day per project

### 2.7.4 Employment Requirement:

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

**TABLE 2.19: EMPLOYMENT POTENTIAL FOR PROPOSED QUARRY**

| Employment in Nos |
|-------------------|
| 18                |

A total of 18 people will get employment due to this quarry activity.

### 2.7.5 Project Cost

**TABLE 2.20 – PROJECT COST OF PROPOSED PROJECT**

| Project Cost    |
|-----------------|
| Rs. 69,27,000/- |

Source: Approved Mining Plan & Prefeasibility Report



## 2.8 *Project Implementation Schedule*

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

**TABLE 2.21 – EXPECTED TIME SCHEDULE FOR THE PROPOSED QUARRY**

| S. No | Particulars lease execution | 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 |

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

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## CHAPTER – 3: DESCRIPTION OF ENVIRONMENT

### 3.0 General

This chapter presents a regional background to the baseline data at the very onset, which will help in better appreciation of micro-level field data, generated on several environmental and ecological attributes of the study area. The baseline status of the project environment is described section wise for better understanding of the broad-spectrum conditions. The baseline environment quality represents the background environmental scenario of various environmental components such as Land, Water, Air, Noise, Biological and Socio-economic status of the study area. Field monitoring studies to evaluate the base line status of the project site were carried out covering Oct- Dec 2024 with CPCB guidelines. Environmental data has been collected with reference to cluster quarries by Global Lab Consultancy Services Approved by ISO: 9001:2015, NABL, for the below attributes-

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

#### Study Area

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

#### Study Period

The baseline study was conducted during the **Post Monsoon season** i.e. Oct- Dec 2024.

#### Study Methodology

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

1. The project area (Core zone) was surveyed in detail with the help of Total Station survey instrument and the boundary pillars were picked up with the help of handheld GPS. The boundary coordinates were superimposed on the satellite imagery to understand the relief of the area, besides Land use pattern of the area was studied through the Bhuvan (ISRO).
2. Soil samples were collected and analysed for relevant physico-chemical characteristics, exchangeable cations, nutrients & micro nutrients etc., in order to assess the impact of mining activities and proposed greenbelt development
3. Ground water samples were collected during the study period from the open wells and bore wells, while surface water was collected from river and lake in the buffer zone. The samples were analysed for parameters necessary to determine water quality (based on IS: 10500:2012 criteria) and those which are relevant from the point of view of environmental impact of the proposed quarries.
4. A meteorological station was setup in pachapalayam village. Wind speed, Wind direction, Dry and wet bulb temperature, Relative humidity, Rainfall with cloud cover and general weather conditions were recorded throughout the study period.
5. In order to assess the Ambient Air Quality (AAQ), samples of Ambient Air were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, 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

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

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

**TABLE 3.1 – ENVIRONMENTAL MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING**

| Attribute              | Parameters                                                                                          | Frequency of Monitoring                                         | No. of Locations                        | Protocol                                                                            |
|------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------|
| Land-use<br>Land cover | Land-use Pattern within 10 km radius of the study area                                              | Data's from census handbook 2011 and from the satellite imagery | Study Area                              | Satellite Imagery<br>Primary Survey                                                 |
| *Soil                  | Physio-Chemical Characteristics                                                                     | Once during the study period                                    | 6<br>(1 core & 5 buffer zone)           | IS 2720<br>Agriculture Handbook - Indian Council of Agriculture Research, New Delhi |
| *Water Quality         | Physical, Chemical and Bacteriological Parameters                                                   | Once during the study period                                    | 6<br>(1 surface water & 5 ground water) | IS 10500& CPCB Standards                                                            |
| Meteorology            | Wind Speed<br>Wind Direction<br>Temperature<br>Cloud cover<br>Dry bulb temperature<br>Rainfall      | 1 Hourly Continuous Mechanical/Automatic Weather Station        | 1                                       | Site specific primary data& Secondary Data from IMD Station                         |
| *Ambient Air Quality   | PM <sub>10</sub><br>PM <sub>2.5</sub><br>SO <sub>2</sub><br>NO <sub>x</sub><br>Fugitive Dust        | 24 hourly twice a week (Oct – Dec 2024)                         | 7<br>(2 core & 5 buffer)                | IS 5182 Part 1-23<br>National Ambient Air Quality Standards, CPCB                   |
| *Noise Levels          | Ambient Noise                                                                                       | Hourly observation for 24 Hours per location                    | 7<br>(2 core & 5 buffer zone)           | IS 9989<br>As per CPCB Guidelines                                                   |
| Ecology                | Existing Flora and Fauna                                                                            | Through field visit during the study period                     | Study Area                              | Primary Survey by Quadrate & Transect Study<br>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 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 LIII (False Color Composite) has been used for Land Use / Land Cover study. Satellite image has been procured from National Remote Sensing Centre, Hyderabad.

#### 3.1.2 OBJECTIVE

*The objectives of the LULC study are as follow:*

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

#### Technical specification of Satellite imagery Data Used:

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

- ☞ Satellite Image - Resourcesat1-LISSIII, 23.5m Resolution
- ☞ Satellite Data Source - NRSC, Hyderabad
- ☞ Satellite Vintage - 14st July 2020, Swath 141km wide.
- ☞ SOI Toposheet No - 58 -F/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 preprocessing, rectification, image enhancements and classifying the satellite data for assessing the change in land use land cover due to proposed developmental activities.

- ∞ Preliminary/primary data collection of the study area
- ∞ Satellite data procurement from NRSC
- ∞ Secondary data collection from authorized bodies
- ∞ Survey of India Toposheet (SOI)
- ∞ Mine Layout
- ∞ Cadastral / Khasra map
- ∞ GPS Coordinates of Lease Boundary
- ∞ Processing of satellite data using ArcGIS 10.8 and preparing the Land Use & Land cover maps (e.g. Plant/Mine area, Existing Quarry, Settlements, Agriculture land, Non agriculture land, water bodies, etc.) by Digital Image Processing (DIP) technique.
- ∞ Geo-Referencing of the Survey of India Toposheet
- ∞ Geo-Referencing of satellite Imagery with the help of Geo-Referenced Toposheets
- ∞ Enhancement of the Satellite Imagery
- ∞ Base Map layer creation (Roads, Railway, Village Names, and other Secondary data, etc.)
- ∞ Data analysis and Classification using Digital interpretation techniques.
- ∞ Ground truth studies or field Verification.
- ∞ Error fixing / Reclassification
- ∞ Final Map Generation.

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

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

| S.No                     | Classification          | Area Ha  | Area % |
|--------------------------|-------------------------|----------|--------|
| <b>BUILTUP</b>           |                         |          |        |
| 1                        | Builtup Urban           | 315.07   | 0.93   |
| 2                        | Builtup Rural           | 1054.32  | 3.11   |
| 3                        | Builtup Mining          | 346.79   | 1.02   |
| <b>AGRICULTURAL LAND</b> |                         |          |        |
| 4                        | Crop Land               | 19816.84 | 58.38  |
| 5                        | Agricultural Plantation | 3655.31  | 10.77  |
| 6                        | Fallow Land             | 7558.23  | 22.27  |
| <b>BARREN/WASTELAND</b>  |                         |          |        |
| 7                        | Barren Rocky            | 13.93    | 0.04   |

|                    |             |          |        |
|--------------------|-------------|----------|--------|
| 8                  | Scrub Land  | 1033.26  | 3.04   |
| <b>WATERBODIES</b> |             |          |        |
| 9                  | Waterbodies | 151.04   | 0.44   |
|                    |             | 33944.80 | 100.00 |

Source: Bhuvan, NRSC.

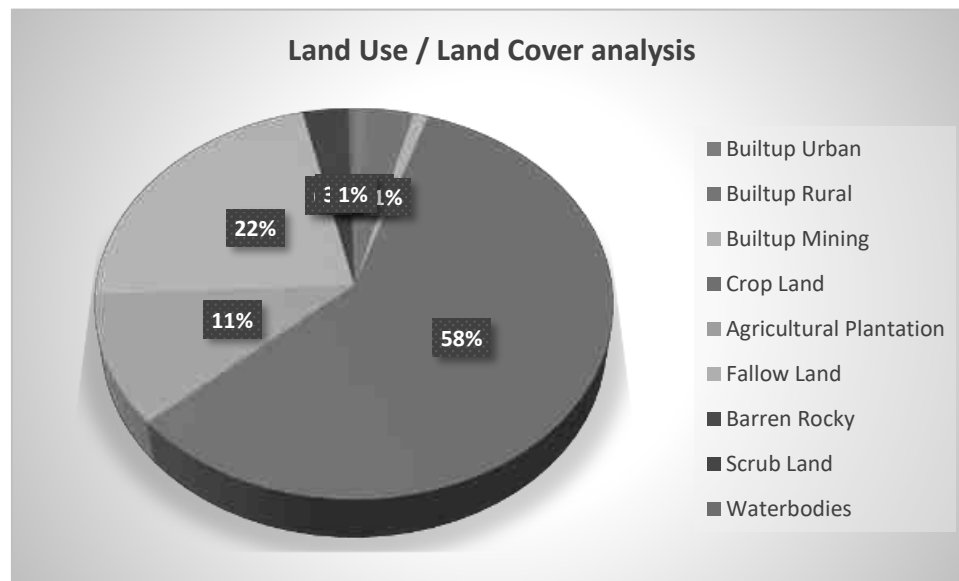


**FIGURE 3.1: CHART SHOWING LANDUSE/LANDCOVER ANALYSIS USING LISS III .Data**

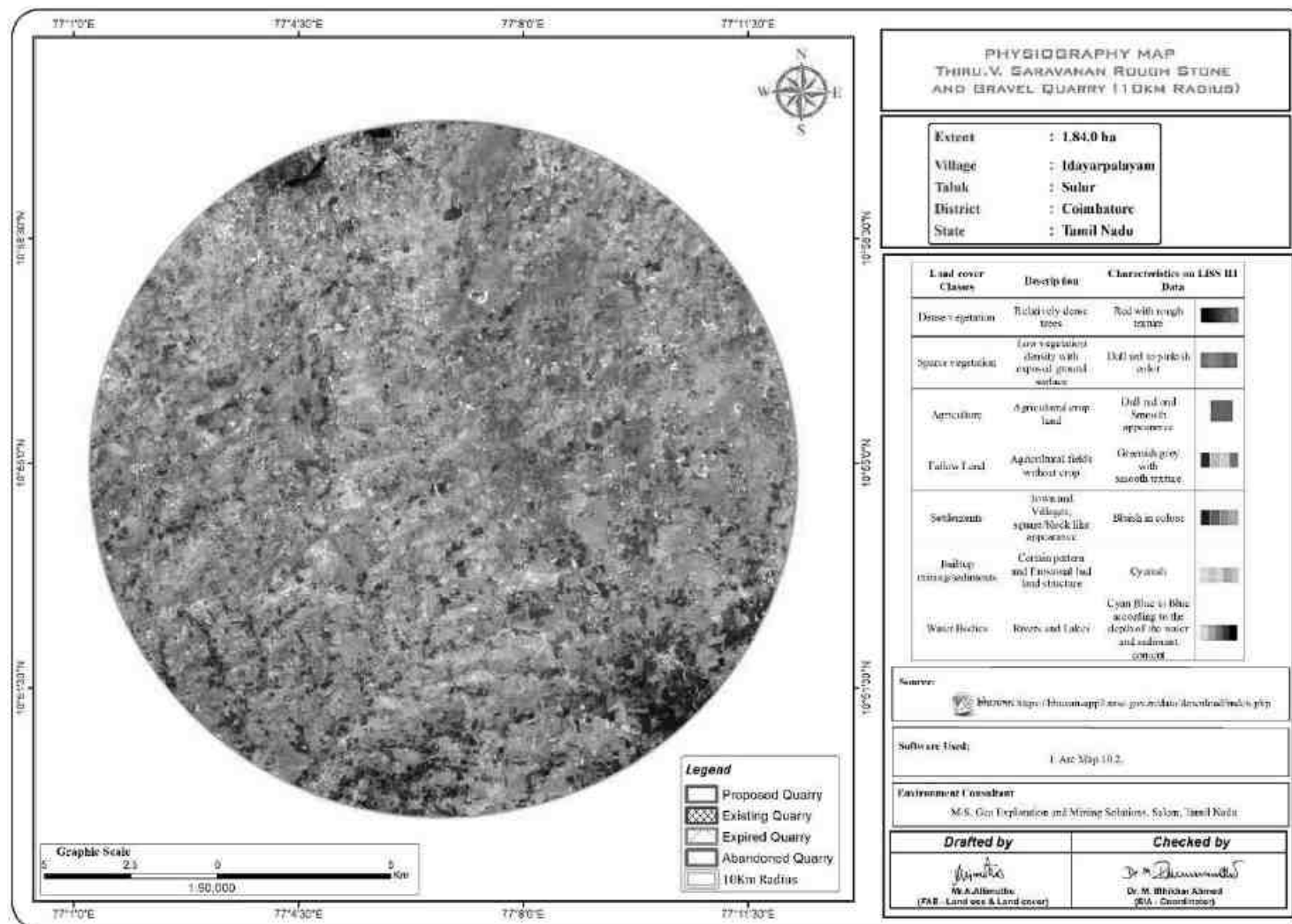
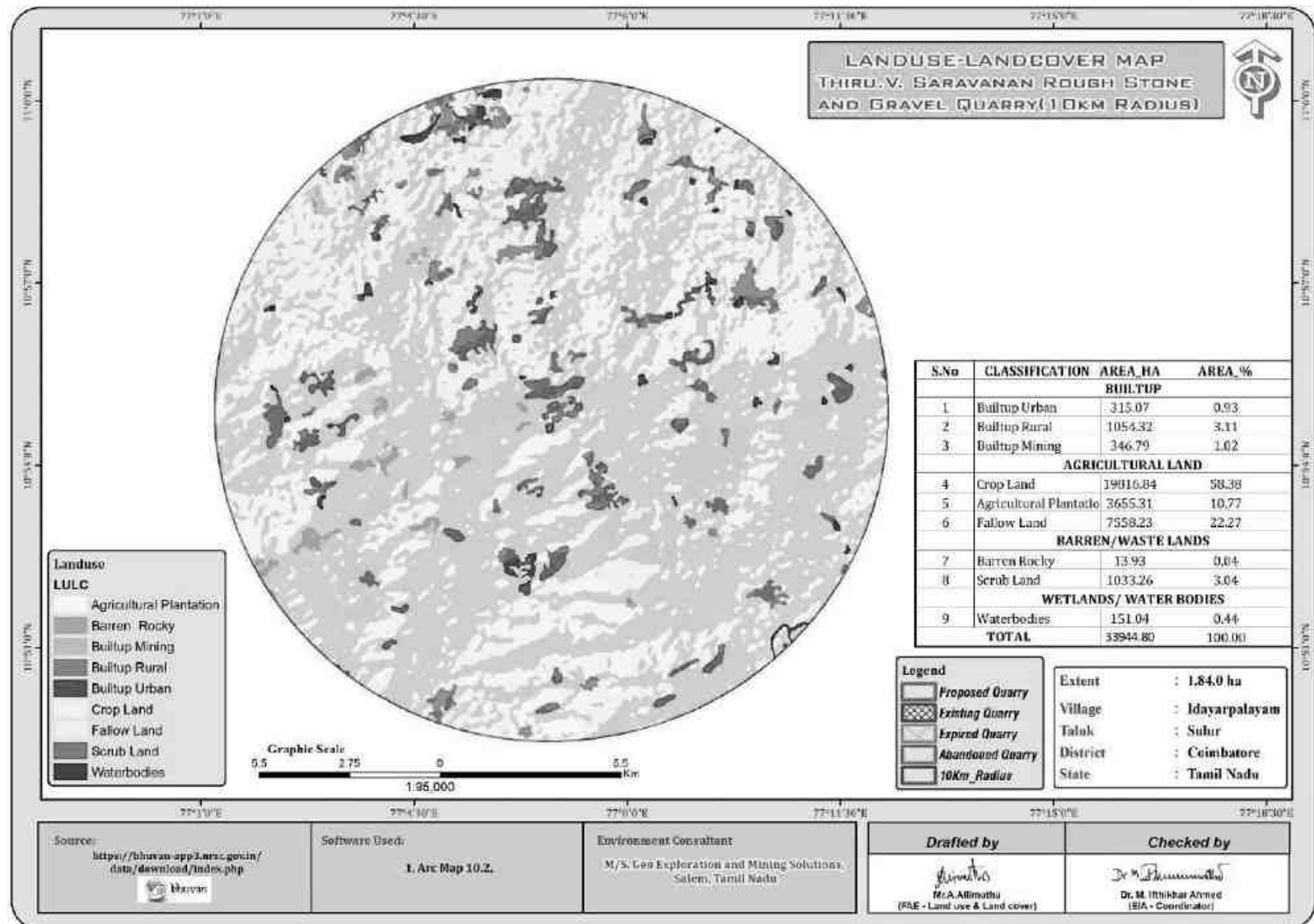
**FIGURE 3.2: MAP SHOWING FALSE COLOR COMPOSITE (3,2,1) SATELLITE IMAGERY OF THE STUDY AREA**

**FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS**



### 3.1.4 Interpretation

- ☞ The 10 km radius study area mainly comprises of crop land & Agriculture Plantation land accounting of 58.38% & 10.77% of the total study area. The study area also consists of fallow land of 22.27%.
- ☞ The buffer zone studied has no ecological sensitive area (National Park, Wildlife Sanctuary, Biosphere Reserve/ etc.).
- ☞ Water Bodies such as Odai, ponds/ lakes comprise of 0.44% of the total buffer area. There are some lake found in the study area like Pallapalayam lake (9km-NW), Kammampalayam Lake (9.5km-NW) of the total study area.
- ☞ The Scrub land accounts of 3.04%. As per the primary survey, it was observed the scrub land is mainly occupied by the stony waste and left-over domestic waste generated by the nearby areas.
- ☞ The Barren rocky area covered is about 0.04% in buffer zone.
- ☞ 1.02% of the total study area is occupied by the mine industries. The area occupied by Mainly Roughstone of the total buffer area. As also observed within the primary survey, the 10 km buffer area is also occupied by the medium scaled roughstone and small Brick kiln industries also located in the study area.
- ☞ 4.04% of the area is covered under the Builtup Land including rural area. The nearest village within the 3km from the project site boundary is observed to be villages Edayarpalayam, Bogampatti, Kalipalayam, Chinnakuyili villages etc.

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

### 3.1.5 Cropping Pattern of the Buffer Zone

The district has a total Geographical area of 367097Ha with net cultivated area of about 165260Ha. Coconut is the major plantation crop cultivated in an area of about 85831Ha. The other Agricultural crops cultivated are Millets, Pulses, Oilseeds, Cotton and Sugarcane. Coimbatore is perhaps one of the very few districts in the State which is covered with thick forest (> 20 per cent of the total districts' area). The forests here are abundant in commercially significant trees such as Teak, Sandalwood, Rosewood, Bamboo etc. The cinchona department is raising a cinchona plantation in forests of Pollachi range to jungles of shrubs in Udumalpet. Apart from this, there are one or two tea plantations and coffee plantations.

Source: TNRTP-Coimbatore DDR, 2019

### 3.1.6 Topography

The project area is almost plain terrain with gentle gradient towards Southeast – Southwestern side, maximum elevation of the area is 400-450 m above Mean Sea level There are no hilly regions in and around the area.

### 3.1.7 Drainage Pattern of the Area

There are no developed surface drainage channels in the study area. Noyyal, a non-perennial pass 12.0km-North from the project site. The area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. The area is mostly dry in all seasons except rainy seasons.

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

### 3.1.8 Environmental Features in the Study Area

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

### 3.1.9 Seismic Sensitivity

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

**TABLE 3.3 – DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE PROJECT AREA**

| Sl. No | Sensitive Ecological Features                      | Name | Arial Distance in km from Mine Lease Boundary    |
|--------|----------------------------------------------------|------|--------------------------------------------------|
| 1      | National Park / Wild life Sanctuaries              | None | Indiragandi (Anamalai) Wildlife sanctuary-44km-S |
| 2      | Reserve Forest                                     | None | Boluvampatti R.F-20km-SW                         |
| 3      | Tiger Reserve/ Elephant Reserve/ Biosphere Reserve | None | Nil within 10Km Radius                           |
| 4      | Critically Polluted Areas                          | None | Nil within 10Km Radius                           |
| 5      | Mangroves                                          | None | Nil within 10Km Radius                           |
| 6      | Mountains/Hills                                    | None | Nil within 10Km Radius                           |
| 7      | Notified Archaeological Sites                      | None | Nil within 10Km Radius                           |
| 8      | Defence Installation                               | None | Nil within 10Km Radius                           |

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

**TABLE 3.4 – WATER BODIES WITHIN THE PROPOSED QUARRY**

| S.No | LABEL              | DISTANCE & DIRECTION | Habitation |
|------|--------------------|----------------------|------------|
| 1    | Niyaviyal Odai     | 50m Safety South     | 510m NE    |
| 2    | Odai               | 140m NW              |            |
| 3    | Odai               | 1.1Km SE             |            |
| 4    | Pallapalayam Lake  | 9Km NW               |            |
| 5    | Kannampalayam Lake | 9.5Km NW             |            |
|      | P.A.P Canal        | 9.3Km SE             |            |

Source: Village Cadastral Map and Field Survey, PFR Report

### 3.1.6 Soil Environment

Soil quality of the study area is one of the important components of the land environment. The composite soil samples were collected from the study area and analysed for different parameters. The locations of the monitoring sites are detailed in Table 3.4 and Figure 3.3.

**TABLE 3.5 – SOIL SAMPLING LOCATIONS**

| S. No | Location Code | Monitoring Locations  | Distance & Direction | Coordinates                 |
|-------|---------------|-----------------------|----------------------|-----------------------------|
| 1     | S-1           | Core Zone             | Project Area         | 10°54'55.48"N 77° 6'42.85"E |
| 2     | S-2           | Bogampatti            | 1.6km SE             | 10°54'17.35"N 77° 7'26.31"E |
| 3     | S-3           | SN Palayam            | 4.0km NE             | 10°56'22.11"N 77° 8'22.92"E |
| 4     | S-4           | Lakshminaickenpalayam | 4.5km East           | 10°55'14.50"N 77° 9'15.07"E |
| 5     | S-5           | Panapatti             | 4.0km SW             | 10°52'43.98"N 77° 6'2.22"E  |
| 6     | S-6           | Chinnakuyili          | 3.0km NW             | 10°55'35.80"N 77° 5'14.84"E |

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

**FIGURE 3.18: PHOTOGRAPHS OF SOIL SAMPLING COLLECTIONS**

The objective of the soil sampling is -

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

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

#### Methodology –

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

**TABLE 3.6 – METHODOLOGY OF SAMPLING COLLECTION**

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

Source: On-site monitoring/sampling by Global Lab Consultancy Services

#### Soil Testing Result –

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

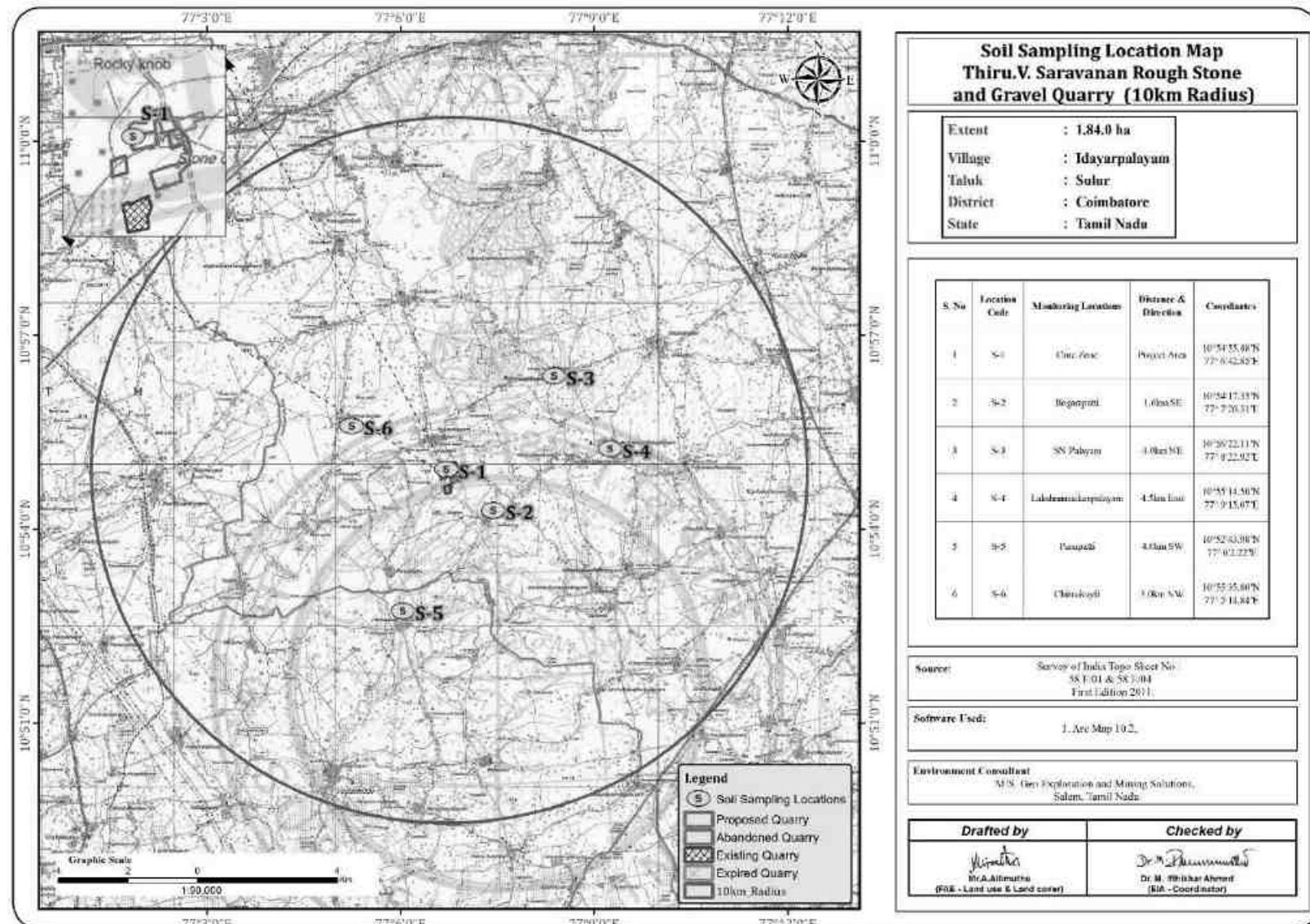
**FIGURE 3.5: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS**

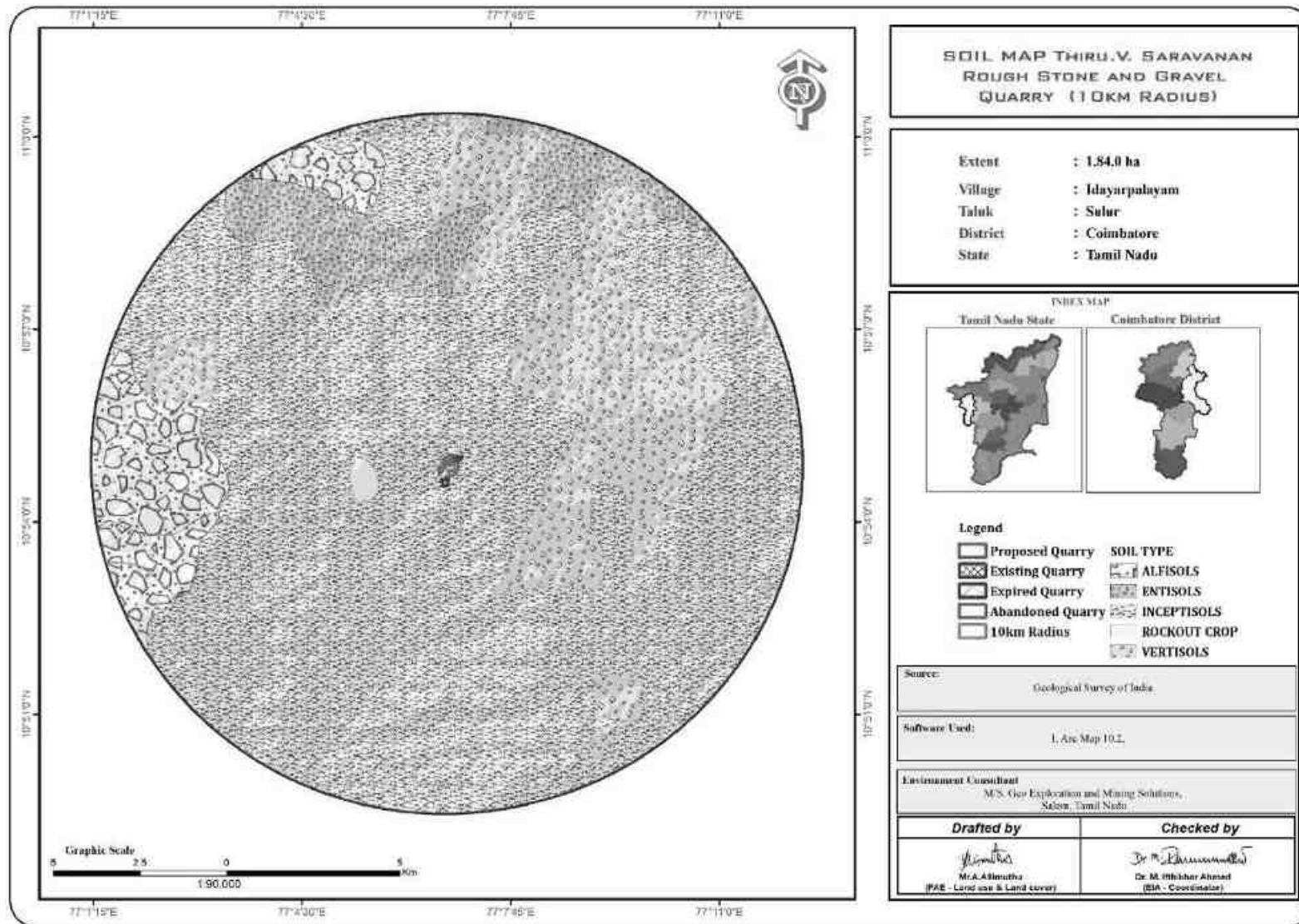
**FIGURE 3.6: SOIL MAP**

**TABLE 3.7 – SOIL QUALITY MONITORING DATA**

| Sl.No | TEST<br>PARAMETER                                 | TEST METHOD                                 | UNITS    | S1-Core<br>Zone | S2-<br>Bogampatti | S3-SN<br>Palayam | S4-<br>Lakshminaicken<br>palayam | S-5 Panapatti   | S6-<br>Chinnakuyili |
|-------|---------------------------------------------------|---------------------------------------------|----------|-----------------|-------------------|------------------|----------------------------------|-----------------|---------------------|
| 1     | Available Nitrogen as N                           | GLCS/SOP/S/029 ; Issue no:02: 2024          | kg/ha    | 401.41          | 326               | 238              | 288.5                            | 313.6           | 213                 |
| 2     | Available Phosphorous (as P)                      | GLCS/SOP/S/005 ; Issue no:02: 2024          | mg/kg    | 4.9             | 11.6              | 8.4              | 5.9                              | 5.8             | 9.2                 |
| 3     | Boron                                             | USEPA-6010D:2014                            | mg/kg    | BDL<br>(DL:0.5) | BDL<br>(DL:0.5)   | BDL (DL:0.5)     | BDL (DL:0.5)                     | BDL<br>(DL:0.5) | 11.2                |
| 4     | Bulk Density                                      | GLCS/SOP/S/017; Issue no:02: 2024           | g/cc     | 1.12            | 1.1               | 1.16             | 1.18                             | 1.15            | 1.16                |
| 5     | Cadmium                                           | USEPA-6010 D-2014                           | mg/kg    | 9.7             | 12.7              | 6.0              | 4.7                              | 7.7             | 1.9                 |
| 6     | Cation Exchange Capacity                          | GLCS/SOP/S/024; Issue no:02: 2024           | meq/100g | 32.77           | 36.6              | 34.4             | 37                               | 27.0            | 23.6                |
| 7     | Chlorides ( as Cl-) in saturation<br>extract      | GLCS/SOP/S/004; Issue no:02: 2024           | meq/l    | 2.8             | 2.7               | 5.4              | 3.7                              | 3.6             | 5.2                 |
| 8     | Chromium                                          | USEPA-6010D-2014                            | mg/kg    | 9.5             | 17.7              | 16.5             | 22.3                             | 28.4            | 26.7                |
| 9     | Copper                                            | USEPA-6010D :2014                           | mg/kg    | 6.7             | 7.2               | 5.0              | 2.5                              | 8.2             | 15.2                |
| 10    | Exchangeable Calcium (as Ca)                      | GLCS/SOP/S/020; Issue no:02: 2024           | meq/100g | 2.4             | 2.9               | 3.1              | 2.8                              | 3.4             | 3.7                 |
| 11    | Exchangeable Magnesium (as Mg)                    | GLCS/SOP/S/021; Issue no:02: 2024           | meq/100g | 0.8             | 1.3               | 1.6              | 0.9                              | 0.5             | 1.0                 |
| 12    | Iron                                              | USEPA-6010 D-2014                           | mg/kg    | 21.7            | 52.0              | 28.0             | 36.5                             | 19.9            | 44                  |
| 13    | Lead                                              | USEPA-6010D-2014                            | mg/kg    | 3.2             | 2.5               | 0.75             | 5.9                              | 5.2             | 4.8                 |
| 14    | Manganese                                         | USEPA-6010 D-2014                           | mg/kg    | 13.5            | 16.4              | 13.0             | 18.9                             | 13.9            | 10.2                |
| 15    | Organic Carbon                                    | GLCS/SOP/S/003; Issue no: 02: 2024          | %        | 0.72            | 0.8               | 0.41             | 0.57                             | 0.34            | 0.68                |
| 16    | Organic Matter                                    | GLCS/SOP/S/003; Issue no:02: 2024           | %        | 1.24            | 1.38              | 0.71             | 0.98                             | 0.59            | 1.17                |
| 17    | pH Value                                          | IS 2720 (Part 26): 1987(Reaffirmed<br>2021) | -        | 7.92            | 8.14              | 8.06             | 7.63                             | 7.84            | 8.26                |
| 18    | Soluble Potassium (as K) in<br>saturation extract | GLCS/SOP/S/006; Issue no:02 : 2024          | mg/100g  | 0.78            | 1.23              | 1.73             | 1.38                             | 0.78            | 1.22                |
| 19    | Specific Electrical Conductivity                  | IS 14767: 2000(Reaffirmed 2021)             | µS/cm    | 468             | 424               | 398              | 412                              | 468             | 536                 |
| 20    | Sulphate (as SO4)                                 | GLCS/SOP/S/009; Issue no:02: 2024           | mg/100g  | 4.8             | 5.8               | 4.7              | 4.5                              | 6.7             | 6.8                 |
| 21    | Texture : Clay                                    | GLCS/SOP/S/015 ; Issue no:02: 2024          | %        | 15.0            | 25.75             | 22.0             | 27.0                             | 24.25           | 23.95               |
| 22    | Texture : Sand                                    | GLCS/SOP/S/015; Issue no:02: 2024           | %        | 32.6            | 34.25             | 40.0             | 36.62                            | 36.0            | 35.0                |
| 23    | Texture : Silt                                    | GLCS/SOP/S/015 ; Issue no:02: 2024          | %        | 52.4            | 40.0              | 38.0             | 36.38                            | 39.75           | 41.05               |
| 24    | Water Holding Capacity                            | GLCS/SOP/S/016; Issue no:02: 2024           | %        | 62              | 56                | 68               | 52                               | 60.0            | 52                  |
| 25    | Zinc                                              | USEPA-6010D-2014                            | mg/kg    | 13.5            | 16.9              | 14.8             | 16.4                             | 12.2            | 10.9                |

Source: Sampling Results by Global Lab Consultancy Services

## **Interpretation & Conclusion**

### **Physical Characteristics –**

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay to Sandy Soil and Bulk Density of Soils in the study area varied between 15 to 27 % and 1.1– 1.18 g/cc. The Water Holding Capacity 52 to 68%

### **Chemical Characteristics –**

- The nature of soil is slightly alkaline to strongly alkaline in nature with pH range 7.63 to 8.26
- The available Nitrogen content range between 213 to 401.41 kg/ha
- The available Phosphorus content range between 4.9 to 11.6 mg/kg
- The available Potassium range between 0.78 to 1.73 mg/100g

Whereas, the micronutrient as zinc (Zn), iron (Fe) and copper (Cu) were found in the range of 10.9 to 16.9mg/kg; 19.9 to 52 mg/kg and; 2.5 to 15.2 mg/kg

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

## **3.2 Water Environment**

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

### **3.2.1 Surface Water Resources:**

Amaravathi river lies at 43.0 Km SE from the project cluster. The area is studded with few tanks that serve as the source for agriculture and also their surplus feeds adjoining tanks. The rainfall over the area is moderate, the rainwater storage in open wells, trenches is in practice over the area and the stored water acts as source of freshwater for couple of months after rainy season.

### **3.2.2 Ground Water Resources:**

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

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

### 3.2.3 Methodology

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

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

One (1) surface water and five (5) ground water samples were collected in the study area and physico-chemical, heavy metals and bacteriological parameters were analysed. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012 and 'Standard methods for the Examination of Water and Waste water' published by American Public Health Association (APHA). The water sampling locations are given in Table 3.8 and shown as Figure 3.5.

**TABLE 3.8 – WATER SAMPLING LOCATIONS**

| S. No | Location code | Monitoring Locations  | Distance & Direction | Coordinates                 |
|-------|---------------|-----------------------|----------------------|-----------------------------|
| 1     | SW-1          | Pallapalayam Lake     | 9.0km NW             | 10°59'25.25"N 77° 4'43.75"E |
| 2     | WW-1          | Edaiyarpalayam        | 1km North            | 10°55'32.16"N 77° 6'48.21"E |
| 3     | WW-2          | Lakshminaickenpalayam | 4.0km East           | 10°55'22.78"N 77° 8'58.13"E |
| 4     | WW-3          | Chinnakuyili          | 3.0km NW             | 10°55'30.38"N 77° 5'4.07"E  |
| 5     | BW-1          | Core Zone             | 200m SE              | 10°54'50.77"N 77° 6'54.48"E |
| 6     | BW-2          | Panapatti             | 4.0km SW             | 10°52'42.12"N 77° 5'56.69"E |

Source: On-site monitoring/sampling by Global Lab Consultancy Services

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

**FIGURE 3.18: PHOTOGRAPHS OF WATER SAMPLING COLLECTIONS**





**TABLE 3.9 – SURFACE WATER ANALYSIS RESULTS**

| SL.No | TEST PARAMETER                                     | TEST METHOD                               | UNITS | SW-1<br>Pallapalayam lake |
|-------|----------------------------------------------------|-------------------------------------------|-------|---------------------------|
| 1     | Aluminium                                          | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | 0.031                     |
| 2     | Ammoniacal Nitrogen as NH <sub>3</sub> -N          | IS 3025 (Part 34)/Sec 1: 2023             | mg/l  | BDL (DL:1.0)              |
| 3     | Arsenic as As                                      | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.002)            |
| 4     | Barium as Ba                                       | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | 0.051                     |
| 5     | Biochemical Oxygen Demand (BOD) at 27°C for 3 Days | IS 3025 (Part 44): 2023                   | mg/l  | 9                         |
| 6     | Boron as B                                         | IS 3025 (Part 57): 2021                   | mg/l  | BDL (DL:0.1)              |
| 7     | Cadmium as Cd                                      | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)             |
| 8     | Calcium as Ca                                      | IS 3025 (Part 40): 1991 (Reaffirmed 2019) | mg/l  | 60                        |
| 9     | Chemical Oxygen Demand (COD)                       | IS 3025 (Part 58): 2023                   | mg/l  | 30                        |
| 10    | Chloride as Cl-                                    | IS 3025 (Part 32): 1988 (Reaffirmed 2019) | mg/l  | 215                       |
| 11    | Chromium as Cr                                     | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)             |
| 12    | Color                                              | IS 3025 (Part 4): 2021                    | CU    | <1                        |
| 13    | Copper as Cu                                       | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)             |
| 14    | Cyanide as CN                                      | IS 3025 part 27/Sec 1: 2021               | mg/l  | BDL (DL:0.02)             |
| 15    | Dissolved Oxygen (DO)                              | IS 3025 (Part 38): 1989 (Reaffirmed 2019) | mg/l  | 6.2                       |
| 16    | Electrical Conductivity                            | IS 3025 (Part 14): 2013 (Reaffirmed 2019) | µS/cm | 1502                      |
| 17    | Fluoride as F-                                     | GLCS/SOP/W/015; Issue no :02: 2024        | mg/l  | 0.29                      |
| 18    | Free Residual Chlorine as Cl <sub>2</sub>          | IS 3025 (Part 26): 2021                   | mg/l  | BDL (DL:1.0)              |
| 19    | Iron as Fe                                         | IS 3025 (Part 53): 2024                   | mg/l  | 0.17                      |
| 20    | Lead as Pb                                         | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)             |
| 21    | Magnesium as Mg                                    | IS 3025 (Part 46): 2023                   | mg/l  | 56                        |
| 22    | Manganese as Mn                                    | IS 3025 (Part 59): 2023                   | mg/l  | BDL (DL:0.1)              |
| 23    | Mercury as Hg                                      | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.002)            |
| 24    | Molybdenum as Mo                                   | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)             |
| 25    | Nitrate as NO <sub>3</sub>                         | IS 3025 (Part 34)/Sec 1: 2023             | mg/l  | BDL (DL:2.0)              |
| 26    | Odor                                               | IS 3025 (Part 5): 2018                    | -     | Agreeable                 |
| 27    | pH                                                 | IS 3025 (Part 11): 2022                   | -     | 8.12                      |
| 28    | Phenols                                            | IS 3025 PART 43 SECTION 1: 2022           | mg/l  | BDL (DL:0.1)              |
| 29    | Selenium as Se                                     | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.005)            |

|    |                                       |                                           |           |               |
|----|---------------------------------------|-------------------------------------------|-----------|---------------|
| 30 | Sulphate as SO <sub>4</sub>           | IS 3025 (Part 24) SECTION 1: 2022         | mg/l      | 82            |
| 31 | Sulphide as S (Iodometric Method)     | GLCS/SOP/W/066: 2023                      | mg/l      | BDL (DL:1.0)  |
| 32 | Total Alkalinity as CaCO <sub>3</sub> | IS 3025 (Part 23): 2023                   | mg/l      | 420           |
| 33 | Total Dissolved Solids (TDS)          | IS 3025 (Part 16): 2023                   | mg/l      | 975           |
| 34 | Total Hardness as CaCO <sub>3</sub>   | IS 3025 (Part 21): 2009 (Reaffirmed 2019) | mg/l      | 380           |
| 35 | Total Suspended Solids                | is 3025 part 17: 2022                     | mg/l      | 24            |
| 36 | Turbidity                             | IS 3025 (Part 10): 2023                   | NTU       | 12            |
| 37 | Zinc as Zn                            | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l      | BDL (DL:0.01) |
| 1  | Escherichia coli                      | IS: 1622 – 1981(Reaffirmed 2019)          | MPN/100ml | <2            |
| 2  | Total Coliforms                       | IS: 1622 – 1981(Reaffirmed 2019)          | MPN/100ml | <2            |

**TABLE 3.9 – GROUND WATER ANALYSIS RESULTS**

| Sl.No | TEST PARAMETER                            | TEST METHOD                               | UNITS | WW-1              | WW-2              | WW-3              | BW-1              | BW-2              |
|-------|-------------------------------------------|-------------------------------------------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 1     | Aluminium                                 | GLCS/SOP/W/62<br>No:1:Dated:10.09.2022    | mg/l  | BDL<br>(DL:0.01)  | BDL (DL:0.01)     | BDL (DL:0.01)     | BDL (DL:0.01)     | BDL (DL:0.01)     |
| 2     | Ammoniacal Nitrogen as NH <sub>3</sub> -N | IS 3025 PART 34/Sec 1: 2023               | mg/l  | BDL (DL:1.0)      | BDL (DL:1.0)      | BDL (DL:1.0)      | BDL (DL:1.0)      | BDL (DL:1.0)      |
| 3     | Arsenic as As                             | GLCS/SOP/W/62<br>No:1:Dated:10.09.2022    | mg/l  | BDL<br>(DL:0.002) | BDL<br>(DL:0.002) | BDL<br>(DL:0.002) | BDL<br>(DL:0.002) | BDL<br>(DL:0.002) |
| 4     | Barium as Ba                              | GLCS/SOP/W/62<br>No:1:Dated:10.09.2022    | mg/l  | BDL<br>(DL:0.01)  | BDL (DL:0.01)     | 0.026             | 0.022             | 0.025             |
| 5     | Boron as B                                | IS 3025 (Part 57): 2021                   | mg/l  | BDL (DL:0.1)      | BDL (DL:0.1)      | BDL (DL:0.1)      | BDL (DL:0.1)      | BDL (DL:0.1)      |
| 6     | Cadmium as Cd                             | GLCS/SOP/W/62<br>No:1:Dated:10.09.2022    | mg/l  | BDL<br>(DL:0.01)  | BDL (DL:0.01)     | BDL (DL:0.01)     | BDL (DL:0.01)     | BDL (DL:0.01)     |
| 7     | Calcium as Ca                             | IS 3025 (Part 40): 1991 (Reaffirmed 2019) | mg/l  | 80                | 92                | 88                | 112               | 100               |
| 8     | Chloride as Cl-                           | IS 3025 (Part 32): 1988 (Reaffirmed 2019) | mg/l  | 180               | 205               | 225               | 270               | 215               |
| 9     | Chromium as Cr                            | GLCS/SOP/W/62<br>No:1:Dated:10.09.2022    | mg/l  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  |
| 10    | Color                                     | IS 3025 (Part 4): 2021                    | CU    | <1                | <1                | <1                | <1                | <1                |
| 11    | Copper as Cu                              | GLCS/SOP/W/62<br>No:1:Dated:10.09.2022    | mg/l  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  |
| 12    | Cyanide as CN                             | IS 3025 part 27/Sec 1: 2021               | mg/l  | BDL<br>(DL:0.02)  | BDL<br>(DL:0.02)  | BDL<br>(DL:0.02)  | BDL<br>(DL:0.02)  | BDL<br>(DL:0.02)  |
| 13    | Electrical Conductivity (EC)              | IS 3025 (Part 14): 2013 (Reaffirmed 2019) | μS/cm | 1258              | 1328              | 1330              | 1578              | 1410              |
| 14    | Fluoride as F-                            | GLCS/SOP/W/015; Issue No:02: 2024         | mg/l  | 0.24              | 0.21              | 0.16              | 0.32              | 0.34              |
| 15    | Free Residual Chlorine as Cl <sub>2</sub> | IS 3025 (Part 26): 2021                   | mg/l  | BDL (DL:1.0)      | BDL (DL:1.0)      | BDL (DL:1.0)      | BDL (DL:1.0)      | BDL (DL:1.0)      |
| 16    | Iron as Fe                                | IS 3025 (Part 53): 2024                   | mg/l  | 0.4               | 0.26              | 0.30              | BDL (DL:0.1)      | BDL (DL:0.1)      |
| 17    | Lead as Pb                                | GLCS/SOP/W/62<br>No:1:Dated:10.09.2022    | mg/l  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  |
| 18    | Magnesium as Mg                           | IS 3025 (Part 46): 2023                   | mg/l  | 56                | 61                | 58                | 61                | 58                |
| 19    | Manganese as Mn                           | IS 3025 (Part 59): 2023                   | mg/l  | BDL (DL:0.1)      | BDL (DL:0.1)      | BDL (DL:0.1)      | BDL (DL:0.1)      | BDL (DL:0.1)      |
| 20    | Mercury as Hg                             | GLCS/SOP/W/62<br>No:1:Dated:10.09.2022    | mg/l  | BDL<br>(DL:0.002) | BDL<br>(DL:0.002) | BDL<br>(DL:0.002) | BDL<br>(DL:0.002) | BDL<br>(DL:0.002) |
| 21    | Molybdenum as Mo                          | GLCS/SOP/W/62<br>No:1:Dated:10.09.2022    | mg/l  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  |
| 22    | Nitrate as NO <sub>3</sub>                | IS 3025 (Part 34)/Sec 1: 2023             | mg/l  | BDL (DL:2.0)      | BDL (DL:2.0)      | BDL (DL:2.0)      | BDL (DL:2.0)      | BDL (DL:2.0)      |
| 23    | Odor                                      | IS 3025 (Part 5): 2018                    | -     | Agreeable         | Agreeable         | Agreeable         | Agreeable         | Agreeable         |
| 24    | pH                                        | IS 3025 (Part 11): 2022                   | -     | 7.48              | 7.32              | 7.58              | 7.16              | 7.27              |
| 25    | Phenols                                   | IS 3025 PART 43 Section 1: 2022           | mg/l  | BDL (DL:0.1)      | BDL (DL:0.1)      | BDL (DL:0.1)      | BDL (DL:0.1)      | BDL (DL:0.1)      |

|    |                                       |                                           |       |           |                   |                   |                   |                   |                   |
|----|---------------------------------------|-------------------------------------------|-------|-----------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 26 | Selenium as Se                        | GLCS/SOP/W/62<br>No:1:Dated:10.09.2022    | Issue | mg/l      | BDL<br>(DL:0.005) | BDL<br>(DL:0.005) | BDL<br>(DL:0.005) | BDL<br>(DL:0.005) | BDL<br>(DL:0.005) |
| 27 | Sulphate as SO <sub>4</sub>           | IS 3025 (Part 24) Section 1: 2022         |       | mg/l      | 59                | 59                | 42                | 96                | 84                |
| 28 | Sulphide as S<br>(Iodometric Method)  | GLCS/SOP/W/066: 2023                      |       | mg/l      | BDL (DL:1.0)      | BDL (DL:1.0)      | BDL (DL:1.0)      | BDL (DL:1.0)      | BDL (DL:1.0)      |
| 29 | Total Alkalinity as CaCO <sub>3</sub> | IS 3025 (Part 23): 2023                   |       | mg/l      | 390               | 440               | 410               | 480               | 460               |
| 30 | Total Dissolved Solids (TDS)          | IS 3025 (Part 16): 2023                   |       | mg/l      | 816               | 860               | 864               | 1026              | 916               |
| 31 | Total Hardness as CaCO <sub>3</sub>   | IS 3025 (Part 21): 2009 (Reaffirmed 2019) |       | mg/l      | 430               | 480               | 460               | 530               | 490               |
| 32 | Total Suspended Solids (TSS)          | IS 3025 (Part 17): 2022                   |       | mg/l      | BDL (DL:2.0)      | BDL (DL:2.0)      | BDL (DL:2.0)      | BDL (DL:2.0)      | BDL (DL:2.0)      |
| 33 | Turbidity                             | IS 3025 (Part 10): 2023                   |       | NTU       | <1                | <1                | <1                | <1                | <1                |
| 34 | Zinc as Zn                            | GLCS/SOP/W/62<br>No:1:Dated:10.09.2022    | Issue | mg/l      | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  | BDL<br>(DL:0.01)  |
| 35 | Escherichia coli                      | IS: 1622 – 1981(Reaffirmed 2019)          |       | MPN/100ml | <2                | <2                | <2                | Absent            | Absent            |
| 36 | Total Coliforms                       | IS: 1622 – 1981(Reaffirmed 2019)          |       | MPN/100ml | <2                | <2                | <2                | Present           | Present           |

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

**Source: Sampling Results by Global Lab Consultancy Services**

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### **3.2.4 Interpretation & Conclusion**

#### **Surface Water**

The pH of surface 8.12 while turbidity found within the standards. Total Dissolved Solids 975 mg/l and Chloride 215 mg/l. Nitrates BDL (DL:2.0)mg/l, while sulphates 82 mg/l.

#### **Ground Water**

The pH of the water samples collected ranged from 7.16 to 7.58 and within the acceptable limit of 6.5 to 8.5. pH, Sulphates and Chlorides of water samples from all the sources are within the limits as per the Standard. on Turbidity, the water samples meet the requirement. Total Dissolved Solids were found in the range of 816 - 1026 mg/l in all samples. The Total hardness varied between 430 – 530 mg/l for all samples.

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

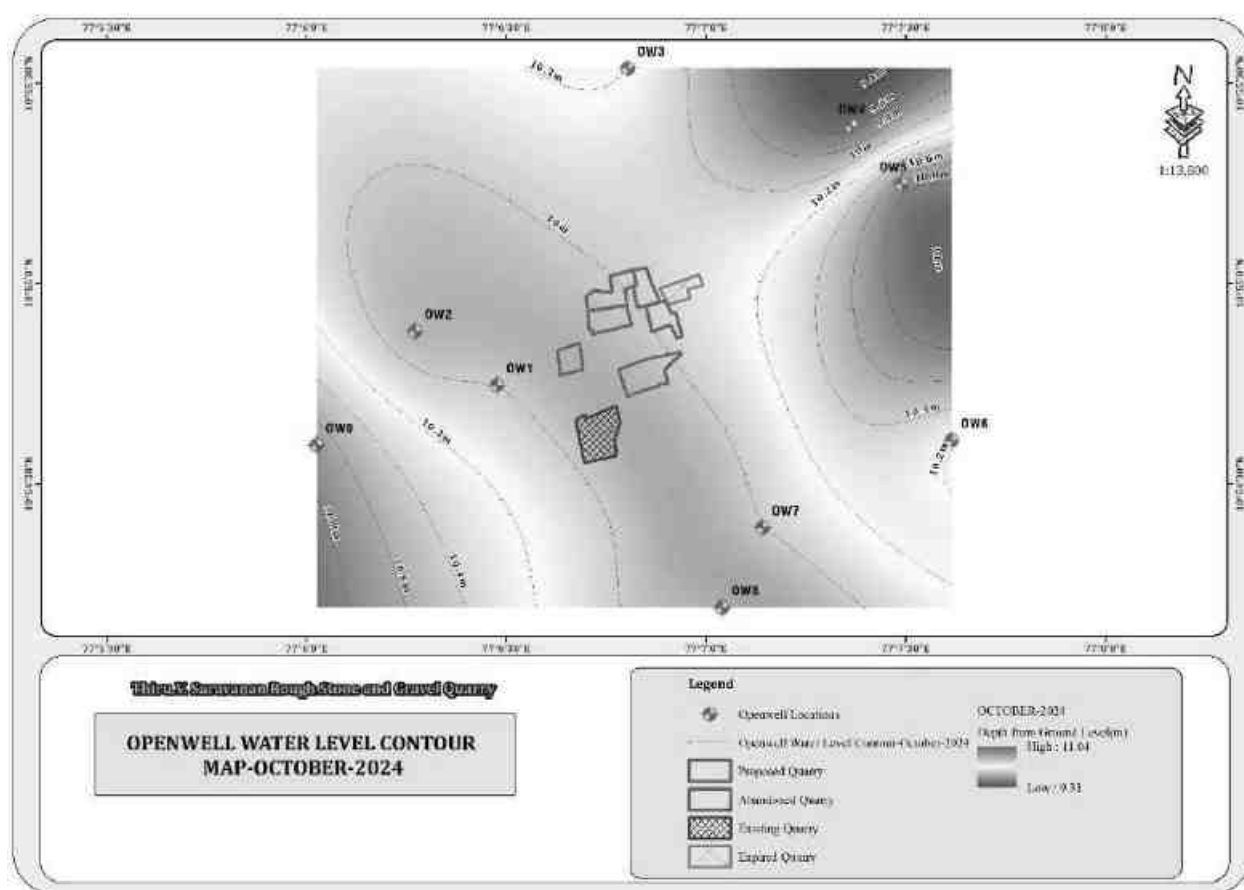
### **3.2.5 Hydrology and Hydrogeological studies**

The district is underlain by hard rock formation Fissured and Fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-80 Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 25-40m. the quarrying operations is restricted upto 38m hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area. There is no necessity of stream, channel diversion due to this upcoming project.

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

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

| S.No | LABEL | LONGITUDE          | LATITUDE           | Oct 24 | Nov 24 | Dec 24 |
|------|-------|--------------------|--------------------|--------|--------|--------|
| 1    | OW-1  | 77° 06' 28.5919" E | 10° 54' 44.7024" N | 10     | 10.8   | 11.4   |
| 2    | OW-2  | 77° 06' 16.3687" E | 10° 54' 52.8234" N | 9.9    | 10.7   | 11.3   |
| 3    | OW-3  | 77° 06' 48.2838" E | 10° 55' 32.1937" N | 10.2   | 11     | 11.6   |
| 4    | OW-4  | 77° 07' 21.8547" E | 10° 55' 23.5820" N | 9.5    | 10.3   | 10.9   |
| 5    | OW-5  | 77° 07' 29.4179" E | 10° 55' 14.8673" N | 10.8   | 11.6   | 12.2   |
| 6    | OW-6  | 77° 07' 36.8816" E | 10° 54' 36.4535" N | 10.2   | 11     | 11.6   |
| 7    | OW-7  | 77° 07' 08.5083" E | 10° 54' 23.3749" N | 10     | 10.8   | 11.4   |
| 8    | OW-8  | 77° 07' 02.4318" E | 10° 54' 11.4104" N | 9.9    | 10.7   | 11.3   |
| 9    | OW-9  | 77° 06' 01.5088" E | 10° 54' 35.7345" N | 10.7   | 11.5   | 12.1   |

**FIGURE 3.8: POST MONSOON WATER LEVEL OF OPENWELLS 1 KM RADIUS**

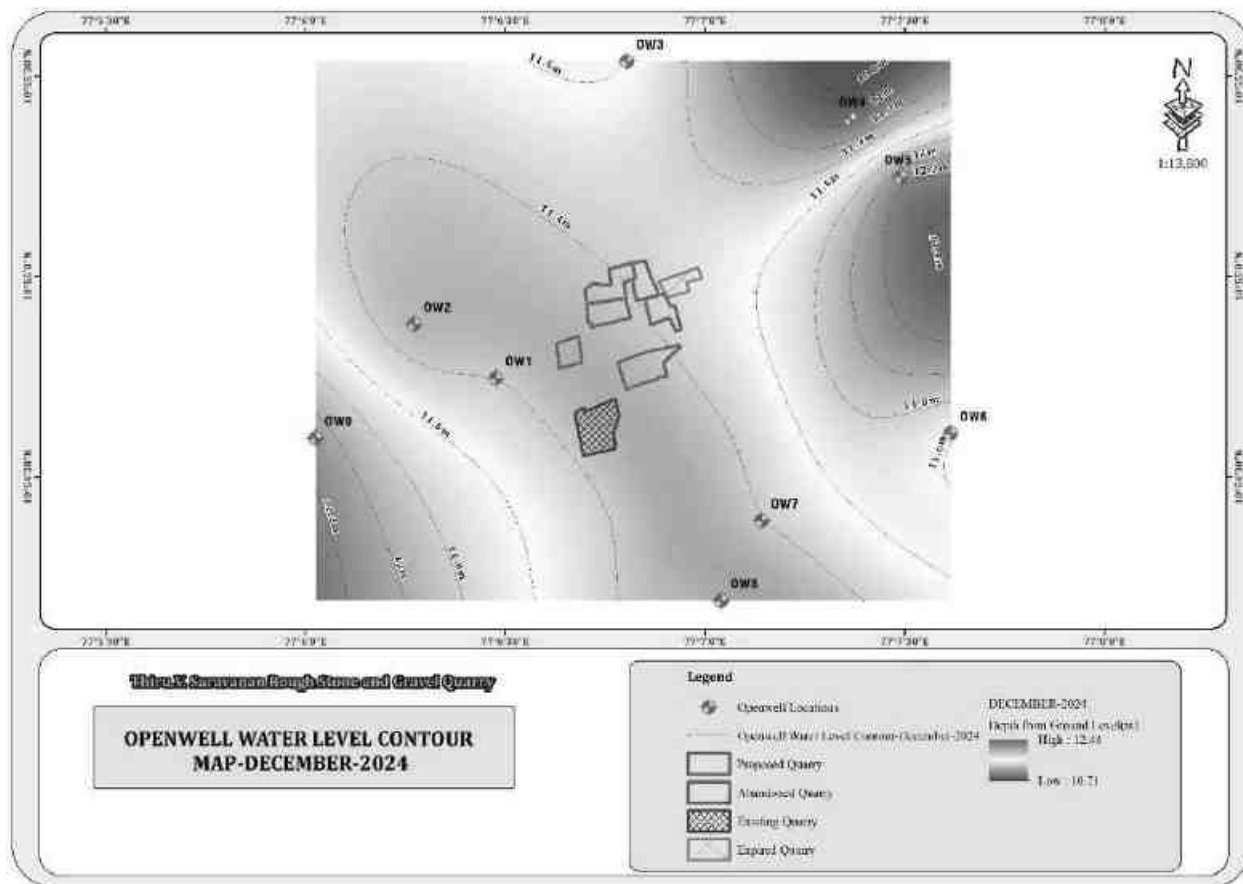
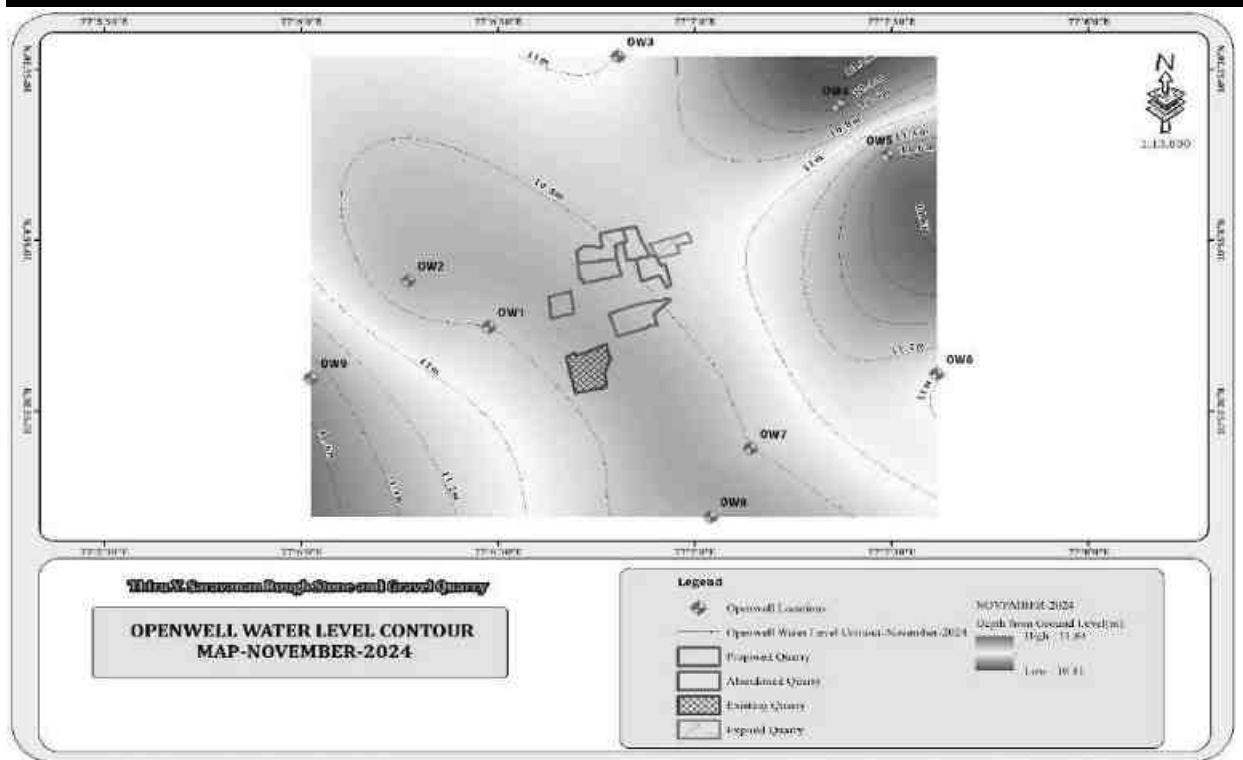
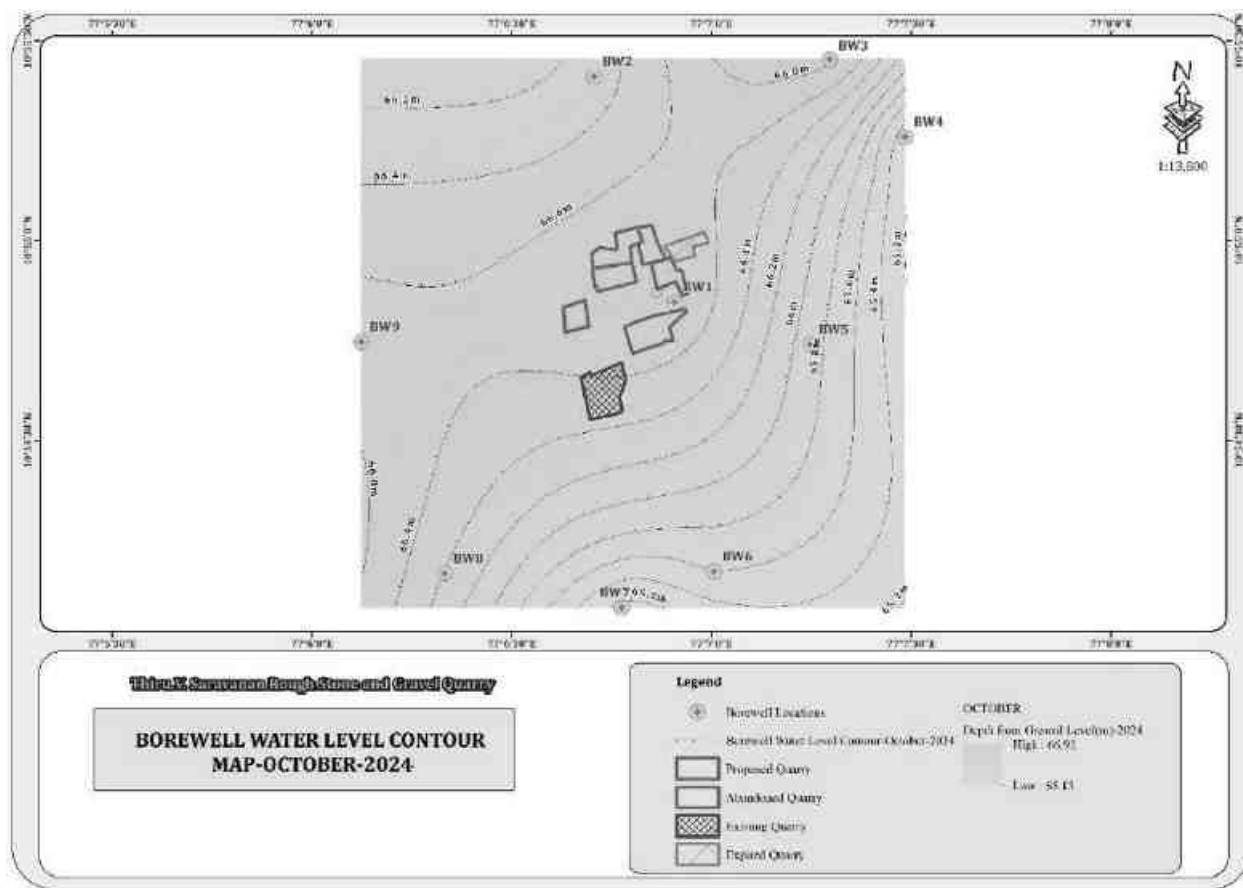


**TABLE 3.12: POST MONSOON WATER LEVEL OF BOREWELLS 1 KM RADIUS**

| S.No | LABEL | LONGITUDE          | LATITUDE           | Oct 24 | Nov 24 | Dec 24 |
|------|-------|--------------------|--------------------|--------|--------|--------|
| 1    | BW-1  | 77° 06' 54.4383" E | 10° 54' 50.7308" N | 66.8   | 67.6   | 68     |
| 2    | BW-2  | 77° 06' 42.3724" E | 10° 55' 24.5966" N | 66.3   | 67.1   | 67.5   |
| 3    | BW-3  | 77° 07' 17.7844" E | 10° 55' 27.1822" N | 66.9   | 67.7   | 68.1   |
| 4    | BW-4  | 77° 07' 29.0935" E | 10° 55' 15.5528" N | 65.2   | 66     | 66.4   |
| 5    | BW-5  | 77° 07' 14.8467" E | 10° 54' 44.3829" N | 65.9   | 66.7   | 67.1   |
| 6    | BW-6  | 77° 07' 00.3829" E | 10° 54' 10.3183" N | 65.6   | 66.4   | 66.8   |
| 7    | BW-7  | 77° 06' 46.4843" E | 10° 54' 04.8828" N | 65.1   | 65.9   | 66.3   |
| 8    | BW-8  | 77° 06' 19.9196" E | 10° 54' 10.0440" N | 66.4   | 67.2   | 67.6   |
| 9    | BW-9  | 77° 06' 07.3899" E | 10° 54' 44.7831" N | 66.7   | 67.5   | 67.9   |

**FIGURE 3.9: CONTOUR MAP OF BORE WELL WATER LEVEL**



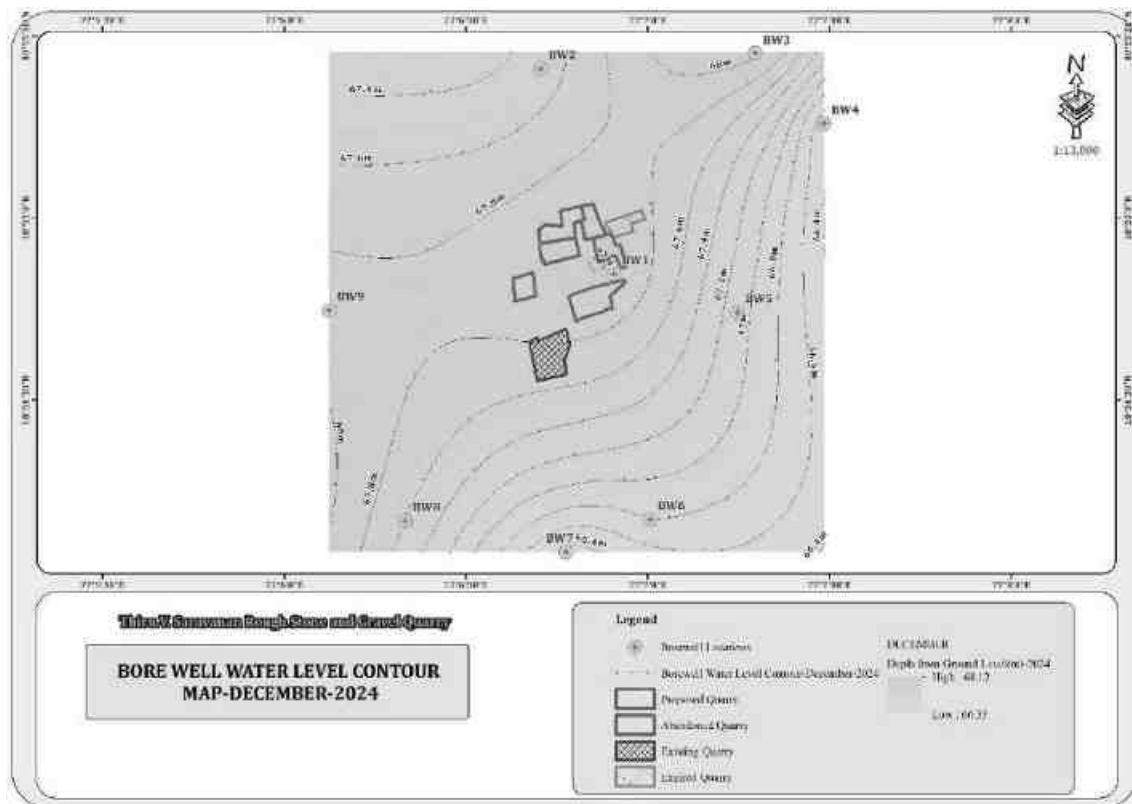
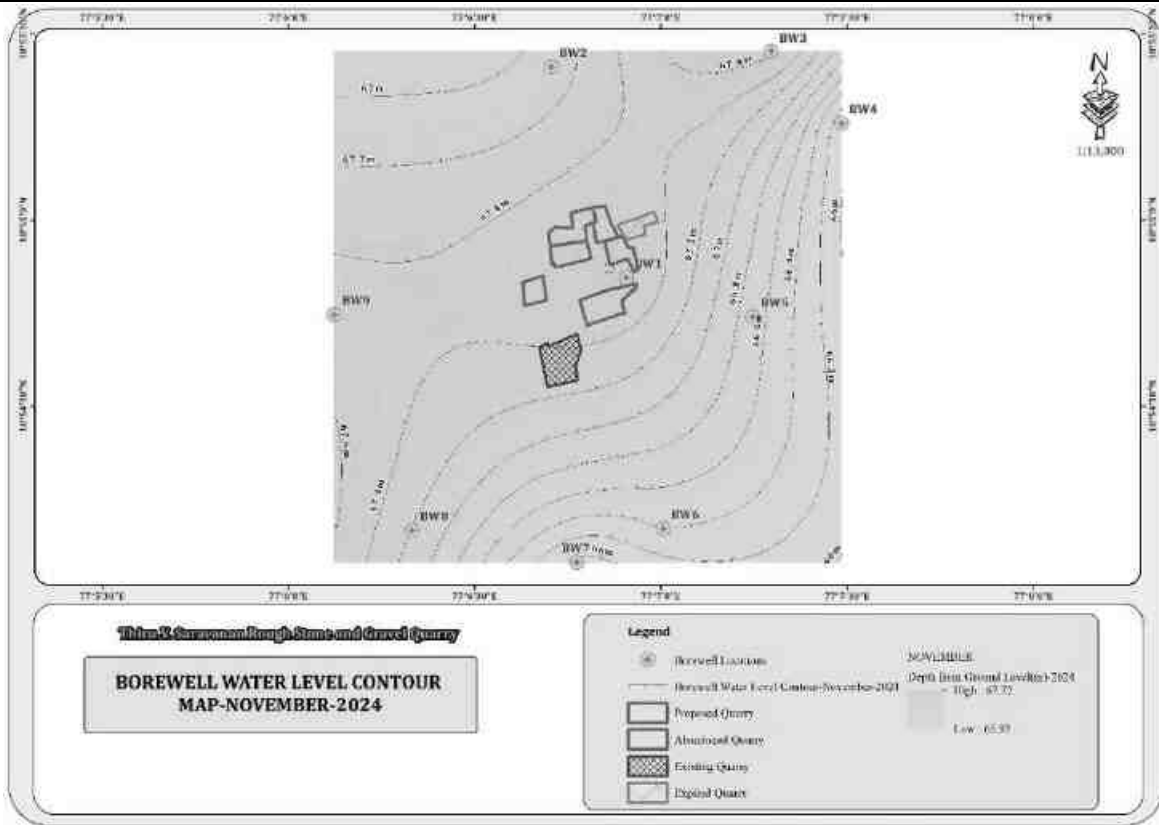


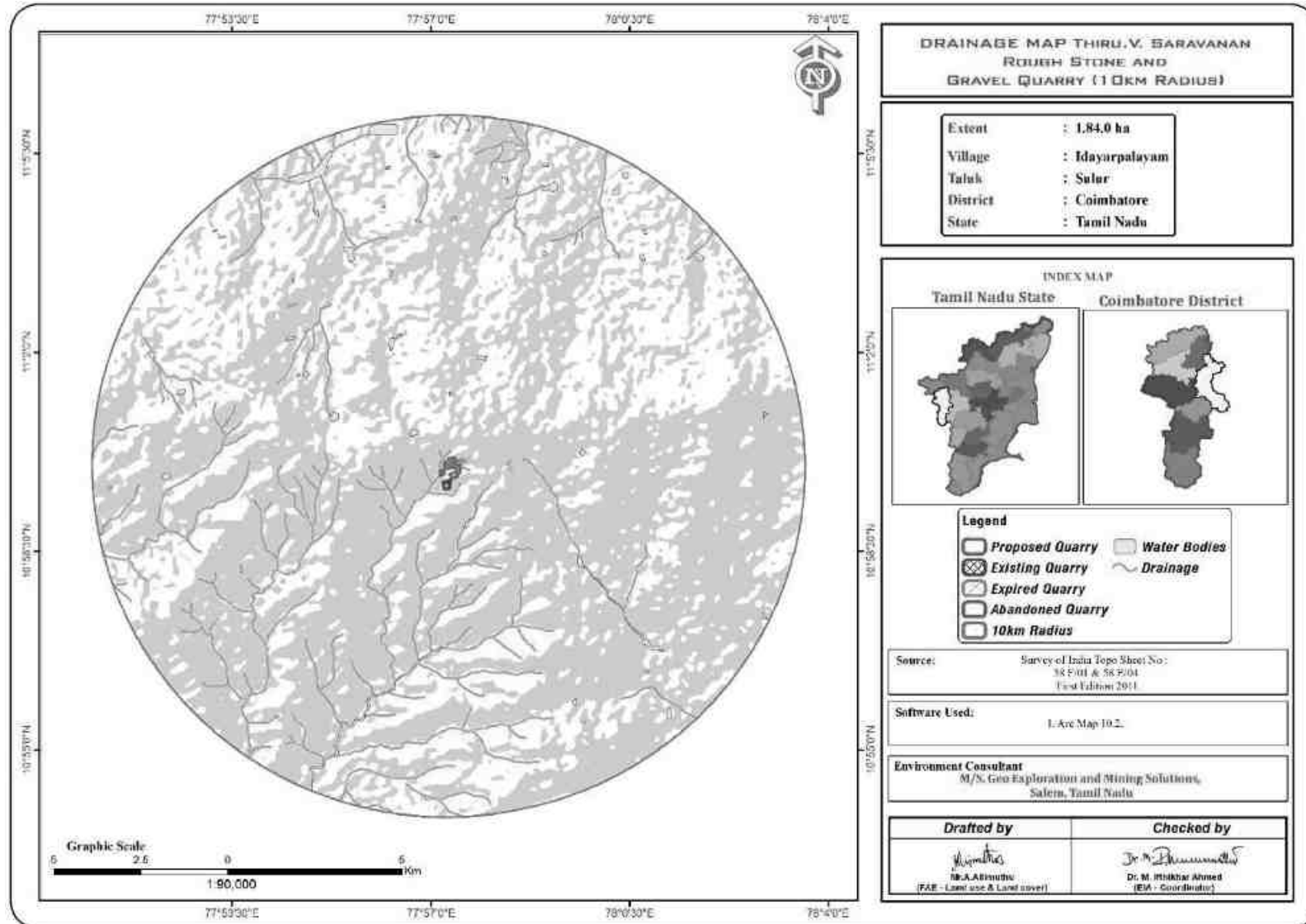
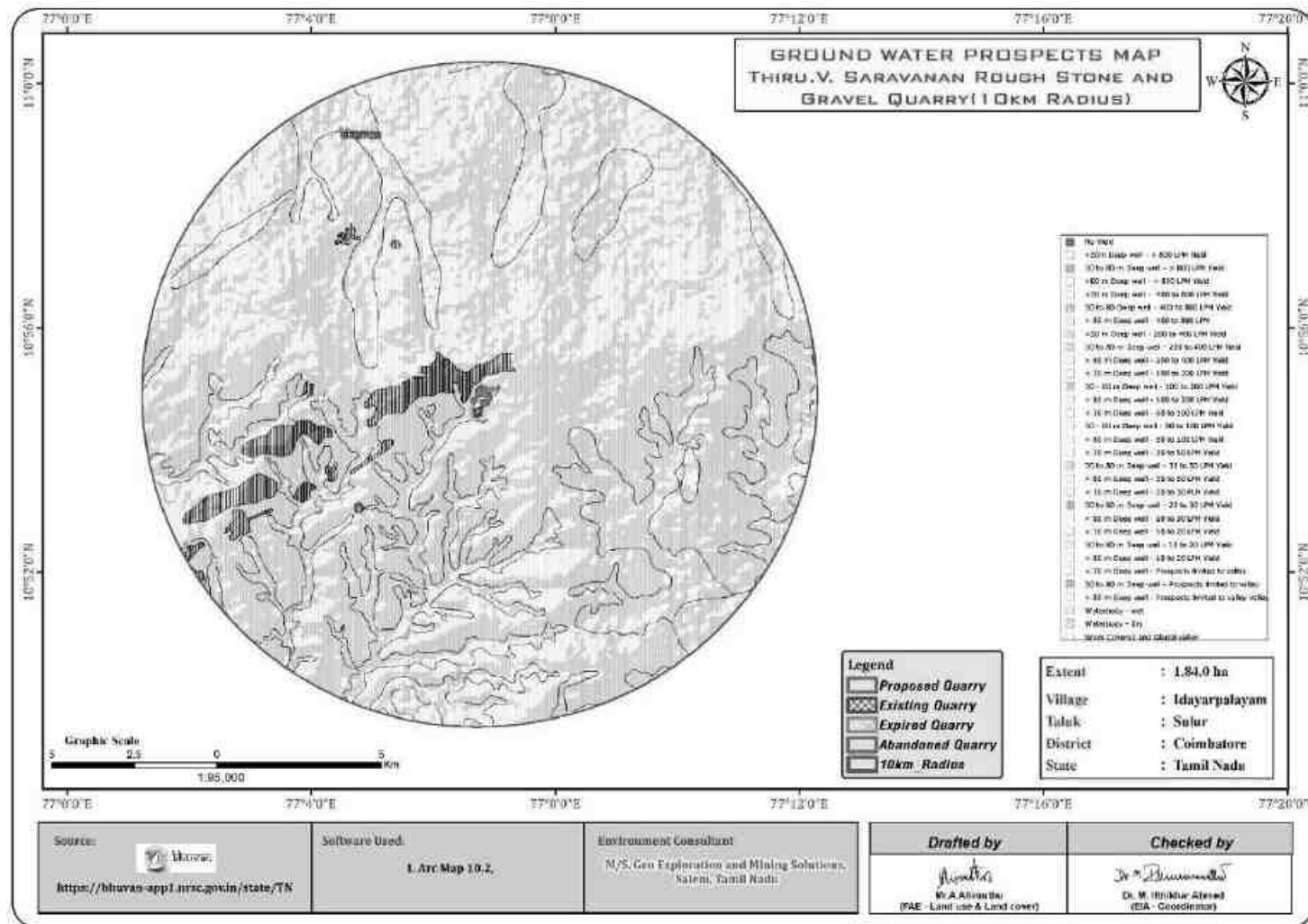
**FIGURE 3.10: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE**

**FIGURE 3.11: GROUND WATER LEVEL MAP**

Source : Bhuvan

### 3.2.5.1 Methodology and Data Acquisition

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

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

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

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

$\Delta V$  = potential difference between receiving electrodes

$G$  = Geometric Factor.

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

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

$\rho_r$  = Resistivity of Rocks

$\rho_w$  = Resistivity of water in pores of rock

$F$  = Formation Factor

$\phi$  = Fractional pore volume

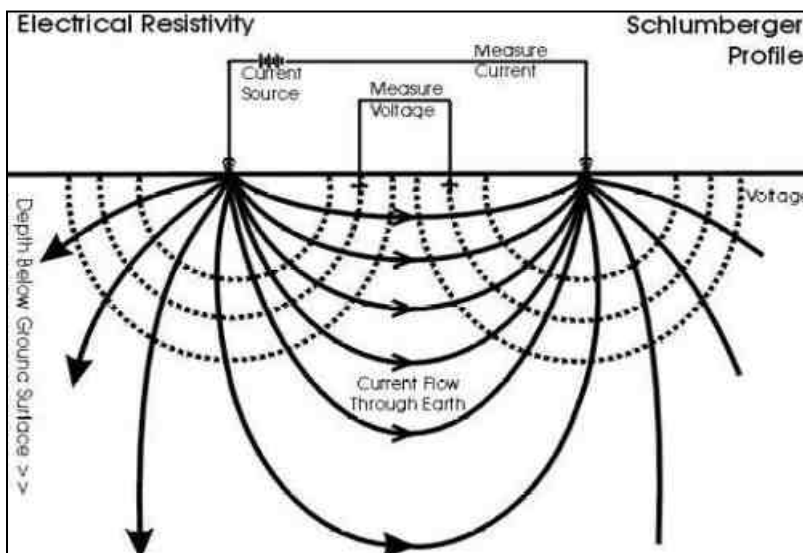
$A$  = Constants with values ranging from 0.5 to 2.5

### 3.2.5.2 Survey Layout

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

The field equipment deployed for the study is in a deep resistivity meter with a model of SSR – MP – AT. This Signal stacking Resistivity meter is a high-quality data acquisition system incorporating several innovation features for Earth resistivity. In the presence of random earth Noises the signal to noise ration can be enhanced by  $\sqrt{N}$  where  $N$  is the number of stacked readings. This SSR meter in which running averages of measurements  $[1, (1+2)/2, (1+2+3)/3 \dots (1+2+\dots+16/16)]$  up to the chosen stacks are displayed and the final average is stored automatically, in memory utilizing the principles of stacking to achieve the benefit of high signals to noise ratio. Based on these above significations the signal stacking resistivity meter was used for (VES) Vertical Electric Resistivity Sounding.

## RESISTIVITY SURVEY PROFILE



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

### 3.2.5.3 Data Presentation

It was inferred that the low resistance encountered at the depth between 60-65m. The maximum depth of proposed project is 47 m BGL. Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area.

### 3.2.5.4 Geophysical Data Interpretation

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

## 3.3 Air Environment

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

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

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

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

- Meteorological conditions.
- Topography of the study area.

- Likely impact area.

### 3.3.1 Meteorology & Climate

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

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

#### Climate –

- Coimbatore's climate is classified as tropical. The summers here have a good deal of rainfall, while the winters have very little.
  - The Köppen-Geiger climate classification is Aw. The average annual temperature in Coimbatore is 25.4 °C | 77.8 °F. The annual rainfall is 952 mm | 37.5 inch.
  - This region, situated near the equator line, is characterized by difficult-to-define summer seasons. The best time to visit is October, November, December 2024.
  - Precipitation is the lowest in January, with an average of 13 mm | 0.5 inch. Most of the precipitation here falls in October, averaging 181 mm | 7.1 inch.
  - At an average temperature of 28.9 °C | 84.1 °F, April is the hottest month of the year. December is the coldest month, with temperatures averaging 23.2 °C | 73.7 °F.
- <https://en.climate-data.org/asia/india/tamil-nadu/coimbatore-2788/>

#### Rainfall –

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

**TABLE 3.13 – RAINFALL DATA**

| Actual Rainfall in mm |      |        |        |        | Normal Rainfall in mm |
|-----------------------|------|--------|--------|--------|-----------------------|
| 2017                  | 2018 | 2019   | 2020   | 2021   | 1213.2                |
| 873.4                 | 1302 | 1272.4 | 1585.3 | 2119.1 |                       |

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

**TABLE 3.14 – METEOROLOGICAL DATA RECORDED AT SITE**

| S.No | Parameters            |     | Oct-2024 | Nov-2024 | Dec-2024 |
|------|-----------------------|-----|----------|----------|----------|
| 1    | Temperature (°C)      | Max | 26.16    | 24.65    | 23.95    |
|      |                       | Min | 22.01    | 21.74    | 20.57    |
|      |                       | Avg | 24.08    | 23.19    | 22.26    |
| 2    | Relative Humidity (%) | Avg | 85.3     | 84.06    | 84.54    |
| 3    | Wind Speed (m/s)      | Max | 3.63     | 3.71     | 2.45     |
|      |                       | Min | 0.67     | 1.21     | 0.59     |
|      |                       | Avg | 2.15     | 2.46     | 1.52     |
| 4    | Cloud Cover (OKTAS)   |     | 0-8      | 0-8      | 0-8      |
| 5    | Wind Direction        |     | WSW,W    | ENE,NE   | ENE,E    |

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

#### Correlation between Secondary and Primary Data

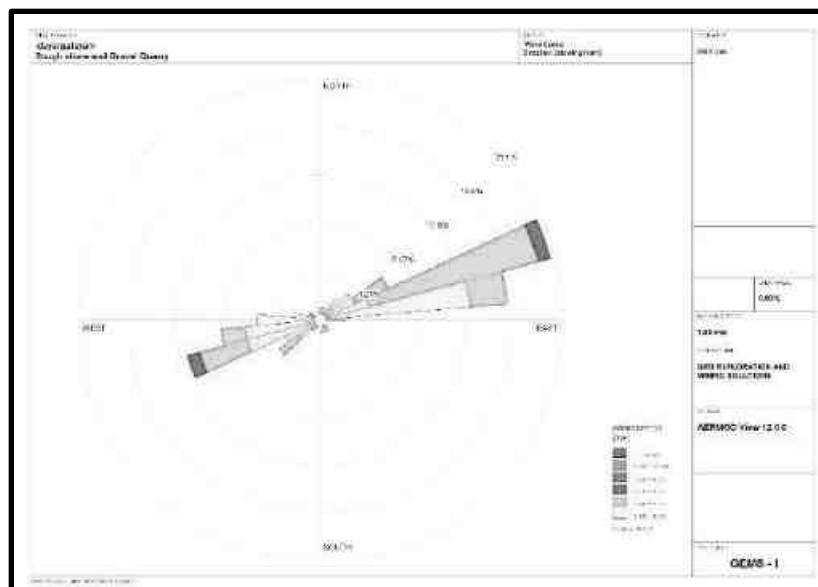
The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Coimbatore. A comparison of site data generated during the three months with that of IMD, Coimbatore Agro reveals the following:

- The average maximum and minimum temperatures of IMD, Coimbatore agro showed a higher in respect of on-site data i.e. in Pachapalayam village.

- The relative humidity levels were lesser at site as compared to IMD, Coimbatore agro.
- The wind speed and direction at site shows similar trend that of IMD, Coimbatore agro.

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

**FIGURE 3.12: WINDROSE DIAGRAM**



Environmental In the abstract of collected data wind rose were drawn on presented in figure No.3.14 during the monitoring period in the study area

1. Predominant winds were from ENE, WSW, ESE, E, WSW, W
2. Wind velocity readings were recorded between 0.50 to 5.70 km / hour
3. Calm conditions prevail of about 0.00% of the monitoring period
4. Temperature readings ranging from 22.26<sup>0</sup> to 24.08<sup>0</sup>C
5. Relative humidity ranging from 84.06 to 85.3%
6. The monitoring was carried out continuously for three months (Oct - Dec 2024)

### 3.3.2 Methodology and Objective

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

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

### 3.3.3 Sampling and Analytical Techniques

**TABLE 3.15 – METHODOLOGY AND INSTRUMENT USED FOR AIR QUALITY ANALYSIS**

| Parameter         | Method                                        | Instrument                                                                    |
|-------------------|-----------------------------------------------|-------------------------------------------------------------------------------|
| PM <sub>2.5</sub> | Gravimetric Method<br>Beta attenuation Method | Fine Particulate Sampler<br>Make – Thermo Environmental Instruments – TEI 121 |
| PM <sub>10</sub>  | Gravimetric Method<br>Beta attenuation Method | Respirable Dust Sampler<br>Make –Thermo Environmental Instruments – TEI 108   |
| SO <sub>2</sub>   | IS-5182 Part II                               | Respirable Dust Sampler withgaseous attachment                                |

|                 |                                                         |                                                 |
|-----------------|---------------------------------------------------------|-------------------------------------------------|
|                 | (Improved West & Gaeke method)                          |                                                 |
| NO <sub>x</sub> | IS-5182 Part II<br>(Jacob & Hochheiser modified method) | Respirable Dust Sampler with gaseous attachment |
| Free Silica     | NIOSH – 7601                                            | Visible Spectrophotometry                       |

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

**TABLE 3.16 – NATIONAL AMBIENT AIR QUALITY STANDARDS**

| Sl. No. | Pollutant                                                                        | Time Weighted Average      | Concentration in ambient air                 |                                                         |
|---------|----------------------------------------------------------------------------------|----------------------------|----------------------------------------------|---------------------------------------------------------|
|         |                                                                                  |                            | Industrial, Residential, Rural & other areas | Ecologically Sensitive area (Notified by Central Govt.) |
| 1       | Sulphur Dioxide (µg/m <sup>3</sup> )                                             | Annual Avg.*<br>24 hours** | 50.0<br>80.0                                 | 20.0<br>80.0                                            |
| 2       | Nitrogen Dioxide (µg/m <sup>3</sup> )                                            | Annual Avg.<br>24 hours    | 40.0<br>80.0                                 | 30.0<br>80.0                                            |
| 3       | Particulate matter (size less than 10µm) PM <sub>10</sub> (µg/m <sup>3</sup> )   | Annual Avg.<br>24 hours    | 60.0<br>100.0                                | 60.0<br>100.0                                           |
| 4       | Particulate matter (size less than 2.5 µm PM <sub>2.5</sub> (µg/m <sup>3</sup> ) | Annual Avg.<br>24 hours    | 40.0<br>60.0                                 | 40.0<br>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 values 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 seven (7) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period Oct – Dec 2024 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>).

### 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 3.17 – AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS**

| S. No | Location Code | Monitoring Locations  | Distance & Direction | Coordinates                 |
|-------|---------------|-----------------------|----------------------|-----------------------------|
| 1     | AAQ-1         | Core Zone             | Project Area         | 10°54'52.83"N 77° 6'43.96"E |
| 2     | AAQ-2         | Core Zone             | Near Project Area    | 10°54'44.79"N 77° 6'52.63"E |
| 3     | AAQ-3         | SN Palayam            | 4.0km NE             | 10°56'23.05"N 77° 8'23.14"E |
| 4     | AAQ-4         | Bogampatti            | 1.6km SE             | 10°54'17.60"N 77° 7'27.62"E |
| 5     | AAQ-5         | Lakshminaickenpalayam | 4.5km East           | 10°55'15.25"N 77° 9'15.62"E |
| 6     | AAQ-6         | Panapatti             | 4.0km SW             | 10°52'43.85"N 77° 6'1.60"E  |
| 7     | AAQ-7         | Chinnakuyili          | 3.0km NW             | 10°55'39.11"N 77° 5'13.51"E |

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



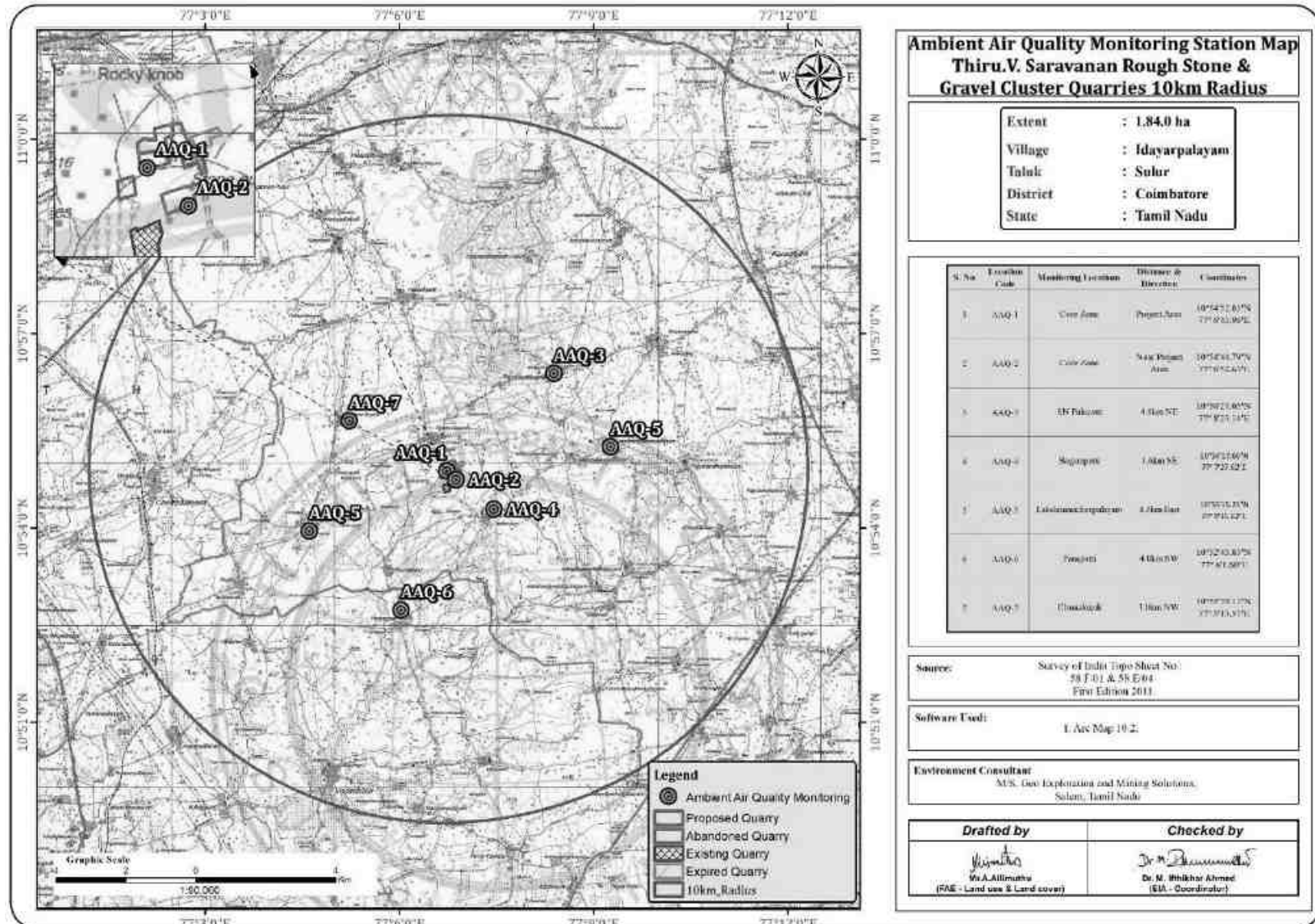
**FIGURE 3.14 AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS**

**TABLE 3.26 – ABSTRACT OF AMBIENT AIR QUALITY DATA**

| 1  | Parameter                 | PM <sub>10</sub> | PM <sub>2.5</sub> | SO <sub>2</sub> | NO <sub>2</sub> |
|----|---------------------------|------------------|-------------------|-----------------|-----------------|
| 2  | No. of Observations       | 260              | 260               | 260             | 260             |
| 3  | 10th Percentile Value     | 41.6             | 20.4              | 4.2             | 18.2            |
| 4  | 20th Percentile Value     | 42.8             | 21.6              | 4.4             | 18.9            |
| 5  | 30th Percentile Value     | 43.6             | 22.5              | 4.5             | 19.3            |
| 6  | 40th Percentile Value     | 44.2             | 23.3              | 4.7             | 19.7            |
| 7  | 50th Percentile Value     | 44.8             | 24.1              | 4.8             | 20.1            |
| 8  | 60th Percentile Value     | 45.2             | 24.5              | 5.0             | 20.5            |
| 9  | 70th Percentile Value     | 46.0             | 25.4              | 5.1             | 20.7            |
| 10 | 80th Percentile Value     | 46.6             | 25.8              | 5.2             | 21.2            |
| 11 | 90th Percentile Value     | 47.2             | 26.6              | 5.5             | 22.1            |
| 12 | 95th Percentile Value     | 47.8             | 27.0              | 5.8             | 23.0            |
| 13 | 98th Percentile Value     | 48.3             | 27.9              | 6.2             | 24.1            |
| 14 | Arithmetic Mean           | 45.3             | 24.5              | 5.0             | 20.7            |
| 15 | Geometric Mean            | 45.2             | 24.4              | 5.0             | 20.6            |
| 16 | Standard Deviation        | 2.1              | 2.4               | 0.6             | 1.8             |
| 17 | Minimum                   | 41.6             | 20.4              | 4.2             | 18.2            |
| 18 | Maximum                   | 48.3             | 27.9              | 6.2             | 24.1            |
| 19 | <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 3.27 –SUMMARY OF AMBIENT AIR QUALITY DATA**

| PM <sub>10</sub>  | AAQ1        | AAQ2        | AAQ3        | AAQ4        | AAQ5        | AAQ6        | AAQ7        |
|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Arithmetic Mean   | 41.9        | 43.1        | 44.7        | 45.4        | 45.5        | 45.2        | 45.0        |
| Minimum           | 40.2        | 41.0        | 42.1        | 42.6        | 41.3        | 40.8        | 42.2        |
| Maximum           | 48.4        | 49.8        | 48.0        | 47.8        | 48.1        | 48.3        | 48.2        |
| <b>NAAQ Norms</b> | <b>60.0</b> | <b>60.0</b> | <b>60.0</b> | <b>60.0</b> | <b>60.0</b> | <b>60.0</b> | <b>60.0</b> |

| <b>PM2.5</b>      | <b>AAQ1</b>  | <b>AAQ2</b>  | <b>AAQ3</b>  | <b>AAQ4</b>  | <b>AAQ5</b>  | <b>AAQ6</b>  | <b>AAQ7</b>  |
|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Arithmetic Mean   | 20.6         | 21.5         | 23.6         | 24.8         | 24.9         | 24.4         | 24.0         |
| Minimum           | 18.7         | 19.5         | 21.2         | 20.8         | 20.4         | 19.5         | 21.2         |
| Maximum           | 22.9         | 24.1         | 27.0         | 27.8         | 27.9         | 27.0         | 27.0         |
| <b>NAAQ Norms</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> |

| <b>SO<sub>2</sub></b> | <b>AAQ1</b> | <b>AAQ2</b> | <b>AAQ3</b> | <b>AAQ4</b> | <b>AAQ5</b> | <b>AAQ6</b> | <b>AAQ7</b> |
|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Arithmetic Mean       | 4.6         | 4.4         | 4.8         | 5.0         | 4.9         | 5.0         | 5.0         |
| Minimum               | 4.1         | 4.1         | 4.1         | 4.3         | 4.1         | 4.1         | 4.3         |
| Maximum               | 5.4         | 4.9         | 6.0         | 5.8         | 6.2         | 6.2         | 5.5         |
| <b>NAAQ Norms</b>     | <b>80.0</b> | <b>80.0</b> | <b>80.0</b> | <b>80.0</b> | <b>80.0</b> | <b>80.0</b> | <b>80.0</b> |

| <b>NO<sub>2</sub></b> | <b>AAQ1</b> | <b>AAQ2</b> | <b>AAQ3</b> | <b>AAQ4</b> | <b>AAQ5</b> | <b>AAQ6</b> | <b>AAQ7</b> |
|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Arithmetic Mean       | 19.8        | 19.8        | 20.2        | 20.3        | 20.4        | 20.1        | 20.5        |
| Minimum               | 16.9        | 17.6        | 17.8        | 17.9        | 18.4        | 17.8        | 18.0        |
| Maximum               | 23.6        | 23.6        | 26.2        | 23.3        | 23.1        | 22.4        | 24.7        |
| <b>NAAQ Norms</b>     | <b>80.0</b> | <b>80.0</b> | <b>80.0</b> | <b>80.0</b> | <b>80.0</b> | <b>80.0</b> | <b>80.0</b> |

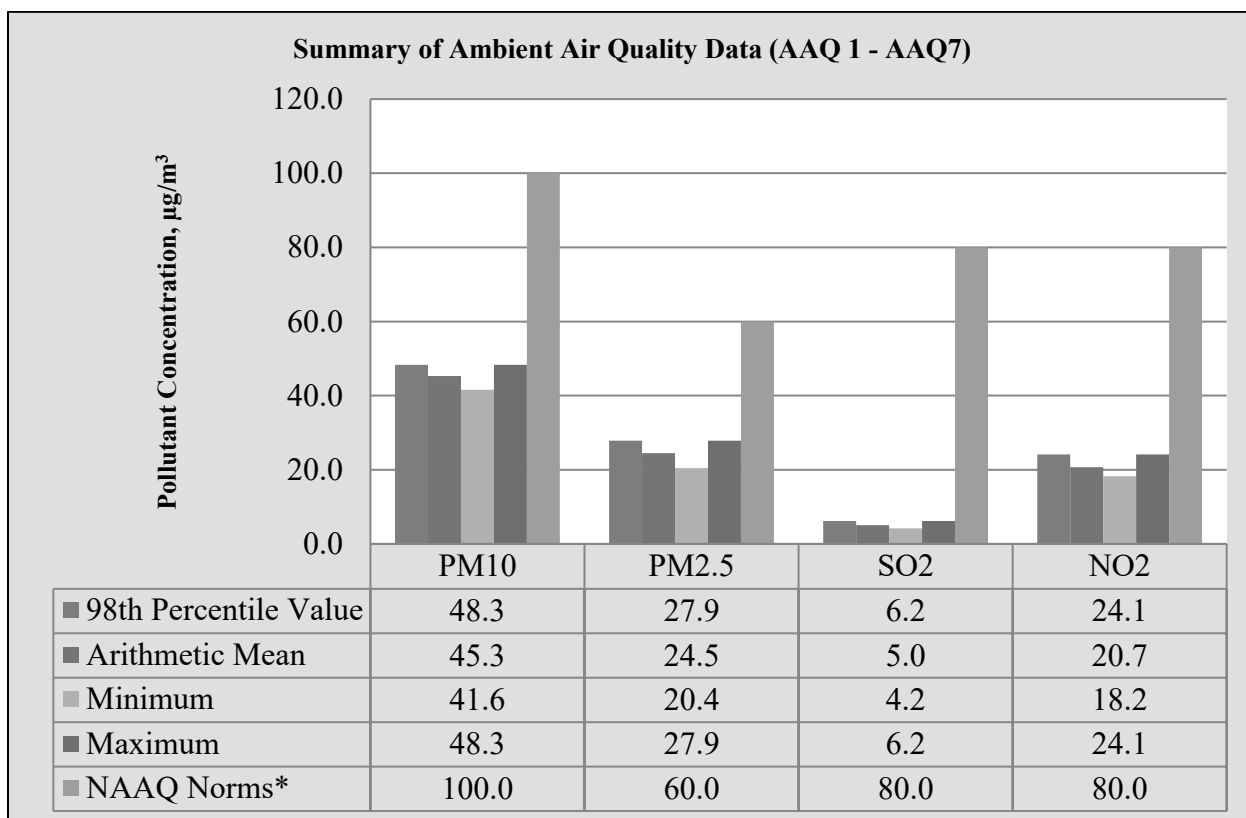
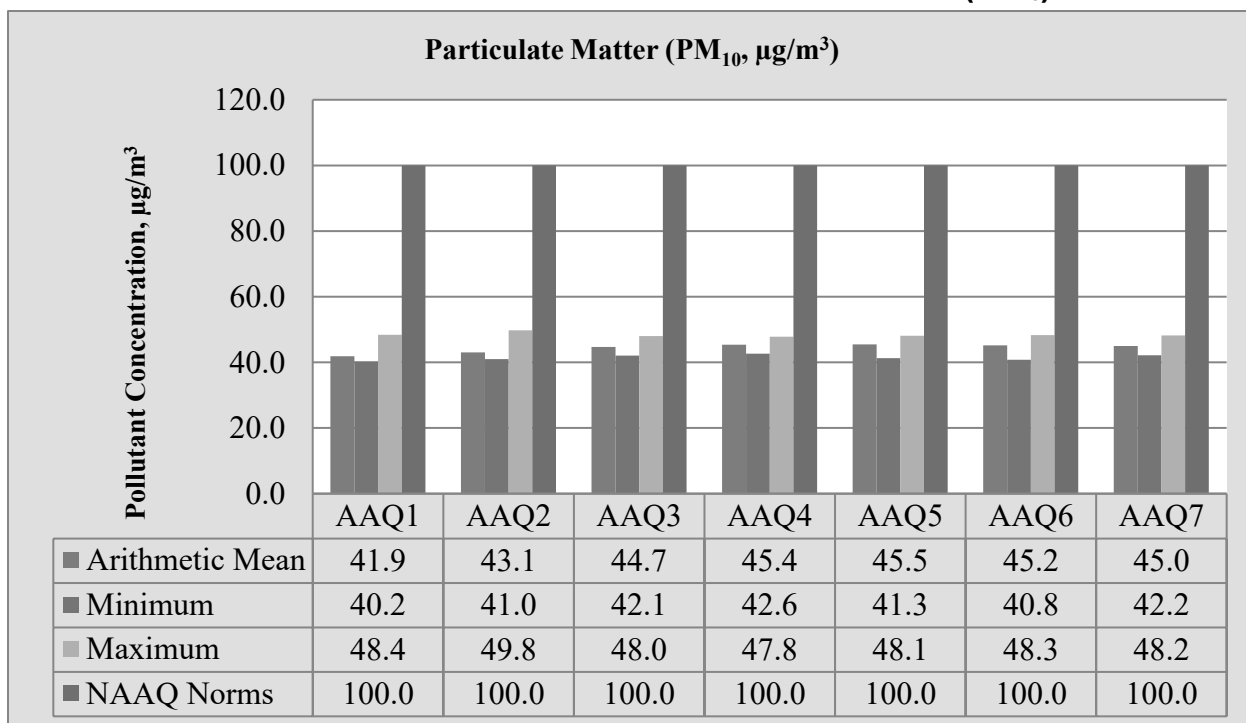
**FIGURE 3.15 : BAR DIAGRAM OF SUMMARY OF AAQ****FIGURE 3.16: BAR DIAGRAM OF PARTICULATE MATTER (PM<sub>10</sub>)**

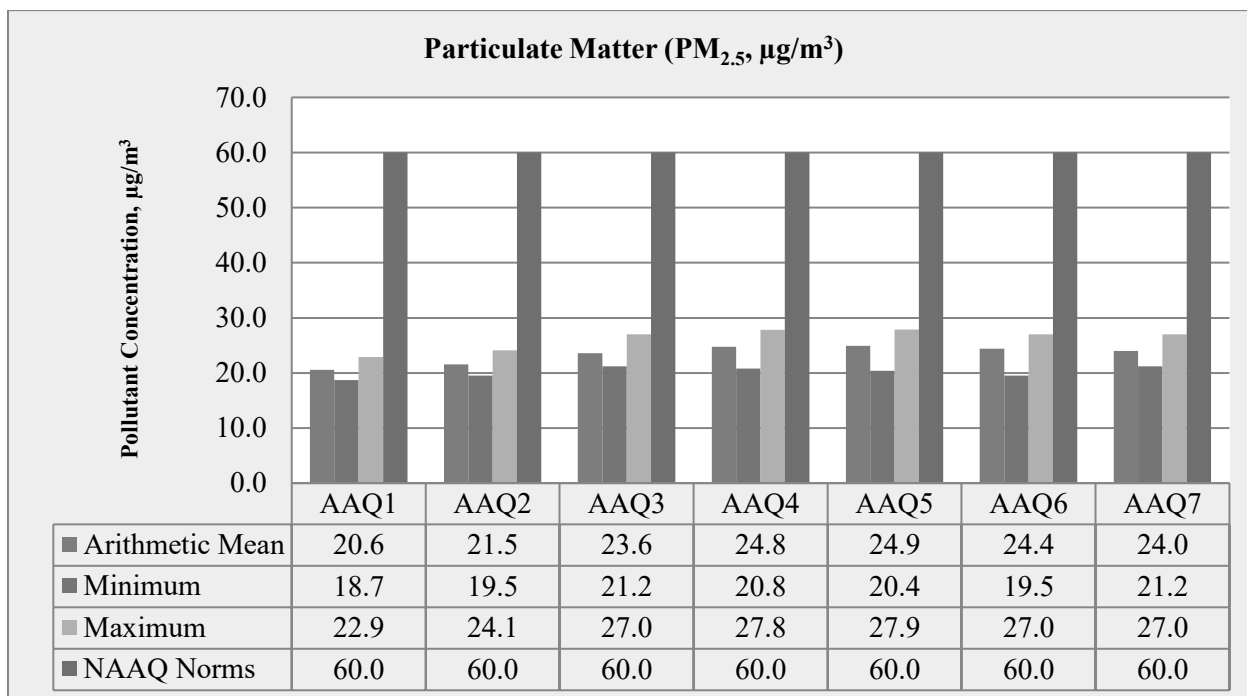
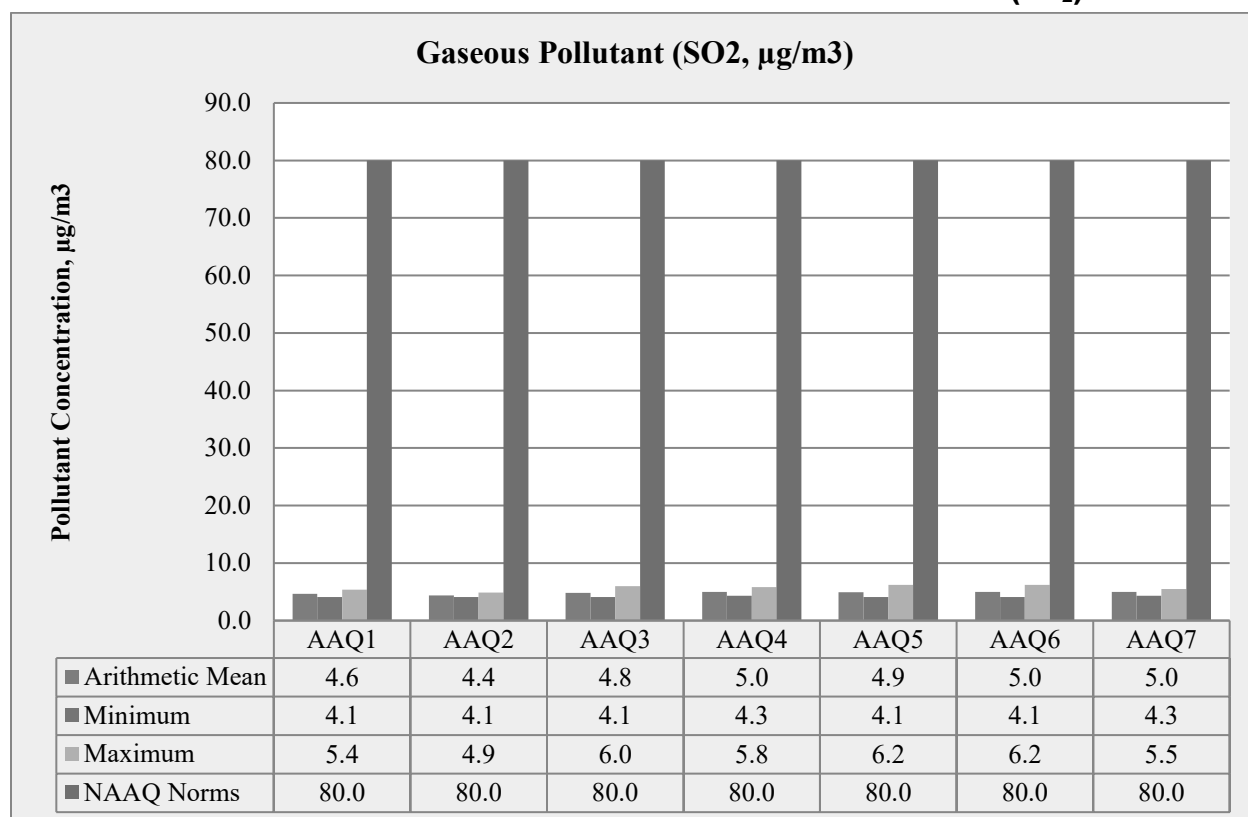
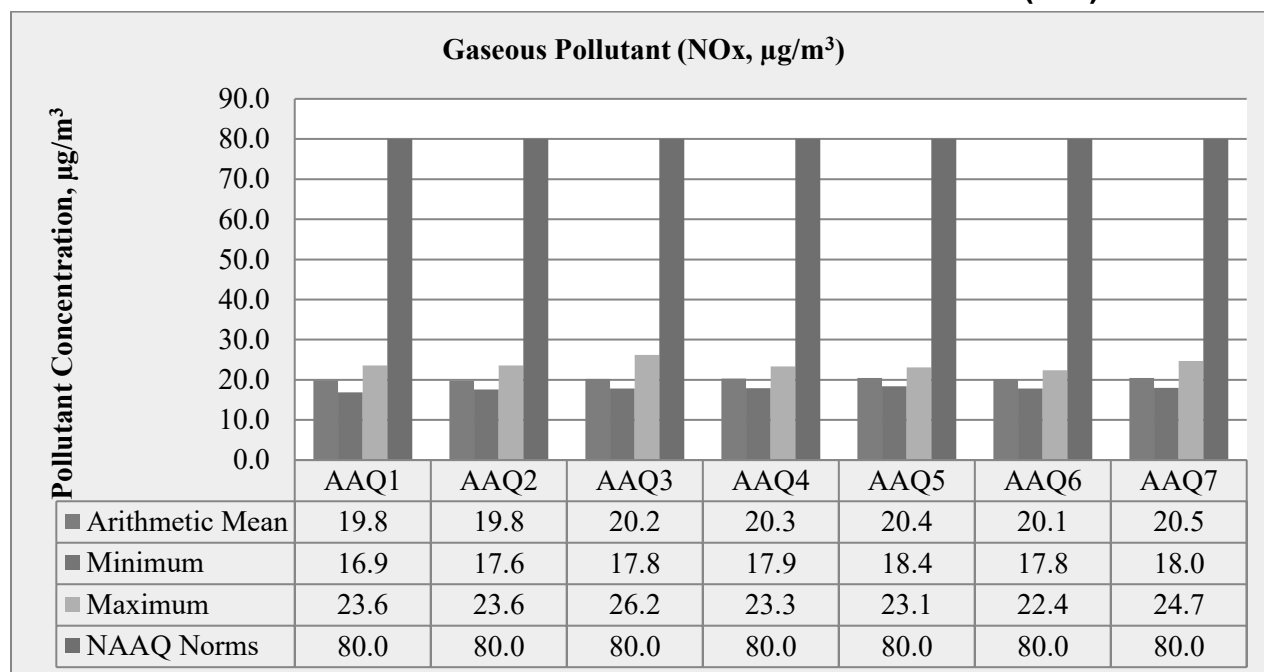
**FIGURE 3.16 A : BAR DIAGRAM OF PARTICULATE MATTER (PM<sub>2.5</sub>)****FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER (SO<sub>2</sub>)**

**FIGURE 3.17 A: BAR DIAGRAM OF PARTICULATE MATTER (NO<sub>2</sub>)**

### 3.3.6 Interpretations & Conclusion

As per monitoring data, PM<sub>10</sub> ranges from 41.9 µg/m<sup>3</sup> to 45.5µg/m<sup>3</sup>, PM<sub>2.5</sub> data ranges from 20.6 µg/m<sup>3</sup> to 24.9 µg/m<sup>3</sup>, SO<sub>2</sub> ranges from 4.4 µg/m<sup>3</sup> to 5.0 µg/m<sup>3</sup> and NO<sub>2</sub> data ranges from 19.8 µg/m<sup>3</sup> to 20.5 µg/m<sup>3</sup>. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB. The minimum & maximum concentrations of PM<sub>10</sub> were found to be 41.9 µg/m<sup>3</sup> in Core Zone & 45.5µg/m<sup>3</sup> in Lakshminaickenpalayam respectively. The minimum & maximum concentrations of PM<sub>2.5</sub> were found to be 20.6 µg/m<sup>3</sup> in Core Zone & 24.9 µg/m<sup>3</sup> in Lakshminaickenpalayam respectively. The maximum concentration in the core zone is due to the cluster of quarries situated within 500m radius.

## 3.4 Noise Environment

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

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

### 3.4.1 Identification of Sampling Locations

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

**TABLE 3.31 – DETAILS OF SURFACE NOISE MONITORING LOCATIONS**

| S. No | Location code | Monitoring Locations  | Distance & Direction | Coordinates                 |
|-------|---------------|-----------------------|----------------------|-----------------------------|
| 1     | N-1           | Core Zone             | Project Area         | 10°54'55.64"N 77° 6'43.26"E |
| 2     | N-2           | Core Zone             | Near Project Area    | 10°54'46.62"N 77° 6'47.59"E |
| 3     | N-3           | SN Palayam            | 4.0km NE             | 10°56'23.14"N 77° 8'22.82"E |
| 4     | N-4           | Bogampatti            | 1.6km SE             | 10°54'17.66"N 77° 7'27.41"E |
| 5     | N-5           | Lakshminaickenpalayam | 4.5km East           | 10°55'15.52"N 77° 9'15.45"E |
| 6     | N-6           | Panapatti             | 4.0km SW             | 10°52'43.62"N 77° 6'1.10"E  |
| 7     | N-7           | Chinnakuyili          | 3.0km NW             | 10°55'39.20"N 77° 5'13.11"E |

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

**FIGURE 3.18: PHOTOGRAPHS OF AMBIENT NOISE MONITORING LOCATIONS**

### 3.4.2 Method of Monitoring

Digital Sound Level Meter was used for the study. All reading was taken on the 'A-Weighting' frequency network, at a height of 1.5 meters from ground level. The sound level meter does not give a steady and consistent reading and it is quite difficult to assess the actual sound level over the entire monitoring period. To mitigate this shortcoming, the Continuous Equivalent Sound level, indicated by Leq, is used. Equivalent sound level, 'Leq', can be obtained from variable sound pressure level, 'L', over a time period by using following equation.

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

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

T = Time interval of observation

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

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

Day time : 6:00 hours to 22.00 hours.

Night time : 22:00 hours to 6.00 hours

**TABLE 3.32 – NOISE MONITORING RESULTS IN CORE AND BUFFER ZONE**

| S. No | Locations  | Noise level (dB (A) Leq) |            | Ambient Noise Standards                                                         |
|-------|------------|--------------------------|------------|---------------------------------------------------------------------------------|
|       |            | Day Time                 | Night Time |                                                                                 |
| N-1   | Core Zone  | 39.4                     | 34.7       | <b>Industrial</b><br><b>Day Time- 75 dB (A)</b><br><b>Night Time- 70 dB (A)</b> |
| N-2   | Core Zone  | 44.0                     | 36.9       |                                                                                 |
| N-3   | SN Palayam | 45.7                     | 35.0       |                                                                                 |

|     |                       |      |      |                                                                                  |
|-----|-----------------------|------|------|----------------------------------------------------------------------------------|
| N-4 | Bogampatti            | 49.5 | 38.0 | <b>Residential</b><br><b>Day Time– 55 dB (A)</b><br><b>Night Time- 45 dB (A)</b> |
| N-5 | Lakshminaickenpalayam | 48.9 | 37.1 |                                                                                  |
| N-6 | Panapatti             | 47.0 | 35.9 |                                                                                  |
| N-7 | Chinnakuyili          | 44.5 | 36.1 |                                                                                  |

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



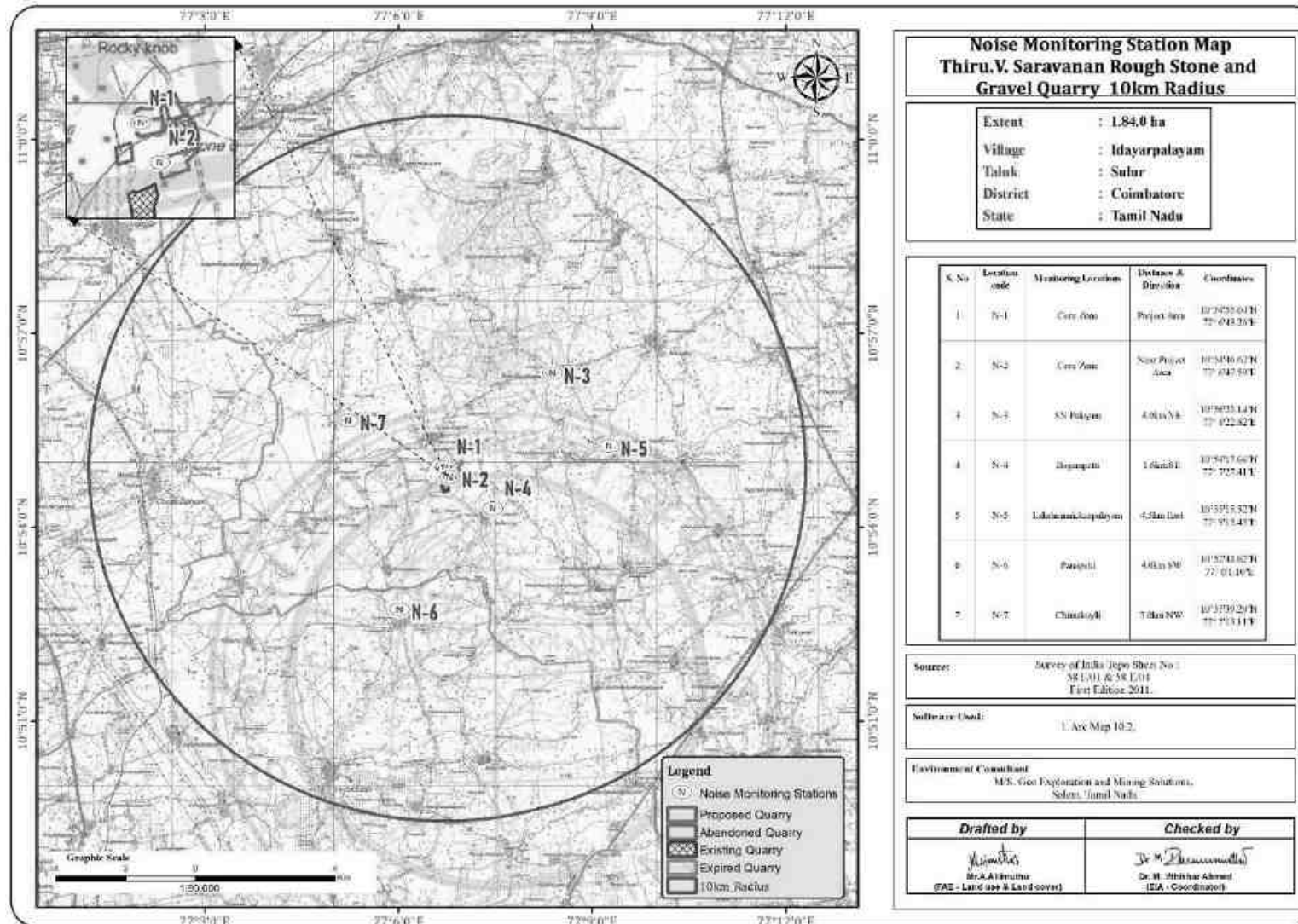
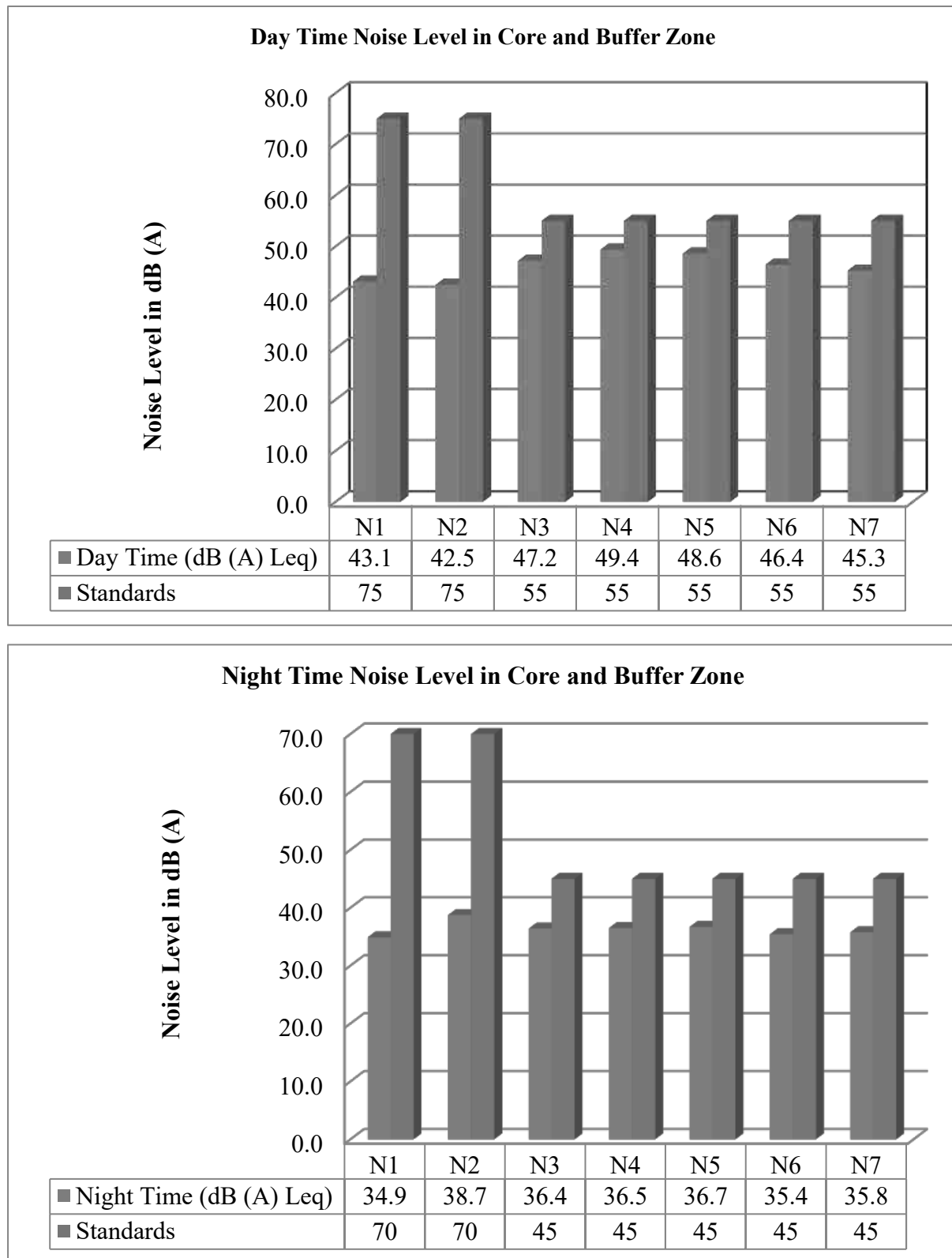
**FIGURE 3.19: NOISE MONITORING STATIONS AROUND 10 KM RADIUS**

**FIGURE 3.20: DAY & NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE**

#### 3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 7 (Seven) locations around the project area considering quarries. Noise levels recorded in core zone during day time were from 42.5 – 43.1 dB (A) Leq and during night time were from 34.9-38.7 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 45.3 – 49.4dB (A) Leq and during night time were from 35.4-36.7 dB (A) Leq.

The values of noise observed in some of the areas are primarily owing to quarrying activities due to cluster of quarries within 500m radius, movement of vehicles and other anthropogenic activities. Noise monitoring results reveal that the maximum & minimum noise levels at day time were recorded in the range of 49.4 dB(A) in Bogampatti village and 45.3 dB(A) in chinnakuili Village respectively. 35.4 dB(A) in Panapatti and 36.7 dB(A) in Lakshminaickenpalayam Village respectively in night time. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

### **3.5 Biological Environment**

#### **3.5.1.Study area Ecology**

The core area extent of 1.84.0 Ha of Rough stone and Gravel quarry has an impact on the diversity of flora and fauna of the surrounding area. But present work was carried out on the detailed study of the impacts of the Rough stone and Gravel quarry on the ecology and biodiversity of the core lease area with the proper mitigation and sustainable management plan. The proposed area applied area exhibits plain topography. The following methods were applied during the baseline study of flora, fauna, and diversity assessment.

#### **3.5.2. Objectives of Biological Studies**

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

#### **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 ordinates. Presence of mammals was recorded by direct and indirect signs. All possible transects were taken for birds and butterflies.

Birds and butterflies were classified into species level. Recorded bird species were identified to species level using standard books (Ali & Ripley 1987, Grimmett et al., 2016).

#### **a) 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.

#### **b). 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.

#### **c) 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.

#### **d) Observations from Sampling**

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

#### **e) Equipment/ References**

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

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

### **3.5.4 Part I Field Sampling Techniques**

#### **3.5.4.1 Transect walk – Birds**

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

#### **3.5.4.2. Modified Pollard Walk – for Butterflies**

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

#### **3.5.4.3. Visual Encounter Survey (VES) - reptiles and amphibians**

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

#### **3.5.4.4. 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: 3.33 Flora in the Core zone of Rough Stone and Gravel Quarry**

| Sl.No          | English Name         | Vernacular Name | Scientific Name              | Family Name   |
|----------------|----------------------|-----------------|------------------------------|---------------|
| <b>Trees</b>   |                      |                 |                              |               |
| 1.             | Velvet mesquite      | Mullu Maram     | <i>Prosopis juliflora</i>    | Fabaceae      |
| 2.             | White Bark Acacia    | Vela maram      | <i>Vachellia leucophloea</i> | Fabaceae      |
| 3.             | Neem or Indian lilac | Vembu maram     | <i>Azadirachta indica</i>    | Meliaceae     |
| 4.             | Millettia Pinnata    | Pongam oiltree  | <i>Pongamia pinnata</i>      | Fabaceae      |
| <b>Shrubs</b>  |                      |                 |                              |               |
| 1.             | Avaram               | Avarai          | <i>Senna auriculata</i>      | Fabaceae      |
| 2.             | Devil's trumpet      | Umathai         | <i>Datura metel</i>          | Solanaceae    |
| 3.             | Milk Weed            | Erukku          | <i>Calotropis gigantea</i>   | Apocynaceae   |
| <b>Herbs</b>   |                      |                 |                              |               |
| 1.             | Common leucas        | Thumbai         | <i>Leucas aspera</i>         | Lamiaceae     |
| 2.             | Fish poison          | Kolinch         | <i>Tephrosia purpurea</i>    | Fabaceae      |
| 3.             | Coat buttons         | Thatha poo      | <i>Tridax procumbens</i>     | Asteraceae    |
| 4.             | Devil's thorn        | Nerunji         | <i>Tribulus terrestris</i>   | Zygophyllales |
| 5.             | Asthma-plant         | Amman pacharisi | <i>Euphorbia hirta</i>       | Euphorbiaceae |
| 6.             | Indian doab          | Arugampul       | <i>Cynodon dactylon</i>      | Poaceae       |
| 7.             | Malabar catmint      | Pie Viratti     | <i>Anisomeles malabarica</i> | Lamiaceae     |
| <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 16 species belonging to 10 families have been recorded from the core mining lease area. The proposed area applied area exhibits plain topography. This land is fit for vegetation and cultivation. Based on the habitat classification of the enumerated plants the majority of species were Herbs 7 followed by Shrubs 3, Trees 4, and Grasses 2. Details of flora with the scientific name were mentioned in Table No. 3.33 The result of the core zone of flora studies shows that Fabaceae and Poaceae, Lamiaceae are the main dominating species in the study area mentioned in Table No.3.33 No species found as threatened category.



a. *Calotropis gigantea*



b. *Prosopis juliflora*



c. *Vachellia leucophloea*



d. *Azadirachta indica*



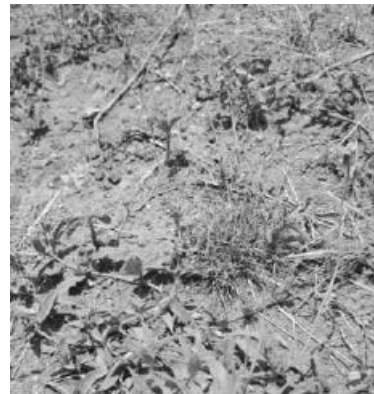
e. *Euphorbia hirta*



f. *Bromus diandrus*



g. *Tephrosia purpurea*



h. *Tridax procumbens*

**Fig No: 3.21 Flora species observation in the core zone area**

**Table No: 3.34 Flora in Buffer Zone of Rough Stone and gravel quarry.**

| Sl.No        | English Name         | Vernacular Name | Scientific Name                | Family Name     |
|--------------|----------------------|-----------------|--------------------------------|-----------------|
| <b>Trees</b> |                      |                 |                                |                 |
| 1.           | Velvet mesquite      | Mullu maram     | <i>Prosopis juliflora</i>      | Fabaceae        |
| 2.           | Neem or Indian lilac | Vembu           | <i>Azadirachta indica</i>      | Meliaceae       |
| 3.           | Mango                | Manga           | <i>Mangifera indica</i>        | Anacardiaceae   |
| 4.           | Wild Tamarind        | Savundal        | <i>Leucaena latisiliqua</i>    | Mimosaceae      |
| 5.           | Tree of heaven       | Perumaram       | <i>Ailanthus excelsa</i>       | Simaroubaceae   |
| 6.           | Coconut              | Thennai maram   | <i>Cocos nucifera</i>          | Arecaceae       |
| 7.           | Madras thorn         | Kudukapuli      | <i>Pithecellobium dulce</i>    | Fabaceae        |
| 8.           | River tamarind       | Soundal maram   | <i>Leucaena leucocephala</i>   | Fabaceae        |
| 9.           | Indian siris         | Eayal vaagai    | <i>Albizia lebbeck</i>         | Mimosaceae      |
| 10.          | Monkey pod tree      | Thungumoonchi   | <i>Samanea saman</i>           | Fabaceae        |
| 11.          | Cutch tree           | Karangali       | <i>Acacia chundra</i>          | Mimosaceae      |
| 12.          | Portia tree          | Poovarasam      | <i>Thespesia Populnea</i>      | Malvaceae       |
| 13.          | Sage-leaved alangium | Alangi          | <i>Alangium salviifolium</i>   | Alangiaceae     |
| 14.          | Jack fruit           | Bala maram      | <i>Artocarpus integrifolia</i> | Moraceae        |
| 15.          | Indian siris         | Vagai           | <i>Albizia lebbeck</i>         | Mimosaceae      |
| 16.          | Bitter Albizia       | Unja, Usilai    | <i>Albizia amara</i>           | Mimosaceae      |
| 17.          | Tree of heaven       | Perumaram       | <i>Ailanthus excelsa</i>       | Simaroubaceae   |
| 18.          | Velvet mesquite      | Mullu maram     | <i>Prosopis juliflora</i>      | Fabaceae        |
| 19.          | Yellow Flame         | Vagai           | <i>Peltophorum pterocarpum</i> | Caesalpiniaceae |
| 20.          | Lemon                | Ezhumuchaipalam | <i>Citrus lemon</i>            | Rutaceae        |
| 21.          | Jamun Fruit Plant    | Naval maram     | <i>Syzygium cumini</i>         | Myrtaceae       |
| 22.          | Gum arabic tree      | Karuvelam       | <i>Vachellia nilotica</i>      | Fabaceae        |
| 23.          | Yellow oleander      | Ponarali        | <i>Cascabela thevetia</i>      | Apocynaceae     |
| 24.          | Rain Tree            | Mazlhimaram     | <i>Samanea saman</i>           | Mimosaceae      |
| 25.          | Chinese chaste tree  | Nochi           | <i>Vitex negundo</i>           | Verbenaceae     |
| 26.          | Umbrella thorn       | Umbrella thorn  | <i>Acacia planifrons</i>       | Mimosaceae      |
| 27.          | Golden shower tree   | Sarakonnai      | <i>Cassia fistula</i>          | Caesalpiniaceae |
| 28.          | Asian Palmyra palm   | Panai maram     | <i>Borassus flabellifer</i>    | Arecaceae       |
| 29.          | Curry tree Plant     | Karuveppilai    | <i>Murraya koenigii</i>        | Rutaceae        |
| 30.          | Teak                 | Thekku          | <i>Tectona grandis</i>         | Verbenaceae     |
| 31.          | Indian mulberry      | Nuna maram      | <i>Morinda tinctoria</i>       | Rubiaceae       |

|               |                   |                          |                                 |                 |
|---------------|-------------------|--------------------------|---------------------------------|-----------------|
| 32.           | Drumstick tree    | Murunga maram            | <i>Moringa oleifera</i>         | Moringaceae     |
| 33.           | Guava             | Koyya                    | <i>Psidium guajava</i>          | Myrtaceae       |
| 34.           | Indian-almond     | Inguti                   | <i>Terminalia catappa</i>       | Combretaceae    |
| 35.           | Cat Spider Flower | Cleome                   | <i>Cleome felina</i>            | Capparaceae     |
| 36.           | Eucalyptus        | Thailam maram            | <i>Eucalyptus tereticornis</i>  | Myrtaceae       |
| 37.           | Pongamia pinnata  | Pongam                   | <i>Millettia pinnata</i>        | Fabaceae        |
| 38.           | Horsetail She-oak | Savukku maram            | <i>Casuarina equisetifolia</i>  | Casuarinaceae   |
| 39.           | Henna             | Marudaani                | <i>Lawsonia inermis</i>         | Lythraceae      |
| 40.           | Indian gooseberry | Nelli                    | <i>Phyllanthus emblica</i>      | Phyllanthaceae  |
| 41.           | Peepal            | Asoka maram              | <i>Ficus religiosa</i>          | legume          |
| 42.           | Tamarind          | Puliyamaram              | <i>Tamarindus indica</i>        | Legumes         |
| 43.           | Rosewood          | Eeti, Thodagathi, Tawadi | <i>Dalbergia latifolia</i>      | Fabaceae        |
| 44.           | Butter Tree       | Kattu illupai            | <i>Madhuca indica</i>           | Sapotaceae      |
| 45.           | Conkerberry       | Sirukilaa                | <i>Carissa spinarum</i>         | Apocynaceae     |
| 46.           | Malayan Cherry    | Ten Pazham               | <i>Muntingia calabura</i>       | Muntingiaceae   |
| 47.           | Sacred fig        | Arasa maram              | <i>Ficus religiosa</i>          | Moraceae        |
| 48.           | Jujube Trees      | Elantha Pazham           | <i>Ziziphus Mauritiana</i>      | Rhamnaceae      |
| 49.           | Papaya            | Pappali maram            | <i>Carica papaya L</i>          | Caricaceae      |
| 50.           | Mountain date     | Malai eecham,            | <i>Phoenix loureirii</i>        | Arecaceae       |
| 51.           | Java olive tree   | Kutiraippitukku          | <i>Sterculia foetida</i>        | Malvaceae       |
| 52.           | Ceylon satinwood  | Purush, Porasu           | <i>Chloroxylon swietenia</i>    | Rutaceae        |
| 53.           | Banana tree       | Vazhaimaram              | <i>Musa acuminata</i>           | Musaceae        |
| 54.           | Amati             | Agathi keera             | <i>Sesbania grandiflora</i>     | Fabaceae        |
| 55.           | Custard apple     | Seethapazham             | <i>Annona reticulata</i>        | Annonaceae      |
| 56.           | Manilkara zapota  | Sapota                   | <i>Manilkara zapota</i>         | Sapotaceae      |
| 57.           | Indian-almond     | Badam                    | <i>Terminalia catappa</i>       | Combretaceae    |
| 58.           | Banyan tree       | Alamaram                 | <i>Ficus benghalensis</i>       | Moraceae        |
| 59.           | Jack fruit        | Palamaram                | <i>Artocarpus heterophyllus</i> | Moraceae        |
| <b>Shrubs</b> |                   |                          |                                 |                 |
| 1.            | Giant reed        | Mudaampul                | <i>Arundo donax</i>             | Poaceae         |
| 2.            | Devil's trumpet   | Umathai                  | <i>Datura metel</i>             | Solanaceae      |
| 3.            | Senna Coffee      | Payaveri                 | <i>Cassia occidentalis</i>      | Caesalpiniaceae |
| 4.            | Avaram            | Avarai                   | <i>Senna auriculata</i>         | Fabaceae        |
| 5.            | Water-hyacinth    | Agayathamara             | <i>Eichhornia crassipes</i>     | Pontederiaceae  |
| 6.            | Kangkong          | Sarkaraivalli            | <i>Ipomeae aquatica</i>         | Convolvulaceae  |



|              |                         |                  |                                 |                |
|--------------|-------------------------|------------------|---------------------------------|----------------|
| 7.           | Castor bean             | Amanakku         | <i>Ricinus communis</i>         | Euphorbiaceae  |
| 8.           | -                       | Vellai indu      | <i>Acacia pennata</i>           | Mimosaceae     |
| 9.           | Green amaranth          | Kuppaikerai      | <i>Amaranthus vividis</i>       | Amaranthaceae  |
| 10.          | Jungle geranium         | Idly Poo         | <i>Ixora coccinea</i>           | Rubiaceae      |
| 11.          | Birch-Leaved Cat Tail   | Aathaathazhai    | <i>Acalypha fruticosa</i>       | Euphorbiaceae  |
| 12.          | Horn of Plenty          | Karu Umathai     | <i>Datura metel</i>             | Solanaceae     |
| 13.          | Devil's claw            | Thael kodukkukai | <i>Martynia annua</i>           | Pedaliaceae    |
| 14.          | Shoe flower             | Chemparuthi      | <i>Hibiscu rosa-sinensis</i>    | Malvaceae      |
| 15.          | Asian Bushbeech         | Sirukumalaan     | <i>Gmelina asiatica</i>         | Verbenaceae    |
| 16.          | Wild jasmine            | Kattumalli       | <i>Jasminum trichotomum</i>     | Oleaceae       |
| 17.          | Milk Weed               | Erukku           | <i>Calotropis gigantea</i>      | Apocynaceae    |
| 18.          | Rough cocklebur         | Marlumuttu       | <i>Xanthium indicum</i>         | Asteraceae     |
| 19.          | Mexican prickly poppy   | Bramathndu       | <i>Argemone mexicana</i>        | Papaveraceae   |
| 20.          | Orange Jasmine          | Mock Orange      | <i>Murraya paniculata</i>       | Rutaceae       |
| 21.          | Purging nut             | Kattamanakku     | <i>Jatropha curcas</i>          | Euphorbiaceae  |
| 22.          | Cypress vine            | Mayil maanikam   | <i>Ipomoea quamoclit</i>        | Convolvulaceae |
| 23.          | Indian Balm of Gilead   | Mulkilluvai      | <i>Commiphora berryi</i>        | Burseraceae    |
| 24.          | Malabar catmint         | Pei veratti      | <i>Anisomeles malabarica</i>    | Lamiaceae      |
| 25.          | Dwarf Heliotrope        | Theelkoduku      | <i>Heliotropium supinum</i>     | Boraginaceae   |
| 26.          | Clustered Morning Glory | Onan kodi        | <i>Ipomoea staphylina</i>       | Convolvulaceae |
| 27.          | Touch-me-not            | Thottalchinungi  | <i>Mimosa pudica</i>            | Mimosaceae     |
| 28.          | Indian mallow           | Thuthi           | <i>Abutilon indicum</i>         | Meliaceae      |
| 29.          | Night shade plan        | Sundaika         | <i>Solanum torvum</i>           | Solanaceae     |
| 30.          | Rosary pea              | Kundumani        | <i>Abrus precatorius</i>        | Fabaceae       |
| 31.          | Indian Oleander         | Arali            | <i>Nerium indicum</i>           | Apocynaceae    |
| 32.          | West Indian Lantana     | Unni chedi       | <i>Lantana camara</i>           | Verbenaceae    |
| 33.          | Rough cocklebur         | Marlumutt        | <i>Xanthium indicum</i>         | Asteraceae     |
| <b>Herbs</b> |                         |                  |                                 |                |
| 1.           | Carrot grass            | Partiniyam       | <i>Parthenium hysterophorus</i> | Asteraceae     |
| 2.           | Sessile Joyweed         | Ponnankanni      | <i>Alternanthera sessilis</i>   | Amaranthaceae  |
| 3.           | Billygoat weed          | Pumpillu         | <i>Ageratum conyzoides</i>      | Asteraceae     |
| 4.           | Aloe barbadensis        | Katrashai        | <i>Aloe vera</i>                | Asphodelaceae  |
| 5.           | Madagascar Periwinkle   | Nithyakalyani    | <i>Catharanthus roseus</i>      | Apocynaceae    |
| 6.           | Indian Mercury          | Kuppamani        | <i>Acalypha indica</i>          | Euphorbiaceae  |
| 7.           | Indian nettle           | Nayuruvi         | <i>Achyranthes aspera</i>       | Amaranthaceae  |

|                         |                           |                            |                              |                  |
|-------------------------|---------------------------|----------------------------|------------------------------|------------------|
| 8.                      | Chloris barbata           | Kodai pul                  | <i>Chloris barbata</i>       | Poaceae          |
| 9.                      | Spreading hogweed         | Mookkaratti                | <i>Boerhavia diffusa</i>     | Nyctaginaceae    |
| 10.                     | Bui                       | Ciru-pulai                 | <i>Aervalanata</i>           | Amaranthaceae    |
| 11.                     | Indian doab               | Arugampul                  | <i>Cynodon dactylon</i>      | Poaceae          |
| 12.                     | Spiny amaranth            | Mullu keera                | <i>Amaranthus spinosus</i>   | Amaranthaceae    |
| 13.                     | Prickly chaff flower      | Uthrani                    | <i>Achyranthes aspera</i>    | Amaranthaceae    |
| 14.                     | Malabar spinach           | Pasalaikeera, Paasaangalli | <i>Basella alba</i>          | Basellaceae      |
| 15.                     | Tropical milkweed         | Blood Flower               | <i>Asclepias curassavica</i> | Asclepiadaceae   |
| 16.                     | Mexican prickly poppy     | Mullu umathai              | <i>Argemone mexicana</i>     | Papaveraceae     |
| 17.                     | Dwarf morning-glory       | Vishnu kiranthi            | <i>Evolvulus alsinoides</i>  | Convolvulaceae   |
| 18.                     | Datura metel              | Oomathai                   | <i>Datura metel</i>          | Solanaceae       |
| 19.                     | Carry me seed             | Kizhar nelli               | <i>Phyllanthus amarus</i>    | Phyllanthaceae   |
| 20.                     | Malabar catmint           | Peymarutti                 | <i>Anisomeles malabarica</i> | Lamiaceae        |
| 21.                     | Black-jack                | Mukkuthi Asteraceae        | <i>Bidens pilosa</i>         | Aizoaceae        |
| 22.                     | Yellow elder              | Manjarali                  | <i>Tecoma stans</i>          | Apocynaceae      |
| 23.                     | Green amaranth            | Kuppai keera               | <i>Amaranthus viridis</i>    | Amaranthaceae    |
| 24.                     | Obscure Morning Glory     | Siruthaali                 | <i>Ipomoea obscura</i>       | Convolvulaceae   |
| 25.                     | Cleome viscosa            | Nai kadugu                 | <i>Celome viscosa</i>        | Capparidaceae    |
| 26.                     | Common leucas             | Thumbai                    | <i>Leucas aspera</i>         | Lamiaceae        |
| 27.                     | Waterhyssop               | Nilappachai                | <i>Bacopa monnieri</i>       | Scrophulariaceae |
| 28.                     | Century plant             | Agave                      | <i>Agave america</i>         | Agavaceae        |
| 29.                     | Sand Herbage              | Manal keera                | <i>Gisekia pharnaceoides</i> |                  |
| 30.                     | Fish poison               | Kollukaivelai              | <i>Tephrosia purpureae</i>   | Papilionaceae    |
| 31.                     | Elephant Climber          | Vettai chedi, Kanvali poo  | <i>Argyreia cuneata</i>      | Convolvulaceae   |
| 32.                     | Asthma-plant              | Amman pacharisi            | <i>Euphorbia hirta</i>       | Euphorbiaceae    |
| 33.                     | Porcupine flower          | Shemmuli                   | <i>Barleria prionitis</i>    | Acanthaceae      |
| 34.                     | Holy basil                | Thulasi                    | <i>Ocimum tenuiflorum</i>    | Lamiaceae        |
| 35.                     | Peanut                    | Kadalai                    | <i>Arachis hypogaea</i>      | Fabaceae         |
| 36.                     | Red Hogweed               | Mukurattai                 | <i>Boerhavia diffusa</i>     | Nyctaginaceae    |
| 37.                     | Tridax daisy              | Thatha poo                 | <i>Tridax procumbens</i>     | Asteraceae       |
| 38.                     | Gale of the wind          | Keelaneeli                 | <i>Phyllanthus niruri</i>    | Phyllanthaceae   |
| 39.                     | Eggplant                  | Kathirikai                 | <i>Solanum melongena</i>     | Solanaceae       |
| 40.                     | European black nightshade | Manathakkali               | <i>Solanum nigrum</i>        | Solanaceae       |
| <b>Climber/ Creeper</b> |                           |                            |                              |                  |
| 1.                      | Ivy gourd                 | Kovai                      | <i>Coccinia grandis</i>      | Cucurbitaceae    |

|               |                        |                  |                              |                |
|---------------|------------------------|------------------|------------------------------|----------------|
| 2.            | Cucumis maderaspatanus | Musumusukkai     | <i>Mukia maderaspatana</i>   | Cucurbitaceae  |
| 3.            | Indian atalantia       | Kattu naarangam, | <i>Atalantia monophylla</i>  | Rutaceae       |
| 4.            | Butterfly pea          | Sangu poo        | <i>Clitoria ternatea</i>     | Fabaceae       |
| 5.            | Wild water lemon       | Siruponaikaali   | <i>Passiflora foetida</i>    | Passifloraceae |
| 6.            | Stemmed vine           | Perandai         | <i>Cissus quadrangularis</i> | Vitaceae       |
| 7.            | Bottle Guard           | Sorakkai         | <i>Lagenaria siceraria</i>   | Cucurbitaceae  |
| 8.            | Rosary Pea             | Gundumani        | <i>Abrus precatorius</i>     | Fabaceae       |
| 9.            | Shatavari              | Thaneervittaan   | <i>Asparagus racemosus</i>   | Liliaceae      |
| 10.           | Pointed gourd          | Kovakkai         | <i>Trichosanthes dioica</i>  | Cucurbitaceae  |
| 11.           | Wild bitter            | Pavarkai         | <i>Momordica charantia</i>   | Cucurbitaceae  |
| <b>Grass</b>  |                        |                  |                              |                |
| 1.            | Eragrostis             | Pullu            | <i>Eragrostis ferruginea</i> | Poaceae        |
| 2.            | Giant reed             | Elephant grass   | <i>Arundo donax</i>          | Poaceae        |
| 3.            | Windmill grass         | Chevvarakupul    | <i>Chloris barbata</i>       | Amaranthaceae  |
| 4.            | Nut grass              | Korai            | <i>Cyperus rotundus</i>      | Poaceae        |
| 5.            | Great brome            | Thodappam        | <i>Bromus diandrus</i>       | Poaceae        |
| <b>Cactus</b> |                        |                  |                              |                |
| 1.            | Prickly pear           | Nagathali        | <i>Opuntia dillenii</i>      | Cactaceae      |
| 2.            | Triangular spruge      | Chaturakalli     | <i>Euphorbia antiquorum</i>  | Euphorbiaceae  |

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

### 3.5.5.2 Flora Composition in the Buffer Zone

Similar habitats may be found in the buffer area as well, although there is a wider variety of plants there than in the core zone area. The buffer zone study area contains a total of 150 species that have been recorded from the buffer zone. The floral (150) varieties of them Trees 59, herbs 40, shrubs 33, Climbers 11, Grasses 5, and Cactus 2 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Poaceae, Mimosaceae is the main dominating species in the study area mentioned in Table No.3.35. There are no impacts due to this mining activity. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. Apart from the proposed project area, there is agricultural land. Horticulture and agricultural land are untouched. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. A list of floral species has been prepared based on a primary survey (site observations) and discussion with local people (Secondary data). The total number of different plant life forms under trees, shrubs, herbs, and climbers is shown in Table 3.35 and their % distribution is shown in Figure 3.22.

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

| S. No                       | Plant Life Form | Number of Species |
|-----------------------------|-----------------|-------------------|
| 1                           | Trees           | 59                |
| 2                           | Shrubs          | 33                |
| 3                           | Herbs           | 40                |
| 4                           | Climber         | 11                |
| 6                           | Grass           | 5                 |
| 7                           | Cactus          | 2                 |
| <b>Total No. of Species</b> |                 | <b>150</b>        |

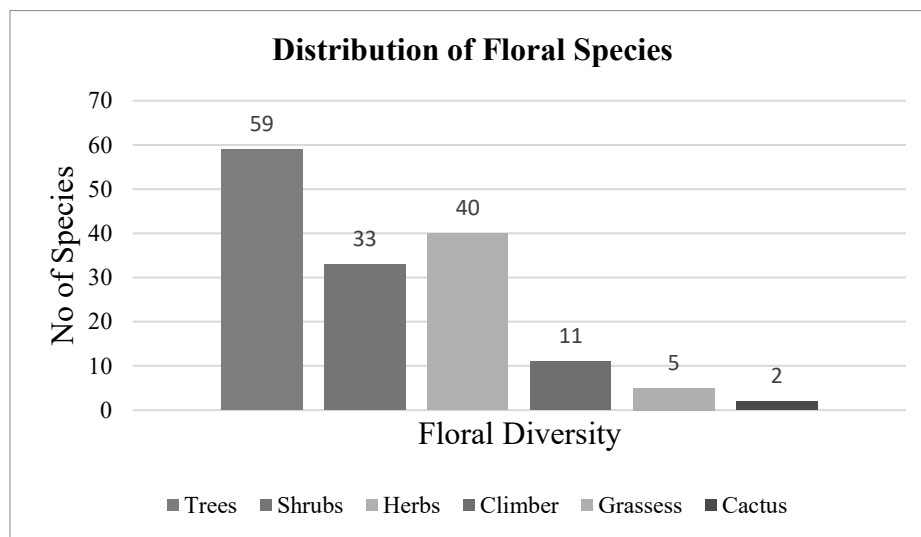


**Fig No. 3.22: Graph showing % distribution of floral life forms**



a. *Ziziphus Mauritiana*



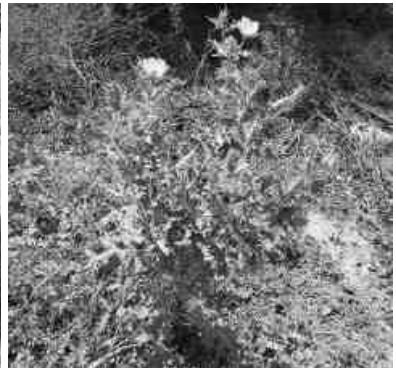
b. *Azadirachta indica*



c. *Euphorbia hirta*



d. *Leucas aspera*



e. *Argemone Mexicana*



f. *Cissus quadrangularis*



g. *Senna auriculata*



h. *Euphorbia antiquorum*



i. *Parthenium hysterophorus*



J. *Cocos nucifera*



k. *Musa acuminata*



l. *Prosopis juliflora*



**Fig No: 3.23. Flora species observation in the Buffer zone area**

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

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

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

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

### 3.5.6 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.

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

**Core Zone:** During the study, it was found that the faunal diversity in the core site was limited to Butterflies, insects, and some species of mammals & reptiles among them numbers Insects 8, Reptiles 3, Mammals 3, and Avian 9. The core site has avifauna species like crow, Black drongo, Koel, etc. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and 12 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: 3.36. Fauna in the Core zone of Rough Stone and Gravel Quarry**

| Sl. No          | Common Name            | Scientific Name                  | Schedule list WLPC 1972 |
|-----------------|------------------------|----------------------------------|-------------------------|
| <b>Insects</b>  |                        |                                  |                         |
| 1.              | Common Tiger           | <i>Danaus genutia</i>            | NL                      |
| 2.              | Red-veined darter      | <i>Sympetrum fonscolombii</i>    | NL                      |
| 3.              | Tawny coster           | <i>Danaus chrysippus</i>         | Schedule IV             |
| 4.              | House fly              | <i>Musca domestica</i>           | -                       |
| 5.              | Dragonfly              | <i>Agriansp</i>                  | -                       |
| 6.              | Striped tiger          | <i>Danaus plexippus</i>          | Schedule IV             |
| 7.              | Grey pansy             | <i>Junonia atlites</i>           | LC                      |
| 8.              | Common Tiger           | <i>Danaus genutia</i>            | LC                      |
| <b>Reptiles</b> |                        |                                  |                         |
| 1.              | Oriental garden lizard | <i>Calotes versicolor</i>        | NL                      |
| 2.              | Indian forest skink    | <i>Sphenomorphus indicus</i>     | NL                      |
| 3.              | House lizards          | <i>Hemidactylus flaviviridis</i> | Schedule IV             |
| <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>      | NL                      |
| 3.              | Blue-rock pigeon       | <i>Colombalivia</i>              | Schedule IV             |
| 4.              | Yellow wagtail         | <i>Motacilla flava</i>           | Schedule IV             |
| 5.              | Pond heron             | <i>Ardeolagravii</i>             | Schedule IV             |
| 6.              | Asian koel             | <i>Eudynamysscolopacea</i>       | Schedule IV             |
| 7.              | Koel                   | <i>Eudynamys</i>                 | Schedule IV             |
| 8.              | Black drongo           | <i>Dicrurus macrocercus</i>      | Schedule IV             |
| 9.              | House crow             | <i>Corvussplendens</i>           | NL                      |

\*NL- Not listed, LC- Least Concern (**Sources:** Species observation in the field study)

### 3.5.6.2. 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 is no reserved forests 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 reserves or Elephant Corridor or other protected areas within 10 km radius of 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 Cattle egret, Asian Koel, House crow, Black drangos, Crows, Rose-ringed Parakeet etc.

The list of bird species recorded during the field survey and literature from the study area are given in Table 3.38 The list of reptilian species recorded during the field survey and literature from the study area is given in Table 3.41 The list of insect species recorded during the field survey and literature from the study area are given in Table 3.40. The list of Butterflies species recorded during the field survey and literature from the study area are given in Table 3.8. 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 84 species recorded were from the buffer zone area. Based on habitat classification the majority of species were Insects 5, followed by birds 46, Reptiles 10, Mammals 5, Amphibians 7, and Butterflies 11. There are five Schedule II species, and 61 species are under Schedule IV according to the Indian Wildlife Act 1972. A total of 46 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, butterflies, and insects, and seven amphibian was observed during the extensive field visit *Sphaerotheca breviceps*, *Euphyctis hexadactylus*, *Bufomelanostictus*, etc. There is no Schedule I Species in the study area. There are no critically endangered, endangered, vulnerable, and endemic species were observed.

**Table 3.37. List of Fauna & Their Conservation Status, Mammals: (\*directly sighted animals & Secondary data)**

| Sl. No | Common Name          | Scientific Name            | Schedule list WLPA 1972 |
|--------|----------------------|----------------------------|-------------------------|
| 1.     | Brown rat            | <i>Rattus norvegicus</i>   | Schedule IV             |
| 2.     | Indian palm squirrel | <i>Funambulus palmarum</i> | Schedule IV             |
| 3.     | Asian Small Mongoose | <i>Herpestes javanicus</i> | Schedule (Part II)      |
| 4.     | Indian hare          | <i>Lepus nigricollis</i>   | Schedule (Part II)      |
| 5.     | Indian Field Mouse   | <i>Mus booduga</i>         | Schedule IV             |

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

**Table 3.38 Listed birds**

| Sl. No | Common Name          | Scientific Name              | Schedule list WLP 1972 |
|--------|----------------------|------------------------------|------------------------|
| 1.     | Rose-ringed Parakeet | <i>Psittaculakrameria</i>    | Schedule IV            |
| 2.     | Little grebe         | <i>Tachybaptusruficollis</i> | Schedule IV            |
| 3.     | Large cormorant      | <i>Phalacrocorax carbo</i>   | Schedule IV            |
| 4.     | Jungle Myna          | <i>Acridotheres fuscus</i>   | Schedule IV            |
| 5.     | Anthus campestris    | <i>Anthus campestris</i>     | Schedule IV            |
| 6.     | Grey heron           | <i>Ardeacineria</i>          | Schedule IV            |
| 7.     | Cattle egret         | <i>Bubulcus ibis</i>         | Schedule IV            |
| 8.     | Indian roller        | <i>Coracias benghalensis</i> | Schedule IV            |



|     |                           |                               |             |
|-----|---------------------------|-------------------------------|-------------|
| 9.  | Night heron               | <i>Ncticoraxncticorax</i>     | Schedule IV |
| 10. | Greater Coucal            | <i>Centropus sinensis</i>     | Schedule IV |
| 11. | Cinnyris asiaticus        | <i>Cinnyris asiaticus</i>     | Schedule IV |
| 12. | Yellowbrowed Bulbul       | <i>Acritillas indica</i>      | Schedule IV |
| 13. | Large egret               | <i>Casmerodiusalbus</i>       | Schedule IV |
| 14. | Coot                      | <i>Fulicaatra</i>             | Schedule IV |
| 15. | Red-necked halarope       | <i>Phalaropuslobatus</i>      | Schedule IV |
| 16. | Greater Flameback         | <i>Chrysocolaptes lucidus</i> | Schedule IV |
| 17. | Tree Pipit                | <i>Anthus trivialis</i>       | Schedule IV |
| 18. | Common Iora               | <i>Aegithina tiphia</i>       | Schedule IV |
| 19. | Forest Wagtail            | <i>Dendronanthus indicus</i>  | Schedule IV |
| 20. | Yellow wagtail            | <i>Motacilla flava</i>        | Schedule IV |
| 21. | Spotted owlet             | <i>Athene brama</i>           | Schedule IV |
| 22. | House Sparrow             | <i>Passer domesticus</i>      | Schedule IV |
| 23. | Common HawkCuckoo         | <i>Hieroccyx varius</i>       | Schedule IV |
| 24. | White-eyed Buzzard        | <i>Butastur teesa</i>         | Schedule IV |
| 25. | Whitebellied Drongo       | <i>Dicrurus caerulescens</i>  | Schedule IV |
| 26. | Brown Shrike              | <i>Lanius cristatus</i>       | Schedule IV |
| 27. | Plain Prinia              | <i>Prinia inornata</i>        | Schedule IV |
| 28. | Thickbilled Warbler       | <i>Iduna aedon</i>            | Schedule IV |
| 29. | Spotted dove              | <i>Streptopeliachinensis</i>  | Schedule IV |
| 30. | Shikra                    | <i>Accipiter badius</i>       | Schedule IV |
| 31. | Indian Swiftle            | <i>Aerodramus unicolor</i>    | Schedule IV |
| 32. | Squaretailed Black Bulbul | <i>Hypsipetes ganeesa</i>     | Schedule IV |
| 33. | Longtailed Shrike         | <i>Lanius schach</i>          | Schedule IV |
| 34. | Asian koel                | <i>Eudynamysscolopacea</i>    | Schedule IV |
| 35. | Small-blue kingfisher     | <i>Alcedoatthis</i>           | Schedule IV |
| 36. | White-breasted kingfisher | <i>Halcyon smyrnensis</i>     | Schedule IV |
| 37. | Ashy Drongo               | <i>Dicrurus leucophaeus</i>   | Schedule IV |
| 38. | Common Flamback           | <i>Dinopium javanensis</i>    | Schedule IV |
| 39. | Blue-rock pigeon          | <i>Colombalivia</i>           | Schedule IV |
| 40. | Dicrurus aeneus           | <i>Dicrurus aeneus</i>        | Schedule IV |
| 41. | Golden-backed wood Pecker | <i>Dinopiumbenghalensis</i>   | Schedule IV |
| 42. | House crow                | <i>Corvussplendens</i>        | Schedule IV |
| 43. | Jungle crow               | <i>Corvusmacrorhynchos</i>    | Schedule IV |
| 44. | Robin                     | <i>Copsychussaularis</i>      | Schedule IV |
| 45. | Pond heron                | <i>Ardeolagrayii</i>          | Schedule IV |
| 46. | Orange-headed thrush      | <i>Zoothera citrine</i>       | Schedule IV |

**Table 3.39 List of Reptiles either spotted or reported from the study area**

| SI. No | Common Name                 | Scientific Name                  | Schedule list WLPA 1972 |
|--------|-----------------------------|----------------------------------|-------------------------|
| 1.     | Oriental garden lizard      | <i>Calotes versicolor</i>        | NL                      |
| 2.     | Common krait                | <i>Bungarus caeruleus</i>        | Schedule IV             |
| 3.     | House lizards               | <i>Hemidactylus flaviviridis</i> | Schedule IV             |
| 4.     | Indian cobra                | <i>Naja naja</i>                 | Sch II (Part II)        |
| 5.     | Green vine snake            | <i>Ahaetulla nasuta</i>          | Schedule IV             |
| 6.     | Russell's viper             | <i>Vipera russeli</i>            | Sch II (Part II)        |
| 7.     | Rat snake                   | <i>Ptyas mucosa</i>              | Sch IV (Part II)        |
| 8.     | Common skink                | <i>Mabuya carinatus</i>          | NL                      |
| 9.     | Bornze Grass Skink          | <i>Eutropis macularia</i>        | Schedule IV             |
| 10.    | Keeled / Common Grass Skink | <i>Eutropis carinata</i>         | Schedule IV             |

**Table.3.40. List of Butterflies reported from the study area**

| SI. No | Common Name           | Scientific Name                 | Schedule |
|--------|-----------------------|---------------------------------|----------|
| 1.     | Crimson tip           | <i>Colotisdanae</i>             | -        |
| 2.     | Common Tiger          | <i>Danaus genutia</i>           | -        |
| 3.     | Milkweed butterfly    | <i>Danainae</i>                 | -        |
| 4.     | Striped tiger         | <i>Danaus plexippus</i>         | -        |
| 5.     | Common emigrant       | <i>Catopsiliapomona</i>         | -        |
| 6.     | Common Indian crow    | <i>Euploea core</i>             | -        |
| 7.     | Indian palm bob       | <i>Suastusgremius</i>           | -        |
| 8.     | Common rose           | <i>Pachlioptaaristolochiaee</i> | -        |
| 9.     | Great orange tip      | <i>Hebomoia glaucippe</i>       | -        |
| 10.    | Common jay            | <i>Graphium doson</i>           | -        |
| 11.    | Spotless grass yellow | <i>Euremalaeta</i>              | -        |

**Table 3.41 List of insects either spotted or reported from the study area**

| SI. No | Common Name      | Scientific Name             | Schedule list WLPA 1972 |
|--------|------------------|-----------------------------|-------------------------|
| 1.     | Indian honey bee | <i>Apis cerana</i>          | -                       |
| 2.     | Termite          | <i>Hamitermes silvestri</i> | NE                      |
| 3.     | Grasshopper      | <i>Hieroglyphus sp</i>      | NL                      |
| 4.     | Ant              | <i>Camponotus Vicinus</i>   | NL                      |
| 5.     | Dragonfly        | <i>Ceratogomphus pictus</i> | -                       |

### 3.5.7. Aquatic Ecology

The study area has few seasonal odai and canal away from the proposed project site. But no major drainage system can be found within the study area. No Aquatic diversity is noticed in the core zone area. Aquatic weeds are found to be growing everywhere in 10 km radius area, in every water bog, pond, etc. *Typha angustata* can be found growing all along the drains of villages, small water-logged depressions, and agricultural fields lacking water but containing enough moisture to support its growth. And where water is present, *Eichhornia crassipes* has taken its roots and covers the entire water surface by its sprawl and invasion.

#### 3.5.7.1 Objectives of Aquatic Studies

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

### 3.9.2. Macrophytes

The macrophytes observed within the study area are tabulated in Table 3.10.

**Table No.3.41 Description of Macrophytes**

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

### 3.5.8 Aquatic Faunal Diversity

Amphibian species like the common Pond frog, Skipper frog, Indian Pond Frog etc., were sighted near the water bodies located in the study area.

**Table no. 3.42. Amphibians Observed/Recorded from the Study Area**

| SI. No | Common Name                | Scientific Name                | Schedule list<br>WLPC 1972 |
|--------|----------------------------|--------------------------------|----------------------------|
| 1.     | Indian Burrowing frog      | <i>Sphaerotheca breviceps</i>  | Schedule IV                |
| 2.     | Green pond frog            | <i>Euphlyctis hexadactylus</i> | Schedule IV                |
| 3.     | Common Indian Toad         | <i>Bufomelanostictus</i>       | Schedule IV                |
| 4.     | Indian bull Frog           | <i>Hoplobatrachus tigerinu</i> | Schedule IV                |
| 5.     | Paddyfield / Cricket Frog  | <i>Limnonectes limnocharis</i> | Schedule IV                |
| 6.     | Ornate Narrow-mouthed Frog | <i>Microhyla ornata</i>        | Schedule IV                |
| 7.     | Southern Burrowing Frog    | <i>Sphaerotheca rolandea</i>   | Schedule IV                |

\*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

### 3.5.9 Findings/Results

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

#### Records of threatened species in the area

No threatened species were observed

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

No Endangered fauna was recorded in the project area.

#### Endemic Species of the Project areas

No endemic species were observed in the project area.

#### Migratory species of the Project areas

No migratory fauna observed in project area.

### **Migratory corridors and Flight paths**

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

### **Breeding and spawning grounds**

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

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

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

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

### **3.5.10 Conclusion**

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

## **3.6 Socio Economic Environment**

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

### **3.6.1 Objectives of the Study**

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

- a) To study the socio-economic status of the people living in the study area of the project.
- b) To identify the basic needs of the nearby villages within the study area.
- c) To assess the impact on socio-economic environment due to the project.
- d) To provide the employment and improved living standards.
- e) To study the socio-economic status of the people living in the study area Rough Stone and Gravel Quarry project region
- f) To assess the impact on socio-economic environment due to Rough Stone and Gravel Quarry project region

g) To analysis of impact of socio economic and Environmental Infrastructure facilities and road accessibility.

### 3.6.2 Scope of Work

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

### 3.6.3 Methodology

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

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

### 3.6.4 Sources of Information and Data Base

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

### 3.6.5 Primary Survey

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

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

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

### 3.6.6 Collection of Data from Secondary Sources

Data from secondary sources were collected on following aspects:

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

**Table 3.6.1 Type of Information and Sources**

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

### b) Data Presentation and Analysis

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

### 3.7 Background Information of the Area

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

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

### 3.8 Geography of the Area

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

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

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

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

### 3.9 Population Growth Rate

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

| Year | Tamil Nadu | India |
|------|------------|-------|
| 1941 | 11.91      | 14.22 |
| 1951 | 14.66      | 13.31 |
| 1961 | 11.85      | 21.51 |
| 1971 | 22.30      | 24.80 |
| 1981 | 17.50      | 24.66 |

|      |       |       |
|------|-------|-------|
| 1991 | 15.39 | 23.86 |
| 2001 | 11.19 | 21.34 |
| 2011 | 15.61 | 5.96  |
| 2021 | 5.96  | 1.0   |

### 3.10 Coimbatore District

Coimbatore is the third largest city of the state, one of the most industrialized cities in Tamil Nadu, known as the textile capital of South India or the Manchester of the South India, the city is situated on the banks of the river Noyyal, Coimbatore existed even prior to the 2nd or 3rd century AD by Karikalan, the first of the early Cholas. Among its other great rulers were Rashtrakutas, Chalukyas, Pandyas, Hoysalas and the Vijayanagara kings. When Kongunadu fell to the British along with the rest of the state, its name was changed to Coimbatore and it is by this name that it is known today, in local Tamil language it is also called as Kovai.

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

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

### 3.11 Study Area

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

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

**TABLE 3.12.1 SHOWS THE SOCIO-ECONOMIC PROFILE OF THE STUDY AREA AS COMPARED TO DISTRICT, STATE AND NATIONAL LEVEL SOCIO-ECONOMIC PROFILE**

| Particular                  | India      | Tamil Nadu | Coimbatore District | Study Area (10km Radius) |
|-----------------------------|------------|------------|---------------------|--------------------------|
| Area (in sq. km.)           | 3,287,263  | 130058     | 7649                | 320                      |
| Population Density/ sq. Km. | 368        | 554        | 452                 | 269                      |
| No. of Households           | 249454252  | 13357027   | 958035              | 24865                    |
| Population                  | 1210569573 | 72147030   | 3458045             | 86236                    |
| Male                        | 623121843  | 36137975   | 1729297             | 43379                    |

| Particular                         | India     | Tamil Nadu | Coimbatore District | Study Area (10km Radius) |
|------------------------------------|-----------|------------|---------------------|--------------------------|
| Female                             | 587447730 | 36009055   | 1728748             | 42857                    |
| Scheduled Tribes                   | 104281034 | 794697     | 28342               | 164                      |
| Scheduled Castes                   | 201378086 | 14438445   | 535911              | 16977                    |
| Literacy Rate (%)                  | 72.99     | 80         | 76                  | 77                       |
| Sex Ratio (Females per 1000 Males) | 943       | 996        | 1000                | 988                      |

**Source:** Census of India, 2011

Table no 3.12.1 show demographic pattern of India, Tamil Nadu, Coimbatore District & Study area (10km Radius). In India had total area of 3.2 sqkm, State of Tamil Nadu area was 130058 sqkm, District of Coimbatore area was 642 sqkm and study area is about 320 sqkm. Population density is total population per sqkm. So, India population density was 368 sqkm, state of Tamil Nadu density was 554 sqkm, District had density about 452 sqkm and study area density is about 269 sqkm. As per Census 2011, about 5.96percent of population in the state lives in areas. Coimbatore had comparing state wise 4.79 percent of population lives in the district. In study area has 2.49 % around 10km radius. State, District and study area. In Tamil Nadu state SC categories people had about 19 %, district of Coimbatore about 15.49 % it has increasing to Study area about 19.68% increasing in the total population Similarly ST population is about 1.10%, 0.82% and 0.19% of the total population in the study area. State level Literacy rate is 80%, district level is 76% but study area has increased about 77%. There is literacy rate is study area Increase comparing district level decrease in the study area. Sex ratio female per thousand males about state level is 996, District level is 1000 and study area is 988.

The study area has population density 269 persons per sq.km of total population about 86236 as per census 2011. There were about 50.30 percent male and 49.70% female population. Study area has literate rate is about 71%. District had about 76% of literate rate as per census 2011.

### 3.13 Population Projection of the Study Area

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

**TABLE 3.13.1 TOTAL POPULATION OF STUDY AREA**

| Sl No. | Population in 2001 | Population in 2011 |
|--------|--------------------|--------------------|
| 1      | 74338              | 86236              |

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

**TABLE 3.13.2 POPULATION PROJECTION OF STUDY AREA**

| S. No | Year | Projected Population (Approximately) |
|-------|------|--------------------------------------|
| 1.    | 2021 | 98134                                |



|    |      |        |
|----|------|--------|
| 2. | 2031 | 110032 |
| 3. | 2041 | 121930 |
| 4. | 2051 | 133828 |

Source: Calculated by SPSS v29, 2022.

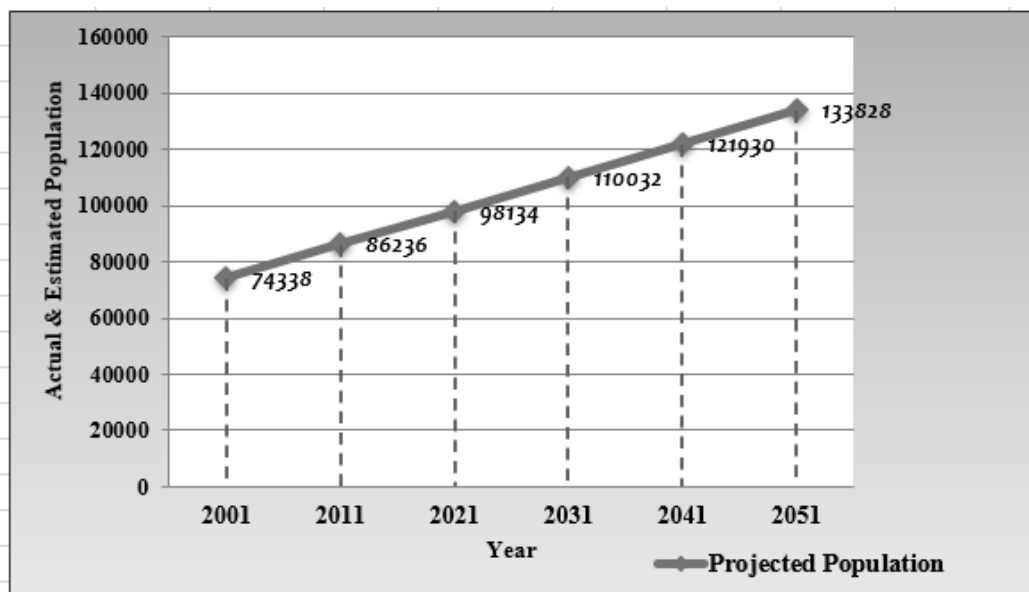


**FIG 3.24 GRAPH SHOWING POPULATION PROJECTION**

Following formula has been used for the projection of population.

$$Y=a+bt$$

Where: Y= Dependent variable (Population)

a=Intercept

b=Slope

t=Interdependent variables (Time)

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

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

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

### 3.14 Population Growth of the Study Area

**TABLE 3.14.1 POPULATION GROWTH RATE IN STUDY AREA**

| Year | Actual Population | Growth Rate % |
|------|-------------------|---------------|
| 2001 | 74338             | -             |

|      |        |       |
|------|--------|-------|
| 2011 | 86236  | 11.60 |
| 2021 | 98134  | 11.38 |
| 2031 | 110032 | 11.21 |
| 2041 | 121930 | 11.08 |
| 2051 | 133828 | 10.98 |

*Source: Compiled by Author-2022*

Above table no 3.14.1 is showing the growth rate of population since 2001, as per census in 2001 the population of study area was 74338 and 2011 it was 86236 if the population growth rate is 11.60%, it will approximately 98134 in year 2021 and 133828 in the year of 2051. It has approximately population growth rate decline will be 10.98%.

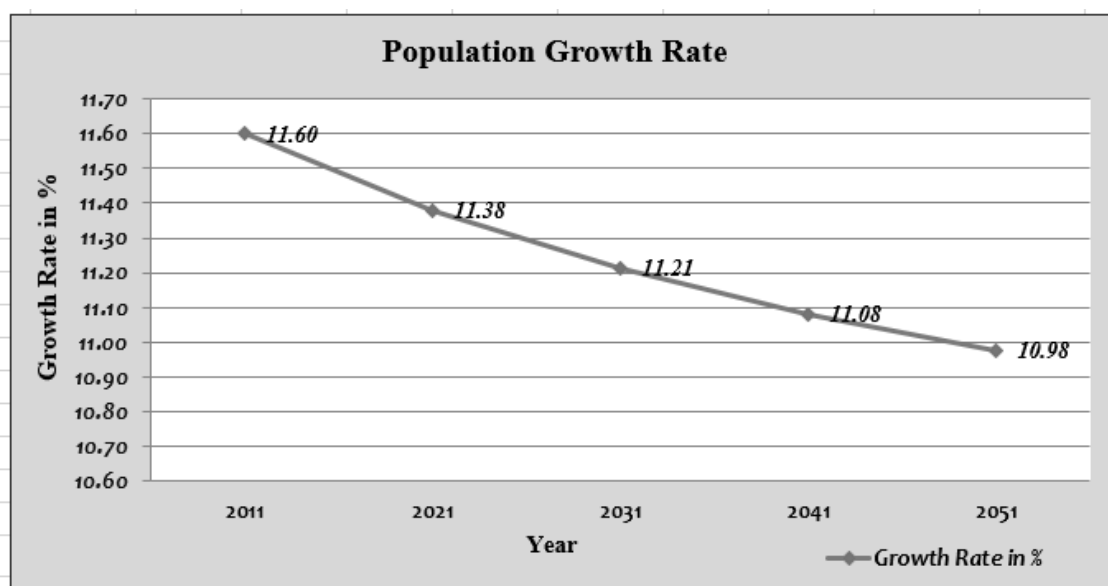


**FIG.3.25 GRAPH SHOWING POPULATION GROWTH RATE**

### Planning Analysis:

Calculating Growth Rates

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

Where:

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

PR=Percent Rate

$V_{Present}$  =Present or Future Value

$V_{Past}$  = Past or Present Value

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

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

### 3.15 Population Distribution and Composition of Study Area

The population as per 2011 Census records is 92015 (for 10 km radius buffer zone). Total no. of household is 24865, in study area zone. Sex ratio is 988 (females per 1000 males) observed in primary, secondary and tertiary zone respectively. Average household size is 3. Zone wise Demographic profile of study area is given in the table 3.15.1 below:

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

**Table 3.15.1 ZONE WISE DEMOGRAPHIC PROFILE OF STUDY AREA**

| Zone                 | No. of Villages | Total Household | Total Population | Male Population | %     | Female Population | %     |
|----------------------|-----------------|-----------------|------------------|-----------------|-------|-------------------|-------|
| Study Area (0-10 km) | 17              | 24865           | 86236            | 43379           | 50.30 | 42857             | 49.70 |

*Source: Census of India, 2011*

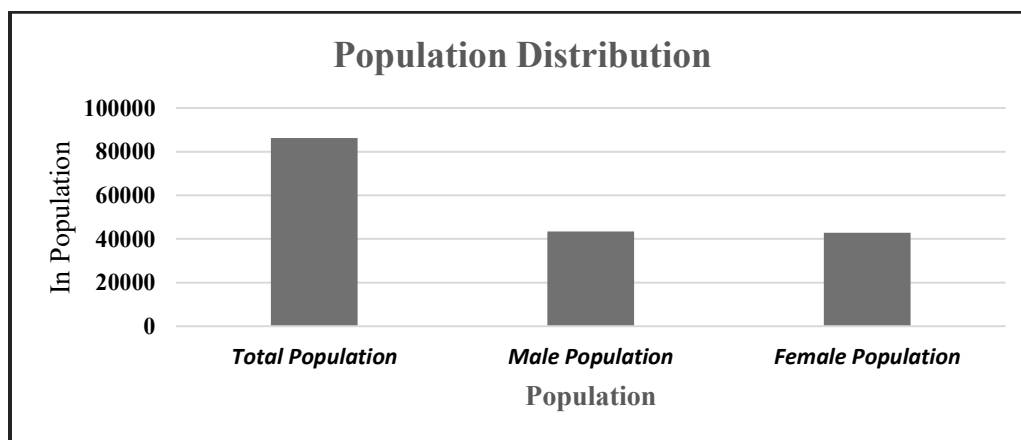


**FIGURE 3.26 POPULATION OF STUDY AREA**

Table 3.15.3 VILLAGE WISE DEMOGRAPHIC PROFILE OF THE STUDY AREA (CORE AND BUFFER ZONE)

| Sno | Name               | No.of Households | Total population | Total Male | Total Female | Population below 6 | Male below 6 | Female below 6 | SC population | SC Male | SC Female | ST population | ST Male | ST Female | Literate population | Male Literate | Female Literate | Total workers | Main workers | Marginal workers | Non workers |
|-----|--------------------|------------------|------------------|------------|--------------|--------------------|--------------|----------------|---------------|---------|-----------|---------------|---------|-----------|---------------------|---------------|-----------------|---------------|--------------|------------------|-------------|
| 1   | Appanaickenpatti   | 1121             | 3992             | 1998       | 1994         | 337                | 170          | 167            | 947           | 478     | 469       | 0             | 0       | 0         | 2665                | 1413          | 1252            | 2199          | 2006         | 193              | 1793        |
| 2   | Kalangal           | 1639             | 5590             | 2853       | 2737         | 500                | 272          | 228            | 784           | 400     | 384       | 0             | 0       | 0         | 3889                | 2158          | 1731            | 3112          | 2784         | 328              | 2478        |
| 3   | Peedampalli        | 1134             | 3896             | 1955       | 1941         | 339                | 185          | 154            | 683           | 356     | 327       | 24            | 13      | 11        | 2982                | 1601          | 1381            | 1869          | 1465         | 404              | 2027        |
| 4   | Kallapalayam       | 860              | 3066             | 1581       | 1485         | 253                | 130          | 123            | 686           | 346     | 340       | 4             | 3       | 1         | 2350                | 1293          | 1057            | 1547          | 1522         | 25               | 1519        |
| 5   | Pappampatti        | 1172             | 4143             | 2052       | 2091         | 415                | 196          | 219            | 961           | 455     | 506       | 0             | 0       | 0         | 2865                | 1524          | 1341            | 1977          | 1761         | 216              | 2166        |
| 6   | Edayapalayam       | 667              | 2251             | 1130       | 1121         | 193                | 98           | 95             | 269           | 128     | 141       | 4             | 3       | 1         | 1659                | 930           | 729             | 1150          | 977          | 173              | 1101        |
| 7   | Sellakkarichal     | 1863             | 6209             | 3109       | 3100         | 443                | 205          | 238            | 1610          | 804     | 806       | 0             | 0       | 0         | 4368                | 2447          | 1921            | 3200          | 2662         | 538              | 3009        |
| 8   | Varapatti          | 2315             | 7644             | 3790       | 3854         | 613                | 313          | 300            | 2031          | 1019    | 1012      | 3             | 2       | 1         | 5161                | 2813          | 2348            | 4485          | 3837         | 648              | 3159        |
| 9   | Bogampatti         | 686              | 2415             | 1254       | 1161         | 155                | 85           | 70             | 170           | 87      | 83        | 0             | 0       | 0         | 1515                | 905           | 610             | 1165          | 985          | 180              | 1250        |
| 10  | Pachapalayam       | 842              | 2933             | 1488       | 1445         | 271                | 141          | 130            | 556           | 278     | 278       | 0             | 0       | 0         | 1754                | 1003          | 751             | 1627          | 1466         | 161              | 1306        |
| 11  | Poorandampalayam   | 933              | 3135             | 1554       | 1581         | 221                | 120          | 101            | 850           | 420     | 430       | 0             | 0       | 0         | 2131                | 1165          | 966             | 1852          | 1831         | 21               | 1283        |
| 12  | Kannampalayam (TP) | 4577             | 15868            | 7937       | 7931         | 1553               | 816          | 737            | 2077          | 1036    | 1041      | 4             | 3       | 1         | 12578               | 6615          | 5963            | 6915          | 6539         | 376              | 8953        |
| 13  | Chettipalayam (TP) | 2841             | 10366            | 5268       | 5098         | 880                | 480          | 400            | 2920          | 1460    | 1460      | 0             | 0       | 0         | 7304                | 3991          | 3313            | 4450          | 4078         | 372              | 5916        |
| 14  | Panappatti         | 763              | 2635             | 1383       | 1252         | 199                | 113          | 86             | 450           | 219     | 231       | 0             | 0       | 0         | 1740                | 1026          | 714             | 1579          | 1566         | 13               | 1056        |
| 15  | Mettubavi          | 719              | 2485             | 1281       | 1204         | 173                | 93           | 80             | 301           | 153     | 148       | 8             | 3       | 5         | 1671                | 971           | 700             | 1372          | 1325         | 47               | 1113        |
| 16  | Vadasithur         | 1532             | 5080             | 2483       | 2597         | 342                | 173          | 169            | 940           | 459     | 481       | 2             | 1       | 1         | 3452                | 1878          | 1574            | 2512          | 2419         | 93               | 2568        |
| 17  | Servakaranpalayam  | 1201             | 4528             | 2263       | 2265         | 372                | 189          | 183            | 742           | 376     | 366       | 115           | 62      | 53        | 2945                | 1624          | 1321            | 2491          | 2445         | 46               | 2037        |
|     |                    | 24865            | 86236            | 43379      | 42857        | 7259               | 3779         | 3480           | 16977         | 8474    | 8503      | 164           | 90      | 74        | 61029               | 33357         | 27672           | 43502         | 39668        | 3834             | 42734       |

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

### 3.16 Gender and Sex Ratio

Sex ratio is used to describe the number of females per 1000 of males. Sex ratio is a valuable source for finding the population of women in India and what is the ratio of women to that of men in India. In the Population Census of 2011, it was revealed that the population ratio in India 2011 is 940 females per 1000 of males. The study area has 988 females per 1000 males. Gender and sex ratio determine the Human Development Index (HDI) of an area thereby understanding the status of women in that region. Following table entails information about sex ratio of 17 villages lying in study area (buffer zone).

**TABLE 3.16.1 SEX RATIO OF THE STUDY AREA**

| Zone                | Sex Ratio of Study area<br>Female/ 1000 Male |
|---------------------|----------------------------------------------|
| Study area (0-10km) | 988                                          |

*Source: Census of India, 2011*

### 3.17 Literacy Rate in Study Area

Literacy Rate is the percentage of people in a country with the ability to read and write. The analysis of the literacy levels is done in the study area. The 10 km radius of study area demonstrates a literacy rate of 73.42% as per census data 2011. The male literacy rate in the study area indicates 84.39% whereas the female literacy rate, which is an important indicator for social change, is observed to be 62.79% as per the census data 2011. This needs to focus on the region and enhance further development focusing on education. (Table no 3.17.1).

**TABLE 3.17.1 LITERACY RATE OF THE STUDY AREA**

| Zone                | No. of Villages | Male Literacy Population | Male literacy Rate | Female Literacy Population | Female literacy Rate | Total Literacy | Total Literacy Rate |
|---------------------|-----------------|--------------------------|--------------------|----------------------------|----------------------|----------------|---------------------|
| Study Area (0-10km) | 17              | 33357                    | 84.23              | 27672                      | 70.27                | 61029          | 77                  |

*Source: Census of India, 2011*

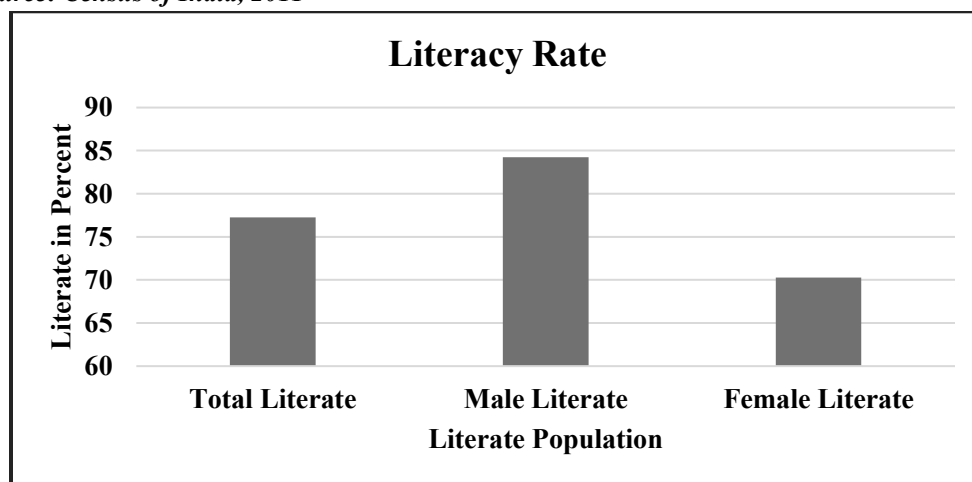


**FIGURE 3.27 LITERACY RATE IN THE STUDY AREA**

### 3.18 Family Size

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

### 3.19 Vulnerable Group

While developing an action plan, it is very important to identify the population who fall under the marginalized and vulnerable groups and special attention has to be given towards these groups while making action plans. Special provisions should be made for them. In the observed villages schedule caste (SC) population is 19.68% and Schedule Tribe population 0.19%, Other Population is 80% in total study area.

**TABLE 3.19.1 VULNERABLE GROUPS OF THE STUDY AREA**

| Zone                     | No. of Villages | Vulnerable Groups |              |               |             |                  |           |
|--------------------------|-----------------|-------------------|--------------|---------------|-------------|------------------|-----------|
|                          |                 | SC Population     | %            | ST Population | %           | Other Population | %         |
| <b>Total area (10km)</b> | <b>17</b>       | <b>16977</b>      | <b>19.68</b> | <b>164</b>    | <b>0.19</b> | <b>69095</b>     | <b>80</b> |

*Source: Census of India, 2011*

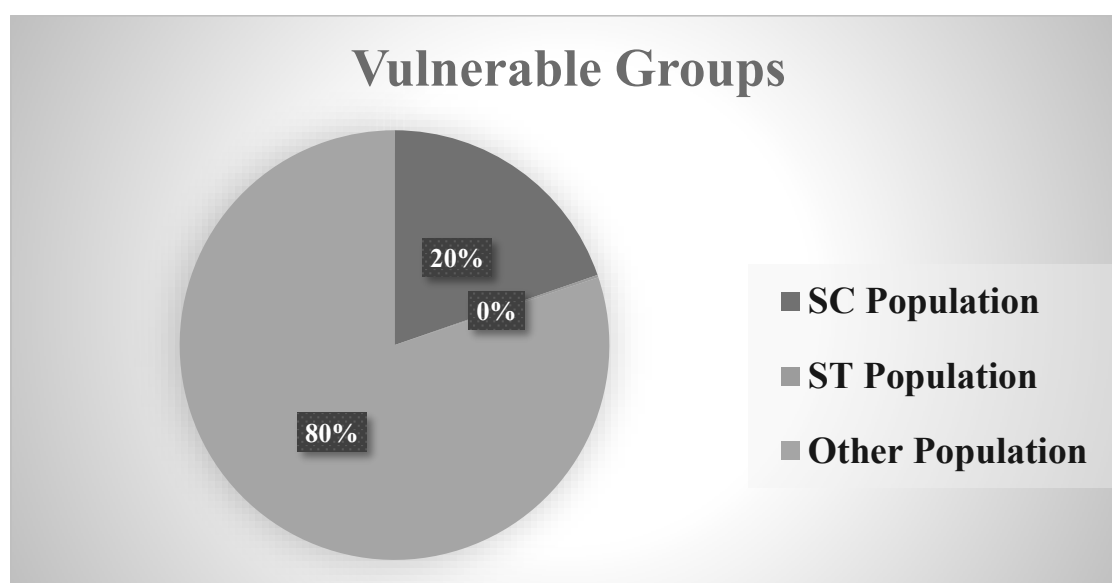


**FIGURE 3.28 VULNERABLE GROUPS**

### 3.20 Economic Activities

The economy of an area is defined by the occupational pattern and income level of the people in the area. The occupational structure of residents in the study area is studied with reference to work category. The population is divided occupation wise into three categories, viz., main workers, marginal workers and non-workers. The workers include cultivators, agricultural laborers, those engaged in household industry and other services. The marginal workers are those workers engaged in some work for a period of less than 180 days during the reference year. The non-workers include those engaged in unpaid household duties, students, retired persons, dependents, beggars, vagrants etc. besides institutional inmates or all other non-workers who do not fall under the above categories.

**TABLE 3.20.1 SHOWS THE WORK FORCE OF THE STUDY AREA**

| Zone                      | No. of Villages | Total Workers | %            | Main Workers | %           | Marginal Workers | %           | Non-Workers  | %            |
|---------------------------|-----------------|---------------|--------------|--------------|-------------|------------------|-------------|--------------|--------------|
| <b>Study Area (10 Km)</b> | <b>17</b>       | <b>43502</b>  | <b>50.42</b> | <b>39668</b> | <b>46.0</b> | <b>3834</b>      | <b>4.45</b> | <b>42734</b> | <b>49.55</b> |

**Source: Census of India, 2011**

The above table shows that out of the total working population, the percentage of main workers is 46 % while 4% are marginal workers. Number of working populations is 50% and non-working population is 50% in the study area. As per the data obtained from the survey (as mentioned previously in occupational structure) most of these people are employed for major period of the year. Also, to mention the natural environment also restricts the people in finding stable business is performed for only certain months. Thus, proposed project will act as possible exposure for them to get enroll and earn sustain livelihood.

As per the villages analysis most of them are non-working population. A major portion of working age people is not ideal worker because of limited sectors in which they are engaged with less training and not awareness of latest sectors in which maybe they can better other than traditional work.

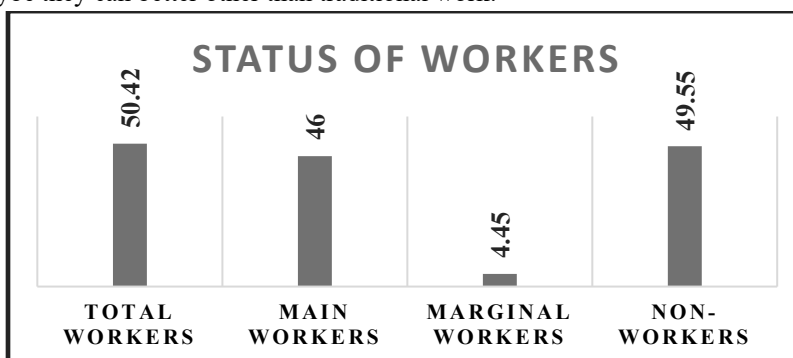


**FIGURE 3.29 WORKING POPULATION IN THE STUDY AREA**

### 3.21 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-operatives) is essential for the development of the rural economy. A review of infrastructure facilities available in the area has been done based on the information from baseline survey of the study area. In this review, the villages which fall within 10Km radius round the site has been considered. Infrastructure facilities available in the area have been described in the subsequent sections as below:

#### 1. Educational Facilities

Education is considered to be one of the most dominant indicators towards the development of a region. According to baseline survey, education facilities are available in the villages within the study area. All the villages have schools only up to primary and middle level, higher level education facilities very less only one-degree college available in Suler Taluk. Improved educational facilities will be provided by CCIL, which will contribute Improvement in awareness level of the villagers.

#### 2. Health Facilities

Medical facilities are available. There are majorly non-Government medical facilities/medicine shop available in the area. There is only one dispensary / health center available and no Primary Health Sub-Centers available in the study area. There is no such case of epidemic or some special diseases in the region. Normal cases of diseases i.e. Cough, cold, fever, headache etc. are reported in the region.

#### 3. Other Infrastructure Facilities

Basic facilities are available in study area as educational facilities, health, transportation, electricity, drinking water, market, bank, post office, petrol pump; Aanganbadi Centers, Community Hall, Cooperative bank and Commercial Bank etc. are available.

##### ➤ Transport Facilities

The study area is served by road transport. Most of the villages connected by bus/other transport services. The area has a moderate road network, which includes state highway, major District Roads and other roads within 10 km radius of the lease boundary. Major District Road is passing through the adjacent of Quarry area.

➤ **Electrification in the Area**

100% villages in the study area are electrified. Electricity is available for domestic, commercial, industrial agricultural and public lighting purposes.

➤ **Drinking Water Facility**

Village people are availing Drinking water facilities generally from Tap water, Pond, Well, Tube well, Hand Pump, River etc. In few villages like Edayarpalayam, Vernapuspuram, Bogampatti, Villages etc. there is problem of drinking water facility.

### 3.22 Interpretation

Based on the data, following inferences could be drawn:

- Total literacy rate in the study area is 77%.
- The study area had average educational facilities. The overall status depicts that the education is limited to primary and middle level.
- The schedule tribe community forms 0.19% and Scheduled Caste forms 20% of the total population of study area.
- The Other Population forms 80% of the total population of study area.
- The study area is well connected by District/Village Road.
- The study area not well health facilities of primary level.
- Considering the above facts, the proposed project will boost the socio-economic development activities in the area and hence will leave positive impact.
- The study area has mobile connectivity

### 3.23 Recommendations and Suggestion

- ❖ Education Awareness program is being/will be conducted to make the population aware and better treatment for livelihood.
- ❖ Vocational training session is being/will be organized to provide self-employment to the women and unemployment youth.
- ❖ Healthcare Centre and Ambulance facility is being/will be provided to make the population get easy medical facilities.
- ❖ Natural Resource Management and Environmental Conservation.
- ❖ On the basis of qualification and skills local youths is being/will be employed. Long term and short-term employments are being/will be generated.
- ❖ Health care center and ambulance facility is being/will be provided to make the population get easy medical facilities.
- ❖ Basic amenities and facilities are being/will be made available to the people and there will be proper maintenance of the facilities already provided by the government in the study area through various CSR activities conducted by Tirupati Blue metals,

### 3.24 Conclusion

To evaluate the impacts of proposed rough stone and gravel quarry project on the surrounding area, it is vital to assess the baseline status of the environmental quality in the locality of the site. Socio-Economic Survey was also conducted during the study period which revealed 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 as **Edayarpalayam Rough stone and Gravel Cluster quarries**, will adopt adequate control measures to protect the surrounding environment and will contribute in development of the study areas.

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



## **CHAPTER – 4: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

### **4.0 General**

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

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

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

### **4.1 Land Environment**

#### **4.1.2 Anticipated Impact from Proposed Project**

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

##### **4.1.2.1 Mitigation Measures for Proposed Projects**

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

### 4.1.3 Soil Environment

#### 4.1.4 Impact on Soil Environment

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

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

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

#### 4.1.5 Mitigation Measures for Proposed Project

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

#### 4.1.6 Waste Dump Management

There are no wastages anticipated in this rough stone and gravel quarrying operation. The entire quarried out materials will be utilized (100%).

The overburden in the form of gravel formation the gravel will be also sold to needy customers for the filling and levelling of low-lying areas.

## 4.2 Water Environment

### 4.2.1 Anticipated Impact on Surface and ground water

The impact due to quarrying on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process. The quarrying activity will not intersect ground water table as the maximum depth of the quarry is 47m and water table is found at a depth of 62-67m BGL.

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

**TABLE 4.1: WATER REQUIREMENTS**

| Purpose                       | Quantity | Source                                                                                    |
|-------------------------------|----------|-------------------------------------------------------------------------------------------|
| Dust Suppression              | 0.5 KLD  | From Existing bore wells from nearby area                                                 |
| Green Belt development        | 0.4 KLD  | From Existing bore wells from nearby area                                                 |
| Sanitation & Drinking purpose | 0.6 KLD  | From existing, bore wells and drinking water will be sourced from Approved water vendors. |

|              |                |
|--------------|----------------|
| <b>Total</b> | <b>1.5 KLD</b> |
|--------------|----------------|

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

Source: Approved Mining Plan Pre-Feasibility Report

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

#### 4.2.2 Common Mitigation measures:

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

### 4.3 Air Environment

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

#### 4.3.1. Anticipated

##### Impact

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

##### 4.3.1.1. Modelling of Incremental Concentration from Proposed Project

Wind erosion of the exposed areas and the air borne particulate matter generated by quarrying operation, and transportation are mainly PM<sub>10</sub> & PM<sub>2.5</sub> and 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 the cause of air pollution in the project area.

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

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

The impact on Air Environment is due to the mining and allied activities during Land Development phase, Mining process and Transportation. The emissions of Sulphur dioxide (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 Rough Stone, wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities releasing Particulate Matter (PM<sub>10</sub>) affecting Ambient Air of the area. Prediction of impacts on air environment has been carried out taking into consideration cumulative production three proposed quarries. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software.

#### 4.3.1.2 Emission Estimation

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

The general equation for emissions estimation is:

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

Where:

E = emissions;

A = activity rate;

EF = emission factor, and

ER =overall emission reduction efficiency, %

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

**TABLE 4.2: ESTIMATED EMISSION RATE**

| EMISSION ESTIMATION FOR PROPOSED QUARRY      |                 |              |             |       |
|----------------------------------------------|-----------------|--------------|-------------|-------|
|                                              | Activity        | Source type  | Value       | Unit  |
| Estimated Emission Rate for PM <sub>10</sub> | Drilling        | Point Source | 0.072658434 | g/s   |
|                                              | Blasting        | Point Source | 0.000489829 | g/s   |
|                                              | Mineral Loading | Point Source | 0.040025112 | g/s   |
|                                              | Haul Road       | Line Source  | 0.002487678 | g/s/m |
|                                              | Overall Mine    | Area Source  | 0.049595056 | g/s   |
| Estimated Emission Rate for SO <sub>2</sub>  | Overall Mine    | Area Source  | 0.000375585 | g/s   |
| Estimated Emission Rate for NO <sub>x</sub>  | Overall Mine    | Area Source  | 0.000015686 | g/s   |

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

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

Impact was predicted over the distance of 10 km around the source to assess the impact at each receptor separately at the various locations and maximum incremental GLC value at the project site. Maximum impact of PM<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

### Air Pollution Dispersion Modelling

#### Baseline Air Quality –

Baseline air quality has been measured at 2 locations in the cluster and 6 locations within the buffer zone of the study area. The 24 - hourly average samples of particulate matters (PM<sub>10</sub> and PM<sub>2.5</sub>), SO<sub>2</sub> and NO<sub>x</sub> were measured following the National Ambient Air Quality Standards (NAAQS), 2009. Monitoring data of 8 sampling stations are given below –

#### Meteorological Data –

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

A temporary meteorological station was installed at project site and monitored continually for study period without break. The station was installed at a height of 4 m above the ground level in such a way that there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature are recorded on hourly basis. A weather data was collected from IMD, Coimbatore agro for the month of Oct – Dec 2024 to correlate with site data and found not much of change in the parameters.

**FIGURE 4.1: AERMOD TERRAIN MAP**

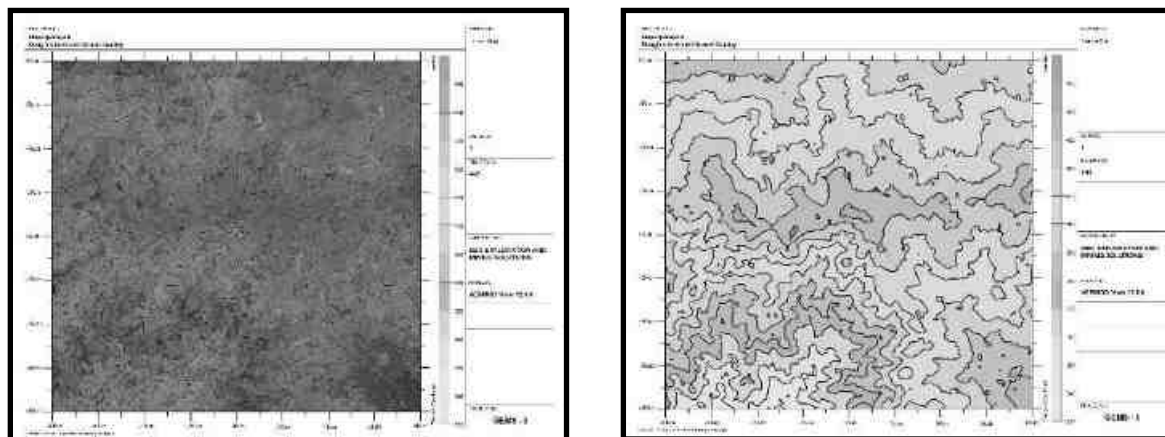


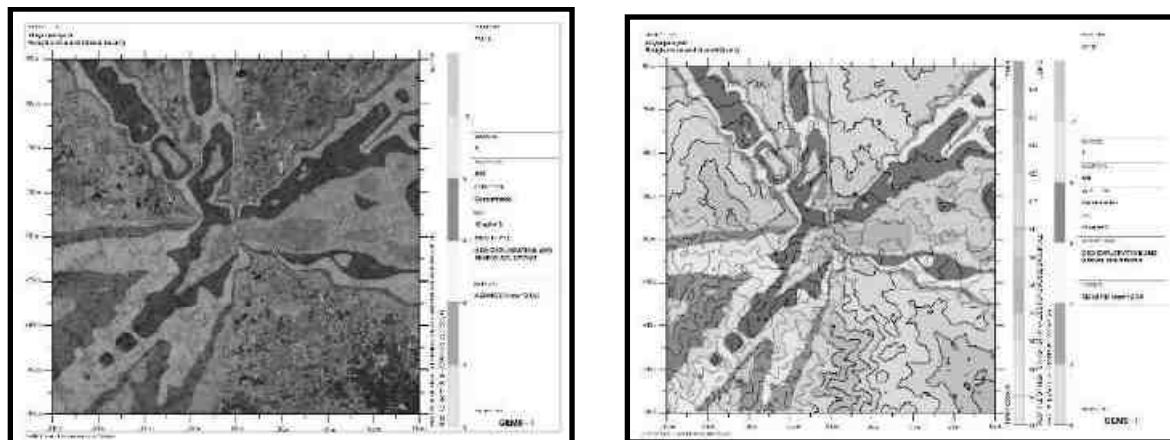
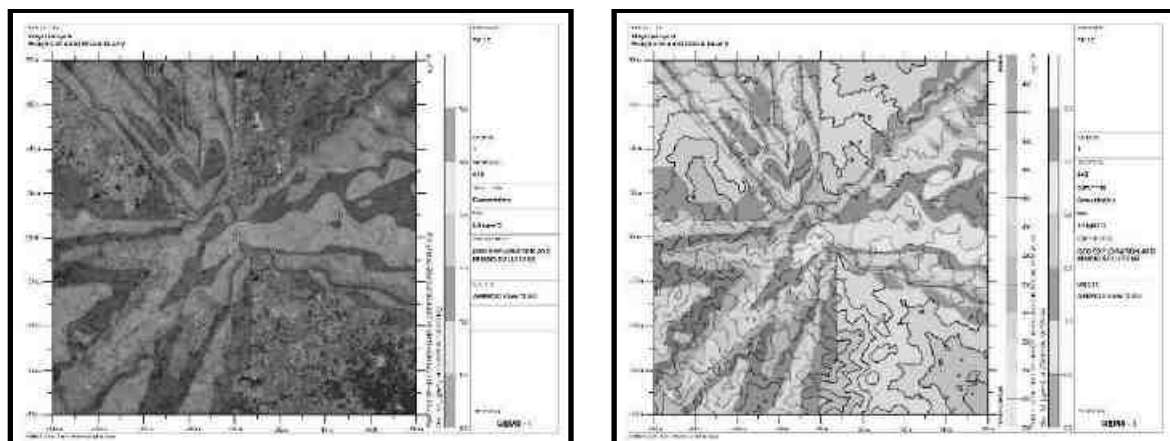
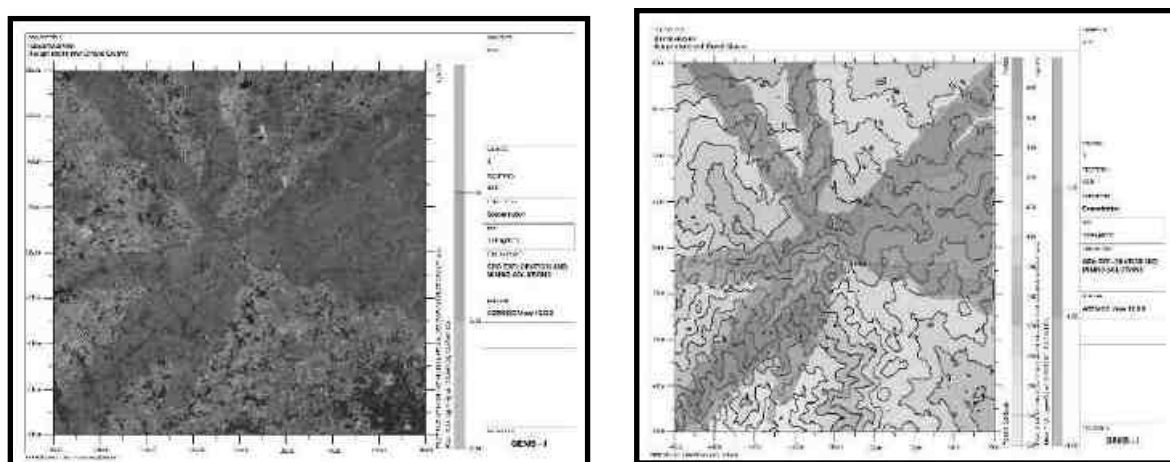
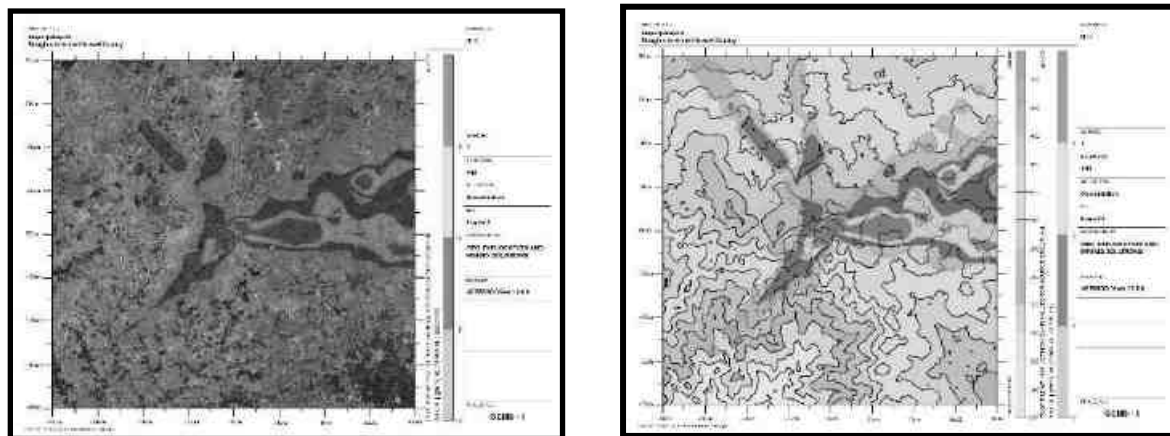
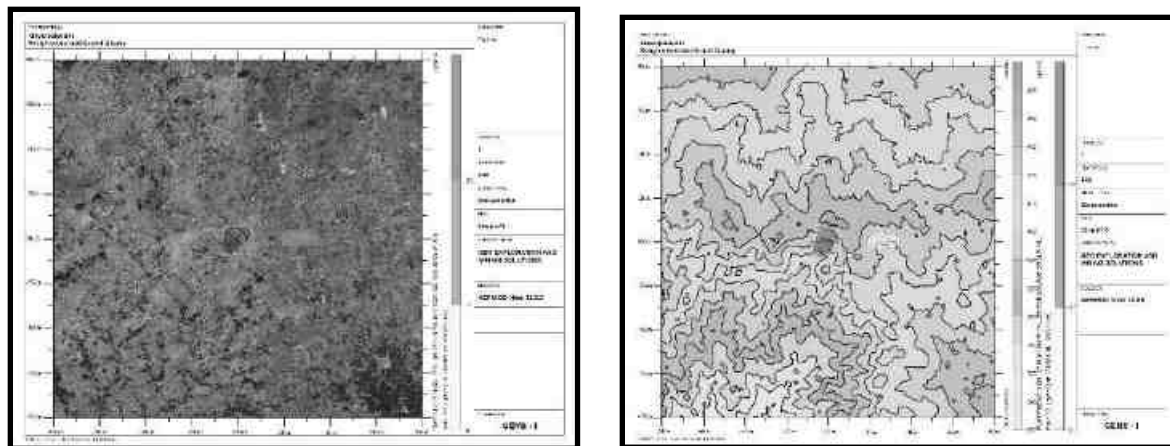
**FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM<sub>10</sub>****FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM<sub>2.5</sub>****FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF SO<sub>2</sub>**

**FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF NO<sub>x</sub>****FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST**

#### 4.3.2.1 Model Results

The post project Resultant Concentrations of 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 PM<sub>10</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°54'52.83"N 77° 6'43.96"E | -43              | -48              | 41.9                                                   | 12.43                                                                    | 54.33                                             |
| AAQ2         | 10°54'44.79"N 77° 6'52.63"E | 199              | -305             | 43.1                                                   | 0                                                                        | 43.1                                              |
| AAQ3         | 10°56'23.05"N 77° 8'23.14"E | 2990             | 2735             | 44.7                                                   | 11.59                                                                    | 56.29                                             |
| AAQ4         | 10°54'17.60"N 77° 7'27.62"E | 1709             | -982             | 45.4                                                   | 0                                                                        | 45.4                                              |
| AAQ5         | 10°55'15.25"N 77° 9'15.62"E | 4595             | 637              | 45.5                                                   | 10.71                                                                    | 56.21                                             |
| AAQ6         | 10°52'43.85"N 77° 6'1.60"E  | -1342            | -4040            | 45.2                                                   | 5.00                                                                     | 50.2                                              |
| AAQ7         | 10°55'39.11"N 77° 5'13.51"E | -2836            | 1373             | 45.0                                                   | 0                                                                        | 45.0                                              |

**TABLE 4.4: INCREMENTAL & RESULTANT GLC OF PM<sub>2.5</sub>**

| Station Code | Location                    | X Coordinate (m) | Y Coordinate (m) | Average Baseline PM <sub>2.5</sub> (µg/m <sup>3</sup> ) | Incremental value of PM <sub>2.5</sub> due to mining (µg/m <sup>3</sup> ) | Total PM <sub>2.5</sub> (µg/m <sup>3</sup> ) (5+6) |
|--------------|-----------------------------|------------------|------------------|---------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------|
| AAQ1         | 10°54'52.83"N 77° 6'43.96"E | -43              | -48              | 20.6                                                    | 5.49                                                                      | 26.09                                              |
| AAQ2         | 10°54'44.79"N 77° 6'52.63"E | 199              | -305             | 21.5                                                    | 5.00                                                                      | 26.5                                               |
| AAQ3         | 10°56'23.05"N 77° 8'23.14"E | 2990             | 2735             | 23.6                                                    | 4.84                                                                      | 28.44                                              |
| AAQ4         | 10°54'17.60"N 77° 7'27.62"E | 1709             | -982             | 24.8                                                    | 1.90                                                                      | 26.7                                               |
| AAQ5         | 10°55'15.25"N 77° 9'15.62"E | 4595             | 637              | 24.9                                                    | 4.20                                                                      | 29.1                                               |
| AAQ6         | 10°52'43.85"N 77° 6'1.60"E  | -1342            | -4040            | 24.4                                                    | 2.50                                                                      | 26.9                                               |
| AAQ7         | 10°55'39.11"N 77° 5'13.51"E | -2836            | 1373             | 24.0                                                    | 0.21                                                                      | 24.21                                              |

**TABLE 4.5: INCREMENTAL & RESULTANT GLC OF SO<sub>2</sub>**

| Station Code | Location                    | X Coordinate (m) | Y Coordinate (m) | Average Baseline So <sub>2</sub> (µg/m <sup>3</sup> ) | Incremental value of So <sub>2</sub> due to mining (µg/m <sup>3</sup> ) | Total So <sub>2</sub> (µg/m <sup>3</sup> ) (5+6) |
|--------------|-----------------------------|------------------|------------------|-------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------|
| AAQ1         | 10°54'52.83"N 77° 6'43.96"E | -43              | -48              | 4.6                                                   | 1.39                                                                    | 5.99                                             |
| AAQ2         | 10°54'44.79"N 77° 6'52.63"E | 199              | -305             | 4.4                                                   | 0                                                                       | 4.4                                              |
| AAQ3         | 10°56'23.05"N 77° 8'23.14"E | 2990             | 2735             | 4.8                                                   | 1.35                                                                    | 6.15                                             |
| AAQ4         | 10°54'17.60"N 77° 7'27.62"E | 1709             | -982             | 5.0                                                   | 0                                                                       | 5.0                                              |
| AAQ5         | 10°55'15.25"N 77° 9'15.62"E | 4595             | 637              | 4.9                                                   | 1.30                                                                    | 6.2                                              |
| AAQ6         | 10°52'43.85"N 77° 6'1.60"E  | -1342            | -4040            | 5.0                                                   | 0.59                                                                    | 5.59                                             |
| AAQ7         | 10°55'39.11"N 77° 5'13.51"E | -2836            | 1373             | 5.0                                                   | 0                                                                       | 5.0                                              |

**TABLE 4.6: INCREMENTAL & RESULTANT GLC OF NO<sub>x</sub>**

| Station Code | Location                    | X Coordinate (m) | Y Coordinate (m) | Average Baseline No <sub>x</sub> (µg/m <sup>3</sup> ) | Incremental value of No <sub>x</sub> due to mining (µg/m <sup>3</sup> ) | Total No <sub>x</sub> (µg/m <sup>3</sup> ) (5+6) |
|--------------|-----------------------------|------------------|------------------|-------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------|
| AAQ1         | 10°54'52.83"N 77° 6'43.96"E | -43              | -48              | 19.8                                                  | 8.38                                                                    | 28.18                                            |
| AAQ2         | 10°54'44.79"N 77° 6'52.63"E | 199              | -305             | 19.8                                                  | 0                                                                       | 19.8                                             |
| AAQ3         | 10°56'23.05"N 77° 8'23.14"E | 2990             | 2735             | 20.2                                                  | 4.92                                                                    | 25.12                                            |
| AAQ4         | 10°54'17.60"N 77° 7'27.62"E | 1709             | -982             | 20.3                                                  | 0                                                                       | 20.3                                             |
| AAQ5         | 10°55'15.25"N 77° 9'15.62"E | 4595             | 637              | 20.4                                                  | 3.69                                                                    | 24.09                                            |
| AAQ6         | 10°52'43.85"N 77° 6'1.60"E  | -1342            | -4040            | 20.1                                                  | 0                                                                       | 20.1                                             |
| AAQ7         | 10°55'39.11"N 77° 5'13.51"E | -2836            | 1373             | 20.5                                                  | 0                                                                       | 20.5                                             |

From the resultant of cumulative concentration i.e., Background + Incremental Concentration of pollutant in all the receptor locations without effective mitigation measures are still within the prescribed NAAQ limits of 100, 80 & 80 µg/m<sup>3</sup> for PM<sub>10</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.

#### 4.3.4. Mitigation Measures for Proposed Project

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



**Advantages of Wet Drilling: -**

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

**Blasting –**

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

**Haul Road & Transportation –**

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation.
- Transportation of material will be carried out during day time and material will be covered with tarpaulin.
- The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- Water sprinkling on haul roads & loading points will be carried out twice a day.
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metalled haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.
- It will be ensured that all transportation vehicles carry a valid PUC certificate.
- Grading of haul roads and service roads to clear accumulation of loose materials.

**Green Belt –**

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

**Occupational Health**

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

**4.4 Noise Environment (Impact & Mitigation Measures)**

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

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

the model is based on point source relationship i.e., for every doubling of the distance the noise levels are decreased by 6 dB (A).

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

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

Where:

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

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

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

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

**TABLE 4.8: ACTIVITY AND NOISE LEVEL PRODUCED BY MACHINERY**

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

\*50 feet from source = 15.24 meters

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

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

**TABLE 4.9: PREDICTED NOISE INCREMENTAL VALUES**

| Location ID                         | N1                 | N2    | N3                         | N4    | N5                           | N6    | N7    |
|-------------------------------------|--------------------|-------|----------------------------|-------|------------------------------|-------|-------|
| Maximum Monitored Value (Day) dB(A) | 47.2               | 48.2  | 47.3                       | 45.3  | 43.1                         | 48.6  | 48.2  |
| Incremental Value dB(A)             | 47.30              | 52.14 | 28.50                      | 36.02 | 27.04                        | 27.23 | 27.43 |
| Total Predicted Noise level dB(A)   | 46.30              | 53.61 | 47.36                      | 45.78 | 43.21                        | 48.63 | 48.24 |
| NAAQ Standards                      | <b>Industrial</b>  |       | <b>Day Time- 75 dB (A)</b> |       | <b>Night Time- 70 dB (A)</b> |       |       |
|                                     | <b>Residential</b> |       | <b>Day Time- 55 dB (A)</b> |       | <b>Night Time- 45 dB (A)</b> |       |       |

#### 4.4.2 Mitigation Measures for Proposed Project

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

- Time intervals for each quarries during blasting.
- Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
- Limiting time exposure of workers to excessive noise.
- Proper and regular maintenance of vehicles, machinery and other equipment's.
- The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipment's.
- Speed of trucks entering or leaving the quarry will be limited to moderate speed to prevent undue noise from empty vehicles...

- Noise levels will be controlled by using optimum explosive charge, proper delay detonators and proper stemming to prevent blow out of holes (occasionally).
- Providing proper noise proof enclosure for the workers separated from the noise source and noise prone equipment.
- Provision of Quiet areas, where employees can get relief from workplace noise.
- The development of green belts around the periphery of the quarry site to attenuate noise.
- Regular medical check-up and proper training to personnel to create awareness about adverse noise level effects.

#### 4.4.3 Ground Vibrations

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

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

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

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

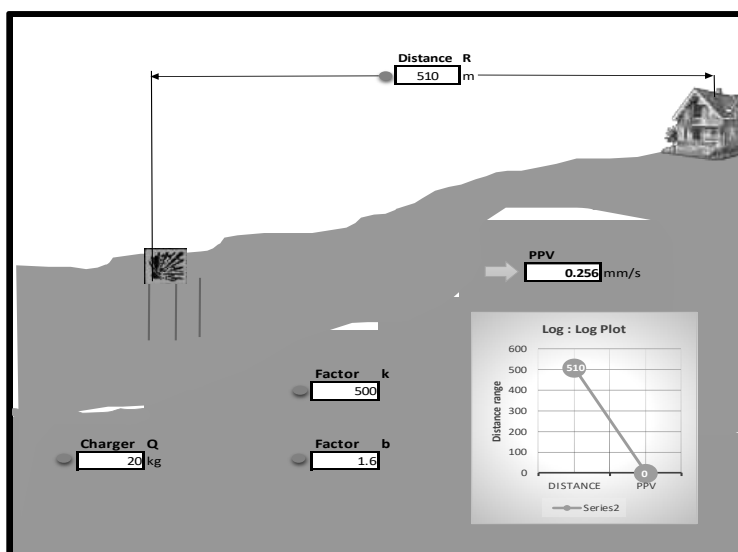
Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

**TABLE 4.10: PREDICTED PPV VALUES DUE TO BLASTING**

| Maximum Charge in kgs | Nearest Habitation in m | PPV in m/ms |
|-----------------------|-------------------------|-------------|
| 20                    | 510                     | 0.250       |



Thiru.V.Saravanan

From the above, the charge per blast of Maximum 20 Kg 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 2 Kg at any point of time. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

#### **4.4.3.1 Mitigation Measures for Proposed Project**

- The blasting operations in the cluster quarries are carried out without deep hole drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system will be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting will be maintained as per DGMS guidelines;
- Blasting shelter will be provided as per DGMS guidelines;
- Blasting operations will be carried out only during day time;
- The charge per delay will be minimized and preferably a greater number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity will be temporarily stopped;
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- A fully trained explosives blast man (Mining Mate, Mines Foreman, 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

### **4.5 Ecology and Biodiversity**

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

#### **4.5.1. Anticipated Impact on Flora**

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

##### **4.5.1.1. Mitigation Measures**

The project site should have land to develop a greenbelt in and around the limits of the mine, along roads, and another vacant area. The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. Although the project will not lead to any tree cutting, it is proposed to improve the

greenery of the locality through plantation services. To avoid dust emissions, the mined materials will be covered with tarpaulin during transportation.

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

**Table No 4.11 List of plant species proposed for Greenbelt development**

| S. No                                                             | Scientific name             | Tamil Name     |
|-------------------------------------------------------------------|-----------------------------|----------------|
| 1                                                                 | <i>Aegle marmelos</i>       | Vilva Maram    |
| 2                                                                 | <i>Albizia lebbbeck</i>     | Vaagai Maram   |
| 3                                                                 | <i>Cassia fistula</i>       | Konrai tree    |
| 4                                                                 | <i>Lannea coromandelica</i> | Othiyam        |
| 5                                                                 | <i>Limonia acidissima</i>   | Vila maram     |
| 6                                                                 | <i>Syzygium cumini</i>      | Naval maram    |
| 7                                                                 | <i>Toona ciliata</i>        | Santhana Vembu |
| 8                                                                 | <i>Ficus hispida</i>        | Aththi maram   |
| 9                                                                 | <i>Borassus flabellifer</i> | Panai-maram    |
| <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.

**TABLE 4.12: GREENBELT DEVELOPMENT PLAN**

| No. of trees proposed to be planted | Area to be covered sq.m                                    | Name of the species                        |
|-------------------------------------|------------------------------------------------------------|--------------------------------------------|
| 920                                 | Near 7.5m safety distance, panchayat road and village road | Neem, Pungam, Vilvam, Panai, Ashokha etc., |

**TABLE 4.13: BUDGET FOR GREEBELT DEVELOPMENT PLAN**

| ACTIVITY                                                    |      | YEAR     |    |     |    |   | RATE                   | AMOUNT (INR)         |
|-------------------------------------------------------------|------|----------|----|-----|----|---|------------------------|----------------------|
|                                                             |      | I        | II | III | IV | V |                        |                      |
| Plantation under safety zone                                | Nos. | 550      | -  | -   | -  | - | @100 Rs<br>Per sapling | Rs.55,000/-          |
|                                                             | Cost | 55000    | -  | -   | -  | - |                        |                      |
| Plantation in around approach road and nearby village roads | Nos  | 370      | -  | -   | -  | - |                        | Rs.37,000/-          |
|                                                             | Cost | 37000    | -  | -   | -  | - |                        |                      |
| Wire Fencing (In Mtrs) 560 Mtrs                             |      | 1,68,000 | -  | -   | -  | - | @300 Rs<br>Per Meter   | Rs. 1,68,000/-       |
| Garland drain (In Mtrs) 470 Mtrs                            |      | 1,41,000 | -  | -   | -  | - | @300 Rs<br>Per Meter   | Rs. 1,41,000/-       |
| <b>TOTAL</b>                                                |      |          |    |     |    |   |                        | <b>Rs.4,01,000/-</b> |

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

activities, some of the areas can be fenced by involving local people and educating them about increased benefits of such activities.

#### 4.5.3. Anticipated Impact on Fauna

- Since the terrestrial fauna in the study area are distributed away from the mine site, the impacts of project are likely to be much low on terrestrial fauna of the region. The proposed mining lease area is devoid of any significant vegetation, it is not suitable for permanent habitat for any specific wildlife.
- Habitat degradation and disturbance to faunal group due to ground vibration and increase in noise level will be minimize or resolved by modern technologies. So, from above facts it is revealed that there will be no impact on fauna. No threatened fauna species reported in the core and buffer study area.

##### 4.5.3.1. Measures for protection and conservation of wildlife species

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

##### 4.5.3.2. Mitigation Measures

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

#### 4.5.4. Impact on Aquatic Biodiversity

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

#### 4.5.5. Impact Assessment on Biological Environment

A detail of impact and assessments was mentioned in Table No 4.15.

**TABLE 4.15: ECOLOGICAL IMPACT ASSESSMENTS**

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

|    |                                                                                                                     |                                                                                                                                                                                                                                           |
|----|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3  | Proximity to national park/wildlife sanctuary/reserve forest /mangroves/coastline/estuary/sea                       | There is no National Park/ Wildlife Sanctuary/ Reserve Forest/ Mangroves and Eco-Sensitive zone/ Critically polluted area/ HACA/CRZ located within 10 km radius of the area.<br><br>Indira Gandhi (Anamalai) Wildlife Sanctuary–44.2km-S. |
| 4  | The proposed project restricts access to waterholes for wildlife                                                    | ‘No ‘                                                                                                                                                                                                                                     |
| 5  | Proposed mining project impact surface water quality that also provides water to wildlife                           | ‘No ‘scheduled or threatened wildlife animals are sighted regularly core in the core area.                                                                                                                                                |
| 6  | Proposed mining project increase siltation that would affect nearby biodiversity areas.                             | Surface runoff management such as drains is constructed properly so there will be no siltation effect in the nearby mining area.                                                                                                          |
| 7  | Risk of fall/slip or cause death to wild animals due to project activities.                                         | ‘No‘                                                                                                                                                                                                                                      |
| 8  | The project release effluents into a water body that also supplies water to a wildlife.                             | No water body near to core zone so the chances of water becoming polluted is low.                                                                                                                                                         |
| 9  | Mining projects affect the forest-based livelihood/ any specific forest product on which local livelihood depended. | ‘No‘                                                                                                                                                                                                                                      |
| 10 | The project likely to affect migration routes.                                                                      | ‘No ‘migration route was observed during the monitoring period.                                                                                                                                                                           |
| 11 | The project is likely to affect the flora of an area, which have medicinal value                                    | ‘No‘                                                                                                                                                                                                                                      |
| 12 | Forestland is to be diverted, has carbon high sequestration.                                                        | ‘No ‘There was no forest land diverted.                                                                                                                                                                                                   |
| 13 | The project is likely to affect wetlands, Fish breeding grounds, and marine ecology.                                | ‘No‘. Wetland was not present in the near core Mining lease area. No breeding and nesting ground is present in the core mining area.                                                                                                      |

#### 4.6 *Socio Economic*

##### 4.6.1 Anticipated Impact from Proposed Project

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

##### 4.6.2 Mitigation Measures for Proposed Project

- Good maintenance practices will be adopted for all machinery and equipment, which will help to avert potential noise problems.
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines.
- Air pollution control measure will be taken to minimize the environmental impact within the core zone.



- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules.
- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc., from this project directly and indirectly.
- From above details, the quarry operations will have highly beneficial positive impact in the area

#### **4.7 Occupational Health and Safety**

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

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

##### **4.7.1 Respiratory Hazards**

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

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

##### **4.7.2 Noise**

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

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

##### **4.7.3 Physical Hazards**

The following measures are proposed for control of physical hazards

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

##### **4.7.4 Occupational Health Survey**

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

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

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

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

#### **4.8 Mine Waste Management**

No waste is anticipated from any of the proposed quarries.

#### **4.9 Mine Closure**

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

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

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

##### **4.9.1 Mine Closure Criteria**

The criteria involved in mine closure are discussed below:

###### **4.9.1.1 Physical Stability**

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

###### **4.9.1.2 Chemical Stability**

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

###### **4.9.1.3 Biological Stability**

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

A vegetation cover over the disturbed site is usually one of the main objectives of the rehabilitation programme, as vegetation cover is the best long-term method of stabilizing the site. When the major earthwork components of the rehabilitation programme have been completed, the process of establishing a stable vegetation community begins. For re-

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vegetation, management of soil nutrient levels is an important consideration. Additions of nutrients are useful under three situations.

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

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

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

### 5.0 *Introduction:*

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

- This area denotes the indicative of flow pattern of the rock mass in N30°E to S30°W with dipping SE60°.
- Transportation facility for materials & manpower.
- Overall impact on environment and mitigation feasibility.
- Socio – economic background.

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

### 5.1 Factors Behind the Selection of Project Site

Rough Stone and Gravel Quarry Project at Edayarpalayam Village are a site specific. The proposed mining lease area has following advantages: -

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

### 5.2 *Analysis of Alternative Site*

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

### 5.3 Factors Behind Selection of Proposed Technology

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

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

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

### 5.4 *Analysis of Alternative Technology*

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

## CHAPTER – 6: ENVIRONMENTAL MONITORING PROGRAMME

### 6.0 General

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

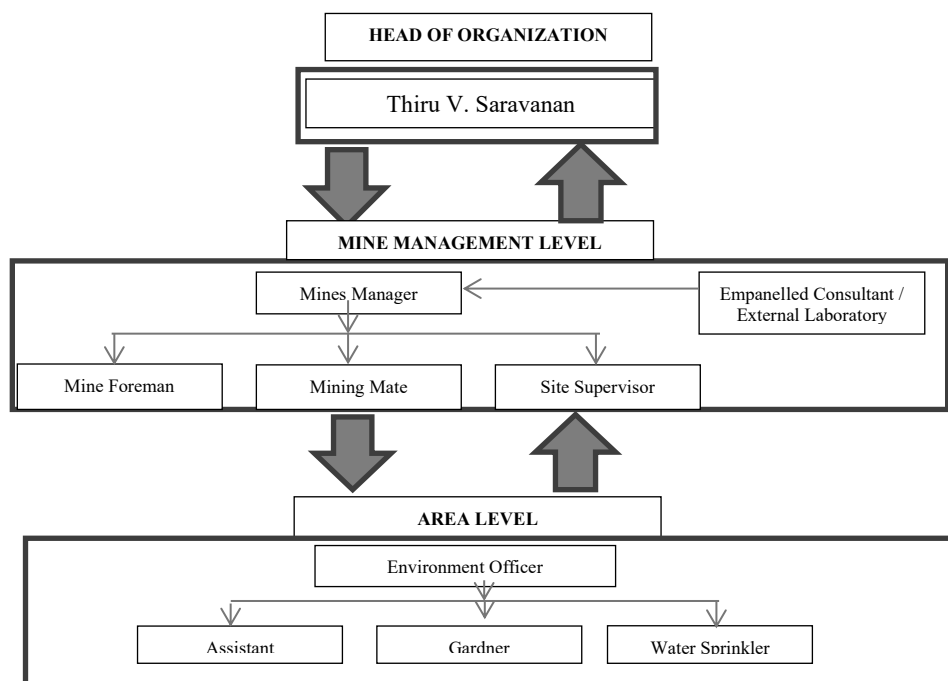
The monitoring and evaluation of environmental parameters indicates potential changes occurring in the environment, which paves way for implementation of rectifying measures wherever required to maintain the status of the natural environment. Evaluation is also a very effective tool to judge the effectiveness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

### 6.1 Methodology of Monitoring Mechanism

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

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

**FIGURE 6.1 ENVIRONMENTAL MONITORING CELL**



The responsibilities of this cell will be:

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

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

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

## 6.2 Implementation Schedule of Mitigation Measures

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

**TABLE 6.1 IMPLEMENTATION SCHEDULE**

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

## 6.3 Monitoring Schedule and Frequency

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

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

The details of monitoring are detailed in Table 6.2

**TABLE 6.2: PROPOSED MONITORING SCHEDULE POST EC**

| S. No. | Environment Attributes | Location | Monitoring |           | Parameters |
|--------|------------------------|----------|------------|-----------|------------|
|        |                        |          | Duration   | Frequency |            |

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

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

#### 6.4 Environmental Policy of the Proponents

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

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

#### 6.5 Budgetary Provision for Environmental Monitoring Programme

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

The proposed total cost for Environmental Monitoring Programme for the proposed project is Rs 3,80,000/-

**TABLE 6.3 ENVIRONMENT MONITORING BUDGET**

| Parameter                                                                                                       | Capital Cost        | Recurring Cost        |
|-----------------------------------------------------------------------------------------------------------------|---------------------|-----------------------|
| Air Quality, Meteorology, Water Quality, Hydrology, Soil Quality<br>Noise Quality, Vibration<br>Study Greenbelt | Rs.76,000/-         | Rs.3,80,000/-         |
| <b>Total</b>                                                                                                    | <b>Rs. 76,000/-</b> | <b>Rs. 3,80,000/-</b> |

Source: Approved Mining Plan

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## **6.6     *Reporting Schedules of Monitored Data***

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

Periodical reports to be submitted to: -

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

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

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



## CHAPTER – 7: ADDITIONAL STUDIES

### 7.0 General

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

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

### 7.1. Public Consultation:

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

### 7.2 Risk Assessment

The methodology for the risk assessment has been based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS), Dhanbad, vide Circular No.13 of 2002, dated 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 cluster quarry operation will be carried out under the direction of a Qualified Competent Mine manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening. Factors of risks involved due to human induced activities in connection with mining & allied activities with detailed analysis of causes and control measures for the mine is given in below Table 7.1.

**TABLE 7.1 RISK ASSESSMENT & CONTROL MEASURES**

| S. No | Risk factors                                             | Causes of risk                                | Control measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------|----------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Accidents due to explosives and heavy mining machineries | Improper handling and unsafe working practice | <ul style="list-style-type: none"> <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>▪ Fire fighting 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</li> </ul> |

|   |                    |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                    |                                                                                                                                                                                                                                   | <p>firing shall be carried out by competent persons only under the supervision of a Mine Manager;</p> <ul style="list-style-type: none"> <li>▪ Maintenance and testing of all mining equipment as per manufacturer 's guidelines.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 2 | Drilling& Blasting | <p>Due to improper and unsafe practices</p> <p>Due to high pressure of compressed air, hoses may burst</p> <p>Drill Rod may break</p>                                                                                             | <ul style="list-style-type: none"> <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>▪ Drilling 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 as per operator manual.</li> <li>▪ All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition.</li> <li>▪ Operator shall regularly use all the personal protective equipment.</li> </ul> |
| 3 | Blasting           | <p>Fly rock, ground vibration, Noise and dust.</p> <p>Improper charging, stemming &amp; Blasting/fining of blast holes</p> <p>Vibration due to movement of vehicles</p>                                                           | <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>                                                                                                                                                                                                                                                    |
| 4 | Transportation     | <p>Potential hazards and unsafe workings contributing to accident and injuries</p> <p>Overloading of material</p> <p>While reversal &amp; overtaking of vehicle</p> <p>Operator of truck leaving his cabin when it is loaded.</p> | <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> <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</li> </ul>                                                                                                                                                   |

|   |                                       |                                      |                                                                                                                                                                          |
|---|---------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                                       |                                      | point <ul style="list-style-type: none"> <li>▪ Loading according to the vehicle capacity</li> <li>▪ Periodical maintenance of vehicles as per operator manual</li> </ul> |
| 5 | Natural calamities                    | Unexpected happenings                | <ul style="list-style-type: none"> <li>▪ Escape Routes will be provided to prevent inundation of storm water</li> <li>▪ Fire Extinguishers &amp; Sand Buckets</li> </ul> |
| 6 | Failure of Mine Benches and Pit Slope | Slope geometry, Geological structure | <ul style="list-style-type: none"> <li>▪ Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.</li> </ul>                          |

### 7.3 Disaster Management Plan

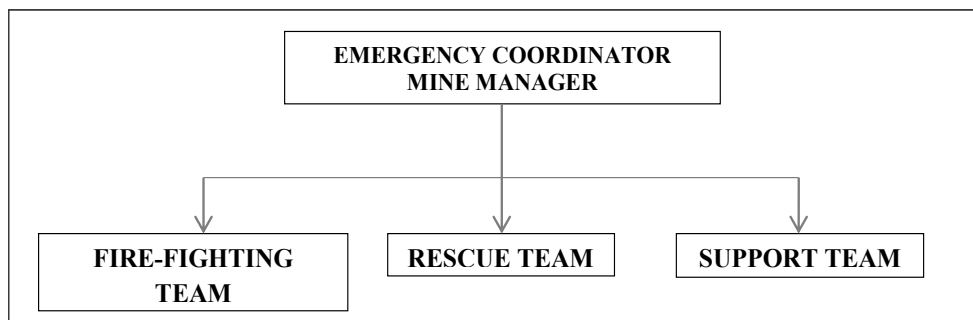
Natural disasters like Earthquake, Landslides has not been recorded in the past history as the terrain is categorized under seismic zone III. The area is far away from the sea hence the disaster due to heavy floods and tsunamis are not anticipated. The Disaster Management Plan is aimed to ensure safety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

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

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

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

**FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT**



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

**TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION**

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

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

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

#### **(a) Emergency coordinator (EC)**

The emergency coordinator shall assume absolute control of site

#### **(b) Incident controller (IC)**

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

#### **(c) Communication and advisory team**

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

#### **(d) Roll call coordinator**

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

#### **(e) Search and rescue team**

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

#### **(f) Emergency security controller**

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

### **Emergency control procedure –**

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

emergency procedure the following key activities will immediately take place to interpret and take control of emergency.

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

### **Proposed fire extinguishers at different locations**

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

| Location               | Type of Fire Extinguishers                                             |
|------------------------|------------------------------------------------------------------------|
| Electrical Equipment's | CO <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                                           |

### **Alarm system to be followed during disaster –**

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

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

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

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

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

## 7.4 CUMULATIVE IMPACT STUDY

There are 4 proposed and 1 existing quarry, 2 abandoned quarry and 1 Expired quarry falls in the cluster. The list of quarries is as below –

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

| PROPOSED QUARRIES    |                                      |                                                                                           |              |                                                                                              |
|----------------------|--------------------------------------|-------------------------------------------------------------------------------------------|--------------|----------------------------------------------------------------------------------------------|
| CODE                 | Name of the Proponent and Address    | S.F. Nos, Village & Taluk                                                                 | Extent in Ha | Status                                                                                       |
| P1                   | V.Saravanan                          | 171/2(P) & 176/2<br>Edayarpalayam Village, Sultur Taluk                                   | 1.84.0       | ToR obtained vide File No. 10794 TOR Identification No. TO24B0108TN5892891N Dated:05.08.2024 |
| P2                   | Thiru.N. Kathires                    | 172/1B, 172/2 & 173/2A2<br>Edayarpalayam Village, Sultur Taluk                            | 1.42.82      | SEAC Meeting completed                                                                       |
| P3                   | M/s.Ultra Ready Mix Concrete Pvt Ltd | 168/2A (P), 168/2B (P),<br>169/1C (P) & 169/2A (P)<br>Edayarpalayam Village, Sultur Taluk | 2.94.01      | Final EIA Submitted to SEIAA                                                                 |
| P4                   | Thiru.K. Ranganathan                 | 174/4 & 176/1 of<br>Edayarpalayam Village, Sultur Taluk                                   | 2.28.0       | EC Under Process                                                                             |
| Total                |                                      |                                                                                           | 8.48.83      |                                                                                              |
| EXISTING QUARRIES    |                                      |                                                                                           |              |                                                                                              |
| CODE                 | Name of the Proponent and Address    | S.F.Nos , Village & Taluk                                                                 | Extent in Ha | Lease Period                                                                                 |
| E1                   | Tmt.N.Chitradevi                     | 179/2(P), Edayarpalayam Village, Sultur Taluk                                             | 3.64.5       | 14.07.2021 to 13.07.2026                                                                     |
| Total                |                                      |                                                                                           | 3.64.5       |                                                                                              |
| ABANDONED QURRIES    |                                      |                                                                                           |              |                                                                                              |
| CODE                 | Name of the Proponent and Address    | S.F. Nos, Village & Taluk                                                                 | Extent in Ha | Lease Period                                                                                 |
| A-1                  | Tmt.Ponnammal                        | 178/2, Edayarpalayam Village, Sultur Taluk                                                | 2.34.5       | -                                                                                            |
| A-2                  | Government Quarry                    | 164/1, Edayarpalayam Village, Sultur Taluk                                                | 3.13.5       | -                                                                                            |
| Total                |                                      |                                                                                           | 5.48.0       |                                                                                              |
| EXPIRED QURRIES      |                                      |                                                                                           |              |                                                                                              |
| CODE                 | Name of the Proponent and Address    | S.F. Nos, Village & Taluk                                                                 | Extent in Ha | Lease Period                                                                                 |
| Ex-1                 | B.Sakthivel                          | 164/6A, 164/7 Edayarpalayam Village, Sultur Taluk                                         | 1.19.5       | 07.10.2017 to 06.10.2022                                                                     |
| Total                |                                      |                                                                                           | 1.19.5       |                                                                                              |
| TOTAL CLUSTER EXTENT |                                      |                                                                                           | 12.13.33     |                                                                                              |

Note:-

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

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

**TABLE 7.4: SALIENT FEATURES OF THE PROPOSED PROJECTS IN CLUSTER**

| SALIENT FEATURES OF PROPOSAL “P1”  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                             |             |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-------------|
| Name of the Mine                   | Thiru.V. Saravanan Rough Stone and Gravel Quarry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                             |             |
| Land Type                          | Patta Land                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                             |             |
| S.F. No.                           | 171/2(P) & 176/2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                             |             |
| Extent                             | 1.84.0 Ha                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                             |             |
| Previous quarry operation details  | <div><div>☞</div>The quarry lease was first granted in favour of Tmt.Sujatha Murugesan, R.C.No. 25095/1997/X1, dated:17.04.1997 for the period of five years from 17.04.1997 to 16.04.2002</div> <div><div>☞</div>Again the quarry lease was granted in Favour of Thiru. M.Velusamy, R.C.No. 977/2002/MM2, dated: 20.09.2002 for the period of five years from 20.09.2002 to 19.09.2007</div> <div><div>☞</div>Subsequently a quarry lease was again granted in Favour of Thiru. M.Velusamy, R.C.No. 1206/2007/X1, dated: 19.07.2008 for the period of five years from 19.07.2008 to 18.07.2013</div> <div><div>☞</div>A Quarry lease was again granted in Favour of Thiru.V.Saravanan, R.C.No. 472/Mines/2016, dated: 15.09.2017 for the period of five years from 15.09.2017 to 14.09.2022</div> <div><div>☞</div>Now the same applicant has again applied the Rough stone and Gravel quarry lease on 23.01.2023</div> |                                                             |             |
| Present quarry pit dimension       | 128m (L) x 80m (W) x 22m(D)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                             |             |
| Proposed Depth                     | 47m bgl (2m Gravel + 45m Roughstone)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                             |             |
| Existing Depth                     | 22m bgl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                             |             |
| Geological Resources               | <b>Rough Stone</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Gravel</b>                                               |             |
|                                    | 552448m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7788 m <sup>3</sup>                                         |             |
| Mineable Reserves                  | <b>Rough Stone</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Gravel</b>                                               |             |
|                                    | 127607 m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4640 m <sup>3</sup>                                         |             |
| Proposed production for five years | 127607 m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4640 m <sup>3</sup><br>6048 m <sup>3</sup> -(Existing Dump) |             |
| Mining Plan Period / Lease Period  | 5 Years                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                             |             |
| Ultimate Pit Dimension             | 179m(L)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 82m (W)                                                     | 47m bgl (D) |
| Toposheet No                       | 58 - F/01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                             |             |
| Latitude                           | 10°54'52.4089"N to 10°54'56.6423"N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                             |             |
| Longitude                          | 77°06'42.1340"E to 77°06'48.7539"E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                             |             |
| Highest Elevation                  | 436m AMSL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                             |             |
| Machinery                          | Jack Hammer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 3                                                           |             |
|                                    | Compressor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1                                                           |             |
|                                    | Excavator with Bucket and Rock Breaker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1                                                           |             |
|                                    | Tippers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2                                                           |             |
| Blasting                           | Usage of Slurry Explosive with MSD detonators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                             |             |
| Manpower Deployment                | 18Nos                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                             |             |
| Water Bodies                       | Niyaviyal Odai                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 50m Safety South                                            |             |
|                                    | Odai                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 140m NW                                                     |             |
|                                    | Odai                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.1Km SE                                                    |             |
|                                    | Pallapalayam Lake                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 9Km NW                                                      |             |
|                                    | Kannampalayam Lake                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9.5Km NW                                                    |             |
|                                    | P.A.P Canal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9.3Km SE                                                    |             |
| Total Cost                         | Project Cost                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Rs. 65,47,000/-                                             |             |
|                                    | EMP Cost                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Rs. 3,80,000/-                                              |             |
|                                    | Total                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Rs. 69,27,000/-                                             |             |
| CER cost                           | Rs.5,00,000/-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                             |             |
| Water Requirements                 | 1.5 KLD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                             |             |
| Nearest Habitation                 | 510m-NE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                             |             |

| <b>SALIENT FEATURES OF PROPOSAL “P2”</b> |                                                  |
|------------------------------------------|--------------------------------------------------|
| Name of the Mine                         | Thiru.N. Kathiresh Rough Stone and Gravel Quarry |
| Land Type                                | Patta Land (Patta No.978,501&1051)               |

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |             |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------|
| S.F. No.                           | 172/1B, 172/2 & 173/2A2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 |             |
| Extent                             | 1.42.82 Ha                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |             |
| Previous quarry operation details  | <div>Operated by</div> <div><div><div></div><div>The quarry lease was first granted in favour of Thiru. K.Manthirachalam, R.C.No. 1151/2002/MM2, dated: 16.12.2002 for the period of five years from 24.12.2002 to 23.12.2007</div></div><div><div></div><div>the quarry lease was granted in Favour of Thiru. M.Arumugam, R.C.No. 1746/2007/X1, dated: 18.02.2008 for the period of five years from 18.05.2008 to 17.05.2013</div></div><div><div></div><div>Now the same applicant has again applied the Rough stone and Gravel quarry lease on 07.10.2021.</div></div></div> |                 |             |
| Present quarry pit dimension       | 78m (L) x 49m (W) x 17m(D)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |             |
| Depth restricted as per ToR        | 27m bgl (2m Gravel + 25m Roughstone)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |             |
| Geological Resources               | <b>Rough Stone</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Gravel</b>   |             |
|                                    | 2,86,860m³                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 11,230 m³       |             |
| Mineable Reserves                  | <b>Rough Stone</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Gravel</b>   |             |
|                                    | 65,140 m³                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5,712           |             |
| Proposed production for five years | 65,140 m³                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5,712           |             |
| Mining Plan Period / Lease Period  | 5 Years                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 |             |
| Ultimate Pit Dimension             | 146m(L)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 49m (W)         | 27m bgl (D) |
| Toposheet No                       | 58 - F/01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 |             |
| Latitude                           | 10°54'56.31"N to 10°55'02.21"N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |             |
| Longitude                          | 77°06'49.03"E to 77°06'53.12"E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |             |
| Highest Elevation                  | 425m AMSL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 |             |
| Machinery                          | Jack Hammer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2               |             |
|                                    | Compressor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1               |             |
|                                    | Excavator with Bucket and Rock Breaker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1               |             |
|                                    | Tippers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1               |             |
| Blasting                           | Usage of Slurry Explosive with MSD detonators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |             |
| Manpower Deployment                | 15Nos                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |             |
| Total Cost                         | Project Cost                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Rs. 62,32,000/- |             |
|                                    | EMP Cost                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Rs. 3,80,000/-  |             |
|                                    | Total                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Rs. 66,12,000/- |             |
| CER cost                           | Rs.5,00,000/-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |             |
| Water Requirements                 | 2.0 KLD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 |             |
| Nearest Habitation                 | 950m Nw                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 |             |

| SALIENT FEATURES OF PROPOSAL "P3"                          |                                                                                                                                                                                                                                                              |                       |                       |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|
| Name of the Mine                                           | M/s.Ultra ReadyMix Concrete Pvt Ltd Rough Stone & Gravel Quarry                                                                                                                                                                                              |                       |                       |
| Land Type                                                  | Private company, it is a Patta lands. Registered in the name of the applicant (Thiru.K.R.Ananth Kumar, Authorized Chief Executive Officer for Tvl. Ultra Readymix Concrete Private Limited), vide Patta Nos. 1030, 1028, 1027 & 1029. Refer Annexure No. IV. |                       |                       |
| S.F. Nos                                                   | 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P)                                                                                                                                                                                                              |                       |                       |
| Extent                                                     | 2.94.01 Ha                                                                                                                                                                                                                                                   |                       |                       |
| Existing pit dimensions (Max)                              | 98m (L) x 70m (W) x 18m Bgl (D)                                                                                                                                                                                                                              |                       |                       |
| Geological Reserves                                        | Rough Stone                                                                                                                                                                                                                                                  | Weathered Rock        | Gravel                |
|                                                            | 10,07,006 m <sup>3</sup>                                                                                                                                                                                                                                     | 24,300                | 48,600 m <sup>3</sup> |
| Mineable Reserves                                          | Rough Stone                                                                                                                                                                                                                                                  | Weathered Rock        | Gravel                |
|                                                            | 3,18,706 m <sup>3</sup>                                                                                                                                                                                                                                      | 13,884 m <sup>3</sup> | 32,304 m <sup>3</sup> |
| Proposed Quantity of Reserves/Production for mining Period | 3,18,706 m <sup>3</sup>                                                                                                                                                                                                                                      | 13,884 m <sup>3</sup> | 32,304 m <sup>3</sup> |
| Mining Plan Period / Lease Period                          | 5 Years                                                                                                                                                                                                                                                      |                       |                       |
| Depth of mining                                            | 38m (2m Gravel +1m Weathered Rock +35m Rough Stone)                                                                                                                                                                                                          |                       |                       |
| Ultimate Pit Dimension                                     | 247m (L) x 113m (W) x 38m Bgl (D)                                                                                                                                                                                                                            |                       |                       |
| Depth restricted as per ToR                                | The ultimate depth of mining is about 38m (2m Gravel +1m Weathered                                                                                                                                                                                           |                       |                       |



|                     |                                               |                 |
|---------------------|-----------------------------------------------|-----------------|
|                     | Rock + 35m Rough stone)                       |                 |
| Toposheet No        | 58 F/01                                       |                 |
| Latitude            | 10°54'43.0036"N to 10°54'49.7345"N            |                 |
| Longitude           | 77°06'46.9047"E to 77°06'56.1903"E            |                 |
| Machinery proposed  | Jack Hammer                                   | 8               |
|                     | Compressor                                    | 2               |
|                     | Excavator with Bucket and Rock Breaker        | 2               |
|                     | Tippers                                       | 4               |
| Blasting            | Usage of Slurry Explosive with MSD detonators |                 |
| Manpower Deployment | 40Nos                                         |                 |
| Total Project Cost  | Operational Cost                              | Rs. 85,44,000/- |
|                     | EMP Cost                                      | Rs. 3,80,000/-  |
|                     | Total                                         | Rs. 48,55,000/- |
| CER cost            | Rs.5,00,000/-                                 |                 |
| Water Requirements  | 3.0 KLD                                       |                 |
| Nearest Habitation  | 540m-NW                                       |                 |

| SALIENT FEATURES OF “E1”                |                                                                                                                                                                                                                                                                                    |                          |                     |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------|
| Name of the Mine                        | Tmt.N.Chitradevi for Rough Stone and Gravel Quarry                                                                                                                                                                                                                                 |                          |                     |
| Land Type                               | It is a Patta land. Patta no 787                                                                                                                                                                                                                                                   |                          |                     |
| S.F. No.                                | 179/2(P), Edayarpalayam Village, Suler Taluk                                                                                                                                                                                                                                       |                          |                     |
| Extent                                  | 3.64.5 ha                                                                                                                                                                                                                                                                          |                          |                     |
| Previous quarry details                 | The applied survey no already quarried in two times in the granted name Tvl. ROBO SILICAON Private Limited (Letter no 1893/2008/XI dt 03.03.2009 for 5 years<br>Now Tmt.Chitradevi vide letter no 156/2014/MM2 date 15.12.2015 and lease period 15.12.2014-14.12.2020 (Five years) |                          |                     |
| Existing Depth                          | 34m                                                                                                                                                                                                                                                                                |                          |                     |
| Proposed depth                          | 47m (2m Gravel + 45m Rough Stone) below ground level.                                                                                                                                                                                                                              |                          |                     |
| Geological Reserves & Mineable Reserves | <i>Description</i>                                                                                                                                                                                                                                                                 | <i>Rough stone in m³</i> | <i>Gravel in m³</i> |
|                                         | Geological Resources                                                                                                                                                                                                                                                               | 16,40,250                | 72,900              |
|                                         | Available Mineable reserves                                                                                                                                                                                                                                                        | 2,63,226                 | 27,000              |
|                                         | five years plan period as in the approved mining plan                                                                                                                                                                                                                              | 2,63,226                 | 27,000              |
| Mining Plan Period / Lease Period       | Five years                                                                                                                                                                                                                                                                         |                          |                     |
| Ultimate Pit Dimension (Max)            | 200m (L) * 179m (W) * 47m BGL (D)                                                                                                                                                                                                                                                  |                          |                     |
| Toposheet No                            | 58 – F/01                                                                                                                                                                                                                                                                          |                          |                     |
| Latitude                                | 10°54'33.16"N to 10°54'41.78"N                                                                                                                                                                                                                                                     |                          |                     |
| Longitude                               | 77°06'40.42"E to 77°06'47.14"E                                                                                                                                                                                                                                                     |                          |                     |
| Elevation                               | 418m Amsl.                                                                                                                                                                                                                                                                         |                          |                     |
| Water Level                             | 60m in summer and at 55m in rainy seasons below general ground profile.                                                                                                                                                                                                            |                          |                     |
|                                         | <b>Type</b>                                                                                                                                                                                                                                                                        |                          | <b>Nos</b>          |
| Machinery                               | Jack Hammer                                                                                                                                                                                                                                                                        |                          | 8                   |
|                                         | Compressor                                                                                                                                                                                                                                                                         |                          | 2                   |
|                                         | Hydraulic Excavato Excavator with Bucket and Rock Breaker                                                                                                                                                                                                                          |                          | 2                   |
|                                         | Tippers                                                                                                                                                                                                                                                                            |                          | 4                   |
| Blasting                                | Jack hammer drilling and slurry blasting                                                                                                                                                                                                                                           |                          |                     |
| Manpower Deployment                     | 31                                                                                                                                                                                                                                                                                 |                          |                     |
| Total Project Cost                      | Project Cost                                                                                                                                                                                                                                                                       | Rs. 1,42,60,700/-        |                     |
|                                         | EMP Cost                                                                                                                                                                                                                                                                           | Rs. 3,80,000/-           |                     |
|                                         | Total                                                                                                                                                                                                                                                                              | Rs. 1,46,40,700/-        |                     |
| Habitation                              | Bogampatti 1.2km-SE                                                                                                                                                                                                                                                                |                          |                     |

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

### Impact on Air Environment –

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

**TABLE 7.5 CUMULATIVE PRODUCTION LOAD OF ROUGH STONE IN CLUSTER**

| Quarry            | Production for five-year plan period | Per Year Production in m <sup>3</sup> | Per Day Production in m <sup>3</sup> | Number of Lorry Load Per Day @ 12m <sup>3</sup> per load |
|-------------------|--------------------------------------|---------------------------------------|--------------------------------------|----------------------------------------------------------|
| P1                | 1,27,607                             | 25,521                                | 85                                   | 7                                                        |
| P2                | 65,140                               | 13,028                                | 43                                   | 4                                                        |
| P3                | 3,18,706                             | 63,741                                | 212                                  | 18                                                       |
| P4                | -                                    | -                                     | -                                    | -                                                        |
| <b>Total</b>      | <b>5,11,453</b>                      | <b>1,02,290</b>                       | <b>340</b>                           | <b>29</b>                                                |
| E1                | 2,63,226                             | 52,645                                | 175                                  | 15                                                       |
| <b>Total</b>      | <b>2,63,226</b>                      | <b>52,645</b>                         | <b>175</b>                           | <b>15</b>                                                |
| <b>Gran Total</b> | <b>7,74,679</b>                      | <b>1,54,935</b>                       | <b>515</b>                           | <b>44</b>                                                |

**TABLE 7.6: CUMULATIVE PRODUCTION OF GRAVEL IN CLUSTER**

| Quarry             | Mineable Reserves in m <sup>3</sup> | Per Year Production in m <sup>3</sup> | Per Day in m <sup>3</sup> | Number of Lorry Load @ 12m <sup>3</sup> per load |
|--------------------|-------------------------------------|---------------------------------------|---------------------------|--------------------------------------------------|
| P1                 | 4,640                               | 4,640                                 | 15                        | 1                                                |
| P2                 | 5,712                               | 1,904                                 | 6                         | 1                                                |
| P3                 | 32,304                              | 10,768                                | 36                        | 3                                                |
| P4                 | -                                   | -                                     | -                         | -                                                |
| <b>TOTAL</b>       | <b>42,656</b>                       | <b>17,312</b>                         | <b>57</b>                 | <b>5</b>                                         |
| E1                 | 27,000                              | 9,000                                 | 30                        | 3                                                |
| <b>Total</b>       | <b>27,000</b>                       | <b>9,000</b>                          | <b>30</b>                 | <b>3</b>                                         |
| <b>Grand total</b> | <b>69,656</b>                       | <b>26,312</b>                         | <b>87</b>                 | <b>8</b>                                         |

Source: Approved Mining plans of the respective projects

Based on the above production quantities the emissions due to various activities in all the 4 proposal quarry and 1 existing quarry includes various activities like ground preparation, excavation, handling and transport of mineral. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 7.7.

**TABLE 7.7: EMISSION ESTIMATION FROM CLUSTER**

| <b>EMISSION ESTIMATION FOR QUARRY “P1”- Thiru.V.Saravanan</b> |                 |              |             |       |
|---------------------------------------------------------------|-----------------|--------------|-------------|-------|
| Estimated Emission Rate for PM <sub>10</sub>                  | Activity        | Source type  | Value       | Unit  |
|                                                               | Drilling        | Point Source | 0.072658434 | g/s   |
|                                                               | Blasting        | Point Source | 0.000489829 | g/s   |
|                                                               | Mineral Loading | Point Source | 0.040025112 | g/s   |
|                                                               | Haul Road       | Line Source  | 0.002487678 | g/s/m |
|                                                               | Overall Mine    | Area Source  | 0.049595056 | g/s   |
| Estimated Emission Rate for SO <sub>2</sub>                   | Overall Mine    | Area Source  | 0.000375585 | g/s   |
| Estimated Emission Rate for NOx                               | Overall Mine    | Area Source  | 0.000015686 | g/s   |
| <b>EMISSION ESTIMATION FOR QUARRY “P2”- Thiru.N.Kathires</b>  |                 |              |             |       |
| Estimated Emission Rate for PM <sub>10</sub>                  | Activity        | Source type  | Value       | Unit  |
|                                                               | Drilling        | Point Source | 0.058624578 | g/s   |
|                                                               | Blasting        | Point Source | 0.000167499 | g/s   |
|                                                               | Mineral Loading | Point Source | 0.037207229 | g/s   |
|                                                               | Haul Road       | Line Source  | 0.002484819 | g/s/m |
|                                                               | Overall Mine    | Area Source  | 0.044324630 | g/s   |

|                                                                                  |                 |                    |              |             |
|----------------------------------------------------------------------------------|-----------------|--------------------|--------------|-------------|
| Estimated Emission Rate for SO <sub>2</sub>                                      | Overall Mine    | Area Source        | 0.000178199  | g/s         |
| Estimated Emission Rate for NO <sub>x</sub>                                      | Overall Mine    | Area Source        | 0.000005883  | g/s         |
| <b>EMISSION ESTIMATION FOR QUARRY “P3”- M/s.Ultra Ready Mix Concrete Pvt Ltd</b> |                 |                    |              |             |
| Estimated Emission Rate for PM <sub>10</sub>                                     | <b>Activity</b> | <b>Source type</b> | <b>Value</b> | <b>Unit</b> |
|                                                                                  | Drilling        | Point Source       | 0.092726254  | g/s         |
|                                                                                  | Blasting        | Point Source       | 0.001658166  | g/s         |
|                                                                                  | Mineral Loading | Point Source       | 0.043745863  | g/s         |
|                                                                                  | Haul Road       | Line Source        | 0.002495583  | g/s/m       |
|                                                                                  | Overall Mine    | Area Source        | 0.061596558  | g/s         |
| Estimated Emission Rate for SO <sub>2</sub>                                      | Overall Mine    | Area Source        | 0.000927007  | g/s         |
| Estimated Emission Rate for NO <sub>x</sub>                                      | Overall Mine    | Area Source        | 0.000060171  | g/s         |
| <b>EMISSION ESTIMATION FOR QUARRY “E1”- Tmt.N.Chitradevi</b>                     |                 |                    |              |             |
| Estimated Emission Rate for PM <sub>10</sub>                                     | <b>Activity</b> | <b>Source type</b> | <b>Value</b> | <b>Unit</b> |
|                                                                                  | Drilling        | Point Source       | 0.044624578  | g/s         |
|                                                                                  | Blasting        | Point Source       | 0.002167499  | g/s         |
|                                                                                  | Mineral Loading | Point Source       | 0.023207229  | g/s         |
|                                                                                  | Haul Road       | Line Source        | 0.008484819  | g/s/m       |
|                                                                                  | Overall Mine    | Area Source        | 0.037324630  | g/s         |
| Estimated Emission Rate for SO <sub>2</sub>                                      | Overall Mine    | Area Source        | 0.011178199  | g/s         |
| Estimated Emission Rate for NO <sub>x</sub>                                      | Overall Mine    | Area Source        | 0.000325883  | g/s         |

Source: Emission Formula

**TABLE 7.8: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER**

|                                        |                       |
|----------------------------------------|-----------------------|
| PM <sub>10</sub> in µg/m <sup>3</sup>  |                       |
| Location                               | AAQ1 – CORE           |
| Background (average)                   | 45.0                  |
| Highest Incremental                    | 11.67                 |
| Resultant                              | 56.7                  |
| NAAQ Norms                             | 100 µg/m <sup>3</sup> |
| PM <sub>2.5</sub> in µg/m <sup>3</sup> |                       |
| Background (average)                   | 23.4                  |
| Highest Incremental                    | 5.49                  |
| Resultant                              | 28.9                  |
| NAAQ Norms                             | 80 µg/m <sup>3</sup>  |
| SO <sub>2</sub> in µg/m <sup>3</sup>   |                       |
| Location                               | AAQ1 – CORE           |
| Background (average)                   | 7.3                   |
| Highest Incremental                    | 1.59                  |
| Resultant                              | 8.9                   |
| NAAQ Norms                             | 80 µg/m <sup>3</sup>  |
| NO <sub>x</sub> in µg/m <sup>3</sup>   |                       |
| Location                               | AAQ1 – CORE           |
| Background (average)                   | 22.1                  |
| Incremental                            | 8.46                  |
| Resultant                              | 30.6                  |
| NAAQ Norms                             | 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.

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

Where:

L<sub>p1</sub> & L<sub>p2</sub> are sound levels at points located at distances r<sub>1</sub> & r<sub>2</sub> from the source.

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

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

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

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

**TABLE 7.9: PREDICTED NOISE INCREMENTAL VALUES FROM CLUSTER**

| Location ID                         | N1                                                                                                                          | N2    | N3    | N4    | N5    | N6    | N7    |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Monitored Value (Day) dB(A) | 47.2                                                                                                                        | 48.2  | 47.3  | 45.3  | 43.1  | 48.6  | 48.2  |
| Incremental Value dB(A)             | 47.30                                                                                                                       | 52.14 | 28.50 | 36.02 | 27.04 | 27.23 | 27.43 |
| Total Predicted Noise level dB(A)   | 46.30                                                                                                                       | 53.61 | 47.36 | 45.78 | 43.21 | 48.63 | 48.24 |
| NAAQ Standards                      | <b>Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)</b><br><b>Residential Day Time- 55 dB (A) Night Time- 45 dB (A)</b> |       |       |       |       |       |       |

Source: Lab Monitoring Data

The incremental noise level is found within the range of 27.04 – 36.02 dB (A) in Buffer zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.).

### Ground Vibrations

Ground vibrations due to mining activities in the all the 4proposal quarry and 3 existing quarries within cluster are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from the all the 4 proposal quarry and 3 existing quarries is blasting. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

Another impact due to blasting activities is fly rocks. These may fall on the houses or agricultural fields nearby the mining areas and may cause injury to persons or damage to the structures. Nearest Habitations from 8mines respectively are as in below Table 7.9

**TABLE 7.10: NEAREST HABITATION FROM EACH MINE**

| Location ID        | Distance in Meters |
|--------------------|--------------------|
| Habitation Near P1 | 510                |
| Habitation Near P2 | 950                |
| Habitation Near P3 | 540                |
| Habitation Near P4 | -                  |
| Habitation Near E1 | 1200               |

Source: Satellite Imagery and Field Data

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

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

Where –

V = peak particle velocity (mm/s)

K = site and rock factor constant

Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

**TABLE 7.11: GROUND VIBRATIONS AT 5 MINES**

| Location ID | Maximum Charge in kgs | Nearest Habitation in m | PPV in m/ms |
|-------------|-----------------------|-------------------------|-------------|
| P1          | 20                    | 510                     | 0.256       |
| P2          | 20                    | 950                     | 0.095       |
| P3          | 20                    | 540                     | 0.233       |
| P4          | -                     | -                       | -           |
| E1          | 76                    | 1200                    | 0.189       |

*Source: PPV Calculation*

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

### **Socio Economic Environment –**

The 7 mines shall provide employment and revenue will be created to government

**TABLE 7.12: SOCIO ECONOMIC BENEFITS FROM 5 MINES**

| Location Code      | Employment | Project Cost             | CER                    |
|--------------------|------------|--------------------------|------------------------|
| P1                 | 18         | Rs. 69,27,000/-          | Rs.5,00,000/-          |
| P2                 | 15         | Rs. 62,32,000/-          | Rs.5,00,000/-          |
| P3                 | 40         | Rs. 85,44,000/-          | Rs.5,00,000/-          |
| P4                 | -          | -                        | -                      |
| <b>Total</b>       | <b>73</b>  | <b>Rs.21,703,000/-</b>   | <b>Rs. 15,00,000/-</b> |
| E1                 | 31         | Rs. 1,46,40,700/-        | Rs. 5,00,000/-         |
| <b>Total</b>       | <b>31</b>  | <b>Rs. 1,46,40,700/-</b> | <b>Rs. 5,00,000/-</b>  |
| <b>Grand Total</b> | <b>104</b> | <b>Rs.3,63,43,700/-</b>  | <b>Rs.20,00,000/-</b>  |

A total of 73 people will get employment due to 4 mines in cluster and already employed at existing mines are 31 Nos. Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III, Dated: 01.05.2018 by all the mines.

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

- 4 Proposed projects shall fund towards CER – **Rs 15,00,000/-**
- Existing project shall fund towards CER – **Rs 5,00,000/-**
- Projects in Cluster shall fund towards CER – **Rs.20,00,000/-**

**TABLE 7.13: GREENBELT DEVELOPMENT BENEFITS FROM 5 MINES**

| CODE         | No of Trees proposed to be planted | Area Covered Sq.m                                          | Name of the Species                        |
|--------------|------------------------------------|------------------------------------------------------------|--------------------------------------------|
| P1           | 920                                | Near 7.5m safety distance, panchayat road and village road | Neem, Pungam, Vilvam, Panai, Ashokha etc.. |
| P2           | 715                                |                                                            |                                            |
| P3           | 1470                               |                                                            |                                            |
| P4           | 1140                               |                                                            |                                            |
| E1           | 1830                               |                                                            |                                            |
| <b>Total</b> | <b>6075</b>                        |                                                            |                                            |

Based on the Proposed Mining Plans it's anticipated that there shall growth of native species of Neem, Pungam, etc in the Cluster at a rate of 6075 Trees Planted over a period of 5 Years

## 7.5 PLASTIC WASTE MANAGEMENT PLAN

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

### Objective –

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

**TABLE 7.14: ACTION PLAN TO MANAGE PLASTIC WASTE**

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

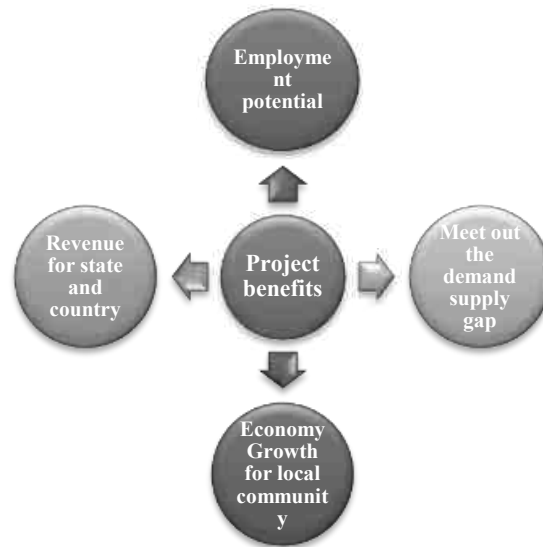
Source: Proposed by FAE's and EC

## CHAPTER – 8: PROJECT BENEFITS

### 8.0 General

The Proposed Project for Quarrying Rough Stone and Gravel at Edayarpalayam Village aims to produce cumulatively 1,27,607m<sup>3</sup> Rough Stone over a period of 5 Years & 4640m<sup>3</sup> of Gravel over a period of 1 Year. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits

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



### 8.1 Employment Potential

It is proposed to provide employment to about 18 persons for carrying out mining operations and give preference to the local people in providing employment. In 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 project site is located in Edayarpalayam Village, Sulur Taluk, Coimbatore District of Tamil Nadu and the area have communications, roads and other facilities already well established. The following physical infrastructure facilities will further improve due to the cluster quarry projects.

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

## 8.4 Improvement in Social Infrastructure

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

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

## 8.5 Other Tangible Benefits

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

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

## CORPORATE SOCIAL RESPONSIBILITY

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

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

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

## CSR Cost Estimation

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

## CORPORATE ENVIRONMENT RESPONSIBILITY–

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

As per para 6 (II) of the office memorandum, all the mines being a green field project & Capital Investment is ≤ 100 crores, they shall contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC and the total CER amount from the 2proposed mines is Rs. 10,00,000/-.



**TABLE 8.1 CER – ACTION PLAN**

|               |
|---------------|
| CER           |
| Rs 5,00,000/- |

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

### 10.1 General

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

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

### 10.2 Environmental Policy

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

The Proponent **Thiru.V. Saravanan** will –

- 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

#### Description of the Administration and Technical Setup –

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

The said team will be responsible for:

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

### 10.3 Land Environment Management –

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

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

**TABLE 10.1: PROPOSED CONTROLS FOR LAND ENVIRONMENT**

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

Source: Proposed by FAE's & EIA Coordinator

### 10.4 Soil Management

#### Top Soil Management –

- There is no topsoil for this project site.

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

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

**TABLE 10.2: PROPOSED CONTROLS FOR SOIL MANAGEMENT**

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

Source: Proposed by FAE's & EIA Coordinator

## 10.5 Water Management

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

The quarrying operation is restricted upto a depth of 47 BGL as per the ToR, the water table in the area is 62 m – 67 m below ground level, hence the proposed projects will not intersect the Ground water table during entire quarry period.

**TABLE 10.3: PROPOSED CONTROLS FOR WATER ENVIRONMENT**

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

Source: Proposed by FAE's & EIA Coordinator

## 10.6 Air Quality Management

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

**TABLE 10.4: PROPOSED CONTROLS FOR AIR ENVIRONMENT**

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

Source: Proposed by FAE's & EIA Coordinator

## 10.7 Noise Management

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

**TABLE 10.5: PROPOSED CONTROLS FOR NOISE ENVIRONMENT**

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

Source: Proposed by FAE's & EIA Coordinator

## 10.8 Ground Vibration and Fly Rock Control

**TABLE 10.6: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK**

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

Source: Proposed by FAE's & EIA Coordinator

## 10.8 Biological Environment Management

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

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

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

### 10.8.1 Green Belt Development Plan

About 920 nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

**TABLE 10.7 PROPOSED GREENBELT ACTIVITIES FOR 5 YEAR PLAN PERIOD**

| No. of trees proposed to be planted | Area to be covered sq.m                                    | Name of the species                        |
|-------------------------------------|------------------------------------------------------------|--------------------------------------------|
| 920                                 | Near 7.5m safety distance, panchayat road and village road | Neem, Vilvam, Ashokha, Pungam, Panai etc., |

The objectives of the greenbelt development plan are –

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

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

### 10.8.2 Species Recommended for Plantation

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

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

**TABLE 10.8: RECOMMENDED SPECIES TO PLANT IN THE GREENBELT**

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

Source: Proposed by FAE's & EIA Coordinator

## 10.9 Occupational Safety & Health Management

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

### 10.9.1 Medical Surveillance and Examinations –

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

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

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

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

**TABLE 10.9: MEDICAL EXAMINATION SCHEDULE – P2**

| Sl.No                                                                                                    | Activities                                     | 1 <sup>st</sup> Year        | 2 <sup>nd</sup> Year | 3 <sup>rd</sup> Year   | 4 <sup>th</sup> Year | 5 <sup>th</sup> Year |
|----------------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------|----------------------|------------------------|----------------------|----------------------|
| 1                                                                                                        | Initial Medical Examination (Mine Workers)     |                             |                      |                        |                      |                      |
| A                                                                                                        | Physical Check-up                              |                             |                      |                        |                      |                      |
| B                                                                                                        | Psychological Test                             |                             |                      |                        |                      |                      |
| C                                                                                                        | Audiometric Test                               |                             |                      |                        |                      |                      |
| D                                                                                                        | Respiratory Test                               |                             |                      |                        |                      |                      |
| 2                                                                                                        | Periodical Medical Examination (Mine Workers)  |                             |                      |                        |                      |                      |
| A                                                                                                        | Physical Check – up                            |                             |                      |                        |                      |                      |
| B                                                                                                        | Audiometric Test                               |                             |                      |                        |                      |                      |
| C                                                                                                        | Eye Check – up                                 |                             |                      |                        |                      |                      |
| D                                                                                                        | Respiratory Test                               |                             |                      |                        |                      |                      |
| 3                                                                                                        | Medical Camp (Mine Workers & Nearby Villagers) |                             |                      |                        |                      |                      |
| 4                                                                                                        | Training (Mine Workers)                        |                             |                      |                        |                      |                      |
| Medical Follow ups:- Work force will be divided into three targeted groups age wise as follows:-         |                                                |                             |                      |                        |                      |                      |
| Age Group                                                                                                |                                                | PME as per Mines Rules 1955 |                      | Special Examination    |                      |                      |
| Less than 25 years                                                                                       |                                                | Once in a Three Years       |                      | In case of emergencies |                      |                      |
| Between 25 to 40 Years                                                                                   |                                                | Once in a Three Years       |                      | In case of emergencies |                      |                      |
| Above 40 Years                                                                                           |                                                | Once in a Three Years       |                      | In case of emergencies |                      |                      |
| Medical help on top priority immediately after diagnosis/ accident is the essence of preventive aspects. |                                                |                             |                      |                        |                      |                      |



**10.9.2 Proposed Occupational Health and Safety Measures –**

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

**FIGURE 10.1: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS****10.9.3 Health and Safety Training Programme**

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

**TABLE 10.10: LIST OF PERIODICAL TRAININGS PROPOSED FOR EMPLOYEES**

| Course                | Personnel                                 | Frequency | Duration | Instruction                                                                                                     |
|-----------------------|-------------------------------------------|-----------|----------|-----------------------------------------------------------------------------------------------------------------|
| New-Employee Training | All new employees exposed to mine hazards | Once      | One week | Employee rights<br>Supervisor responsibilities<br>Self-rescue<br>Respiratory devices<br>Transportation controls |

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

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

#### 10.9.4 Budgetary Provision for Environmental Management –

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

**TABLE 10.11: EMP BUDGET FOR PROPOSED PROJECT**

| 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 | 18400   | 18400     |
|                        | Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers                  | Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring      | 800000  | 50000     |
|                        | Muffle blasting – To control fly rocks during blasting                                       | Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts                                     | 0       | 5000      |
|                        | Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit | Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 3 Units       | 75000   | 7500      |
|                        | 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       | 36800     |

|                          |                                                                                                                                          |                                                                                |       |        |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------|--------|
|                          | 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     | 331778 |
| <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 managent                                                                                                     | Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum                                                                                                                                                        | 18400  | 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                                                                                                                                                                     | 368000 | 10000 |
|                     | 3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 920 Trees - 550 Inside Lease Area & 370 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)                                 | 110000 | 16500 |
|                     |                                                                                                                                                               | Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)                                                                                                                            | 111000 | 11100 |
|                     | 4. Implementation of Final Mine Closure Actity as per Approved Mining Plan on Last Year                                                                       | Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain.<br>*For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year | 55350  | 0     |

|                                                               |                                                                                                                                                                                          |                                                                                                                                                      |         |       |
|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------|
|                                                               | 5. Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A                                                                                                                        | The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budge and not necessarily implemented in the Project Site | 1148463 | 0     |
| <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) - 18 Employees                     | 72000   | 18000 |
|                                                               | Health check up for workers will be provisioned                                                                                                                                          | IME & PME Health check up @ Rs. 1000/- per employee                                                                                                  | 0       | 18000 |
|                                                               | First aid facility will be provided                                                                                                                                                      | Provision of 2 Kits per Hectare @ Rs. 2000/-                                                                                                         | 0       | 3680  |
|                                                               | 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                                          | 92000   | 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>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 MoEF & CC OM                                                                                                                                  | 500000           | 0                |
| <b>TOTAL</b> |                                                                  |                                                                                                                                                                                                                                 | <b>23,29,800</b> | <b>14,44,008</b> |

In order to implement the environmental protection measures, an amount of Rs.23.29 lakhs as capital cost and recurring cost as Rs. 14.44 lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project.

| <b>Year Wise Break Up</b> |                    |
|---------------------------|--------------------|
| 1st Year                  | ₹ 37,73,808/-      |
| 2nd Year                  | ₹ 15,16,209/-      |
| 3rd Year                  | ₹ 15,92,019/-      |
| 4th Year                  | ₹ 16,71,620/-      |
| 5th Year                  | ₹ 18,10,551/-      |
| <b>Total</b>              | <b>₹ 104 lakhs</b> |

## 10.10 CONCLUSION –

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

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## CHAPTER – 11: SUMMARY AND CONCLUSIONS

Thiru.V.Saravanan Rough Stone and Gravel Quarry (Extent: **1.84.0** ha) falls under “B” category as per MoEF & CC Notification (S.O. 3977 (E)).

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

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

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

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the months October 2024 to December 2024 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

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

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

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

Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 18 people directly in the cluster and indirectly around 50 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 Thiru.V.Saravanan Rough Stone & Gravel Quarry (Extent: **1.84.0** ha)



## CHAPTER 12.0: DISCLOSURE OF CONSULTANTS

The Project Proponent–**Thiru.V. Saravanan** 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      | <b>Dr. M. Ifthikhar Ahmed</b> | <b>In-house</b>      | <b>1</b>        | <b>A</b> | WP<br>GEO<br>SC | B<br>A<br>A |
| 2      | Dr. P. Thangaraju             | In-house             | -               | -        | HG<br>GEO       | A<br>A      |
| 3      | Mr. A. Jagannathan            | In-house             | -               | -        | AP<br>NV<br>SHW | B<br>A<br>B |
| 4      | Mr. N. Senthilkumar           | Empanelled           | 38<br>28        | B<br>B   | AQ<br>WP<br>RH  | B<br>B<br>A |
| 5      | Mrs. Jisha parameswaran       | In-house             | -               | -        | SW              | B           |
| 6      | Mr. Govindasamy               | In-house             | -               | -        | WP              | B           |
| 7      | Mrs. K. Anitha                | In-house             | -               | -        | SE              | A           |
| 8      | Mrs. Amirtham                 | In-house             | -               | -        | EB              | B           |
| 9      | Mr. Alagappa Moses            | Empanelled           | -               | -        | EB              | A           |
| 10     | Mr. A. Allimuthu              | In-house             | -               | -        | LU              | B           |
| 11     | Mr. S. Pavel                  | Empanelled           | -               | -        | RH              | B           |
| 12     | Mr. J. R. Vikram Krishna      | Empanelled           | -               | -        | SHW<br>RH       | A<br>A      |

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

## **DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP**

Declaration by experts contributing to the EIA/EMP for Thiru.V. Saravanan Rough Stone & Gravel Quarry over an Extent of 1.84.0 ha in Edayarpalayam Village, Sulur Taluk, Coimbatore District of Tamil Nadu. It is also certified that information furnished in the above EIA study are true and correct to the best of our knowledge.

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

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

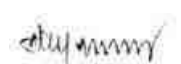
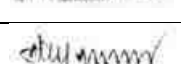
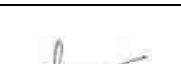
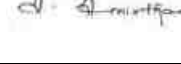
Designation: **EIA Coordinator**

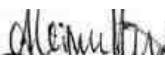
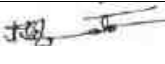
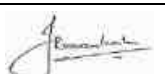
Date & Signature:



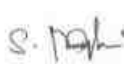
Period of Involvement: **January 2023 to till date**

### **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 ENGAGED IN THIS PROJECT

| 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. Viswanathan   | 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> <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> | <i>E. Vadivel</i>        |
| 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>                        | <i>D. Dinesh</i>         |
| 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>                                                            | <i>P. Panneer Selvam</i> |
| 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>                                                            | <i>T. Annappan</i>       |

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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 EIA/EMP for Thiru.V. Saravanan Rough Stone & Gravel Quarry over an Extent of 1.84.0 ha in Edayarpalayam Village, Sulur Taluk and Coimbatore District of Tamil Nadu. It is also certified that information furnished in the EIA study are true and correct to the best of our knowledge.

Signature& Date:



Name:

**Dr. M. Ifthikhar Ahmed**

Designation:

**Managing Partner**

Name of the EIA Consultant Organization:

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

NABET Certificate No & Issue Date:

**NABET/EIA/2225/RA 0276 Dated: 20-2-2023**

Validity:

**Valid till 06.08.2025**

# ANNEXURE

## THIRU.V. SARAVANAN ROUGH STONE AND GRAVEL QUARRY

Idayarpalayam Village,  
Sulur Taluk,  
Coimbatore District,  
Tamil Nadu State.

**CLUSTER EXTENT = 12.13.33 ha**

### Project Proponent

| S.<br>Nos. | Proponent                                                                                                            | Extent<br>(Ha) | ToR                                                                                 |
|------------|----------------------------------------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------|
| 1          | Thiru.V.Saravanan<br>S/o Velusamy<br>No.3/165, Athikuttai<br>Thottam<br>Idayarpalayam<br>Coimbatore District-641 016 | 1.84.0ha       | File No. 10794 TOR<br>Identification No.<br>TO24B0108TN5892891N<br>Dated:05.08.2024 |

## LIST OF ANNEXURES

| CODE | DESCRIPTION                                                                               | PAGE NO.    |
|------|-------------------------------------------------------------------------------------------|-------------|
| P1   | COPY OF TERMS OF REFERENCE                                                                | 1A-18A      |
|      | COPY OF MINING PLAN APPROVED LETTER, 500M RADIUS QUARRIES DETAILS AND EXISTING PIT LETTER | 19A – 24A   |
|      | COPY OF APPROVED MINING PLAN AND PLATES                                                   | 25A – 102A  |
|      | COPY OF 300m RADIUS LETTER                                                                | 103A-104A   |
|      | COPY OF EC                                                                                | 105A-112A   |
|      | COPY OF EXPLOSIVE CERTIFICATE                                                             | 113A-120A   |
|      | COPY OF HYDROGEOLOGY REPORT                                                               | 121A-130A   |
| E-1  | COPY OF ENVIRONMENTAL CLEARANCE                                                           | 131A – 147A |
|      | COPY OF BASE LINE MONITORING DATA                                                         | 148A-242A   |
|      | COPY OF NABET CERTIFICATE                                                                 | 243A        |



**File No: 10794**  
**Government of India**  
**Ministry of Environment, Forest and Climate Change**  
**(Issued by the State Environment Impact Assessment**  
**Authority(SEIAA), TAMIL NADU)**

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Dated **05/08/2024**



To,

VELUSAMY SARAVANAN  
VELUSAMY SARAVANAN  
3/176, Edaiyar Palayam,, COIMBATORE, TAMIL NADU, 641016  
vmslorry@gmail.com

**Subject:** Grant of Terms of Reference with Public Hearing under the provision of the EIA Notification 2006 as amended-regarding.

**Sir/Madam,**

This is in reference to your application for Grant of Terms of Reference with Public Hearing under the provision of the EIA Notification 2006-regarding in respect of project existing Rough Stone and Gravel quarry over an extent of 1.84.0Ha of Patta land in S.F.Nos. 171/2 (P) & 176/2 Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu by **Thiru.V.Saravanan** submitted to SEIAA vide proposal number SIA/TN/MIN/467246/2024 dated 02/05/2024.

Ref:

1. Online proposal No. SIA/TN/MIN/467246/2024, dt: 25/03/2024.
2. Your application submitted for Terms of Reference dated: 02.04.2024.
3. Minutes of the 464<sup>th</sup> SEAC meeting held on 03.05.2024.
4. Minutes of the 723<sup>rd</sup> SEIAA meeting held on 27.05.2024.
5. Minutes of the 481<sup>st</sup> SEAC meeting held on 11.07.2024.
6. Minutes of the 742<sup>nd</sup> SEIAA meeting held on 29.07.2024 & 30.07.2024

2. The particulars of the proposal are as below :

|                                            |                                                                                                                                                         |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| (i) TOR Identification No.                 | TO24B0108TN5892891N                                                                                                                                     |
| (ii) File No.                              | 10794                                                                                                                                                   |
| (iii) Clearance Type                       | TOR                                                                                                                                                     |
| (iv) Category                              | B1                                                                                                                                                      |
| (v) Project/Activity Included Schedule No. | 1(a) Mining of minerals<br>V.Saravanan, Rough stone and Gravel Quarry                                                                                   |
| (vii) Name of Project                      | Project over an Extent of 1.84.0Ha of Patta lands in<br>S.F.Nos. 171/2 (P) & 176/2 of Idayarpalayam<br>Village, Sulur Taluk, Coimbatore District, Tamil |



|                                                    |                        |
|----------------------------------------------------|------------------------|
|                                                    | Nadu State             |
| <b>(viii) Name of Company/Organization</b>         | VELUSAMY SARAVANAN     |
| <b>(ix) Location of Project (District, State)</b>  | COIMBATORE, TAMIL NADU |
| <b>(x) Issuing Authority</b>                       | SEIAA                  |
| <b>(xii) Applicability of General Conditions</b>   | no                     |
| <b>(xiii) Applicability of Specific Conditions</b> | no                     |

3. In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A and B) were submitted to the Ministry for an appraisal by the State Environment Impact Assessment Authority(SEIAA) Appraisal Committee (SEIAA) in the Ministry under the provision of EIA notification 2006 and its subsequent amendments.
4. The above-mentioned proposal has been considered by State Environment Impact Assessment Authority(SEIAA) Appraisal Committee of SEIAA in the meeting held on 30/07/2024. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B, Part C, EMP)] are available on PARIVESH portal which can be accessed by scanning the QR Code above.
5. The SEAC, based on information submitted viz: Form 1 (Part A, B and C), EIA/EMP report etc., & clarifications provided by the project proponent and after detailed deliberations on all technical aspects and compliance thereto furnished by the Project Proponent, recommended the proposal for grant of Environment Clearance under the provision of EIA Notification, 2006 and as amended thereof subject to stipulation of Specific and Standard EC conditions as detailed in the point below.
6. The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the State Environment Impact Assessment Authority(SEIAA) Appraisal Committee hereby decided to grant Terms of Reference with Public Hearing for instant proposal of Mr. VELUSAMY SARAVANAN under the provisions of EIA Notification, 2006 and as amended thereof.
7. The Ministry/SEIAA reserves the right to stipulate additional conditions, if found necessary.
8. The Terms of Reference with Public Hearing to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/Regulations or Statutes, as applicable, to the project.
9. This issues with the approval of the Competent Authority.
10. The TORs prescribed shall be valid for a period of three years from the date of issue, for submission of the EIA/EMP report as per OM No.J-11013/41/2006-IA-II(I)(part) dated 29th August 2017.

#### **Copy To**

1. The Principal Secretary to Government, Environment, Climate Change and 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 - 110 032.
3. The Chair Person, 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 - 110 003.
6. The District Collector, Coimbatore District.
7. Stock Fil

## 1. Seac Conditions - Site Specific

| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1   | <p>1. For the existing quarry, the PP shall obtain a letter from the concerned AD (Mines) which shall also stipulate the following information:</p> <ol style="list-style-type: none"> <li>Original pit dimension of the existing quarry</li> <li><b>Quantity achieved Vs EC Approved Quantity</b></li> <li>Balance Quantity as per Mineable Reserve calculated.</li> <li>Month wise Production details</li> <li>Mined out Depth as on date Vs EC Permitted depth</li> <li>Details of illegal/illicit mining carried out, if any</li> <li>Non-compliance/Violation in the quarry during the past working.</li> <li>Quantity of material mined out outside the mine lease area (or) in the adjacent quarry/land.</li> <li>Existing condition of Safety zone/benches</li> <li>Details of any penalties levied on the PP for any violation in the quarry operation by the Department of Geology and Mining.</li> </ol> <p>2. The PP shall submit the Certified Compliance Report (CCR) obtained from IRO(SZ), MoEF&amp;CC with the <b>status of non-compliance</b>, and to furnish <b>mitigation measures/remedial action plan with the budget allocation</b> for the non-compliance stated in the CCR.</p> <p>3. The PP shall furnish the consent agreement from the landowner registered with the concerned authority during the EIA appraisal.</p> <p>4. The PP shall complete the fencing, tree plantation and photographs, videos of the same shall be furnished.</p> <p>5. The PP shall mark the DGPS reference pillars painted with blue &amp; white colour indicating the safety barrier of 7.5 m to be left under the Rule 13 (1) of MCDR, 1988 within the lease boundary and protective bunds, and provide the details during the EIA appraisal.</p> <p>6. The Proponent shall complete the garland drainage around the boundary of the proposed quarry and the photographs indicating the same shall be shown during the EIA appraisal.</p> <p>7. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc located within 1 km of the proposed quarry.</p> <p>8. The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation &amp; production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.</p> <p>9. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, Schools/Colleges 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>10. The proponent shall furnish photographs and video showing the adequate fencing, green belt along the periphery including replantation of existing trees &amp; safety distance between the adjacent quarries &amp; water bodies nearby provided as per the approved mining plan.</p> <p>11. During the EIA appraisal, the PP shall furnish the affidavit stating that he will not employ any external agency for carrying out the blasting operation in the proposed quarry and he shall also install the temporary (or) permanent magazine approved by the concerned licensing authority <b>before the execution of the lease</b>, for storing the authorized explosives &amp; detonators separately in accordance with the Explosive Rules, 2008.</p> <p>12. During the EIA appraisal, the PP shall furnish the affidavit stating that he will appoint a First Class/Second Class Mine Manager for managing the quarrying operations before obtaining the CTO from the TNPCB. Further, the PP will also send the 'Notice of Opening' indicating the appointment</p> |

| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       | <p>of such Statutory officials and the proposed usage of HEMM shall be sent to the Director of Mines Safety, Chennai Region of the Mine under the provisions of MMR 1961 atleast 30 days before the commencement of the mining operation after the execution of lease, if the EC is granted.</p> <p>13. <b>Since the structures including the houses are situated within a radial distance of 500 m</b>, the PP shall carry out the scientific studies <b>to design the controlled blast parameters</b> for reducing the cumulative blast-induced ground/air- vibrations and eliminating the fly rock from the blasting operations carried out in the cluster of quarries located in the region, and <b>subsequently with proper validation of the design through trial blasts</b> in any of the existing &amp; operating quarries to monitor the PPV produced from the blasting in the village (500m) and near the Temples (230 &amp; 300 m), after obtaining the prior permission from the DMS / Chennai Region in accordance with DGMS Circular No. 7 of 1997, by involving anyone of these reputed Research and Academic Institution such as CSIR-Central Institute of Mining &amp; Fuel Research / Dhanbad, NIRM/Bangalore, IIT (ISM)/Dhanbad, IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. Further the report shall also include the <b>actual data on the air dust particles produced at the time of blasting</b>. A copy of such scientific study report shall be submitted to the SEIAA, MoEF as a part of EIA study during the appraisal and to the DMS/DGMS-Chennai Region while submitting the Notice of Opening, without any deviation.</p> <p>14. Since the quarrying operations are proposed in an existing pit possessing the quarry wall of 25 to 27 m depth without adequate benches in accordance with the provisions of MMR, 1961, the PP shall carry out the scientific studies to assess the slope stability of the working benches and existing quarry wall for spelling out the stabilization measures to ensure the safety of the persons to be employed in the proposed quarry, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining &amp; Fuel Research / Dhanbad, NIRM/Bangalore, IIT (ISM)/Dhanbad, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. A copy of such scientific study report shall be submitted to the SEIAA, MoEF as a part of EIA study during the appraisal and to the DMS/DGMS-Chennai Region while submitting the Notice of Opening, without any deviation.</p> <p>15. The PP shall prepare the Standard Operating Procedures (SoP) for carrying out the 'Best Mining Practices' in the areas of drilling, blasting excavation, transportation and green belt development and provide the same during the EIA appraisal.</p> <p>16. 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.</p> |

## 2. Seac Standard Conditions

| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.1   | <p>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:</p> <ul style="list-style-type: none"> <li>(i) Original pit dimension</li> <li>(ii) Quantity achieved Vs EC Approved Quantity</li> <li>(iii) Balance Quantity as per Mineable Reserve calculated.</li> <li>(iv) Mined out Depth as on date Vs EC Permitted depth</li> <li>(v) Details of illegal/illicit mining</li> <li>(vi) Violation in the quarry during the past working.</li> <li>(vii) Quantity of material mined out outside the mine lease area</li> <li>(viii) Condition of Safety zone/benches</li> <li>(ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.</li> </ul> <p>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.</p> |

| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       | <p>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.</p> <p>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.</p> <p>5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.</p> <p>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.</p> <p>7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining &amp; 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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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,</p> <p>13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?</p> <p>14. Quantity of minerals mined out.</p> <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> <li>● Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.</li> </ul> <p>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> <p>16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,</p> <p>17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery</p> |

| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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|       | <p>including replantation of existing trees &amp; safety distance between the adjacent quarries &amp; water bodies nearby provided as per the approved mining plan.</p> <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> <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> <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 &amp; open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.</p> <p>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 &amp; flora/fauna including traffic/vehicular movement study.</p> <p>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 &amp; health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.</p> <p>23. Rain water harvesting management with recharging details along with water balance (both monsoon &amp; non-monsoon) be submitted.</p> <p>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.</p> <p>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&amp;R issues, if any, should be provided.</p> <p>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.</p> <p>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.</p> <p>28. Impact on local transport infrastructure due to the Project should be indicated.</p> <p>29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area &amp; 300m buffer zone and its management during mining activity.</p> <p>30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.</p> <p>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.</p> <p>32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon</p> |

| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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|       | <p>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.</p> <p>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</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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&amp;CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.</p> <p>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</p> <p>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.</p> |

### 3. Seiaa Specific Conditions:

| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| 3.1   | <p>After detailed discussions, the SEIAA accepted the recommendation of SEAC and decided to grant <b>Terms of Reference (ToR) with Public Hearing</b> based on studies, assessments and records to be produced as sought by the SEAC and SEIAA, for undertaking the Environment Impact Assessment Study and preparation of Environment Management Plan for the <b>production quantity of 127607 m<sup>3</sup> of Rough stone , 4640 m<sup>3</sup> of Gravel ( Dump quantity shall be used for refilling at the end of the mine period ) upto the depth of 47m BGL and annual peak production shall not exceed 30920 m<sup>3</sup> of Rough stone</b> as per the approved mining plan. subject to the conditions as recommended by SEAC &amp; normal conditions and conditions in <b>Annexure 'B'</b> of this minutes.</p> |

#### 4. Seiaa Standard Conditions:

| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| 4.1   | <p><b><u>Cluster Management Committee</u></b></p> <ol style="list-style-type: none"> <li>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.</li> <li>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.,</li> <li>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.</li> <li>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.</li> <li>5. The committee shall deliberate on risk &amp; emergency management plan, fire safety &amp; evacuation plan and sustainable development goals 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.</li> <li>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 in the EIA Report.</li> <li>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.</li> <li>8. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity.</li> </ol> <p><b><u>Agriculture &amp; Agro-Biodiversity</u></b></p> <ol style="list-style-type: none"> <li>9. Impact on surrounding agricultural fields around the proposed mining Area.</li> <li>10. Impact on soil flora &amp; vegetation around the project site.</li> <li>11. Details of type of vegetation including no. of trees &amp; shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP.</li> <li>12. The Environmental Impact Assessment should study the agro-biodiversity, agro-forestry, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.</li> <li>13. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.</li> <li>14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.</li> </ol> <p><b><u>Forests</u></b></p> <ol style="list-style-type: none"> <li>15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife.</li> <li>16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.</li> <li>17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.</li> <li>18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.</li> </ol> <p><b><u>Water Environment</u></b></p> <ol style="list-style-type: none"> <li>19. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping &amp; 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</li> </ol> |

| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|       | <p>groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.</p> <p>20. Erosion Control measures.</p> <p>21. 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, &amp; any ecological fragile areas.</p> <p>22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.</p> <p>23. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.</p> <p>24. 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.</p> <p>25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.</p> <p>26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.</p> <p>27. The EIA shall include the impact of mining activity on the following:</p> <ol style="list-style-type: none"> <li>Hydrothermal/Geothermal effect due to destruction in the Environment.</li> <li>Bio-geochemical processes and its foot prints including environmental stress.</li> <li>Sediment geochemistry in the surface streams.</li> </ol> <p><b><u>Energy</u></b></p> <p>28. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.</p> <p><b><u>Climate Change</u></b></p> <p>29. 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.</p> <p>30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil &amp; below soil carbon stock, soil health and physical, chemical &amp; biological soil features.</p> <p>31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.</p> <p><b><u>Mine Closure Plan</u></b></p> <p>32. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.</p> <p><b><u>EMP</u></b></p> <p>33. Detailed Environment Management Plan along with adaptation, mitigation &amp; remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs.</p> <p>34. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.</p> <p><b><u>Risk Assessment</u></b></p> <p>35. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.</p> <p><b><u>Disaster Management Plan</u></b></p> <p>36. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards &amp; to cope with disaster/untoward accidents in &amp; around the proposed mine lease area due to the proposed method of mining activity &amp; its related activities covering the entire mine lease period as per precise area communication order issued.</p> <p><b><u>Others</u></b></p> <p>37. 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</p> |



| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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|       | <p>such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.</p> <p>38. As per the MoEF&amp; 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.</p> <p>39. 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 &amp; microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.</p> |

**Standard Terms of Reference for (Mining of minerals)**

**1.**

| S. No      | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <b>1.1</b> | An EIA-EMP Report shall be prepared for peak capacity (.....MTPA)operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>1.2</b> | If the washery is located within the mine lease or near to the mine lease its location should be cited seperately also, providing pillar cordinates and site layout plan. Insuch cases cumulative impact of mine operation with washery to be assessd and EMP measure to be drawn to the worst scenario                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>1.3</b> | Propoer KML file with pin drop and coordinate of mine at 500-1000 m interval be provided                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>1.4</b> | A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also |
| <b>1.5</b> | Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>1.6</b> | A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>1.7</b> | Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ riverlet system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/ river need eloboration in form of lengthe, quantity and quality of water to be diverted                                                                                                                                                                                                                                                                                                                                                                                |
| <b>1.8</b> | (Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
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|       | from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| 1.9   | Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| 1.10  | Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing though the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| 1.11  | A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| 1.12  | <p>Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights</p> <table><tr><th>S.N</th><th>ML/Project Land use</th><th>Area under Surface Rights(ha)</th><th>Area Under Mining Rights(ha)</th><th>Area under Both (ha)</th></tr><tr><td>1</td><td>Agricultural land</td><td></td><td></td><td></td></tr><tr><td>2</td><td>Forest Land</td><td></td><td></td><td></td></tr><tr><td>3</td><td>Grazing Land</td><td></td><td></td><td></td></tr><tr><td>4</td><td>Settlements</td><td></td><td></td><td></td></tr><tr><td>5</td><td>Others (specify)</td><td></td><td></td><td></td></tr></table><br><table><tr><th>S.N.</th><th>Details</th><th>Area (ha)</th></tr><tr><td>1</td><td>Buildings</td><td></td></tr><tr><td>2</td><td>Infrastructure</td><td></td></tr><tr><td>3</td><td>Roads</td><td></td></tr><tr><td>4</td><td>Others (specify)</td><td></td></tr><tr><td></td><td>Total</td><td></td></tr></table> | S.N                           | ML/Project Land use          | Area under Surface Rights(ha) | Area Under Mining Rights(ha) | Area under Both (ha) | 1 | Agricultural land |  |  |  | 2 | Forest Land |  |  |  | 3 | Grazing Land |  |  |  | 4 | Settlements |  |  |  | 5 | Others (specify) |  |  |  | S.N. | Details | Area (ha) | 1 | Buildings |  | 2 | Infrastructure |  | 3 | Roads |  | 4 | Others (specify) |  |  | Total |  |
| S.N   | ML/Project Land use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Area under Surface Rights(ha) | Area Under Mining Rights(ha) | Area under Both (ha)          |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| 1     | Agricultural land                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| 2     | Forest Land                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| 3     | Grazing Land                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| 4     | Settlements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| 5     | Others (specify)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| S.N.  | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Area (ha)                     |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| 1     | Buildings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| 2     | Infrastructure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| 3     | Roads                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| 4     | Others (specify)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
|       | Total                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |
| 1.13  | Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                               |                              |                               |                              |                      |   |                   |  |  |  |   |             |  |  |  |   |              |  |  |  |   |             |  |  |  |   |                  |  |  |  |      |         |           |   |           |  |   |                |  |   |       |  |   |                  |  |  |       |  |

| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       | Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1.14  | One-season (other than monsoon) primary baseline data on environmental quality - air (PM10, PM2.5, SOx, NOx and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided. The detail of NABL/ MoEF&CC certification of the respective laboratory and NABET accreditation of the consultant to be provided.                                                                                                                                                                                                                                                                                                                                                                                             |
| 1.15  | Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards. |
| 1.16  | For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAMSQ shall be planned by the collection of air quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area. In case of expansion, the displayed data of CAAQMS and its comparison with the monitoring data to be provided                                                                                                                                                                                                                                                                                                                                                         |
| 1.17  | A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report.                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 1.18  | The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status & economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data to be provided and to link it with the initialization and quantification of need based survey for CSR activities to be followed.                                                                                                                                                                                                                                          |
| 1.19  | The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 1.20  | Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1.21  | Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.22  | Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.                                                                                                                                                               |
| 1.23  | Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.24  | Detailed water balance should be provided. The break up of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.                                                                                                                                                                                                                     |
| 1.25  | PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs                                                                                                                                                                                                                                                                                                                                                                           |
| 1.26  | PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored                                                                                                                                                                                                                                                                                                                                                                    |
| 1.27  | Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 1.28  | Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.                                                                                                                                                                                                                                                                                                                                                      |
| 1.29  | Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided. |
| 1.30  | Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.                                                                                                                                                                                                                                                                                                                                                                                      |
| 1.31  | The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.                                                                                                                                                                                                                                                                                                     |
| 1.32  | Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.                                                                                                                               |
| 1.33  | Adequate greenbelt nearby areas, mineral stock yard and transportation area of mineral shall be                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       | provided with details of species selected and survival rate Greenbelt development should be undertaken particularly around the transport route.                                                                                                                                                                                                                                                                                                                                                  |
| 1.34  | Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.                                                                                                                                                                                                                                                                                                                                                                      |
| 1.35  | Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given. |
| 1.36  | CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.                                                                                                                                                                                                                                                                                                                          |
| 1.37  | Corporate Environment Responsibility:                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1.38  | a) The Company must have a well laid down Environment Policy approved by the Board of Directors.                                                                                                                                                                                                                                                                                                                                                                                                 |
| 1.39  | b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.                                                                                                                                                                                                                                                                                                    |
| 1.40  | c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.                                                                                                                                                                                                                                                                                                   |
| 1.41  | d) To have proper checks and balances, the company should have a well laid down 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.                                                                                                                                                                                                                                                  |
| 1.42  | e) Environment Managment Cell and its responsibilities to be clearly spleel out in EIA/ EMP report                                                                                                                                                                                                                                                                                                                                                                                               |
| 1.43  | f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.                                                                                                                                                                                                                                                                                                                                                                                         |
| 1.44  | Status of any litigations/ court cases filed/pending on the project should be provided.                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1.45  | PP shall submit clarification from DFO that mine does not falls under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.                                                                                                                                                                                                                                                                                                            |
| 1.46  | Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.                                                                                                                                                                                                                                                                                                              |
| 1.47  | Details on the Forest Clearance should be given as per the format given:<br>Total ML Total Date Extent of Balance area for which Status of appl For<br>Project Area Forest of FC Forest Land FC is yet to be diversion of forest                                                                                                                                                                                                                                                                 |

| S. No | Terms of Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       | <p>(ha) land (ha) obtained land</p> <p>If more than one provide details of each FC</p>                                                                                                                                                                                                                                                                                                                                                                                        |
| 1.48  | In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report                                                                                                                                                                                                                                                                                                                      |
| 1.49  | Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided. |
| 1.50  | PP shall carry out survey through drone highlighting the ground reality for atleast 10 minutes                                                                                                                                                                                                                                                                                                                                                                                |
| 1.51  | Detailed Chronology of the project starting from the first lease deed allotted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s), CGWA permissions, Power permissions, etc as per the requisites respectively to be furnished in tabular form.                                                                 |
| 1.52  | The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET accreditation) and Laboratory (NABL / MoEF & CC certification)                                                                                                                                                                                                                                                                                         |
| 1.53  | The compliances of ToR must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report in all the chapter,s section.                                                                                                                                                                                                                                                    |
| 1.54  | PP to evaluate the green house emission gases from the mine operation and corresponding carbon absorption plan.                                                                                                                                                                                                                                                                                                                                                               |

**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.
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 acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)

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

**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.

From

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

To

Thiru.V. Saravanan  
S/o. Velusamy  
3/165, Athikuttai Thottam,  
Edayarpalayam,  
Coimbatore.

**Rc.No.93/Mines/2022 Dated: 23.06.2023**

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District –  
Sulur Taluk – Edayarpalayam Village - Survey No.171/2  
(Part) (0.46.0 hectares) and 176/2 (1.38.0 hectares) -  
over an extent of 1.84.0 hectares of patta land -  
Application preferred by Thiru.V.Saravanan for quarrying  
Rough stone and gravel – Submission of mining plan for  
approval – approved – regarding.

- Ref: 1. Quarry lease application dated 23.01.2023 preferred  
by Thiru.V.Saravanan, Coimbatore.
2. Assistant Director, Dept. of Geology and Mining,  
Coimbatore Letter Rc.No.93/Mines/2023, Dated:  
23.05.2023
3. Mining Plan submitted by Thiru.V.Saravanan dated:  
07.06.2023.

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In response to the precise area communicated by the Assistant  
Director of Geology and Mining, Coimbatore the applicant  
Thiru.V.Saravanan has submitted three copies of mining plan vide  
reference 3<sup>rd</sup> cited for the grant of Rough stone and gravel quarry  
lease over an extent of 1.84.0 hectares of patta land in Survey No.  
Survey No.171/2 (Part) (0.46.0 hectares) and 176/2 (1.38.0 hectares)  
of Edayarpalayam Village, Sulur Taluk, Coimbatore District.

2. The mining plan submitted for the grant of Rough stone and  
gravel quarry lease over an extent of 1.84.0 hectares of patta land in  
Survey No. Survey No.171/2 (Part) (0.46.0 hectares) and 176/2  
(1.38.0 hectares) of Edayarpalayam Village, Sulur Taluk, Coimbatore  
District has been verified in detail.

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

- (i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.
- (ii) This approval of the mining plan does not in any way imply the approval of the Government in terms or any other provisions of the Mines and Minerals (Development and Regulation) Amended Act, 2015, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Explosives Act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii) The mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv) As per the Assistant Director, Dept. of Geology and Mining, Coimbatore letter Rc.No.93/Mines/2023, Dated: 23.05.2023 the following conditions have been incorporated in the Mining Plan.
- a) No hindrance should be caused to the adjacent pattadars and public.
  - b) A safety distance of 7.5 meters should be provided for the adjacent patta lands from the lease applied area.
  - c) A safety distance of 50 meters should be provided for an EB line passing on the Eastern side of the applied area.
  - d) A safety distance of 50 meters should be provided for an Odai passing on the southern side of the applied area.
  - e) DGPS survey should be done by the Government recognized agency and boundary stones should be erected along the entire boundary of the leased out area.
  - f) Quarrying should be done in are seeking permission along after leaving proper safety distance.
  - v) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

Encl: Two copies of Approved Mining Plan.

*[Signature]*  
Assistant Director,  
Dept. of Geology and Mining,  
Coimbatore.

Copy submitted to the Director of Geology and Mining, Chennai-32.

From

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

To

Thiru.V. Saravanan  
S/o. Velusamy  
3/165, Athikuttai Thottam,  
Edayarpalayam,  
Coimbatore

**Rc.No.93/Mines/2022 Dated: 23.06.2023**

Sir,

Sub : Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Edayarpalayam Village – Survey No.171/2 (Part) (0.46.0 hectares) and 176/2 (1.38.0 hectares) - over an extent of 1.84.0 hectares of patta land - Application preferred by Thiru.V.Saravanan for quarrying Rough stone and gravel – Precise area communicated – Mining Plan – approved – further particulars called for – furnished – regarding.

- Ref: 1. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.93/Mines/2022, Dated: 23.05.2023.
2. Thiru.V.Saravanan, Coimbatore letter dated: 07.06.2023.

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In the reference 2<sup>nd</sup> cited Thiru.V.Saravanan has requested to furnish certain particulars regarding the precise area granted in Survey No.171/2 (Part) (0.46.0 hectares) and 176/2 (1.38.0 hectares) over an extent of 1.84.0 hectares of patta land in Edayarpalayam Village, Sulur Taluk, Coimbatore District. In this connection the following details are furnished.

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

| Sl. No. | Name of the Exlessee  | SF.No/ Extent                   | District Collector's proceedings No. & Date | Validity | Lease Period             |
|---------|-----------------------|---------------------------------|---------------------------------------------|----------|--------------------------|
| 1       | Thiru. M.Velusamy     | 171 - 1.08.5                    | Rc.No.141502 / 91/X6 dt: 27.12.1991         | 5 years  | 27.12.1991 to 26.12.1996 |
| 2       | Tmt.Sujatha Murugesan | 176/2(part), 171(part) - 1.21.5 | Rc.No.25095/ 97/X1/ dt: 17.04.1997          | 5 years  | 17.04.1997 to 16.04.2002 |

|   |                       |                                        |                                            |         |                                |
|---|-----------------------|----------------------------------------|--------------------------------------------|---------|--------------------------------|
| 3 | Thiru.<br>M. Velusamy | 171/2(part),<br>176/2(part)-<br>1.22.5 | Rc.No.977/<br>2002/MM2/<br>dt: 20.09.2022  | 5 years | 27.09.2002<br>to<br>26.09.2007 |
| 4 | Thiru.<br>M.Velusamy  | 171/2(part),<br>176/2(part)-<br>1.02.0 | Rc.No.1206/<br>2007/X1/ dt:<br>19.07.2008  | 5 years | 19.07.2008<br>to<br>18.07.2013 |
| 5 | Thiru.<br>V.Saravanan | 171/2(part),<br>176/2(part)-<br>1.22.5 | Rc.No.472/<br>mines/2016<br>dt: 15.09.2017 | 5 years | 15.09.2017<br>to<br>14.09.2022 |

At the time of inspection, the quarry pit with a dimension of 128 Meter (length) X 80 Meter (width) X 22 Meter depth is noticed in the applied area.

*Handwritten signature*  
Assistant Director,  
Dept. of Geology and Mining,  
Coimbatore.

*Handwritten signature*  
25/6/23

From

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

To

Thiru.V. Saravanan  
S/o. Velusamy  
3/165, Athikuttai Thottam,  
Edayarpalayam,  
Coimbatore.

**Rc.No.93/Mines/2022    Dated: 23.06.2023**

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Edayarpalayam Village - Survey No.171/2 (Part) (0.46.0 hectares) and 176/2 (1.38.0 hectares) - over an extent of 1.84.0 hectares of patta land - Application preferred by Thiru.V.Saravanan for quarrying Rough stone and gravel – Precise area communicated - Details of quarries situated within 500 meter radial distance - Requested – furnished - reg.

- Ref. 1. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.93/Mines/2022, Dated: 23.05.2023.
2. Thiru.V.Saravanan, Coimbatore letter dated: 07.06.2023.

\*\*\*\*\*

I invite kind attention to the reference cited wherein Thiru.V.Saravanan has been issued precise area for the grant of Rough Stone and gravel quarry lease over an extent of 1.84.0 hectares of patta land in Survey No. Survey No.171/2 (Part) (0.46.0 hectares) and 176/2 (1.38.0 hectares) of Edayarpalayam Village, Sulur Taluk, Coimbatore District.

In the reference 2<sup>nd</sup> cited of Thiru.V.Saravanan has requested to furnish the details of quarries situated within 500 meter radial distance from the proposed area.

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

**i) Existing Quarries**

| Sl. No. | Name of the Owner | Village & S.F.Nos.     | Extent in Hect. | Lease period                   | Remarks |
|---------|-------------------|------------------------|-----------------|--------------------------------|---------|
| 1.      | N.Chithradevi     | Edayarpalayam<br>179/2 | 3.64.5          | 14.07.2021<br>to<br>13.07.2026 |         |

**ii) Expired Quarries**

| Sl. No. | Name of the Owner | Village & S.F.Nos.             | Extent in Hect. | Lease period                   | Remarks |
|---------|-------------------|--------------------------------|-----------------|--------------------------------|---------|
| 1       | B.Sakthivel       | Edayarpalayam<br>164/6A, 164/7 | 1.19.5          | 07.10.2017<br>to<br>06.10.2022 |         |

**iii) Abandoned quarries**

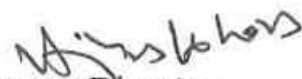
| Sl. No. | Name of the Owner | Village & S.F.Nos.     | Extent in Hect. | Lease period | Remarks |
|---------|-------------------|------------------------|-----------------|--------------|---------|
| 1.      | Government        | Edayarpalayam<br>164/1 | 3.13.5          |              |         |
| 2.      | Tmt.Ponnammal     | Edayarpalayam<br>178/2 | 2.34.5          |              |         |

**iv) Proposed quarries**

| Sl. No. | Name of the Owner                    | Village & S.F.Nos.                                    | Extent in Hect. | Remarks                                      |
|---------|--------------------------------------|-------------------------------------------------------|-----------------|----------------------------------------------|
| 1.      | V. Saravanan                         | Edayarpalayam<br>171/2part,<br>176/2                  | 1.84.0          | Subject area<br>Precise area<br>communicated |
| 2.      | N.Kathires                           | Edayarpalayam<br>172/1B, 172/2,<br>173/2A2            | 1.42.82         | Pending with SEIAA                           |
| 3.      | Ultra Redaymix<br>Concrete (P) Ltd., | Edayarpalayam<br>168/2A,<br>168/2B,<br>169/1C, 169/2A | 4.10.50         | Pending with SEIAA                           |
| 4.      | K.Ranganathan                        | Edayarpalayam<br>174/4, 176/1                         | 2.28.0          | Precise area<br>communicated                 |

**v) Future Proposed quarries**

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

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



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

(PREPARED UNDER RULES 41 & 42 AS AMENDED IN TAMILNADU MINOR MINERAL CONCESSION RULES, 1959)

*Patta Land / Lease Period = Five Years*

IN

**LOCATION OF THE QUARRY LEASE APPLIED AREA**

EXTENT : 1.84.0ha  
S.F.NOS : 171/2 (P) & 176/2  
VILLAGE : IDAYARPALAYAM  
TALUK : SULUR  
DISTRICT : COIMBATORE  
STATE : TAMIL NADU

FOR

**APPLICANT**

**Thiru. V. Saravanan,**  
S/o. Velusamy,  
No.3/165, Athikuttai Thottam,  
Idayarpalayam,  
Coimbatore District,  
Tamil Nadu State – 641 016.

**PREPARED BY**

**Dr. P. Thangaraju, M.Sc., Ph.D.,**  
Qualified Person  
(As per Rule 15(I)(a) and (I)(b) of MCR, 2016)

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





V. Saravanan,  
S/o. Velusamy,  
No.3/165, Athikuttai Thottam,  
Idayarpalayam,  
Coimbatore District,  
Tamil Nadu State – 641 016.



**CONSENT LETTER FROM APPLICANT**

The Mining Plan and Progressive Quarry Closure Plan in Respect of Idayarpalayam Rough stone and Gravel Quarry in S.F.Nos.171/2 (P) & 176/2 over an extent of 1.84.0ha of Patta land in Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared by

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

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

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

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

Signature of the Applicant

V. Saravanan

Place: Coimbatore

Date: 25.05.2023

V. Saravanan,  
S/o. Velusamy,  
No.3/165, Athikuttai Thottam,  
Idayarpalayam,  
Coimbatore District,  
Tamil Nadu State – 641 016.



**DECLARATION OF THE APPLICANT**

The Mining Plan and Progressive Quarry Closure Plan in Respect of Idayarpalayam Rough stone and Gravel Quarry in S.F.Nos.171/2 (P) & 176/2 over an extent of 1.84.0ha of Patta land in Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared in full consultation with me.

I have understood its contents and agree to implement the same in accordance with Laws, Rules and Act applicable to Quarry.

Signature of the Applicant

V. Saravanan

Place: Coimbatore

Date: 25.05.2023



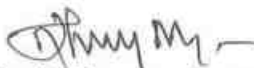
## CERTIFICATE

Certified that I am, **Dr. P. THANGARAJU**, M.Sc., Ph.D., having an office at Regd. Off. No. 17, Advaita Ashram Road, Alagapuram, Salem – 636 004, holding a Post Graduate Degree in Geology (M.Sc. Geology) from Madras University, Chennai and I worked in the field of Geology in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 stipulates the eligibility for preparing Revised 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 Revised Mining Plans for both Major and Minor Minerals.

Accordingly, I am preparing this Mining Plan and Progressive Quarry Closure Plan in Respect of Idayarpalayam Rough stone and Gravel Quarry in S.F.Nos.171/2 (P) & 176/2 over an extent of 1.84.0ha of Patta land in Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State for **Thiru. V. Saravanan**, S/o. Velusamy, No.3/165, Athikuttai Thottam, Idayarpalayam, Coimbatore District, Tamil Nadu State – 641 016. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person

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

Place: Salem

Date: 28.05.2023

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

Regd. Off. No. 17, Advaita Ashram Road,

Alagapuram, Salem District – 636 004.

Cell: +91 94422 78601 & 94433 56539



**CERTIFICATE FROM THE QUALIFIED PERSON**

This is to certify that the Provisions of under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Idayarpalayam Rough stone and Gravel Quarry in S.F.Nos.171/2 (P) & 176/2 over an extent of 1.84.0ha of Patta land in Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for

**Thiru. V. Saravanan,**

S/o. Velusamy,

No.3/165, Athikuttai Thottam,

Idayarpalayam,

Coimbatore District,

Tamil Nadu State – 641 016.

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

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

Signature of the Qualified Person

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

Place: Salem

Date: 28.05.2023

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

Regd. Off. No. 17, Advaita Ashram Road,

Alagapuram, Salem District – 636 004.

Cell: +91 94422 78601 & 94433 56539

23 JUN 2023

**CERTIFICATE FROM THE QUALIFIED PERSON**

Certified that the Provisions of Mines Act, Rules and Regulations and Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Idayarpalayam Rough stone and Gravel Quarry in S.F.Nos.171/2 (P) & 176/2 over an extent of 1.84.0ha of Patta land in Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for

**Thiru. V. Saravanan,**

S/o. Velusamy,

No.3/165, Athikuttai Thottam,

Idayarpalayam,

Coimbatore District,

Tamil Nadu State – 641 016.

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

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

Signature of the Qualified Person

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

Place: Salem

Date: 28.05.2023



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

## 1.0 INTRODUCTION AND EXECUTIVE SUMMARY

This Mining Plan and Environment Management Plan are prepared for **Thiru. V. Saravanan**, S/o. Velusamy, residing at No.3/165, Athikuttai Thottam, Idayarpalayam, Coimbatore District, Tamil Nadu State – 641 016.

The applicant applied for Idayarpalayam Rough stone and Gravel Quarry in S.F.Nos.171/2 (P) & 176/2 over an extent of 1.84.0ha of Patta lands in Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State under Rule 19 (1) & 22 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the Assistant Director, Department of Geology and Mining, Coimbatore District and passed a Precise Area Communication letter vide **Rc.No.93/Mines/2023, Dated: 23.05.2023** to submit Mining Plan for the approval in Department of Geology and Mining, Coimbatore District and obtain Environmental Clearance from the State Level Environmental Impact Assessment Authority (SEIAA), Chennai, Tamil Nadu State, with the conditions to provide (Please refer Annexure No. I):

1. No hindrance shall be caused to the Patta lands and Public while carrying out Rough stone and Gravel quarrying operations.
2. Quarrying should be left a safety distance of 7.5m to the adjacent Patta lands.
3. Quarrying should be left a safety distance of 50m to the EB line on the Eastern side and Topographical Odai on the Southern side of the applied area.
4. Each boundary pillar should be planted via inspected by a government approved company in accordance with DGPS (Differential Global Positioning System) in the lease area.
5. Quarrying should not be employed Child labor.



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

In the above circumstances the applicant through his consultant is hereby preparing the Mining Plan, Environmental Management Plan and Progressive Quarry Closure Plan for approval and subsequent submission of Form-I, Form-IM and Pre-feasibility report to obtain environmental clearance from the SEIAA, Chennai, Tamil Nadu State, Rough Stone and Gravel quarry. This mining plan is prepared by considering the Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and its subsequent Amendment and judgments till 2023.

#### Short Notes of Mining Plan:

- a. Village Panchayat - Idayarpalayam
- b. Panchayat Union - Coimbatore
- c. The Geological Resources are **5,52,448m<sup>3</sup>** of Rough Stone and **7,788m<sup>3</sup>** of Gravel formation in the entire area.
- d. The Total Mineable Reserves are **1,27,607m<sup>3</sup>** of Rough Stone and **4,640m<sup>3</sup>** of Gravel in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are **1,27,607m<sup>3</sup>** of Rough Stone for five years and **10,688m<sup>3</sup>** of Gravel (including Existing Gravel Dump) in the entire area.
- f. Total extent of the lease applied area = 1.84.0ha
- g. Topography of the area = The area exhibits plain topography
- h. Proposed Depth of mining = 47m (2m Gravel + 45m Rough Stone)  
below ground level
- i. This Mining Plan period = Five years
- j. It is a fresh lease application but, the applied area has been considered quarrying operation earlier. The quarry lease was previously granted in the favour of **Tmt. Sujatha Murugesan**, over an extent of 1.21.5hectares of Patta land in S.F.Nos.171/2 (P) & 176/2 (P) of Idayarpalayam Village, Sulur Taluk, Coimbatore District vide **Rc.No.25095/1997/X1**, **Dated: 17.04.1997** for the period of five years from 17.04.1997 to 16.04.2002.

A quarry lease was again granted to **Thiru. M. Velusamy**, over an extent of 1.22.5hectares of Patta land in S.F.Nos.171/2 (P) & 176/2 (P) of Idayarpalayam Village, Suler Taluk, Coimbatore District vide **Rc.No.977/2002/MM2, Dated: 20.09.2002** for the period of five years from 20.09.2002 to 19.09.2007. Subsequently a quarry lease was again granted to **Thiru.M.Velusamy**, over an extent of 1.02.5hectares of Patta land in S.F.Nos.171/2 (P) & 176/2 (P) of Idayarpalayam Village, Suler Taluk, Coimbatore District vide **Rc.No.1206/2007/X1, Dated: 19.07.2008** for the period of five years from 19.07.2008 to 18.07.2013. A quarry lease was once again granted to **Thiru. V. Saravanan**, over an extent of 1.22.5hectares of Patta land in S.F.Nos.171/2 (P) & 176/2 (P) of Idayarpalayam Village, Suler Taluk, Coimbatore District vide **Rc.No.472/Mines/2016, Dated: 15.09.2017** (Please refer Annexure No. IA) for the period of five years from 15.09.2017 to 14.09.2022 and the applicant has obtained Environmental Clearance from the SEIAA, Tamil Nadu State vide **Lr. No. SEIAA-TN/F.No.5716/1(a)/EC.No.3906/2016, Dated: 13.06.2017** (Please refer Annexure No. IB) for quarrying of Rough Stone and Gravel.

As the lease granted vide **Rc.No.472/Mines/2016, Dated: 15.09.2017** was expired, the applicant has once again applied a quarry lease on 23.01.2023, over an extent of 1.84.0ha in S.F.Nos.171/2 (P) & 176/2 of Patta land of Idayarpalayam Village, Suler Taluk, Coimbatore District for the period of five years. The application was meritoriously processed by the Assistant Director, Department of Geology and Mining, Coimbatore District and recommended the quarry lease for the period of five years. The maximum dimension of the **existing quarry pit** is given table below (Refer Plate No. II).

| Length (m) (max) | Width (m) (max) | Depth (m) (max) |
|------------------|-----------------|-----------------|
| 128              | 80              | 22              |

The maximum dimension of the **Existing Gravel Dump** is given table below (Refer Plate No. II).

| Length (m) (max) | Width (m) (max) | Depth (m) (max) |
|------------------|-----------------|-----------------|
| 96               | 21              | 3               |

- k. Method of mining / level of mechanization.  
Opencast mechanized method, the quarry operation involves shallow Jack hammer drilling, slurry blasting.
- l. Type of machineries proposed in the quarrying operation is given below:  
Excavators attached with rock breaker (Rental Basis).  
Jack hammer, Compressor (Diesel drive) (4 Jack Hammer capacity) (Rental Basis).
- m. No trees will be uprooted due to this quarrying operation.

- n. The existing road from the main road to quarry is in good condition. The same will be maintained and utilized for Transportation of quarry materials and machineries.
- o. There is No Export of this Rough Stone and Gravel.
- p. Topo sketch covering 10km and 1km radius around the proposed area with markings of habitations, water bodies including streams, rivers, roads, major structure like bridges, wells, archaeological importance, places of worships is marked and enclosed as Plate Nos. IA & IB.
- q. The lease applied area is about 1.84.0ha bounded by eight corners; the corners are designated as 1-8 Clockwise from the Southwestern corner the Co – ordinates for the all the corners are clearly marked in the Quarry Lease and Surface Plan enclosed as Plate No. II.
- r. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are enclosed as Plate Nos. III and IV.
- s. General conditions will not be applicable for the proposed area. The area applied for lease is 10Km away from the,
- i) *Interstate Boundary,*
  - ii) *Protected area under wild life protection ACT, 1972,*
  - iii) *Critically polluted areas as identified by CPCB,*
  - iv) *Notified Eco sensitive areas.*
- t. During the present mining plan period, the Existing Gravel Dump and available insitu Gravel will be transported to the needy customers for filling & levelling of low lying areas. Since, there is no waste anticipated during this present mining plan period. Hence, there is no waste dump proposed.
- u. Around 18 employees are deploying in the quarrying operation.
- v. Total Cost of the project is about **Rs.70,66,000/-**.

w. Infrastructures around the lease applied area given below in the table:

TABLE-1

| Particulars             | Location      | Approximate aerial distance and direction from lease applied area |
|-------------------------|---------------|-------------------------------------------------------------------|
| Nearest Post Office     | Idayarpalayam | 1km – NW                                                          |
| Nearest School          | Idayarpalayam | 1km – NW                                                          |
| Nearest Dispensary      | Sulur         | 12km – NE                                                         |
| Nearest Town            | Sulur         | 12km – NE                                                         |
| Nearest Police Station  | Chettipalayam | 8km – W                                                           |
| Nearest Hospital        | Chettipalayam | 8km – W                                                           |
| Nearest D.S.P. Office   | Podanur       | 15km – NW                                                         |
| Nearest Railway Station | Chettipalayam | 8km – W                                                           |
| Nearest Airport         | Coimbatore    | 21km – NW                                                         |
| Nearest Seaport         | Kochi         | 143km – SW                                                        |
| District Head quarters  | Coimbatore    | 21km – NW                                                         |

**2.0 GENERAL INFORMATION**

**2.1 a) Name of the Applicant :** Thiru. V. Saravanan,  
S/o. Velusamy,

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

Address : No.3/165, Athikuttai Thottam,  
Idayarpalayam, Coimbatore District.

Pin Code : 641 016

Mobile No : +91 98422 97204

Aadhaar No : 5780 0708 2637 (Annexure No. VIII)

Email ID : [vmslorry@gmail.com](mailto:vmslorry@gmail.com)

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

The applicant is an Individual.

**2.2 a) Mineral which the Applicant intends to mine:**

The Applicant intends to quarry Rough Stone and Gravel only.

**b) Precise area communication letter details received from the Competent Authority of the Government:**

The precise area communication letter was received from the Assistant Director, Department of Geology and Mining, Coimbatore District vide **Rc.No.93/Mines/2023, Dated: 23.05.2023** to submit approved mining plan and to obtain Environmental Clearance from the State Level Environmental Impact Assessment Authority (SEIAA), Chennai, Tamil Nadu State.

**c) Period of permission / lease to be granted:**

Five Years.

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

Name : **Dr. P. Thangaraju, M.Sc., Ph.D.,**  
Qualified Person  
(As per Rule 15(I)(a) and (I)(b) of MCR, 2016)

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

Telephone : 0427- 2431989 (Office)

Cell No : +91 94422 78601 & 94433 56539

Email : [infogeoexploration@gmail.com](mailto:infogeoexploration@gmail.com)

(Refer Annexure Nos. IX & X).



29 JUN 2023

nyarpalayam Village at a



### Location Map of the Lease Applied Area

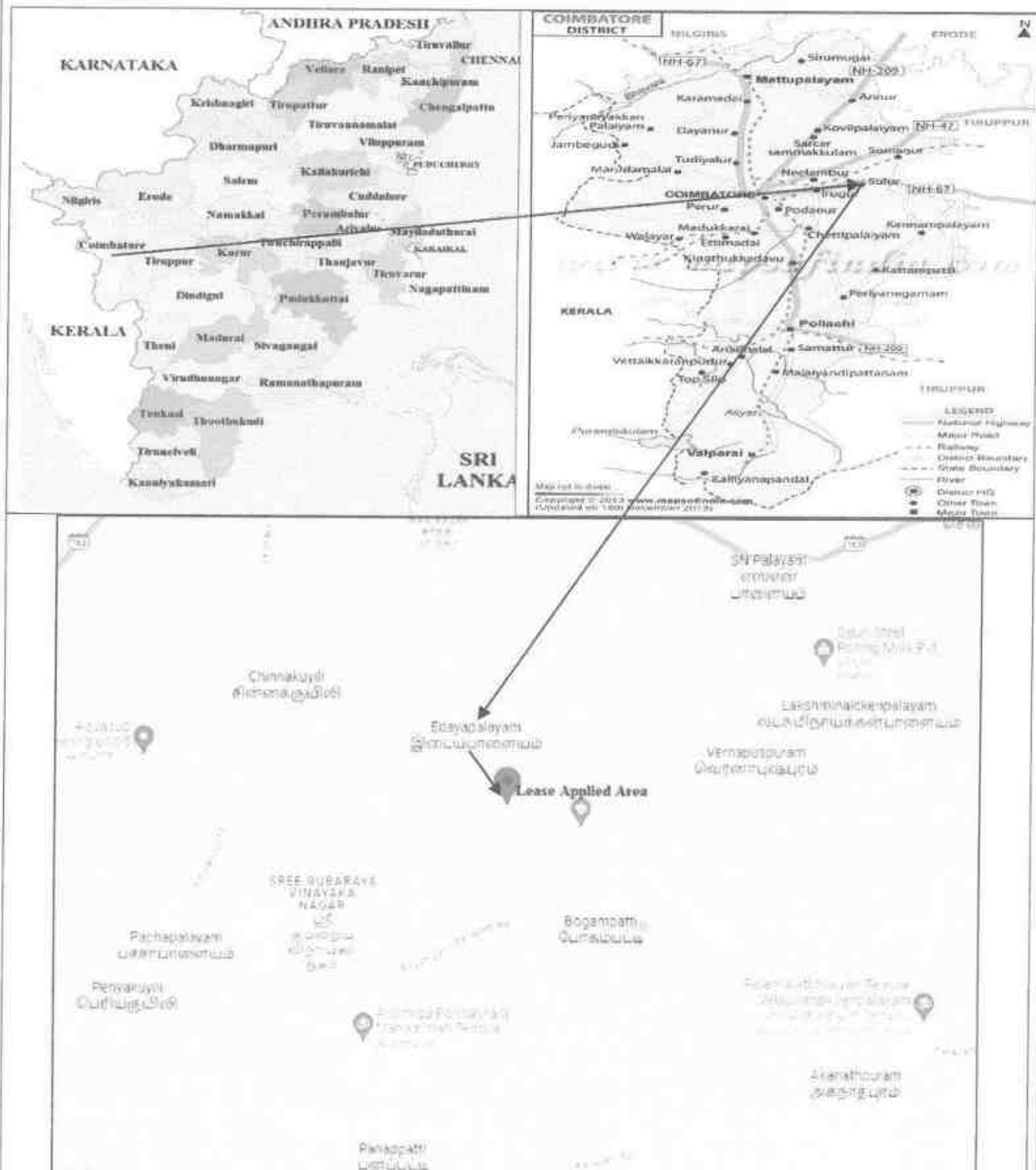




TABLE-2

| District     | Taluk | Village       | S.F. Nos. | Lease Applied Area in ha. | Patta Nos. |
|--------------|-------|---------------|-----------|---------------------------|------------|
| Coimbatore   | Sulur | Idayarpalayam | 171/2 (P) | 0.46.0                    | 547        |
|              |       |               | 176/2     | 1.38.0                    | 263        |
| Total Extent |       |               |           | 1.84.0ha                  |            |

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

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

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

It is a Patta lands. Jointly Registered in the name of the applicant (**Thiru. V. Saravanan**), Tmt.Palaniyammal, Tmt.Saraswathi, Tmt.Sujatha and Thiru. (L) M.Velusamy, vide Patta Nos. 547 & 263. The applicant has obtained consent from the other joint Pattadar. Refer Annexure Nos. IV & VII.

**d) Topo sheet No. with latitude and longitude:**

The lease applied area falls in the Topo sheet No: **58 – F/01** Latitude between: **10°54'52.4089"N to 10°54'56.6423"N** and Longitude between: **77°06'42.1340"E to 77°06'48.7539"E** on WGS datum-1984. Please refer the Plate Nos. I to II.

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

The approach (metal) road is situated on the Southern side which connects the Village Road at a distance of 280m on the Southeastern side from the lease applied area.

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

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

The Nearest Railway line is Coimbatore – Pollachi which is about 9km on the Southwestern side of the lease applied area.

**PART - A****4.0 GEOLOGY AND MINERAL RESERVES****4.1 Brief description of the Topography and general Geology of the area (with plans)**

The lease applied area is exhibits plain topography. The area has gentle sloping towards Southern side. The altitude of the area is 436m (max) above Mean Sea level. The area is covered by 2m thickness of Gravel formation. Massive Charnockite is found after 2m (Gravel) which is clearly inferred from the existing quarry pit.

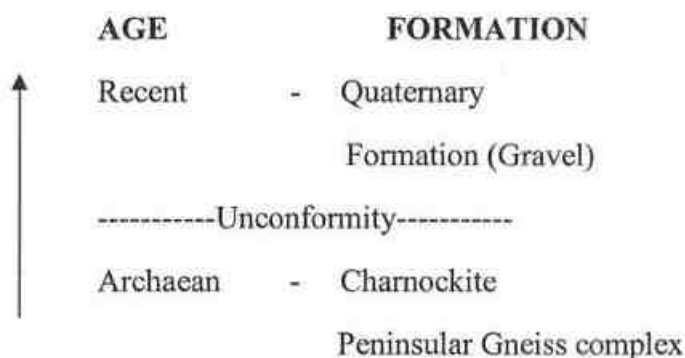
The Water table is found at a depth of 67m in summer and at 62m in rainy seasons. Average annual rainfall is about 1213mm.

**Topographical View of lease applied area**



Peninsular gneiss forms the oldest rock formations, in which the massive formation of Charnockite lies over with rich accumulation of recent quaternary formation. On regional scale of the Charnockite body is N30°E – S30°W with dipping towards SE60°.

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



#### 4.2 Details of exploration already carried out if any:

State Geology and Mining Dept, Govt. of Tamil Nadu, has carried out the Regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping in Coimbatore District. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area. The Rough Stone formation is clearly inferred from the existing quarry pit.

#### 4.3 Estimation of Reserves:

##### a) Geological reserves with geological sections on a scale of 1:1000 / 1:2000

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

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

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

**Geological Resources (Plate No. III):**

The Geological Resources of Rough Stone and Gravel are calculated up to a maximum depth of 47m (2m Gravel + 45m Rough Stone) below ground level. The total Geological resources are calculated by sectional method and the resources are estimated after depletion of existing quarry pits. The total available geological resources are given below:

**TABLE-3**

| GEOLOGICAL RESOURCES |       |                  |                 |                 |                                                |                             |
|----------------------|-------|------------------|-----------------|-----------------|------------------------------------------------|-----------------------------|
| Section              | Bench | Length<br>in (m) | Width<br>in (m) | Depth<br>in (m) | Geological<br>Resources in<br>Rough stone (m³) | Gravel<br>Formation<br>(m³) |
| XY-AB                | I     | 37               | 104             | 2               | -                                              | 7696                        |
|                      | II    | 37               | 104             | 5               | 19240                                          | -                           |
|                      | III   | 37               | 104             | 5               | 19240                                          | -                           |
|                      | IV    | 37               | 104             | 5               | 19240                                          | -                           |
|                      | V     | 37               | 104             | 5               | 19240                                          | -                           |
|                      | VI    | 37               | 104             | 2               | 7696                                           | -                           |
|                      | VI    | 37               | 104             | 3               | 11544                                          | -                           |
|                      | VII   | 37               | 104             | 5               | 19240                                          | -                           |
|                      | VIII  | 37               | 104             | 5               | 19240                                          | -                           |
|                      | IX    | 37               | 104             | 5               | 19240                                          | -                           |
|                      | X     | 37               | 104             | 5               | 19240                                          | -                           |
|                      | Total |                  |                 |                 | 173160                                         | 7696                        |
| XY-CD                | I     | 1                | 23              | 2               | -                                              | 46                          |
|                      | II    | 1                | 23              | 5               | 115                                            | -                           |
|                      | III   | 1                | 23              | 5               | 115                                            | -                           |
|                      | IV    | 1                | 23              | 5               | 115                                            | -                           |
|                      | V     | 1                | 23              | 3               | 69                                             | -                           |
|                      | V     | 50               | 101             | 2               | 10100                                          | -                           |
|                      | VI    | 50               | 101             | 5               | 25250                                          | -                           |
|                      | VII   | 50               | 101             | 5               | 25250                                          | -                           |
|                      | VIII  | 50               | 101             | 5               | 25250                                          | -                           |
|                      | IX    | 50               | 101             | 5               | 25250                                          | -                           |
|                      | X     | 50               | 101             | 5               | 25250                                          | -                           |
|                      | Total |                  |                 |                 | 136764                                         | 46                          |
| XY-EF                | I     | 1                | 23              | 2               | -                                              | 46                          |
|                      | II    | 1                | 23              | 5               | 115                                            | -                           |
|                      | III   | 1                | 23              | 5               | 115                                            | -                           |
|                      | IV    | 1                | 23              | 3               | 69                                             | -                           |
|                      | IV    | 21               | 23              | 2               | 966                                            | -                           |
|                      | V     | 21               | 23              | 3               | 1449                                           | -                           |
|                      | V     | 21               | 55              | 2               | 2310                                           | -                           |
|                      | VI    | 100              | 95              | 5               | 47500                                          | -                           |
|                      | VII   | 100              | 95              | 5               | 47500                                          | -                           |
|                      | VIII  | 100              | 95              | 5               | 47500                                          | -                           |
|                      | IX    | 100              | 95              | 5               | 47500                                          | -                           |
|                      | X     | 100              | 95              | 5               | 47500                                          | -                           |
|                      | Total |                  |                 |                 | 242524                                         | 46                          |
| Grand Total          |       |                  |                 | 552448          | 7788                                           |                             |

Total Geological Resources of Gravel Formation :

Total Geological Resources of Rough Stone :

7,788m<sup>3</sup>  
5,52,448m<sup>3</sup>**Existing Pit Dimension:**

The lease applied area has been quarried in earlier the existing pits dimensions are following

TABLE-4

| Length (m) (max) | Width (m) (max) | Depth (m) (max) |
|------------------|-----------------|-----------------|
| 128              | 80              | 22              |

**Existing Gravel Dump Dimension:**

The applicant has removed Gravel portion in the previous lease period and has been dumped in the Western side of the lease area. The maximum dimension of Gravel formation dump is given table below:

TABLE-4A

| Length (m) (max) | Width (m) (max) | Depth (m) (max) |
|------------------|-----------------|-----------------|
| 96               | 21              | 3               |

**Available Mineable Reserves:**

The available Mineable reserves are calculated after leaving the safety distance and bench loss to a maximum depth of 47m below ground level.

TABLE-5

| MINEABLE RESERVES |       |                  |                 |                 |                                          |                |
|-------------------|-------|------------------|-----------------|-----------------|------------------------------------------|----------------|
| Section           | Bench | Length<br>in (m) | Width<br>in (m) | Depth<br>in (m) | Mineable Reserves<br>in Rough stone (m³) | Gravel<br>(m³) |
| XY-AB             | I     | 29               | 80              | 2               | -                                        | 4640           |
|                   | II    | 26               | 74              | 5               | 9620                                     | -              |
|                   | III   | 21               | 64              | 5               | 6720                                     | -              |
|                   | IV    | 16               | 54              | 5               | 4320                                     | -              |
|                   | V     | 11               | 41              | 5               | 2255                                     | -              |
|                   | VI    | 6                | 29              | 2               | 348                                      | -              |
|                   | Total |                  |                 |                 | 23263                                    | 4640           |
| XY-CD             | V     | 50               | 68              | 2               | 6800                                     | -              |
|                   | VI    | 50               | 58              | 5               | 14500                                    | -              |
|                   | VII   | 50               | 48              | 5               | 12000                                    | -              |
|                   | VIII  | 45               | 38              | 5               | 8550                                     | -              |
|                   | IX    | 40               | 28              | 5               | 5600                                     | -              |
|                   | X     | 35               | 18              | 5               | 3150                                     | -              |
|                   | Total |                  |                 |                 | 50600                                    | -              |
| XY-EF             | V     | 1                | 22              | 2               | 44                                       | -              |
|                   | VI    | 74               | 52              | 5               | 19240                                    | -              |
|                   | VII   | 69               | 42              | 5               | 14490                                    | -              |
|                   | VIII  | 64               | 32              | 5               | 10240                                    | -              |
|                   | IX    | 59               | 22              | 5               | 6490                                     | -              |
|                   | X     | 54               | 12              | 5               | 3240                                     | -              |
|                   | Total |                  |                 |                 | 53744                                    | -              |
| Grand Total       |       |                  |                 |                 | 127607                                   | 4640           |

The mineable reserves have been computed as  $1,27,607\text{m}^3$  of Rough Stone at the rate of 100% recovery and  $4,640\text{m}^3$  of Gravel upto a maximum depth of 47m below ground level for a period of five years.



## **5.0 MINING**

### **5.1 Method of mining (opencast / underground):**

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

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

### **5.2 Mode of working (mechanized, semi mechanized, manual):**

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

The quarry operation involves shallow Jack hammer drilling, slurry explosives in blasting, excavation, loading and transportation of Rough Stone to the needy crusher.

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

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

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

### **5.3 Proposed Bench Height and Width:**

The Charnockite is hard and compact rock, the bench height is proposed 5.0 meter vertical bench the width of the bench is not less than the Height.

**5.4 Indicate the overburden / mineral production expected pit wise as detailed below (composite plan and section showing pit layout, dumps, disposal of waste if any etc.)**

The overburden in the form of Gravel, the Gravel and existing gravel dump will be directly loaded into Tippers for the filling and levelling of low lying areas, this will be done only after obtaining permission and paying necessary seigniorage fees to the Government. The excavated Rough stone will be directly loaded into Tippers to the needy customers. The Composite year wise Development and production plan and sections indicating the Pit lay out, Greenbelt development are shown in Plate No. III.

**Year wise development and Production**

**TABLE-6**

| YEARWISE PRODUCTION DETAILS |               |       |                  |                 |                 |                                             |                |
|-----------------------------|---------------|-------|------------------|-----------------|-----------------|---------------------------------------------|----------------|
| Years                       | Section       | Bench | Length<br>in (m) | Width<br>in (m) | Depth<br>in (m) | Recoverable Reserves<br>in Rough stone (m³) | Gravel<br>(m³) |
| I                           | Existing Dump |       | 96               | 21              | 3               | -                                           | 6048           |
|                             | XY-EF         | V     | 1                | 22              | 2               | 44                                          | -              |
|                             |               | VI    | 74               | 52              | 5               | 19240                                       | -              |
|                             |               | Total |                  |                 |                 | 19284                                       | 6048           |
| II                          | XY-CD         | V     | 50               | 68              | 2               | 6800                                        | -              |
|                             |               | VI    | 50               | 58              | 5               | 14500                                       | -              |
|                             | XY-AB         | I     | 29               | 80              | 2               | -                                           | 4640           |
|                             |               | II    | 26               | 74              | 5               | 9620                                        | -              |
|                             |               | Total |                  |                 |                 | 30920                                       | 4640           |
| III                         | XY-AB         | III   | 21               | 64              | 5               | 6720                                        | -              |
|                             |               | IV    | 16               | 54              | 5               | 4320                                        | -              |
|                             |               | V     | 11               | 41              | 5               | 2255                                        | -              |
|                             |               | VI    | 6                | 29              | 2               | 348                                         | -              |
|                             | XY-CD         | VII   | 50               | 48              | 5               | 12000                                       | -              |
|                             |               | Total |                  |                 |                 | 25643                                       | -              |
|                             |               |       |                  |                 |                 |                                             |                |
| IV                          | XY-EF         | VII   | 69               | 42              | 5               | 14490                                       | -              |
|                             |               | VIII  | 64               | 32              | 5               | 10240                                       | -              |
|                             |               | Total |                  |                 |                 | 24730                                       | -              |
| V                           | XY-EF         | IX    | 59               | 22              | 5               | 6490                                        | -              |
|                             |               | X     | 54               | 12              | 5               | 3240                                        | -              |
|                             | XY-CD         | VIII  | 45               | 38              | 5               | 8550                                        | -              |
|                             |               | IX    | 40               | 28              | 5               | 5600                                        | -              |
|                             |               | X     | 35               | 18              | 5               | 3150                                        | -              |
|                             |               | Total |                  |                 |                 | 27030                                       | -              |
|                             | Grand Total   |       |                  |                 |                 | 127607                                      | 10688          |

The Recoverable reserves have been computed as **1,27,607m<sup>3</sup>** of Rough Stone at the rate of 100% recovery for five years and **10,688m<sup>3</sup>** of Gravel (including Existing Gravel Dump) in for three years upto depth of 47m below ground level for a mining period.

The applicant ensures the total quantity proposed in the benches will not exceed during the quarrying operation. Besides the Rough Stone locked up in benches will be exploited after obtaining necessary permission from the office of **Director General of Mine Safety, Chennai** region by submitting relevant documents, appropriate safety plans and its Mitigation measures.

|                                                                     |   |                                         |
|---------------------------------------------------------------------|---|-----------------------------------------|
| One lorry load                                                      | = | 6m <sup>3</sup> (approx.)               |
| Total No of Working days                                            | = | 300 Days per year                       |
| Total quantity to be removed in this five years plan period         | = | 1,27,607m <sup>3</sup>                  |
| Hence total lorry loads per day                                     | = | 1,27,607m <sup>3</sup> /6m <sup>3</sup> |
|                                                                     | = | 21268 lorry loads                       |
|                                                                     | = | 21268/5 years                           |
|                                                                     | = | 4254/300 Days                           |
| Rough Stone                                                         | = | 14 lorry loads per day                  |
| Total quantity to be removed in this two years plan period          | = | 10,688m <sup>3</sup>                    |
| Hence total lorry loads per day                                     | = | 10,688m <sup>3</sup> /6m <sup>3</sup>   |
|                                                                     | = | 1781 lorry loads                        |
|                                                                     | = | 1781/2 years                            |
|                                                                     | = | 891/300 Days                            |
| Gravel & Existing Gravel Dump                                       | = | 2-3 lorry loads per day                 |
| Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 pm lunch break) |   |                                         |

## 5.5 Machineries to be used:

### For Mining:

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

TABLE-7

### I. DRILLING MACHINE:

| S. No. | Type        | Nos | Dia Hole mm | Size Capacity | Motive power   |
|--------|-------------|-----|-------------|---------------|----------------|
| 1      | Jack hammer | 3   | 30-35       | 1.2m to 2.0m  | Compressed air |
| 2      | Compressor  | 1   | -           | 400 psi       | Diesel Drive   |

### II. EXCAVATION & LOADING EQUIPMENT:

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



**III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT**

| S. No. | Type    | Nos | Capacity  | Motive Power |
|--------|---------|-----|-----------|--------------|
| 1      | Tippers | 2   | 20 tonnes | Diesel Drive |

**5.6 Disposal of Overburden/Waste:**

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

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

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

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

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

**TABLE-8**

| Length (m) (max) | Width (m) (max) | Depth (m) (max)        |
|------------------|-----------------|------------------------|
| 179              | 82              | 47m below ground level |

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

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

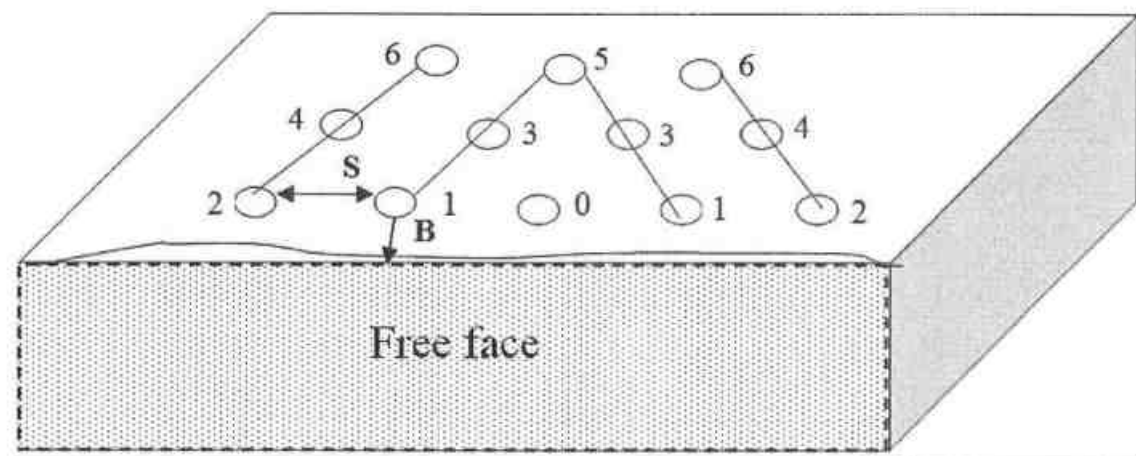
There is no waste anticipated during the entire life of quarry. Hence, backfilling is not possible in this quarry. After completion of quarry operation, the quarry pit will be allowed to collect the seepage and rainwater, the water storage will be kept as temporary reservoir for charging the nearby wells and the storage water will be used for afforestation purpose. The quarry pit will be fenced with barbed wire fencing to prevent inadvertent entry of public and cattle (Refer Plate No. IV).

**6.0 BLASTING****6.1 Blasting pattern:**

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

Drilling and blasting parameters are as follows:

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

**BLASTING PATTERN DRAWING****Staggered “V” Pattern of Blasting Design**

|                               |   |          |
|-------------------------------|---|----------|
| Spacing                       | = | 1.2m     |
| Burden                        | = | 1.0m     |
| Depth of the hole             | = | 1.5m     |
| No of holes proposed per day= |   | 74 Holes |

**6.2 Type of explosives to be used:**

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

**6.3 Measures proposed to minimize ground vibration due to blasting:**

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



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

#### **Delay detonators:**

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

The major advantages of delay blasting are:

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

#### **Blasting program for the production per day:**

|                           |                                        |
|---------------------------|----------------------------------------|
| No of Holes               | = 74 Holes                             |
| Yield                     | = 221 Tons                             |
| Powder factor             | = 6 Tons/Kg of explosives              |
| Total explosive required  | = 37 Kg-Slurry explosives              |
| Charge/ hole              | = 0.5 Kg                               |
| Blasting at day time only | = 12.00 – 12.30p.m (whenever required) |

#### **6.4 Storage and safety measures to be taken while blasting:**

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

### **7.0 MINE DRAINAGE**

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

The Water Table in the area is 67m in summer season and 62m in rainy season which is observed from the nearby bore wells and the data obtained from existing private boreholes. The lease area is fully covered by Massive Charnockite formation. Hence the Ground Water problem will not arise. If water seepage may occur due to the fracture, the same will be used for Greenbelt.

TABLE-9

| Type      | Distance & Direction   | Location                       |
|-----------|------------------------|--------------------------------|
| Bore Well | 260m Northeastern side | 10°55'03.53"N<br>77°06'52.15"E |

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

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

## 8.0 OTHER PERMANENT STRUCTURES (also shown in the map)

| S. No. | Salient Features Present around site                                             | Prescribed safety distance | If any present within Prescribed distance it's actual distance and direction from the area                                                                                                                                                                                         |
|--------|----------------------------------------------------------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8.1    | Railways, Highways                                                               | 50m                        | None of the above situated within 50m radius.<br>Nearest National Highway – Coimbatore to Palakkad (NH-544) – 10km – NW<br>Nearest State Highway – Palladam to Kochi Road (SH-163) – 4km – NE<br>Nearest Major District Road – Selekarachal to Sulthanpet Road (MD-417) – 5km – NE |
| 8.2    | Water Bodies (River, Pond, Lake, Odai, Canal)                                    | 50m                        | Odai is passing on the Southern side of the applied area. Hence a 50m safety distance has been maintained. There is no other River, Pond, Lake, Odai, Canal located within 50m radius of the lease applied area.                                                                   |
| 8.3    | Village Road                                                                     | 10m                        | No village road is passing within 10m radius on the lease applied area.                                                                                                                                                                                                            |
| 8.4    | Habitation / Village, Archaeological / historical monuments & Places of worships | 300m                       | There is no approved habitation, Archaeological / historical monuments & place of worships within 300m radius from the lease applied area (Refer Plate No I-B).                                                                                                                    |

| 8.5       | Housing area, EB line (HT & LT Line)                     | 50m             | Power line is passing on the Eastern side of the applied area. Hence a 50m safety distance has been maintained. There is no other Housing area, EB line (HT & LT Line) in the radius of 50m from the lease applied area                                                                                                                                            |           |                |                 |       |            |      |      |                         |     |       |                   |     |      |            |      |
|-----------|----------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------|-----------------|-------|------------|------|------|-------------------------|-----|-------|-------------------|-----|------|------------|------|
| 8.6       | Adjacent Patta lands / Govt. Land                        | 7.5m/10m        | <table><tr><th>Direction</th><th>Classification</th><th>Safety Distance</th></tr><tr><td>North</td><td>Patta land</td><td>7.5m</td></tr><tr><td>East</td><td>Patta land / Power line</td><td>50m</td></tr><tr><td>South</td><td>Patta land / Odai</td><td>50m</td></tr><tr><td>West</td><td>Patta land</td><td>7.5m</td></tr></table> <p>(Refer Plate No. II).</p> | Direction | Classification | Safety Distance | North | Patta land | 7.5m | East | Patta land / Power line | 50m | South | Patta land / Odai | 50m | West | Patta land | 7.5m |
| Direction | Classification                                           | Safety Distance |                                                                                                                                                                                                                                                                                                                                                                    |           |                |                 |       |            |      |      |                         |     |       |                   |     |      |            |      |
| North     | Patta land                                               | 7.5m            |                                                                                                                                                                                                                                                                                                                                                                    |           |                |                 |       |            |      |      |                         |     |       |                   |     |      |            |      |
| East      | Patta land / Power line                                  | 50m             |                                                                                                                                                                                                                                                                                                                                                                    |           |                |                 |       |            |      |      |                         |     |       |                   |     |      |            |      |
| South     | Patta land / Odai                                        | 50m             |                                                                                                                                                                                                                                                                                                                                                                    |           |                |                 |       |            |      |      |                         |     |       |                   |     |      |            |      |
| West      | Patta land                                               | 7.5m            |                                                                                                                                                                                                                                                                                                                                                                    |           |                |                 |       |            |      |      |                         |     |       |                   |     |      |            |      |
| 8.7       | Boundaries of the permitted area                         | 7.5m/10m        | The boundaries of the lease applied area are as follows:<br>North - S.F.No.176/1<br>East - S.F.No.176/2 (P)<br>South - S.F.No.176/2 (P)<br>West - S.F.Nos.177 & 178<br>(Refer Plate No. II).                                                                                                                                                                       |           |                |                 |       |            |      |      |                         |     |       |                   |     |      |            |      |
| 8.8       | Reserve forest                                           | 60m             | There is no reserve forest / forest / social forest / wild life sanctuary etc., within radius of 60m of the lease applied area. (Refer Plate No. IA and IB).                                                                                                                                                                                                       |           |                |                 |       |            |      |      |                         |     |       |                   |     |      |            |      |
| 8.9       | Protected area / ECO sensitive area/ Wild Life Sanctuary | 10km            | There is no ECO sensitive Zone/ Wild Life Sanctuary/ Critically Polluted Area/ HACA/ CRZ located within 10km radius of the area. (Refer Plate No. IA).                                                                                                                                                                                                             |           |                |                 |       |            |      |      |                         |     |       |                   |     |      |            |      |

**9.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES****9.1 Employment potential (skilled, semi-skilled, un skilled):**

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

**a. Skilled labour:**

|                      |   |   |
|----------------------|---|---|
| Mine Foreman         | : | 1 |
| Blaster/mate         | : | 1 |
| Excavator – Operator | : | 1 |
| Driver               | : | 2 |
| Jack hammer operator | : | 6 |

**b. Semi-skilled:**

|          |   |   |
|----------|---|---|
| Security | : | 1 |
|----------|---|---|

**c. Unskilled:**

|                         |   |           |
|-------------------------|---|-----------|
| Labour & Helper         | : | 3         |
| Co-operator and Cleaner | : | 3         |
| <b>Total</b>            | : | <b>18</b> |

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

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

Packaged drinking water is available from the nearby approved water vendors in Idayarpalayam which is about 1km on the Northwestern side of the lease applied area.

**b. Sanitary Facilities:**

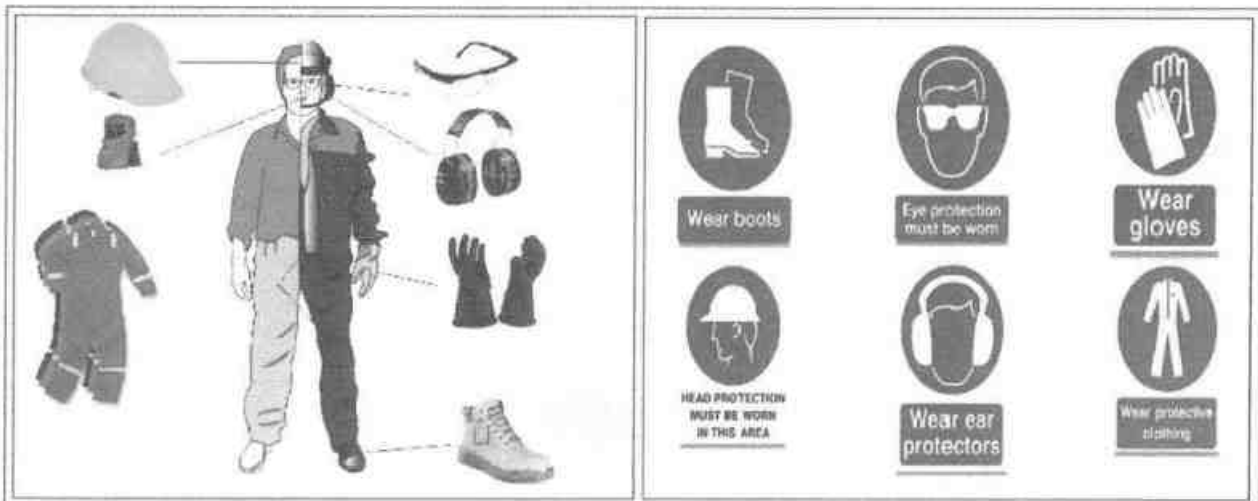
Hygienic modern Sanitary Facilities will be constructed as semi-permanent structure and it will be maintained periodically as hygienic.

**c. First aid facility:**

First aid kits are kept in Mines office room, in case of such eventuality given first aid immediately at the site by the competent and statutory foreman/permit manager/mate will be in charge of first aid and injured person will be taken to the hospital by the applicant. Hospital is available in Chettipalayam located at a distance of 8km on the Western side.

**d. Labour Health:**

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

**e. Precautionary safety measures to the labourers:**

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

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

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

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

**LAND USE TABLE-10**

| <b>Description</b>   | <b>Present area in (ha)</b> |
|----------------------|-----------------------------|
| Area under Quarrying | 1.10.3                      |
| Dump                 | 0.19.3                      |
| Infrastructure       | Nil                         |
| Roads                | 0.01.0                      |
| Green Belt           | Nil                         |
| Unutilized Area      | 0.53.4                      |
| <b>Grand Total</b>   | <b>1.84.0</b>               |

**10.2 Water Regime:**

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

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

## 10.3 Flora and Fauna:

TABLE-11

## List of Flora

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

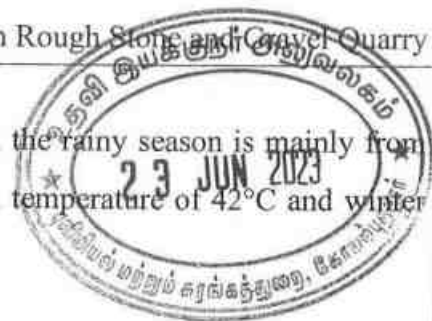
## List of Fauna

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



**10.4 Climatic Conditions:**

The area receives rainfall of about 1213mm/annum and the rainy season is mainly from Oct - Dec during monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 21°C.

**10.5 Human settlement:**

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

**TABLE-12**

| S. No | Name of the Village | Approximate distance & Direction from lease applied area | Approximate population |
|-------|---------------------|----------------------------------------------------------|------------------------|
| 1.    | Bogampatti          | 2km – SE                                                 | 2,500                  |
| 2.    | Pachapalayam        | 4km – SW                                                 | 3,000                  |
| 3.    | Idayarpalayam       | 2km – NW                                                 | 2,300                  |

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Sultur located at a distance of 12km on the Northeastern side of the area.

**10.6 Plan for air, dust suppression:**

The air quality will be affected by the Suspended Particulate Matter (SPM) generated by the slurry blasting, Jack hammer drilling, loading and unloading during the Rough Stone quarry operation.

The following Mitigations measures will be carried out:

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

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



**10.7 Plan for Noise level control:**

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

**Engineering Noise control:**

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

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

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

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

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

In the mining plan proposed for a production of Rough Stone does not involve deep hole drilling and blasting. Such limited mining activity is not likely to cause any impact adversely on the environment. As far as pollution of air, water and noise concerned, the Environment impact studies will be conducted as per EIA notification issued by MoEF&CC. It is B2 Category mine. The estimated budget would be around **Rs.3,80,000/-**.

**10.9 Proposal for waste management:**

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

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

In the mining plan proposed only to a maximum depth of 47m below ground level has been envisaged as workable depth for safe & economic mining during entire lease applied area. There is no waste generated hence, backfilling is not possible. Hence, the quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. The barbed wire fencing cost would be around **Rs.1,68,000/-**.

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

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

TABLE-13

| Year | No. of trees proposed to be planted | Survival % | Area to be covered sq.m | Name of the species                               | No. of trees expected to be grown |
|------|-------------------------------------|------------|-------------------------|---------------------------------------------------|-----------------------------------|
| I    | 80                                  | 80         | 716                     | Neem,<br>Pongamia<br>Pinnata,<br>Casuarina, etc., | 64                                |
| II   | 80                                  | 80         | 716                     |                                                   | 64                                |
| III  | 80                                  | 80         | 716                     |                                                   | 64                                |
| IV   | 80                                  | 80         | 716                     |                                                   | 64                                |
| V    | 80                                  | 80         | 716                     |                                                   | 64                                |

Nearly 3,580sq.m area is proposed to use under Greenbelt by planting 80 Number of tree saplings during every year with an anticipated survival rate of 80% (Please refer Plate No. III). The estimated budget for plantation and maintenance of Greenbelt development would be around **Rs.40,000/-** for the period of five years.

The Greenbelt Development will be formed in around the quarried out top benches, approach road and nearby panchayat road from the lease applied area. The cost would be around **Rs.20,000/-**.

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

Budget Provision for the entire quarrying period:

TABLE-14

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

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

|      |                      |                                                                                                                                                                                                                                                                                                  |                |
|------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| i)   | Land cost            | The Land value as per the Government Guideline land cost is about, Rs.19,77,000/ha, hence the total land cost is calculated about 1.84.0ha X Rs.19,77,000/- = Rs.36,37,680/-, i.e., Rs.36,38,000/-<br>(Source: <a href="https://tnreginet.gov.in/portal/">https://tnreginet.gov.in/portal/</a> ) | Rs.36,38,000/- |
| ii)  | Machinery to be used | The following machineries are proposed to meet out the productions. Excavator attached with rock breaker, Tippers, Tractor mounted compressor with Jack hammer and loose tools (Rental Basis)                                                                                                    | Rs.20,00,000/- |
| iii) | Refilling/ Fencing   | Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattles cost would be around                                                                                                                                                                    | Rs.1,68,000/-  |
| iv)  | Labourers shed       | Labour sheds will be constructed as semi-permanent structure. The cost would be around                                                                                                                                                                                                           | Rs.70,000/-    |

|                                                |                                                                                                                                                                                                         |                       |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| v) Sanitary facility                           | Adequate latrine and urinal accommodation shall be provided at conveniently accessible places the cost would be around                                                                                  | Rs.80,000/-           |
| vi) Others items                               | First aid room & accessories                                                                                                                                                                            | Rs.60,000/-           |
| vii) Drinking water facility for the labourers | Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around | Rs.80,000/-           |
| viii) Sanitary arrangement                     | The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around                                                                                                     | Rs.80,000/-           |
| ix) Safety kit                                 | All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around                             | Rs.70,000/-           |
| x) Water sprinkling                            | Water will be sprinkled in the haul roads by water sprinklers the cost would be around                                                                                                                  | Rs.1,00,000/-         |
| xi) Garland drains Construction                | Construction of garland drains to divert surface runoff from virgin area away from mining area                                                                                                          | Rs.1,41,000/-         |
| xii) Greenbelt etc.                            | Greenbelt program will be carried out in the boundary barriers the cost would be around                                                                                                                 | Rs.40,000/-           |
|                                                | Greenbelt program will be carried out in the quarried out top benches, approach road and nearby panchayat road                                                                                          | Rs.20,000/-           |
|                                                | <b>Total Operational Cost</b>                                                                                                                                                                           | <b>Rs.65,47,000/-</b> |

|                                                                                                                                                                                                                                                                                                                   |                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| <b>B. EMP Cost: (Per year)</b>                                                                                                                                                                                                                                                                                    |                       |
| Air Quality monitoring                                                                                                                                                                                                                                                                                            | Rs.92,000/-           |
| Water Quality Sampling                                                                                                                                                                                                                                                                                            | Rs.18,000/-           |
| Noise Monitoring                                                                                                                                                                                                                                                                                                  | Rs. 2,000/-           |
| Ground Vibration test                                                                                                                                                                                                                                                                                             | Rs. 4,000/-           |
| <b>Total Cost</b>                                                                                                                                                                                                                                                                                                 | <b>Rs.76,000/-</b>    |
| Total EMP Cost for the five years period is <b>Rs.3,80,000/-</b>                                                                                                                                                                                                                                                  |                       |
| <b>Description</b>                                                                                                                                                                                                                                                                                                | <b>Amount (Rs.)</b>   |
| <b>A. Operational Cost</b>                                                                                                                                                                                                                                                                                        | <b>Rs.65,47,000/-</b> |
| <b>B. EMP Cost</b>                                                                                                                                                                                                                                                                                                | <b>Rs.3,80,000/-</b>  |
| <b>Total Project Cost (A+ B)</b>                                                                                                                                                                                                                                                                                  | <b>Rs.69,27,000/-</b> |
| The applicant indents to involve corporate environment responsibilities (CER) activity like Medicine Racks, Water Purifier and Green Belt Development to the nearby Dispensary and Water Purifier to the nearby Govt. School at 2.0% from the total project cost. The Cost would be around <b>Rs.1,39,000/-</b> . | <b>Rs.1,39,000/-</b>  |
| <b>Total Cost</b>                                                                                                                                                                                                                                                                                                 | <b>Rs.70,66,000/-</b> |
| The Total cost would be around seventy lakhs and sixty-six thousand only.                                                                                                                                                                                                                                         |                       |

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

The Progressive Quarry Closure Plan for Rough Stone and Gravel quarry over an extent of 1.84.0ha of Patta land in S.F.Nos.171/2 (P) & 176/2 of Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for **Thiru. V. Saravanan**, S/o. Velusamy, residing at No.3/165, Athikuttai Thottam, Idayarpalayam, Coimbatore District, Tamil Nadu State – 641 016.

**11.2 Present Land use pattern:****LAND USE TABLE-15**

| <b>Description</b>   | <b>Present area in (ha)</b> |
|----------------------|-----------------------------|
| Area under Quarrying | 1.10.3                      |
| Dump                 | 0.19.3                      |
| Infrastructure       | Nil                         |
| Roads                | 0.01.0                      |
| Green Belt           | Nil                         |
| Unutilized Area      | 0.53.4                      |
| <b>Grand Total</b>   | <b>1.84.0</b>               |

**11.3 Method of Mining:**

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

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

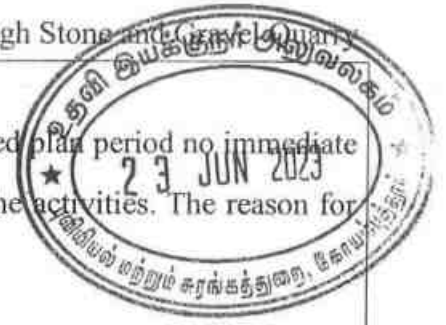
**11.4 Mineral Processing Operations:**

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



**11.5 Reasons for closure:**

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

**11.6 Statutory obligations:**

The applicant ensures to comply all the conditions were imposed while granting the precise area communication letter before the execution of lease deed and during the course of quarry operations.

**11.7 Progressive quarry closure plan preparation:**

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

|           |   |                                                                                                               |
|-----------|---|---------------------------------------------------------------------------------------------------------------|
| Name      | : | <b>Dr. P. Thangaraju, M.Sc., Ph.D.,</b><br>Qualified Person<br>(As per Rule 15(I)(a) and (I)(b) of MCR, 2016) |
| Address   | : | Reg. No.17, Advaita Ashram Road,<br>Alagapuram, Salem District – 636 004.                                     |
| Telephone | : | 0427- 2431989 (Office)                                                                                        |
| Cell No   | : | +91 94422 78601 & 94433 56539                                                                                 |

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

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

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

**11.9 Closure Plan:****(i) Mined Out Land:**

At the end of mining plan period, about 1.35.3ha of area will be mined out. Land use at various stages is given in the table below:

**LAND USE TABLE-16**

| Description          | Present area in (ha) | Area at the end of this quarrying period (ha) |
|----------------------|----------------------|-----------------------------------------------|
| Area under Quarrying | 1.10.3               | 1.35.3                                        |
| Dump                 | 0.19.3               | Nil                                           |
| Infrastructure       | Nil                  | 0.01.0                                        |
| Roads                | 0.01.0               | 0.03.0                                        |
| Green Belt           | Nil                  | 0.35.8                                        |
| Unutilized Area      | 0.53.4               | 0.08.9                                        |
| <b>Grand Total</b>   | <b>1.84.0</b>        | <b>1.84.0</b>                                 |

The Greenbelt Development will be formed in around the quarried out top benches, approach road and nearby panchayat road from the lease applied area.

**(ii) Water quality management:**

Following control measures will be adopted for controlling water pollution:

- Construction of garland drains to divert surface run-off from virgin area away from mining area.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- The quarried-out pit will be allowed to collect rain and seepage water which will act as a reservoir for storage. This water storage will enhance the static level and ground water recharge of nearby wells and it will be used for agriculture purpose to the nearby agriculture lands.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.



**(iii) Air Quality Management:**

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. Workers will be provided with personnel protective equipment like face-mask, earplug/ muffs.

For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

**(iv) Top Soil and Waste Management:**

There is no topsoil or waste generated during the proposed plan period. The entire quarried out Rough Stone and Gravel is utilized (100%). Hence, waste management does not arise.

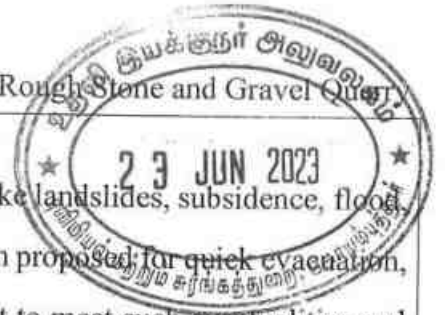
**(v) Disposal of mining machinery:**

All the machineries will be engaged on rental basis. Hence, disposal or decommissioning of mining machinery does not arise.

**(vi) Safety & Security:**

Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the work persons.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations and proper signal by siren alarm will be provide before blasting time to prevent any accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

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

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

- The mechanized mining activities in the area may involve any high-risk accident due to side falls/collapse, flying stones due to blasting etc.
- The complete quarrying operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.
- The Greenbelt Development will be formed in around the quarried out top benches, approach road and nearby panchayat road from the lease applied area.

**(viii) Care and Maintenance during Temporary Discontinuance:**

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

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

- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:

Quarry roads and approach roads,

Fencing on approach roads,

Checking and maintenance of machines and equipment

Drinking water arrangements,

Quarry office, first aid stations etc.



- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, quarrying operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

**(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:**

The quarry lease is granted for a period of maximum five years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

**(x) Time Scheduling for Abandonment:**

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

**(xi) Abandonment Cost:**

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

**LAND USE TABLE-17**

| ACTIVITY                                                                            |      | YEARS  |      |      |      |      | RATE                   | COST<br>(Rs.) |
|-------------------------------------------------------------------------------------|------|--------|------|------|------|------|------------------------|---------------|
|                                                                                     |      | I      | II   | III  | IV   | V    |                        |               |
| Plantation under safety zone                                                        | Nos. | 80     | 80   | 80   | 80   | 80   | @100 Rs<br>Per sapling | 40,000/-      |
|                                                                                     | Cost | 8000   | 8000 | 8000 | 8000 | 8000 |                        |               |
| Plantation in the quarried out top benches, approach road and nearby panchayat road | Nos. | 40     | 40   | 40   | 40   | 40   |                        | 20,000/-      |
|                                                                                     | Cost | 4000   | 4000 | 4000 | 4000 | 4000 |                        |               |
| Wire Fencing (In Mtrs) 560 Mtrs                                                     |      | 168000 |      |      |      |      | @300 Rs<br>Per Meter   | 1,68,000/-    |
| Garland Drain (In Mtrs) 470 Mtrs                                                    |      | 141000 |      |      |      |      | @300 Rs<br>Per Meter   | 1,41,000/-    |
| TOTAL                                                                               |      |        |      |      |      |      |                        | 3,69,000/-    |

**12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT**

This Mining Plan for Rough Stone (Charnockite) and Gravel are under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied within the quarrying operation, so that the safety of the mine, machinery and person will be well protected. No relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. As per amendment notification in the EIA notification 2006 is given by Ministry of Environment, Forest and Climate Change vide S.O.1807(E), dated:12.04.2022, the validity of environmental clearance is throughout the entire lease period. Any violation pointed out by the inspecting authorities shall be rectified and modified after scrutiny comments as per the guidelines of the Concerned Department and Authorities.

Prepared by

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

Qualified Person

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

Place: Salem

Date: 28.05.2023

DONATE RED

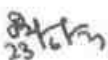
SPREAD GREEN

SAVE BLUE

**This Mining Plan is Approved**  
 subject to the conditions / stipulation  
 & indicated in the Mining Plan Approval  
 Letter No: RC. 93/mina/2023 dt 28-5-23  
 office of the A.D, Geology & Mining Coimbatore

This Mining Plan is Approved based on the  
 incorporation of the particulars specified  
 in the letter of the commissioner of Geology  
 and Mining, Chennai ref No: 3863/LC/2012  
 Dated 19.11.2012 and subjected to further  
 fulfillment of the condition laid down under  
 Tamil Nadu Minor Mineral Concession Rules 1959

  
**ASSISTANT DIRECTOR**  
 DEPARTMENT OF GEOLOGY & MINING  
 COIMBATORE DISTRICT

  
 23/6/23

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

ந.க.எண்.93/கனிமம்/2023



குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - கோயம்புத்தூர் மாவட்டம், தாலுக்கா வட்டம் - இடையர்பாளையம் கிராமம் - புல எண்கள். 171/2(பகுதி)-ல் 0.46.0 ஹெக்டேர் மற்றும் 176/2-ல் 1.38.0 ஹெக்டேர் ஆக மொத்தம் 1.84.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க திரு.V.சரவணன் என்பவருக்கு - குவாரி குத்தகை அனுமதி வழங்குவது - தொடர்பாக.

- பார்வை: 1. திரு.V.சரவணன், த/பெ. வேலுசாமி, 3/165, அத்திக்குட்டை தோட்டம், இடையர்பாளையம், கோயம்புத்தூர் மாவட்டம் என்பவரது விண்ணப்பம் நாள்: 23.01.2023.
2. இவ்வலுவலக கடிதம் இதே எண். நாள்: 27.01.2023.
3. வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு அவர்களின் கடிதம் ந.க.எண். 559/2023/அ2 நாள்: 16.02.2023.
4. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் தணிக்கை அறிக்கை நாள்: 13.04.2023.
5. அரசாணை எண். 169, தொழில் (எம்எம்சி.1) துறை, நாள்: 04.08.2020.

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பார்வை 1-ல் கோயம்புத்தூர் மாவட்டம், இடையர்பாளையம், 3/165, அத்திக்குட்டை தோட்டம் என்ற முகவரியில் வசிக்கும் திரு.வேலுசாமி என்பவரின் மகன் திரு.V.சரவணன் என்பவர் கோயம்புத்தூர் மாவட்டம், தாலுக்கா வட்டம், இடையர்பாளையம் கிராமம், புல எண்கள். 171/2(பகுதி)-ல் 0.46.0 ஹெக்டேர் மற்றும் 176/2-ல் 1.38.0 ஹெக்டேர் ஆக மொத்தம் 1.84.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரி உரிய ஆவணங்களுடன் விண்ணப்பித்துள்ளனர்.

மேற்படி மனு தொடர்பாக, வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு மற்றும் கோயம்புத்தூர் புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு கோயம்புத்தூர் மாவட்டம், இடையர்பாளையம், 3/165, அத்திக்குட்டை தோட்டம் என்ற முகவரியில் வசிக்கும் திரு.வேலுசாமி என்பவரின் மகன் திரு.V.சரவணன் என்பவருக்கு கோயம்புத்தூர் மாவட்டம், தாலுக்கா வட்டம், இடையர்பாளையம் கிராமம், புல எண்கள். 171/2(பகுதி)-ல் 0.46.0 ஹெக்டேர் மற்றும் 176/2-ல் 1.38.0 ஹெக்டேர் ஆக மொத்தம் 1.84.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா





பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க சில நிபந்தனைகளைப் பரிந்துரை செய்துள்ளார்கள்.

அனுமதி கோரும் புல எண்கள்.171/2 மற்றும் 176/2 ஆகியவை பட்டா எண்கள் முறையே 547 மற்றும் 263-ன் படி வேலுச்சாமி (1), பழனியம்மாள் (2), சரஸ்வதி (3), சுஜாதா (4) மற்றும் மனுதாரர் திரு.சரவணன் (5) ஆகியோர்கள் பெயரில் கூட்டுப்பட்டாவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. மேற்படி பூமியில் திரு.சரவணன் என்பவர் அனுமதி அளிக்கப்படும் நாளிலிருந்து ஐந்து ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் வெட்டியெடுக்க தங்களுக்கு எவ்வித ஆட்சேபணையும் இல்லை என கூட்டுபட்டாதாரர்கள் இணைந்து சம்மத கடிதம் அளித்துள்ளார்கள். எனவே மேற்படி பூமியில் மனுதாரர் குவாரி குத்தகை உரிமம் பெற தகுதியுடையவர் ஆவார்.

எனவே, வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு மற்றும் உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் ஆகியோரின் பரிந்துரைகளின் அடிப்படையில் கோயம்புத்தூர் மாவட்டம், இடையர்பாளையம், 3/165, அத்திக்குட்டை தோட்டம் என்ற முகவரியில் வசிக்கும் திரு.வேலுசாமி என்பவரின் மகன் திரு.V.சரவணன் என்பவருக்கு கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், இடையர்பாளையம் கிராமம், புல எண்கள். 171/2(பகுதி)-ல் 0.46.0 ஹெக்டேர் மற்றும் 176/2-ல் 1.38.0 ஹெக்டேர் ஆக மொத்தம் 1.84.0 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 1959-ஆம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் விதி 19(1) மற்றும் 22-ன் படி குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றும் நாளிலிருந்து 5 (ஐந்து) ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு குவாரி குத்தகை வழங்குவதற்குரிய நிலப்பரப்பாக (Precise Area Communication) கருதப்படுகிறது.

#### நிபந்தனைகள்

1. அருகிலுள்ள பட்டா நிலங்களுக்கும் மற்றும் பொது மக்களுக்கும், எவ்வித இடையூறும் இன்றி சாதாரண கல் மற்றும் கிராவல் குவாரி பணி மேற்கொள்ள வேண்டும்.
2. அருகில் உள்ள பட்டா நிலத்திற்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
3. அனுமதி கோரும் புலங்களின் கிழக்கு பகுதியில் செல்லும் மின்கம்பி பாதை மற்றும் தெற்கில் செல்லும் நிலவியல் ஓடை ஆகியவற்றிற்கு 50 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
4. அனுமதி கோரும் புலத்தினை அரசு அங்கீகாரம் பெற்ற நிறுவனத்தினரால் DGPS (Differential Global Positioning System)-ன் படி ஆய்வு செய்யப்பட்டு ஒவ்வொரு எல்லைத் துண்களும் நடப்படவேண்டும்.
5. குழந்தை தொழிலாளர்களை வேலைக்கு அமர்த்தல் கூடாது.



மேலும், தமிழ்நாடு சிறுகணிம சலுகை விதிகள்-1953 விதி எண் 4142-90-ன் படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு கிரங்க திட்டத்தினை தினங்களுக்குள் சமர்ப்பிக்குமாறும், மாநில சுற்றுச்சூழல் தாக்கீதம் அளித்தார அமைப்பின் அனுமதியினை பெற்று சமர்ப்பிக்கவும் மனுதாரரை கேட்டுக் கொள்ளப்படுகிறது.

*M. L. S. / 10/10/17*  
உதவி இயக்குநர்,  
புவியியல் மற்றும் சுரங்கத்துறை  
கோயம்புத்தூர்.

பெறுநர்:  
திரு. V.சரவணன்,  
த/பெ. வேலுசாமி,  
3/165, அத்திக்குட்டை தோட்டம்,  
இடையர்பாளையம்,  
கோயம்புத்தூர் மாவட்டம்.

*23/6/17*



## PROCEEDINGS OF THE DISTRICT COLLECTOR, COIMBATORE

Present: Thiru.T.N.Harilharan, I.A.S.,

23 JUN 2017

R.C.No.472/ Mines / 2016

Dated : 15.09.2017

Sub Mines and Minerals - Minor Mineral - Roughstone and gravel - Coimbatore District - Suler Taluk - Idayarpalayam Village - over an extent of 1.22.5 hectares of patta lands - in S.E.Nos. 171/2 (Part) and 176/2 (Part) - Quarry lease Application preferred by Thiru.V.Saravanan - Precise Area Communicated - Mining Plan Approved by the Assistant Director Geology & Mining - Environmental Clearance Obtained - quarry lease granted - for a period of 5 (five) years - orders issued

- Ref:
1. Quarry Lease Application of Thiru.V.Saravanan dated 22.06.2016.
  2. This office letter even number dated 22.06.2016 addressed to the Revenue Divisional Officer, Coimbatore South.
  3. The Revenue Divisional Officer, Coimbatore letter. No.L.Dis. 3138 / 2016 / A2 dated 29.07.2016.
  4. The Assistant Director, Geology and Mining, Coimbatore field inspection report dated 03.08.2016.
  5. This office letter even number dated 17.08.2016 addressed to the applicant in which precise area was communicated.
  6. This office letter even number dated 27.08.2016 addressed to the applicant in which the mining plan was approved.
  7. State Level Environment Impact Assessment Authority, Chennai Lr.No:SEIAA-TN/F.No.5716/1(a)/ EC.No:3906/2016 dated 13.06.2017.
  8. District Environmental Engineer, Tamil Nadu Pollution Control Board, Coimbatore (South) consent order No.170519983436, 170529983436 Dated 04.08.2017 and Proceedings No.F.1768 CBS / RS / DEE / TNPCB / CBS / W&A / 2017 Dated 04.08.2017.
  9. Thiru.V.Saravanan letter dated 17.08.2017 (along with the EC advertisement paper cutting, acknowledgement of Block Development Officer, Sultanpet Panchayat Union).

n) In addition to the above conditions, the lessee shall abide by the conditions specified in TNMMC Rules 1959, and also the conditions stipulated in the lease deed. Any violation of the above conditions will lead to forfeiture of the lease and also for cancellation of lease.

o) The condition imposed by the District Environmental Engineer, Tamil Nadu Pollution Control Board, Coimbatore (South) consent order No. 170519983436, 170529983436 Dated 04.08.2017 and Proceedings No.F.1768 CBS / RS / DEE / TNPCB / CBS / W&A / 2017 Dated 04.08.2017 should strictly be followed without any deviation. Further the lessee has to renew the consent order from time to time whenever the consent is expired.

Sd./xxx  
District Collector,  
Coimbatore.

To

Thiru.V.Saravanan,  
S/o.Velusamy,  
3/165, Athikuttai Thottam,  
Idayarpalayam,  
Coimbatore District.

Copy to :

1. Deputy Director, Dept. of Mines Safety, Chennai Region, No.46, old/ 5 New 2nd Street, Block 'AA', Anna Nagar, Chennai-600040.
2. Member Secretary, SEIAA, 3rd floor, Panagal Maligai, Saidapet, Chennai.
3. Commissioner, Geology and Mining, Chennai -32
4. District Environmental Engineer, Tamil Nadu Pollution Control Board, Coimbatore South
5. Revenue Divisional Officer, Coimbatore South.
6. Tahsildar, Suler.
7. Village Administrative Officer, Idayarpalayam (through the Tahsildar, Suler).

//True Copy/By Order//

  
For District Collector,  
Coimbatore.





Dr. H.MALLESHAPPA,I.F.S  
MEMBER SECRETARY

ANNEXURE 1.B



**ENVIRONMENTAL CLEARANCE**

**Lr. No.SEIAA-TN/F.No.5716/1(a)/ EC.No: 3906/2016 dated: 13.06.2017**

To  
Thiru. V. Saravanan  
S/o. Velusamy  
No.3/165, Atjhikuttai Thottam  
Idayarpalayam  
Coimbatore - 641016

Sir,

**Sub:** SEIAA-TN – Proposed **Rough Stone & Gravel** quarry located at S.F.No 171/2 (Part) & 176/2 (Part), Idayarpalayam Village,Sulur Taluk, Coimbatore District- issue of Environmental Clearance – Reg.

**Ref:** 1. Your Application for Environmental Clearance dt: 12.09.2016  
2. Minutes of the 82<sup>nd</sup> SEAC held on 21.10.2016 & 22.10.2016  
3. Minutes of the SEIAA meeting held on 13.06.2017

**Details of Minor Mineral Activity:-**

This has reference to your application first cited. The proposal is for obtaining environmental clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below.

|          |                                              |                                                                                                               |
|----------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>1</b> | <b>Name of Project Proponent and address</b> | Thiru. V. Saravanan<br>S/o. Velusamy<br>No.3/165, Atjhikuttai Thottam<br>Idayarpalayam<br>Coimbatore - 641016 |
| <b>2</b> | <b>Location of the Proposed Activity</b>     |                                                                                                               |
|          | Survey Number                                | 171/2 (Part) & 176/2 (Part)                                                                                   |
|          | Latitude and Longitude                       | 10°54'53"N to 10°54'56"N<br>77°06'43"E to 77°06'49"E                                                          |
|          | Village                                      | Idayarpalayam                                                                                                 |
|          | Taluk                                        | Sulur                                                                                                         |
|          | District                                     | Coimbatore                                                                                                    |

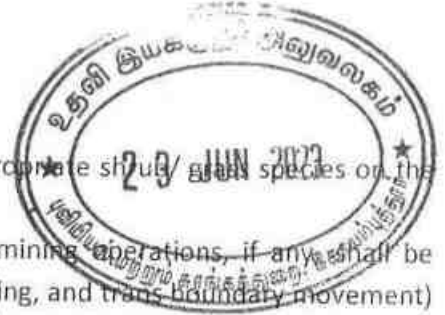
MEMBER SECRETARY  
SEIAA-TN



**Conditions to be Complied before commencing mining operations:**

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
  - I. The project has been accorded Environmental Clearance.
  - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
  - III. Environmental Clearance may also be seen on the website of the SEIAA.
  - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
4. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
5. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
6. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
7. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
8. The proponent shall ensure that First Aid Box is available at site.
9. The excavation activity shall not alter the natural drainage pattern of the area.
10. The excavated pit shall be restored by the project proponent for useful purposes.
11. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
12. The quarrying operation shall be restricted between 7AM and 5 PM.
13. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
14. A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.

MEMBER SECRETARY  
SEIAA-TN



- ii. Worked out slopes are to be stabilized by planting appropriate shrubs/ grass species on the slopes.
30. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
31. 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.
32. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
33. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
34. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
35. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
36. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
37. 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.
38. 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
39. Ground water quality monitoring should be conducted once in 3 Months
40. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
41. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF , GOI.
42. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF , GOI..
43. Bunds to be provided at the boundary of the project site.
44. 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.

MEMBER SECRETARY  
SEIAA-TN



**General Conditions:**

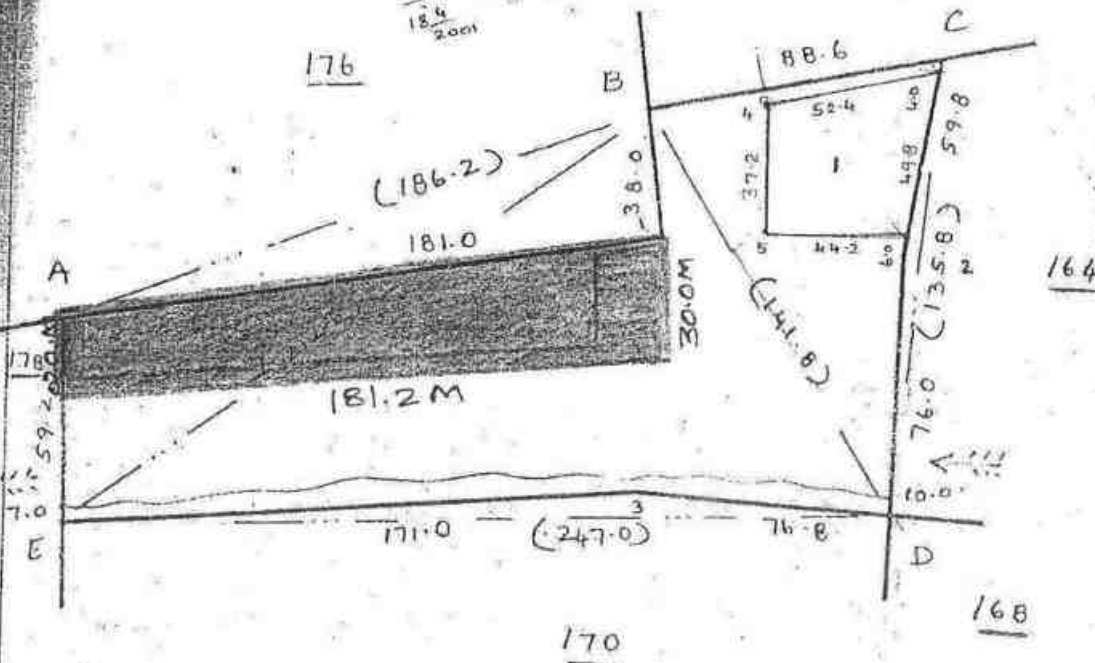
1. EC is given only on the factual records, documents and the commitment furnished as non-judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent for Establishment from the NPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. 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.



MEMBER SECRETARY  
SEIAA-TN

2. ஏன்

172



→ 7.5 M SAFETY DISTANCE

→ QUARRY LICENCE APPLIED  
AREA S.F. NO 171/2  
0.46.0 HA OUT OF 1.96.0 Ha

B  
(1118)  
94.0 - 112 - 5  
D  
B  
(88.6)  
53.0  
C

உளவட்ட அளவர் (பொ)  
செலக்தரிச்சல்

|   |      |       |              |   |
|---|------|-------|--------------|---|
|   |      |       | D<br>(2470)  |   |
| 3 | 6.8  | 170.8 | E            |   |
|   |      |       | D<br>(1358)  |   |
|   |      | 59.8  | 3.6          | 2 |
|   |      |       | C            |   |
|   |      |       | A<br>(186.2) |   |
| 1 | 37.0 | 6.2   |              |   |
|   |      |       | B<br>(212.6) |   |
| A | 49.8 | 33.4  |              |   |
|   |      |       | E            |   |

ਭੁਨੀ ਭੁਨੀ

*[Signature]*  
2015/6/9/one

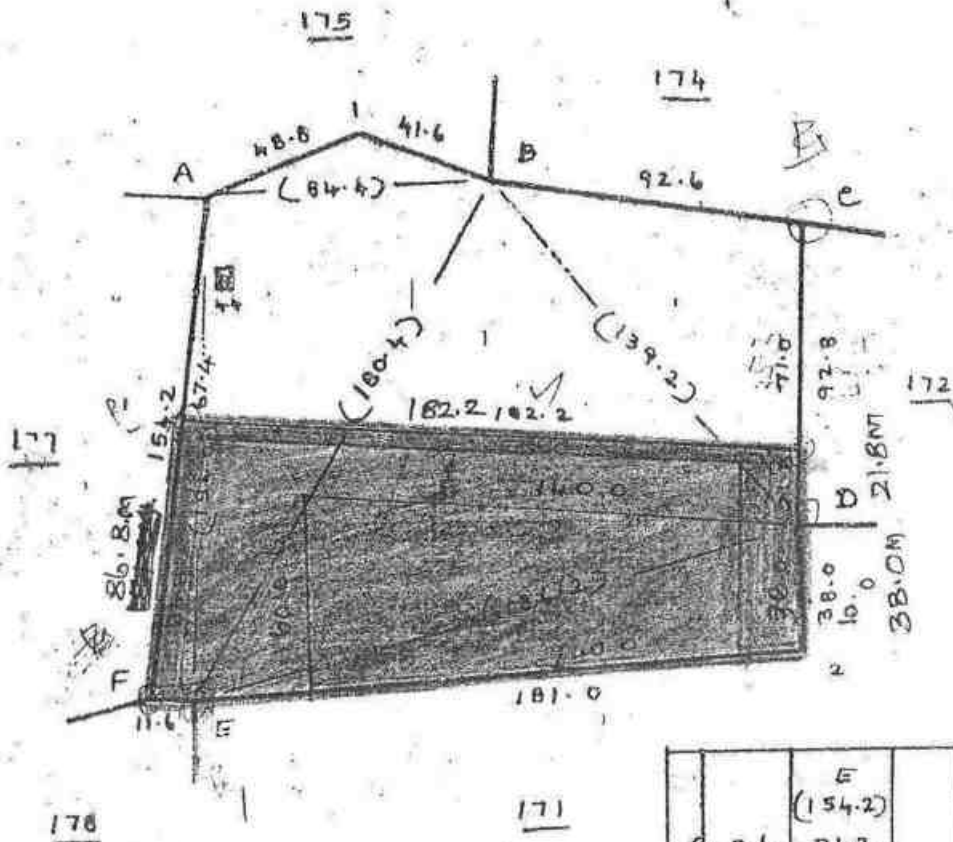
அளவு. 1: 2000

20250227

K. 24.5.84

Lease Applied Area-

MODEL 1

Lease Applied Area- ☐

உள்வட்ட அளவர் (பொ)  
செலக்தகரிச்சல்

→ 7.5 M SAFETY DISTANCE

→ QUARRY LICENCE APPLIED

AREA 176/2 S.NO. 1.38.0 Ha

১৯৪৬

Handwritten musical notation on a five-line staff, featuring a treble clef, a key signature of one sharp (F#), and a 3/4 time signature. The notation includes a series of eighth and sixteenth notes, with a final measure containing a double bar line and a repeat sign.

சிவசுந்தரி  
சிவசுந்தரி  
41, இலட்சுமிபுரம்  
மல்லிகாபதி

வனாதி, பர்

19. ③ 20 20 000  
24.5.84

97000

A. 6.

3



ANNEXURE



Lease Applied Area-

9/2/22, 12:55 PM

வட்டாட்சியர் அலுவலக இணைய சேவை - நில உரிமை விவரங்கள்



தமிழக அரசு

வருவாய்த் துறை

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

வட்டம் : தலூர்

பட்டா எண் : 547

மாவட்டம் : கோயம்புத்தூர்

வருவாய் கிராமம் : இடையபாளையம்

உரிமையாளர்கள் பெயர்

1. மசயப்ப கவுண்டர்
2. வேலுச்சாமி
3. வேலுச்சாமி
4. வேலுச்சாமி
5. வேலுச்சாமி

- |       |             |
|-------|-------------|
| மகன்  | வேலுச்சாமி  |
| மனைவி | பழனியம்மாள் |
| மகள்  | சரஸ்வதி     |
| மகள்  | சுஜாதா      |
| மகன்  | சரவணன்      |



| புல எண் | உட்பிரிவு | புன்செய்    |         | நன்செய்     |         | மற்றவை      |         | குறிப்புகள்                              |
|---------|-----------|-------------|---------|-------------|---------|-------------|---------|------------------------------------------|
|         |           | பரப்பு      | தீர்வை  | பரப்பு      | தீர்வை  | பரப்பு      | தீர்வை  |                                          |
|         |           | ஹெக்ட - ஏர் | ரூ - பை | ஹெக்ட - ஏர் | ரூ - பை | ஹெக்ட - ஏர் | ரூ - பை |                                          |
| 171     | 2         | 1 - 96.00   | 3.94    | --          | --      | --          | --      | 2016/0103/12/018835-<br>-- -- 12-06-2016 |
|         |           | 1 - 96.00   | 3.94    |             |         |             |         |                                          |

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/027/00547/70776 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 02-09-2022 அன்று 12:53:28 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழக அரசு

வருவாய்த் துறை

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



மாவட்டம் : கோயம்புத்தூர்

வட்டம் : குலூர்

வருவாய் கிராமம் : இடையபாளையம்

பட்டா எண் : 263

உரிமையாளர்கள் பெயர்

|                     |       |             |  |
|---------------------|-------|-------------|--|
| 1. மசையப்ப கவுண்டர் | மகன்  | வேலுச்சாமி  |  |
| 2. வேலுச்சாமி       | மனைவி | பழனியம்மாள் |  |
| 3. வேலுச்சாமி       | மகள்  | சரஸ்வதி     |  |
| 4. வேலுச்சாமி       | மகள்  | சுஜாதா      |  |
| 5. வேலுச்சாமி       | மகன்  | சரவணன்      |  |

| புல எண் | உட்பிரிவு | புன்செய்   |         | நன்செய்    |         | மற்றவை     |         | குறிப்புகள்                                                   |
|---------|-----------|------------|---------|------------|---------|------------|---------|---------------------------------------------------------------|
|         |           | பரப்பு     | தீர்வை  | பரப்பு     | தீர்வை  | பரப்பு     | தீர்வை  |                                                               |
|         |           | ஹெக் - ஏர் | ரூ - பை | ஹெக் - ஏர் | ரூ - பை | ஹெக் - ஏர் | ரூ - பை |                                                               |
| 168     | 1         | 1 - 26.00  | 2.54    | --         | --      | --         | --      | 2016/0103/12/018835-<br>-- -- 12-06-2016                      |
| 170     | -         | 2 - 89.00  | 5.81    | --         | --      | --         | --      | 2016/0103/12/018835-<br>-- -- 12-06-2016                      |
| 176     | 2         | 1 - 38.00  | 2.75    | --         | --      | --         | --      | 2016/0103/12/018835-<br>-- -- 12-06-2016                      |
| 179     | 3         | 0 - 10.00  | 0.18    | --         | --      | --         | --      | 2016/0103/12/018835-<br>-- -- 12-06-2016                      |
| 263     | 1B1A1A1   | 1 - 98.58  | 3.97    | --         | --      | --         | --      | 2023/0105/12/396725-<br>-2023/12/10/000400SD<br>-- 29-04-2023 |
|         |           | 7 - 61.58  | 15.25   |            |         |            |         |                                                               |

குறிப்பு2 :



- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 12/10/027/00263/40731 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 26-05-2023 அன்று 05:00:22 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



கி. எண். 97. இடையர்பாளையம்.

|           | 2 | 3  | 4    | 5   | 6 | 7    | 8                  | 9       | 10  |                                                            |
|-----------|---|----|------|-----|---|------|--------------------|---------|-----|------------------------------------------------------------|
|           |   |    |      |     |   |      | ரு. பை. தொ. ஏர்ஸ். | ரு. பை. |     |                                                            |
| D 169-1பா | ர | பு | .... | 8-3 | 5 | 2 00 | 0 02.0             | 0 06    | 29  | ஆ. ஆறுமுகக் கவுண்டர்.                                      |
| A -2பா    | ர | பு | .... | 8-3 | 5 | 2 00 | 1 36.0             | 2 70    | 204 | ரா. ரங்கசாமி கவுண்டர்.                                     |
| B -2பா    | ர | பு | .... | 8-3 | 5 | 2 00 | 0 05.0             | 0 10    | 29  | ஆ. ஆறுமுகக் கவுண்டர்.                                      |
|           |   |    |      |     |   |      | 2 95.5             | 5 94    |     |                                                            |
| 170       | ர | பு | .... | 8-3 | 5 | 2 00 | 2 89.0             | 5 81    | 263 | ம. வேலுசாமி.                                               |
| 171       | ர | பு | .... | 8-3 | 5 | 2 00 | 2 16.5             | 4 37    | 357 | ம. வேலுசாமி (1),<br>ரா. ரங்கசாமி கவுண்டர் (2).             |
| 172       | ர | பு | .... | 8-3 | 5 | 2 00 | 1 37.0             | 2 75    | 453 | ர. சாமிநாதன் (1),<br>ராஜா மணி (2),<br>ரா. பழனியம்மாள் (3). |
| 173-பா    | ர | பு | .... | 8-3 | 5 | 2 00 | 0 45.5             | 0 92    | 264 | பூ. வேலாயுத போயன்.                                         |
| 2 -பா     | ர | பு | .... | 8-3 | 5 | 2 00 | 0 53.5             | 1 08    | 176 | க. மத்திரி உடையார்.                                        |
|           |   |    |      |     |   |      | 0 99.0             | 2 00    |     |                                                            |
| 1 174-பா  | ர | பு | .... | 8-3 | 5 | 2 00 | 0 17.0             | 0 34    | 294 | ர. நாச்சி வண்ணான்.                                         |
| 2 -பா     | ர | பு | .... | 8-3 | 5 | 2 00 | 0 84.0             | 1 70    | 176 | க. மத்திரி உடையார்.                                        |
| 3 -பா     | ர | பு | .... | 8-3 | 5 | 2 00 | 0 19.5             | 0 39    | 158 | க. பெருமாள் உடையார்.                                       |
| 4 -பா     | ர | பு | .... | 8-3 | 5 | 2 00 | 0 90.0             | 1 82    | 264 | பூ. வேலாயுத போயன்.                                         |
|           |   |    |      |     |   |      | 2 10.5             | 4 25    |     |                                                            |
| 1 175-பா  | ர | பு | .... | 8-3 | 5 | 2 00 | 0 62.0             | 1 25    | 158 | பெ. சுப்பராய உடையார்.                                      |
| 2 -பா     | ர | பு | .... | 8-3 | 5 | 2 00 | 0 20.5             | 0 42    | 294 | ர. நாச்சி வண்ணான்.                                         |
| 3 -பா     | ர | பு | .... | 8-3 | 5 | 2 00 | 0 64.0             | 1 29    | 158 | பெ. சுப்பராய உடையார்.                                      |

கிராம நிர்வாக அலுவலர்  
 61. இடையர்பாளையம் கிராம  
 குலார் வட்டம்





| 1                      | 2      | 3  | 4 | 5    | 6    | 7      | 8    | 9   | 10   |
|------------------------|--------|----|---|------|------|--------|------|-----|------|
| 172/1<br>averages<br>2 | 172.00 | 15 | 4 | 8.35 | 2.00 | 0.875  | 1.75 | 453 | 0.61 |
|                        |        |    |   |      |      | 0.495  | 1.00 | 501 | 0.61 |
|                        |        |    |   |      |      | 1.37.0 | 2.75 |     |      |

453 0.61  
புதுச்சேரி மருத்துவமனை  
501 பாரம்பரிய மருத்துவமனை  
1.37.0 2.75  
Test 17.100/14.000 5.655

|            |        |    |   |      |      |        |      |     |      |
|------------|--------|----|---|------|------|--------|------|-----|------|
| 171/1<br>2 | 171.00 | 15 | 4 | 8.35 | 2.00 | 0.205  | 0.43 | 357 | 0.61 |
|            |        |    |   |      |      | 1.96.0 | 3.94 | 547 | 0.61 |
|            |        |    |   |      |      | 2.16.5 | 4.37 |     |      |

357 0.61  
547 0.61  
change 4.400 TK 4.400  
14.00  
1.9.2001  
18.4  
2001

|                  |        |    |   |      |      |        |      |     |      |
|------------------|--------|----|---|------|------|--------|------|-----|------|
| 175 175<br>3A 3U | 175.00 | 15 | 4 | 8.35 | 2.00 | 0.005  | 0.06 | 158 | 0.61 |
|                  |        |    |   |      |      | 0.63.5 | 1.27 | 294 | 0.61 |
|                  |        |    |   |      |      | 0.64.0 | 1.33 |     |      |

158  
கருப்பண்ணன் மருத்துவமனை  
புதுச்சேரி  
தருக்கிலை மருத்துவமனை  
மருத்துவமனை 2  
294  
தருக்கிலை மருத்துவமனை  
மருத்துவமனை

உட்பகுதி  
1.3.06  
T.K. 8A 210/1415 11.2.14  
மருத்துவமனை

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.  
சுருக்கம்  
07/02/2023

சுருக்கம்  
07/02/2023  
சுருக்கம்  
07/02/2023



| 1   | 2  | 3       | 4 | 5  | 6   | 7   | 8 | 9    | 10     |       |                                                                               |
|-----|----|---------|---|----|-----|-----|---|------|--------|-------|-------------------------------------------------------------------------------|
| 175 | 4  | 175-பா  | ர | பு | ... | 8-3 | 5 | 2 00 | 0 11.5 | 0 23  | 29                                                                            |
|     |    |         |   |    |     |     |   |      | 1 58.0 | 3 19  |                                                                               |
| 176 | 1  | 176-1   | ர | பு | ... | 8-3 | 5 | 2 00 | 1 38.0 | 2 75  | 264 ப. வேலாயுத போயன்.                                                         |
|     | 2  | -2      | ர | பு | ... | 8-3 | 5 | 2 00 | 1 38.0 | 2 75  | 263 ம. வேலுசாமி.                                                              |
|     |    |         |   |    |     |     |   |      | 2 76.0 | 5 50  |                                                                               |
| 177 | 1  | 177-1   | ர | பு | ... | 8-3 | 5 | 2 00 | 1 38.0 | 2 75  | 476 நா. பொன்னம் மாள் மற்றும் ஆறு பேர்களுக்கும்.*                              |
|     | 2  | -2      | ர | பு | ... | 8-3 | 5 | 2 00 | 1 37.0 | 2 75  | 476 நா. பொன்னம் மாள் மற்றும் ஆறு பேர்களுக்கும்.*                              |
|     |    |         |   |    |     |     |   |      | 2 75.0 | 5 50  |                                                                               |
| 178 | 1  | 178-பா  | ர | பு | ... | 8-3 | 5 | 2 00 | 1 56.5 | 3 15  | 19 ஆ. ஆறுமுக கவுண்டர்.                                                        |
|     | 2  | -பா     | ர | பு | ... | 8-3 | 5 | 2 00 | 2 34.5 | 4 72  | 169 ரா. பொன்னம் மாள்.                                                         |
|     |    |         |   |    |     |     |   |      | 3 91.0 | 7 87  |                                                                               |
| 179 | 1A | 179-1ur | ர | பு | ... | 8-3 | 5 | 2 00 | 1 44.0 | 2 90  | 19 ஆ. ஆறுமுக கவுண்டர்.                                                        |
|     | 1B | -1ur    | ர | பு | ... | 8-3 | 5 | 2 00 | 0 76.5 | 1 54  | 169 ரா. பொன்னம் மாள்.                                                         |
|     | 2  | -2      | ர | பு | ... | 8-3 | 5 | 2 00 | 5 24.5 | 10 50 | 131 தி. பழனியம் மாள்.                                                         |
|     | 3  | -3      | ர | பு | ... | 8-3 | 5 | 2 00 | 0 10.0 | 0 18  | 205 ரா. ரங்கே கவுண்டர்.                                                       |
|     |    |         |   |    |     |     |   |      | 7 55.0 | 15 12 |                                                                               |
| 180 |    | 180     | ர | பு | ... | 8-3 | 5 | 2 00 | 3 11.0 | 6 25  | 112 ப. திருவேங்கட சாமி (1), மத்தியியப்ப கவுண்டர் (2), வெங்கடாசல கவுண்டர் (3). |

உதன் இயக்குநர் அலுவலகம்  
23 JUN 2023  
தமிழ்நாடு அரசு  
தமிழ்நாடு அரசு  
தமிழ்நாடு அரசு

Change  
180  
2 க்கு 585  
2023

Change.

(180)

12 க்கு சதவீதம்

கிராம நிர்வாக அலுவலர்  
 61. இடைபர்ப்பாளையம் கிராமம்  
 குலார் வட்டம்

\* விவரப்பட்டியலைப் பார்க்கவும்.



தமிழ்நாடு தமிழ்நாடு TAMIL NADU  
V. H. முனியம்மாள்

10AC 951646

05-11-2022

சென்னை

சம்மதக் கடிதம்

கோயம்புத்தூர் மாவட்டம், கூலூர் வட்டம், இடையர்பாளையம், 3/165, அத்திக்குட்டை தோட்டம் என்ற முகவரியில் வசிக்கும் (லேட்) திரு. M. வேலுசாமி அவர்களின் வாரிசுகளான (1) மனைவி பழனியம்மாள், (2) மகள் திருமதி. சரஸ்வதி, (3) மகள் திருமதி. சுஜாதா ஆகிய மூவரும் எழுதிக்கொடுக்கும் உறுதிமொழிப்பத்திரம் என்னவென்றால்,

கோயம்புத்தூர் மாவட்டம், கூலூர் வட்டம், இடையர்பாளையம் கிராமம், பட்டா எண் 547-ன் படிபுல எண் 171/2ல் மொத்தம் 1.96.0 ஹெக்டேர் பரப்பு பூமியும், பட்டா எண் 263-ன் படிபுல எண் 176/2ல் மொத்தம் 1.38.0 ஹெக்டேர் பரப்பு பூமியும் ஆக மொத்தம் 3.34.0 ஹெக்டேர் பரப்பு பூமியானது எங்களுக்குமே மேற்படி (லேட்) திரு. M. வேலுசாமி அவர்களின் மற்றொரு வாரிசும் (மகன்) மனுதாரருமான திரு. V. சரவணன் அவர்களுக்கும் கூடாகப் பாத்தியப்பட்டது. மேற்படி காலையில் சாதாரணக்கல் மற்றும் கிராவல் மண் வெட்டி எடுக்க அரசாங்கத்தால் குத்தகை ஒப்பந்தப்பத்திரம் நிறைவேற்றப்படும் நாளிலிருந்து ஐந்து ஆண்டுகளுக்கு சாதாரணக்கல் மற்றும் கிராவல் மண் வெட்டி எடுக்க மனுதாரரான திரு. V. சரவணன் என்பவருக்கு குத்தகை உரிமம் வழங்க எவ்வித ஆட்சேபமேனும் இல்லை என்பதை நாம் உறுதிப்படுத்தி மூலம் தெரிவித்துக் கொள்கிறோம்.

இப்படிக்கு

V. H. முனியம்மாள்

N. Saraswathi

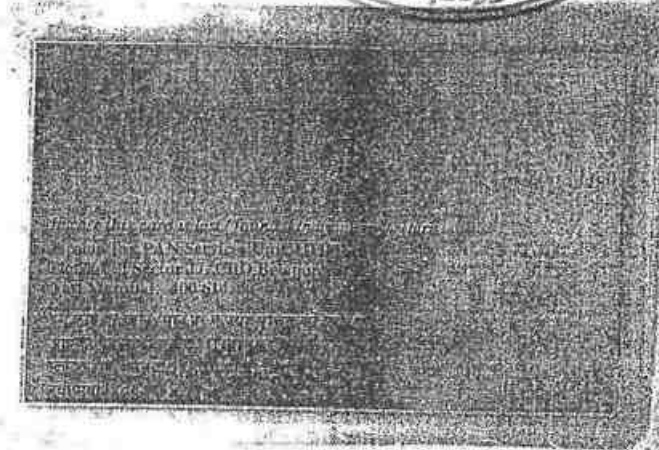
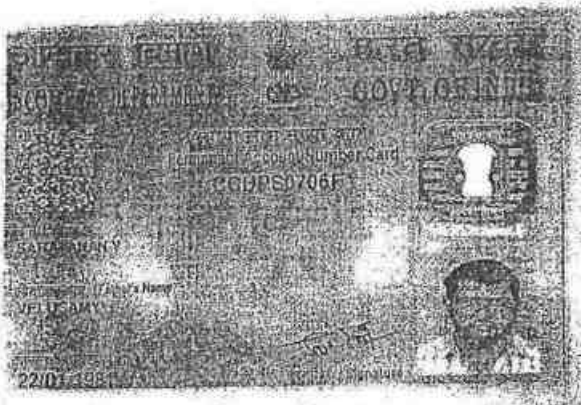
m. Sujatha

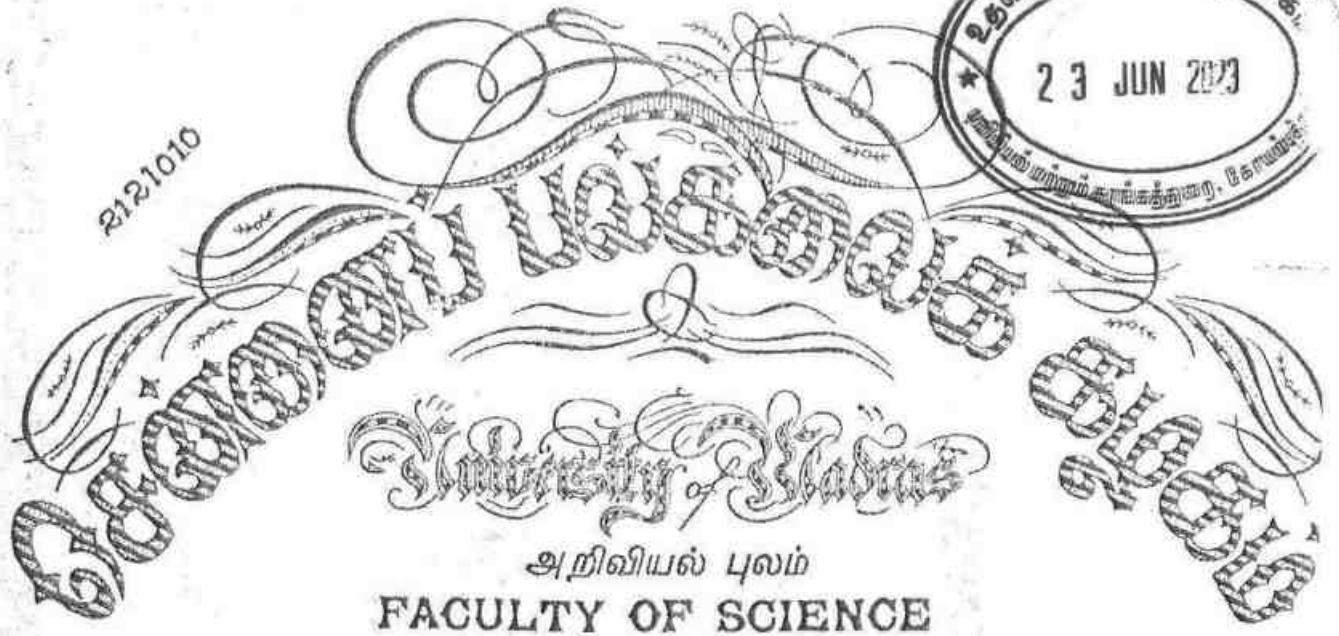
S.M. PRABHAKARAN, B.A., B.L.,  
ADVOCATE & NOTARY PUBLIC  
(GOVT OF INDIA) Enr.No 1349/92  
28, REVATHY BUILDING,  
GOPALAPURAM 2ND STREET,  
COIMBATORE - 641 018.  
CELL. 98941-31171











சென்னைப் பல்கலைக் கழகப் பேரவை..... 1994 ஆம் ஆண்டு..... ஏப்ரல்..... மாதம் நடந்த..... கணிமகியஸ்..... தேர்வில்..... ரெ. தங்கராஜ்..... என்பவர்..... முதல்..... வகுப்பில் தேர்ச்சி பெற்றார் என்று தக்க தீர்வானார்கள் சான்றளித்தபடி அறிவியல் நிறைஞர் என்னும் பட்டத்தை அவருக்குப் பல்கலைக் கழக இலச்சினையுடன் வழங்குகிறது.

The Senate of the UNIVERSITY OF MADRAS hereby makes known that..... P. Thangaraju has been admitted to the Degree of Master of Science, he/she having been certified by duly appointed Examiners to be qualified to receive the same in..... Geology..... and was placed in the..... First..... Class, at the Examination held in April 1994.



Given under the seal of the University

சேப்பாக்கம், Chepauk  
சென்னை, Madras  
நாள்: Dated: 25-01-1999

பதிவாளர்,  
Registrar

P.T. Thangaraju  
துணை வேந்தர்,  
Vice-Chancellor



GOVERNMENT OF INDIA  
MINISTRY OF LABOUR AND REHABILITATION  
OFFICE OF THE DIRECTOR GENERAL OF MINES

Certificate of Practical experience granted by the Manager to a candidate for a Manager's / Surveyor's / Foremen's / Over man's / Sirdar's / Mate's / Short firer's / Blaster's Certificate of competency (Restricted) examination under the Metalliferous Mines Regulations 1961.

I T.VENKATARAJAGOPALAN being the Mines Agent of M/S.LIMENAPH CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Thenmali Limestone Mine) do hereby certify that Thiru. P.THANGARAJU, son of S.PERIASAMY (whose signature is appended) worked as a Geologist in the above mine from 02.05.1994 to 30.12.1999. During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved continuous attendance at the mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper candidate to be examined for Certificate of Competency.

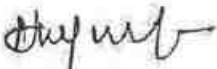
THENMALI LIME STONE MINES  
10/6/06  
(Signature with date and official Seal)  
[T.VENKATARAJAGOPALAN]

Mines Agent:

P.O. : ARUKANGULAM

District : TIRUNELVELI

State : TAMIL NADU

  
(Signature of Candidate)

(State name of Mineral) : LIMESTONE

| S.No                                             | Particulars of practical Experience<br>(a) | Place of Experience<br>(b)       | Period of practical experience(c) |            | Total Experience (c) |       |     |
|--------------------------------------------------|--------------------------------------------|----------------------------------|-----------------------------------|------------|----------------------|-------|-----|
|                                                  |                                            |                                  | 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  |
| GRAND TOTAL                                      |                                            |                                  |                                   |            | 05                   | 07    | 28  |
| (Five Years Seven Months Twenty Eight Days Only) |                                            |                                  |                                   |            |                      |       |     |

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 THIRUMALAI LIME STONE MINES

Signature of Candidate

Signature of Manager with Basic Stamp  
[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



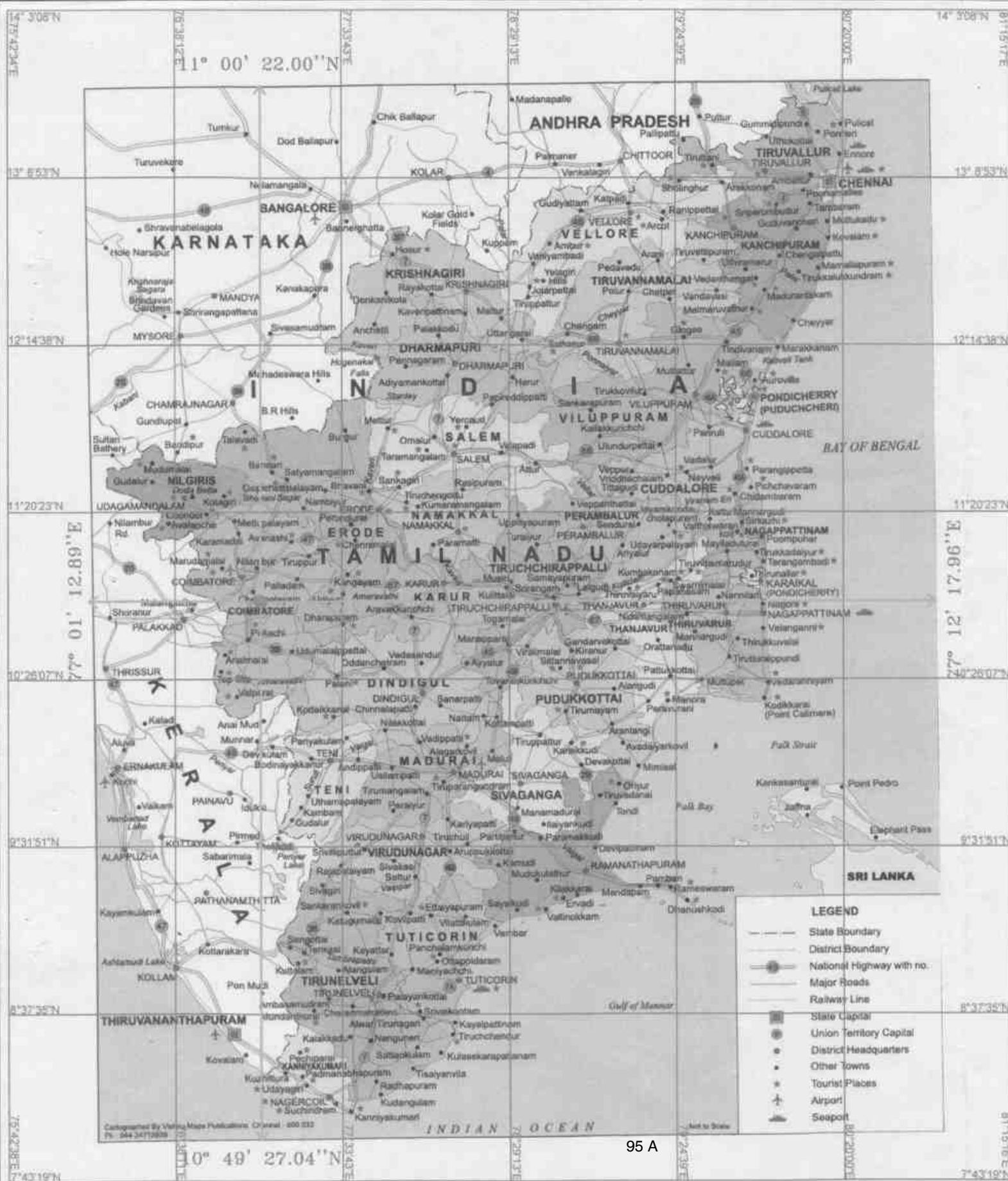


**PLATE NO:1**

**DATE OF SURVEY : 26.05.2023**

**APPLICANT:**

THIRU.V.SARAVANAN,  
S/O.VELUSAMY,  
3/165,ATHIKUTTAI THOTTAM,  
IDAYARPALAYAM,COIMBATORE DISTRICT.

**LOCATION OF QUARRY**

**LEASE APPLIED AREA:-**

S.F.No : 171/2(P)& 176/2,

EXTENT : 1.84.00 HA.

VILLAGE : IDAYARPALAYAM

TALUK : SULUR

DISTRICT : COIMBATORE

**INDEX**

Q. L.A. AREA : ●

TOPO SHEET NO. : 58 F/01

LATITUDE : 10° 54' 52.4089"N to 10° 54' 56.6423"N

LONGITUDE : 77° 06' 42.1340"E to 77° 06' 48.7539"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 LEASE MAP  
AUTHENTICATED BY STATE GOVERNMENT.

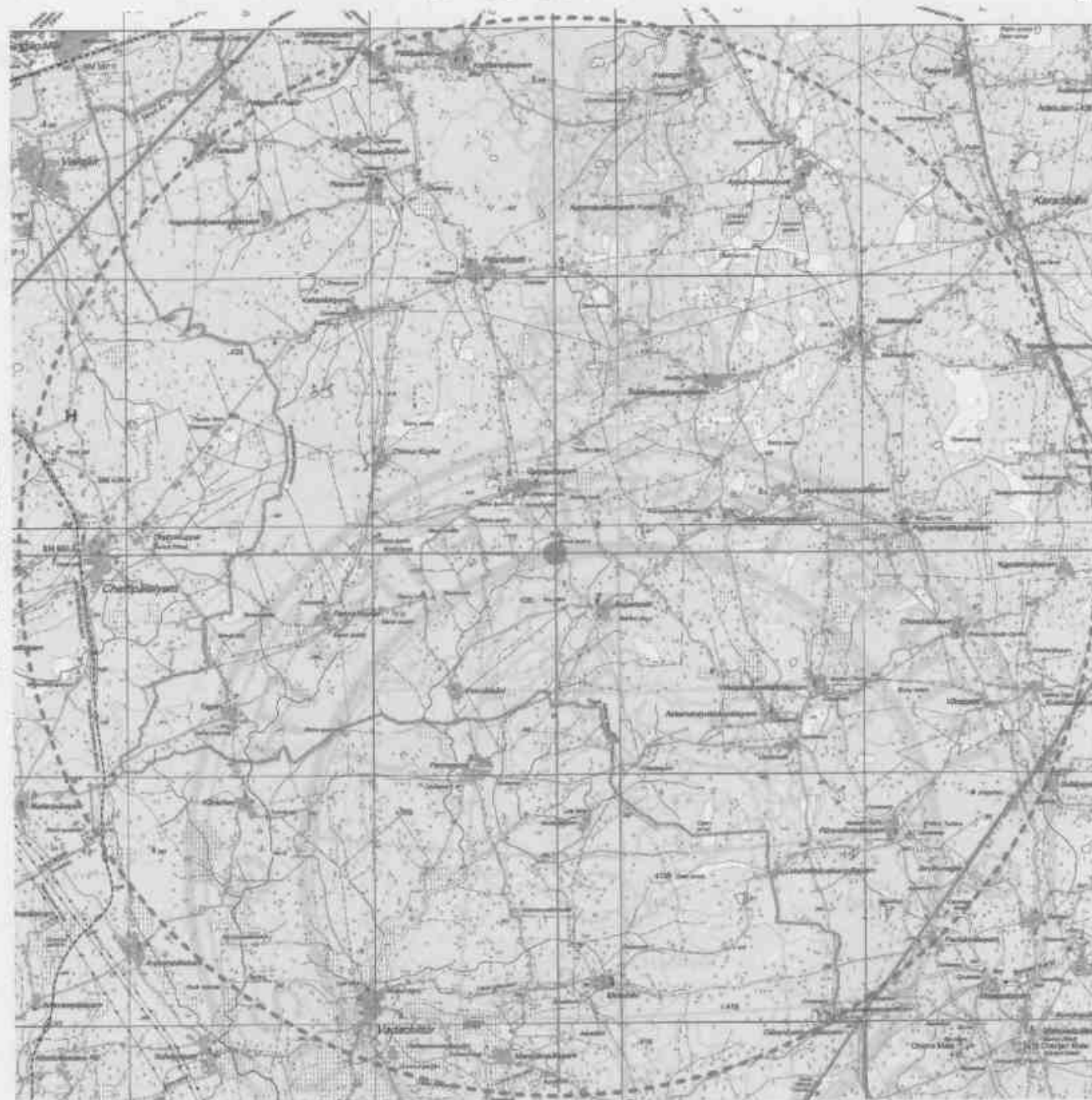
*Dr. P. THANGARAJU*

Dr. P. THANGARAJU, M.Sc, Ph.D.,  
QUALIFIED PERSON  
Under Rule 15(i)(a) and (b) of MCR, 2016

DATE OF SURVEY : 26.05.2023



10° 54' 56.6423''N



10° 54' 52.4089''N

TOPO SHEET NO. : 58 F/01

LATITUDE :10° 54' 52.4089"N to 10° 54' 56.6423"N

LONGITUDE :77° 06' 42.1340"E to 77° 06' 48.7539"E

10KM RADIUS : 

Q.L.APPLIED AREA : ☐

96 A

APPLICANT:

THIRU.V.SARAVANAN

S/O.VELUSAMY.

3/165,ATHIKUTTAI THOTTAM.

IDAYARPALAYAM, COIMBATORE DISTRICT.

## LOCATION OF QUARRY

LEASE APPLIES

S.F.No : 171/SB/8 176/2.

EXTENT : 184.00 HA

VILLAGE : DAYARFALAYAM

TALUK : SUNGAI

DISTRICT : COIMBATORE

## INDEX

### CONVENTIONAL SYMBOLS

|                                                                     |  |
|---------------------------------------------------------------------|--|
| Express highway with toll with bridge with distance stone           |  |
| Roads, isolated, according to importance                            |  |
| Roads, double continuously according to importance                  |  |
| Unmarked road, dark rock, dark rock with poles, Postoff             |  |
| Binocular with rock in belt, undefined, Guel                        |  |
| Dance, industry or type field, entrance, blue                       |  |
| River, dry with water channel, with sand & rocks, Total Water       |  |
| Submerged rocks, Small Swamp, Rocks                                 |  |
| Walls, level, undefined, Tulewell, Spring, Tanks, permanent, dry    |  |
| Embarkments, mud or wet, dark, broken ground                        |  |
| Railways, broad gauge, double, single with station, other, center   |  |
| Railways, other gauge, double, single with distance stone, etc.     |  |
| Mineral line or railway, RR, Dotted with Tunnel                     |  |
| Contours with rock-peaks, Rocky slopes, Cuts                        |  |
| Best features (The Ground-Improvement), Clunkers, Whirling          |  |
| Towns or Villages, isolated, scattered, Park                        |  |
| Hot, permanent, temporary, Trench, Attraction                       |  |
| Tunnels, CHNH, Church, Mosque, Igloo, Tank, Drains                  |  |
| Lighthouses, Lightships, Buoy, light, oil, light, Anchorage         |  |
| Miner, View or Traffic, Cross, Symbol                               |  |
| Points, primary, other, Marine, Center, Station, Other, Area        |  |
| Area, mountain, wooded, Surveyed, Area                              |  |
| Boundary, information                                               |  |
| State, International, International                                 |  |
| State, International, International                                 |  |
| Boundary, information, International                                |  |
| Height, International, station, joint, approximate                  |  |
| Boundary, information, International                                |  |
| Point, office, Information, office, Contact, back                   |  |
| Point, house or temporary, temporary, Church, house, Police station |  |
| Camping ground, Forest, reserved, parallel                          |  |
| Special name, administrative, County or other                       |  |
| Hospital, Quaternary, Veterinary, Hospital, Superiority             |  |
| Atmosphere, Helium, Treated, etc.                                   |  |
| Power line, with water, surveyed, with cable, environment           |  |

TOPO SKETCH OF QUARRY  
LEASE APPLIED AREA FOR  
10Km RADIUS

SCALE- 1:100000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS  
PLATE IS TRUE AND CORRECT TO THE BEST OF MY  
KNOWLEDGE BASED UPON THE LEASE MAP  
AUTHENTICATED BY STATE GOVERNMENT

Dr. P. THANGARAJU, M.Sc., Ph.D.,  
QUALIFIED PERSON

Under Rule 15(i)(a) and (b) of MCR, 2016

| LANDUSE PATTERN   |            |
|-------------------|------------|
| DESCRIPTION       | PERCENTAGE |
| ROADS\ODAI        | (10%)      |
| HABITATION        | (15%)      |
| TREES\WIND MILL   | (20%)      |
| AGRICULTURAL LAND | (45%)      |
| PIT\DUMP          | (10%)      |

OCTOBER TO DECEMBER



PLATE NO: I-B

DATE OF SURVEY : 26.05.2023

1Km Radius :

500m Radius :

Q.L.Applied Area :

TOPO SHEET NO. : 5B F/01

LATITUDE : 10° 54' 29.11"N to 10° 54' 56.6423"N

LONGITUDE : 77° 06' 25.67"E to 77° 07' 21.68"E

APPLICANT:

THIRU.V.SARAVANAN  
S/O.VELUSAMY,  
3/165,ATHIKUTTAI THOTTAM,  
IDAYARPALAYAM,COIMBATORE DISTRICT.

LOCATION OF QUARRY

LEASE APPLIED AREA:-

S.F.No : 171/2(P)& 176/2,

EXTENT : 1.84.00 HA.

VILLAGE : IDAYARPALAYAM

TALUK : SULUR

DISTRICT : COIMBATORE

INDEX

APPROACH ROAD

VILLAGE ROAD

HABITATION

TREES

AGRICULTURAL LAND

PIT

WIND DIRECTION

DUMP

ODAI

WIND MILL

INFRASTRUCTURE

POWER LINE

ENVIRONMENTAL AND

LANDUSE PLAN FOR 1Km RADIUS

SCALE- 1:10,000

PREPARED BY :

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AUTHENTICATED BY STATE GOVERNMENT

Dr.P.THANGARAJUL M.Sc,Ph.D.,  
QUALIFIED PERSON

Under Rule 15(i)(a)and(b)of MCR,2016

77° 06' 09.21"E

77° 06' 25.67"E

77° 07' 05.21"E

77° 07' 21.68"E

10° 55' 12.91"N

10° 54' 36.54"N

10° 54' 19.87"N

JULY TO SEPTEMBER



EDAIYARPALAYAM

2.0Km

1.25Km

1.3Km

Bogampatti

2.9Km

Ponnakkani



PLATE NO: I-C

DATE OF SURVEY : 26.05.2023

APPLICANT: JUN 2023

THIRU KARAVANAN,

S/O. VELUSAMY

3/165, ATHIKUTATHOTTAM,

IDAYARPALAYAM, COIMBATORE DISTRICT.

LOCATION OF QUARRY

LEASE APPLIED AREA:-

S.F.No : 171/2(P) & 176/2.

EXTENT : 1.84.00 HA.

VILLAGE : IDAYARPALAYAM

TALUK : SULUR

DISTRICT : COIMBATORE

INDEX

Q.L.APPLIED AREA



MAJOR ROAD



VILLAGE ROAD



APPROACH ROAD



ROUTE PLAN

Not To Scale

PREPARED BY :

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KNOWLEDGE BASED UPON THE LEASE MAP  
AUTHENTICATED BY STATE GOVERNMENT

  
Dr. P. THANGARAJU, M.Sc., Ph.D.,  
QUALIFIED PERSON

Under Rule 15(i)(a) and (b) of MCR, 2016

# PLATE NO. II

DATE OF SURVEY :26.05.2023

## APPLICANT:

THIRU.V.SARASWATHI

S/O.VELUSAMI

3/165,ATHANAIKOTTA

IDAYARPALAYAM, COIMBATORE DISTRICT

## LOCATION OF QUARRY

## LEASE APPLIED AREA

S.F.No : 171/2(P)& 176/2.

EXTENT : 1.84.00 HA.

VILLAGE : IDAYARPALAYAM

TALUK : SULUR

DISTRICT : COIMBATORE

## INDEX

Q.L. APPLIED AREA BOUNDARY

7.5M,50M,SAFETY DISTANCE

TEMPORARY BENCH MARK

QUARRY PIT

QUARRY ROAD

STRIKE AND DIP

GRAVEL

ROUGH STONE

POWER LINE

ODAI

APPROACH ROAD

## QUARRY LEASE AND

## 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 LEASEMAP  
 AUTHENTICATED  
 BY STATE GOVERNMENT

Dr.P.THARGARKJUM, S.D.,  
 QUALIFIED PERSON

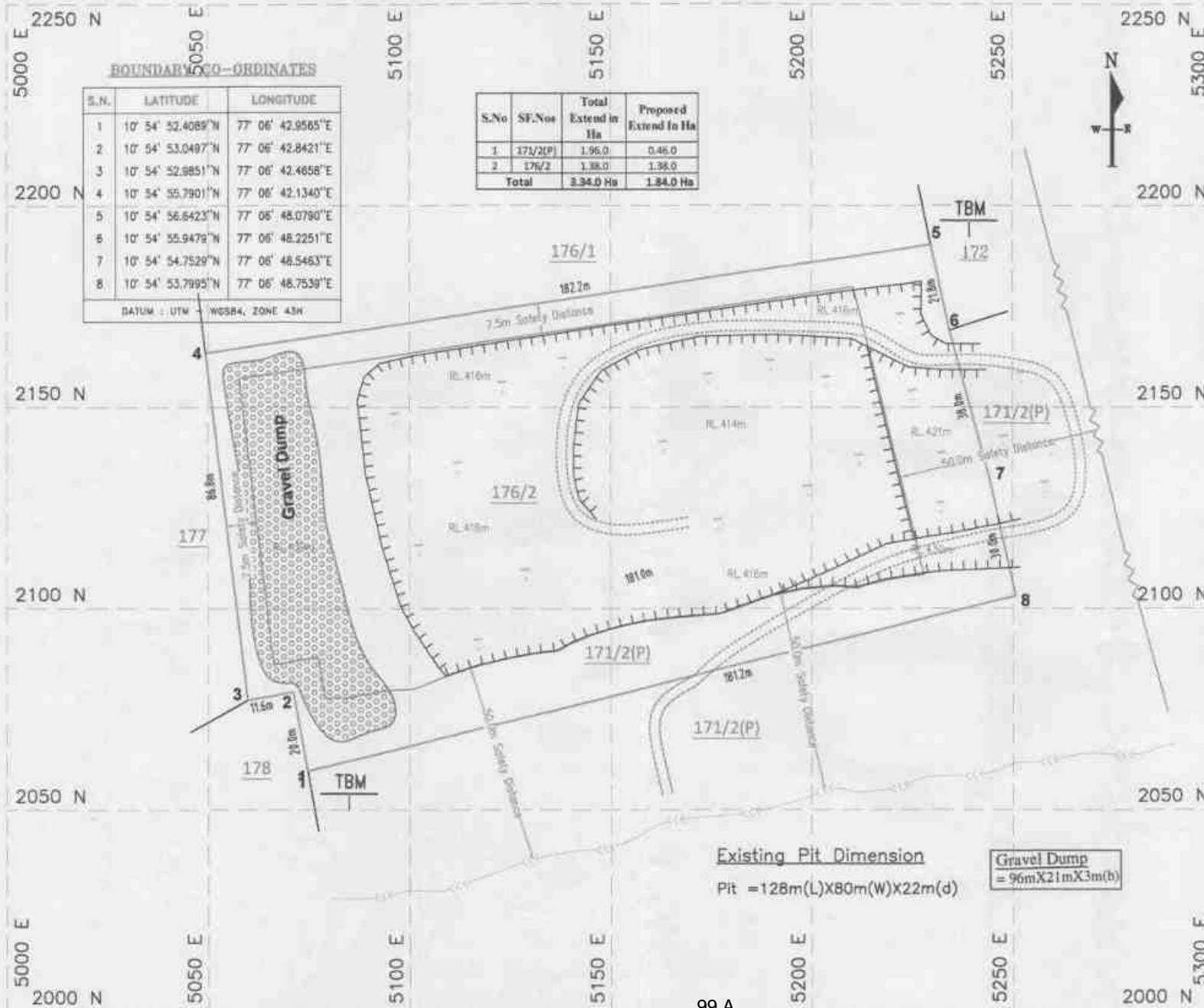
Under Rule 15(i)(a) and (b) of MCR, 2018

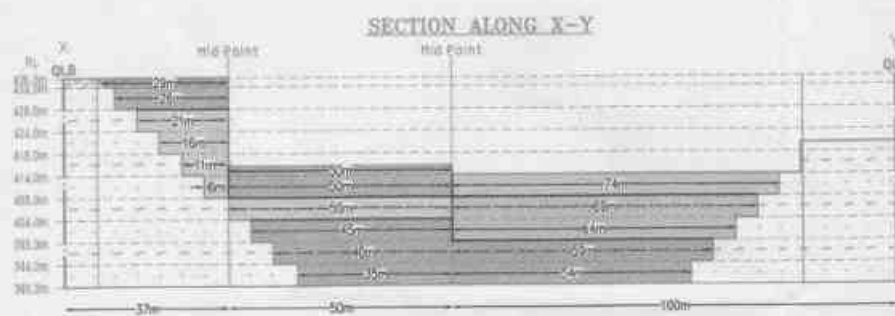
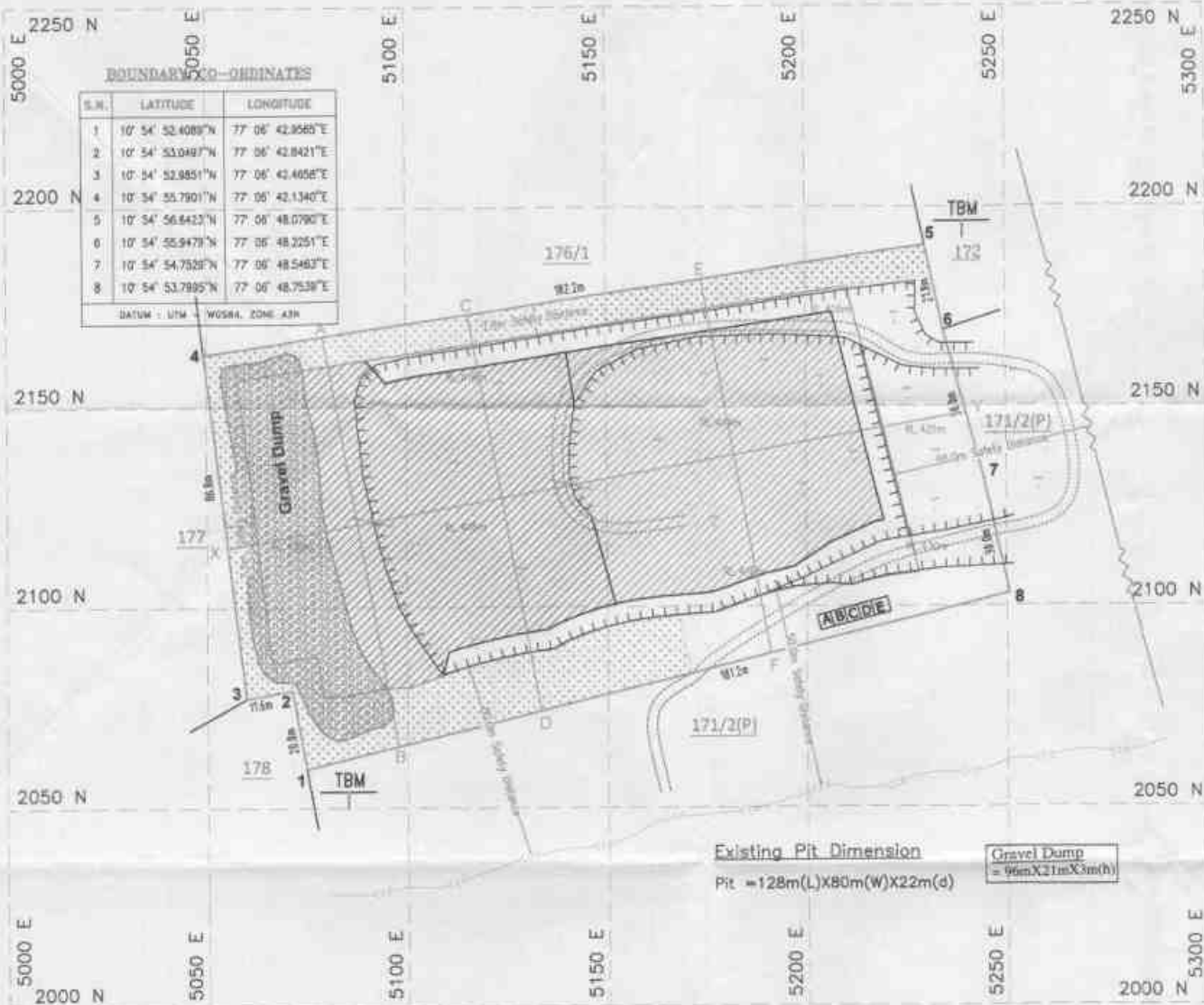
## BOUNDARY CO-ORDINATES

| S.N. | LATITUDE          | LONGITUDE         |
|------|-------------------|-------------------|
| 1    | 10° 54' 52.4089"N | 77° 06' 42.9565"E |
| 2    | 10° 54' 53.0497"N | 77° 06' 42.8421"E |
| 3    | 10° 54' 52.9851"N | 77° 06' 42.4658"E |
| 4    | 10° 54' 55.7901"N | 77° 06' 42.1340"E |
| 5    | 10° 54' 56.8423"N | 77° 06' 48.0790"E |
| 6    | 10° 54' 55.9479"N | 77° 06' 48.2251"E |
| 7    | 10° 54' 54.7529"N | 77° 06' 48.5463"E |
| 8    | 10° 54' 53.7995"N | 77° 06' 48.7539"E |

DATUM : UTM WGS84, ZONE 43N

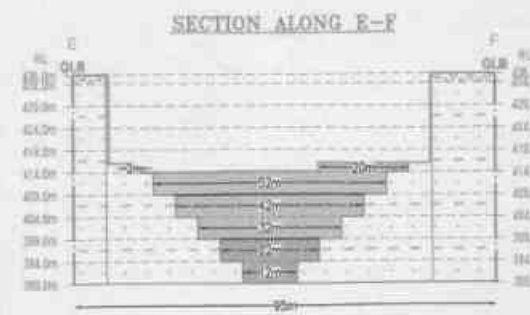
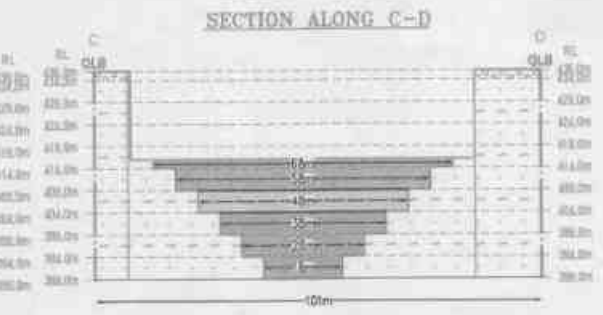
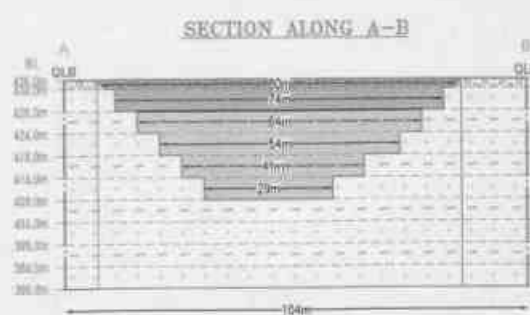
| S.No  | SF.No    | Total<br>Extend in<br>Ha | Proposed<br>Extend in Ha |
|-------|----------|--------------------------|--------------------------|
| 1.    | 171/2(P) | 1.96.0                   | 0.46.0                   |
| 2     | 176/2    | 1.38.0                   | 1.38.0                   |
| Total |          | 3.34.0 Ha                | 1.84.0 Ha                |





**PRESENT & POST LAND USE PATTERN**

| DESCRIPTION          | PRESENT AREA (Ha) | AREA AT THE END OF THIS QUARRYING PERIOD (Ha) |
|----------------------|-------------------|-----------------------------------------------|
| AREA UNDER QUARRYING | 1.10.30           | 1.35.30                                       |
| DUMP                 | 0.18.30           | NIL                                           |
| INFRASTRUCTURE       | NIL               | 0.01.00                                       |
| ROADS                | 0.01.00           | 0.03.00                                       |
| GREEN BELT           | NIL               | 0.35.80                                       |
| UN-UTILIZED AREA     | 0.53.40           | 0.06.90                                       |
| GRAND TOTAL          | 1.84.00           | 1.84.00                                       |



|                                    |                                     |
|------------------------------------|-------------------------------------|
| 1st-yr Proposed area to be Planted | 1st-yr Proposed area to be Quarried |
| 2nd-yr Proposed area to be Planted | 2nd-yr Proposed area to be Quarried |
| 3rd-yr Proposed area to be Planted | 3rd-yr Proposed area to be Quarried |
| 4th-yr Proposed area to be Planted | 4th-yr Proposed area to be Quarried |
| 5th-yr Proposed area to be Planted | 5th-yr Proposed area to be Quarried |

**PLATE NO. III**  
DATE OF SURVEY : 26.05.2023

**APPLICANT:**  
THIRU.V.SARAVANAN,  
S/O. VELUSAMY,  
3/165.ATHIKUTAI THOTIAM,  
IDAYARPALAYAM, COIMBATORE DISTRICT.

**LOCATION OF QUARRY**  
**LEASE APPLIED AREA:-**  
S.F.No : 171/2(P) & 176/2,  
EXTENT : 1.84.00 HA.  
VILLAGE : IDAYARPALAYAM  
TALUK : SULUR  
DISTRICT : COIMBATORE

**INDEX**

- Q.L. APPLIED AREA BOUNDARY
- 7.5M. S.O.M. SAFETY DISTANCE
- TEMPORARY BENCH MARK
- QUARRY PIT
- QUARRY ROAD
- STRIKE AND DIP
- GRAVEL
- ROUGH STONE
- POWER LINE
- ODAI
- APPROACH ROAD

**TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS**  
SCALE 1 : 1000

**PREPARED BY:**  
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASER'S AUTHORIZATION BY STATE GOVERNMENT.

*[Signature]*  
D.P. VASANTHAKUMAR, P.E.  
QUALIFIED PERSON  
Order No. 1203/2023 dated 06/06/2023

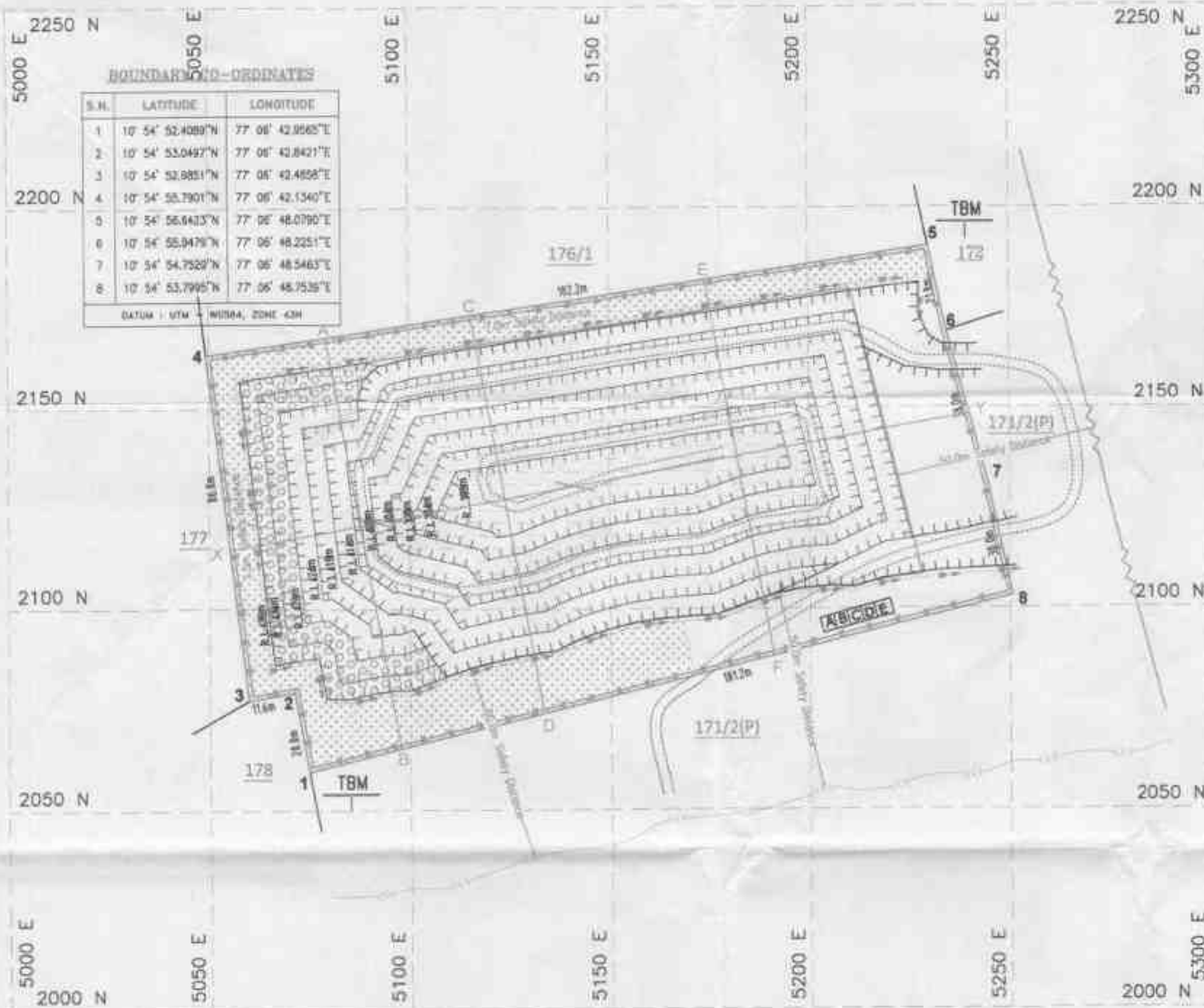


**PLATE NO. IV**

DATE OF SURVEY : 26.03.2023

**APPLICANT:**

THIRU.V.SARAVANAN,  
S/O.VELUSAMY,  
3/163.ATHIKUTTAI THOTTAM,  
IDAYARPALAYAM, COIMBATORE DISTRICT.

**LOCATION OF QUARRY**

**LEASE APPLIED AREA:-**

S.F.No : 171/2(P) & 176/2,  
EXTENT : 1.84.00 HA.,  
VILLAGE : IDAYARPALAYAM  
TALUK : SULLUR  
DISTRICT : COIMBATORE

**INDEX**

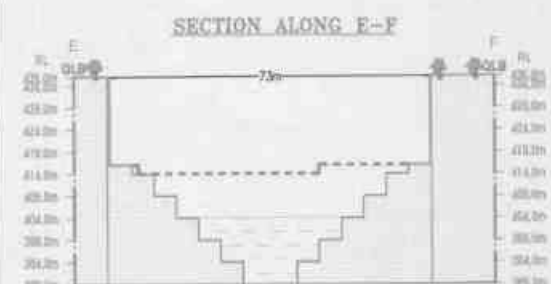
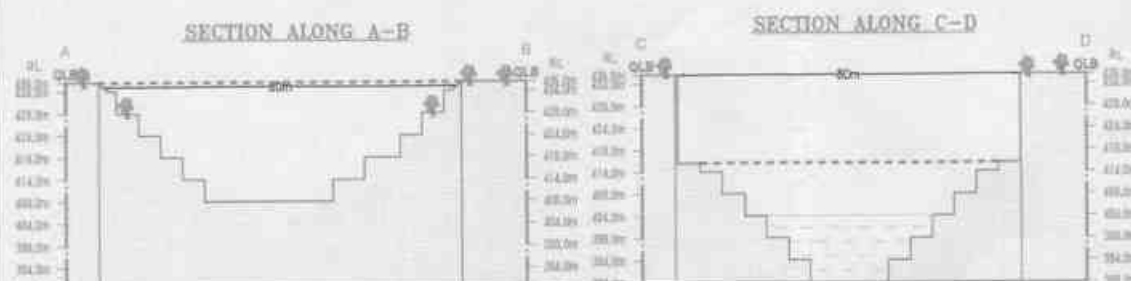
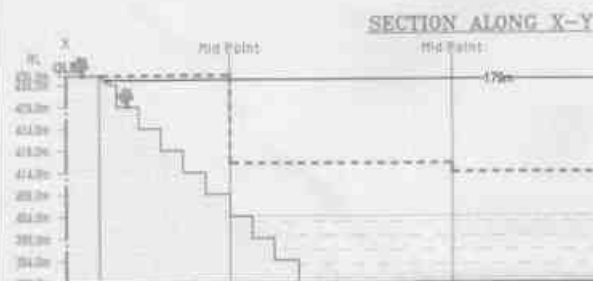
|                            |  |
|----------------------------|--|
| Q.L. APPLIED AREA BOUNDARY |  |
| 7.5M, 50M SAFETY DISTANCE  |  |
| TEMPORARY BENCH MARK       |  |
| QUARRY PIT                 |  |
| QUARRY ROAD                |  |
| STRIKE AND DIP             |  |
| POWER LINE                 |  |
| ODAI                       |  |
| APPROACH ROAD              |  |
| EXISTING LANDFORM          |  |
| OLD SURFACE LEVEL          |  |
| FINISHED SURFACE LEVEL     |  |
| TREES                      |  |
| SOIL LAYER                 |  |
| FENCING                    |  |
| PROPOSED GARLAND DRAIN     |  |
| REHABILITATED LANDFORM     |  |
| PROPOSED WATER STORAGE     |  |

**PROGRESSIVE QUARRY  
CLOSURE  
PLAN & SECTIONS  
SCALE 1 : 1000**

**PREPARED BY:**

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS  
PLAN IS TRUE AND CORRECT TO THE  
BEST OF MY KNOWLEDGE BASED UPON THE LEASER'S  
AUTHENTICATION  
BY STATE GOVERNMENT

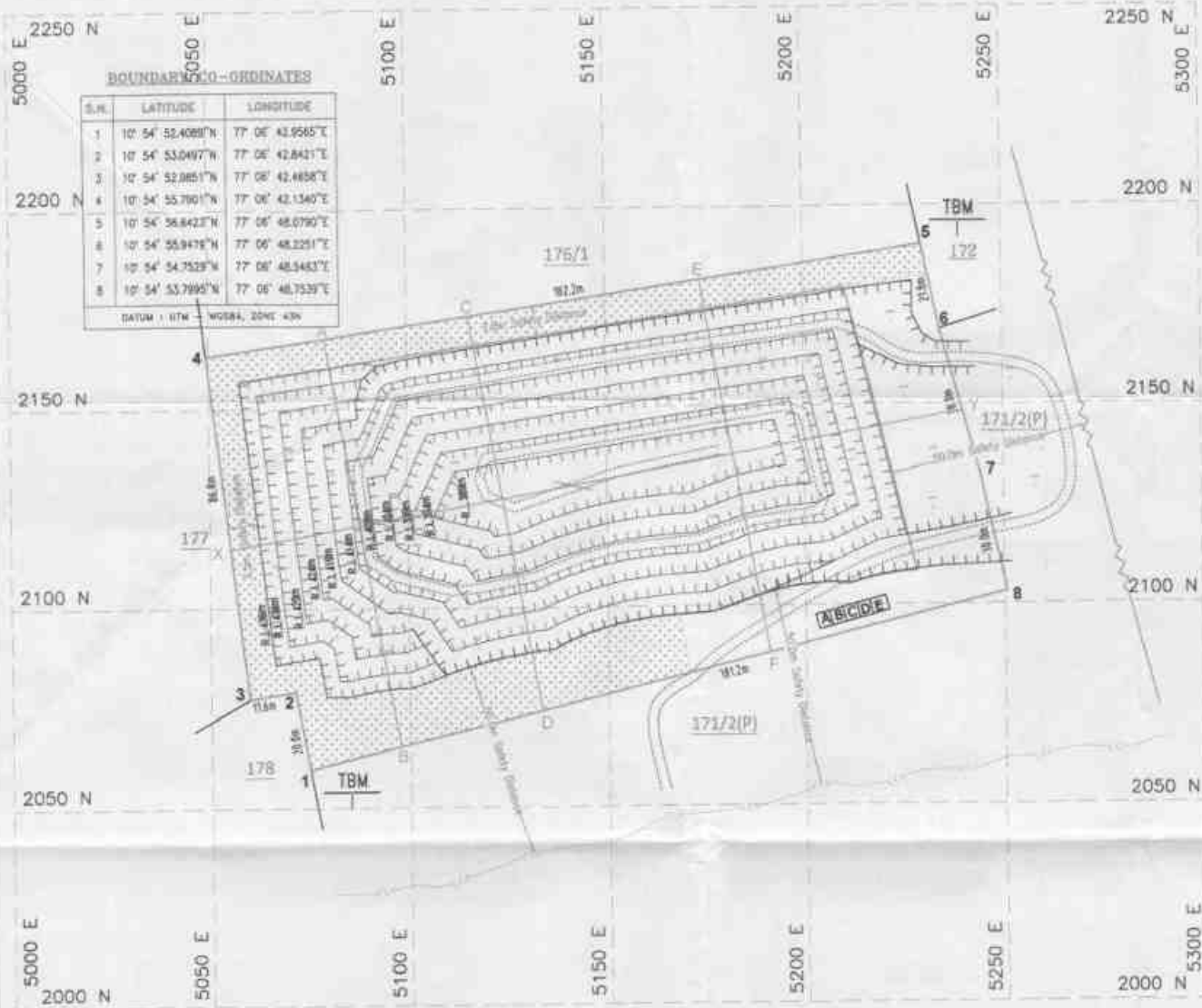
S.P. NARASIMHAN, P.E.,  
QUARRY ENGINEER  
Under Rule 150(2)(b) of MCR, 2016



1st-V yr Proposed area to be Planted

Proposed Pit Dimension (max)  
179m(L) x 82m(W) x 47m(D)  
2m Gravel, 45m Rough Stone

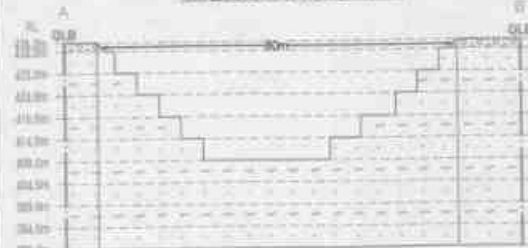
**SITE SERVICES**  
A-OFFICE  
B-FIRST AID ROOM  
C-STONE  
D-BEST SHED  
E-TOILET  
M-HASLEZONE



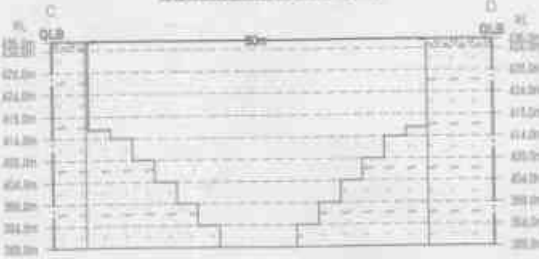
SECTION ALONG X-Y



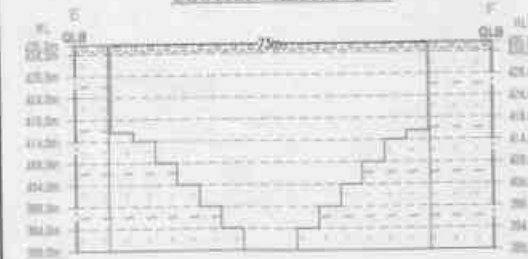
SECTION ALONG A-B



SECTION ALONG C-D



SECTION ALONG E-F



1st-V yr. Proposed area to be Planted

Ultimate Pit Dimension(mmx)  
179m(L)X52m(W)X47m(d)  
2m Gravel, 45m Rough Stone

SITE SERVICES  
A-OFFICE  
B-FIRST AID ROOM  
C-STORE  
D-REST SHED  
E-TOILET  
M-MAGAZINE

PLATE NO. V

DATE OF SURVEY : 26.05.2023

APPLICANT:

THIRU.V.SARAVANAN,  
S/O.VELLUSAMY,  
3/165,ATHKUTTAI THOTTAM,  
IDAYARPALAYAM, COIMBATORE DISTRICT.

LOCATION OF QUARRY  
LEASE APPLIED AREA:-

S.F.No : 171/2(P) & 176/2.  
EXTENT : 1.84.00 HA.  
VILLAGE : IDAYARPALAYAM  
TALUK : SULUR  
DISTRICT : COIMBATORE

INDEX

G.L. APPLIED AREA BOUNDARY

7.5M, 50M SAFETY DISTANCE

TEMPORARY BENCH MARK

QUARRY PIT

QUARRY ROAD

STRIKE AND DIP

GRAVEL

ROUGH STONE

POWER LINE

ODAI

APPROACH ROAD

CONCEPTUAL  
PLAN & SECTIONS  
SCALE 1 : 1000

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS  
PLAN IS TRUE AND CORRECT TO THE  
BEST OF MY KNOWLEDGE BASED UPON THE LEASTMAP  
AUTHENTICATED  
BY STATE GOVERNMENT

SHRINIVASARAO, P.D.,  
QUALIFIED PERSON  
Under Para 100(4)(b) of MCR, 2018





**TOPOGRAPHICAL VIEW OF IDAYARPALAYAM ROUGH STONE  
AND GRAVEL QUARRY LEASE APPLIED AREA**



Name of the Applicant : **V. Saravanan,**  
S/o. Velusamy,  
Address : No.3/165, Athikuttai Thottam,  
Idayarpalayam, Coimbatore District,  
Tamil Nadu State – 641 016.

**LOCATION DETAILS**

Extent : 1.84.0 Ha  
S.F. Nos. : 171/2, 176/2  
Village : Idayarpalayam  
Taluk : Sulur  
District : Coimbatore  
State : Tamil Nadu

Signature of the applicant

  
(V. Saravanan)

  
(Village Administrative Officer)  
Attestation  
இடைப்பாளியை கிராமம்  
அலுவலர்



**Dr. H.MALLESHAPPA,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.044-24359974

**ENVIRONMENTAL CLEARANCE**

**Lr. No.SEIAA-TN/F.No.5716/1(a)/ EC.No: 3906/2016 dated: 13.06.2017**

**To**

Thiru. V. Saravanan  
S/o. Velusamy  
No.3/165, Atjhikuttai Thottam  
Idayarpalayam  
Coimbatore - 641016

**Sir,**

**Sub:** SEIAA-TN – Proposed Rough Stone & Gravel quarry located at S.F.No 171/2 (Part) & 176/2 (Part), Idayarpalayam Village, Suler Taluk, Coimbatore District- issue of Environmental Clearance – Reg.

**Ref:** 1. Your Application for Environmental Clearance dt: 12.09.2016  
2. Minutes of the 82<sup>nd</sup> SEAC held on 21.10.2016 & 22.10.2016  
3. Minutes of the SEIAA meeting held on 13.06.2017

**Details of Minor Mineral Activity:-**

This has reference to your application first cited. The proposal is for obtaining environmental clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below.

|          |                                              |                                                                                                               |
|----------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>1</b> | <b>Name of Project Proponent and address</b> | Thiru. V. Saravanan<br>S/o. Velusamy<br>No.3/165, Atjhikuttai Thottam<br>Idayarpalayam<br>Coimbatore - 641016 |
| <b>2</b> | <b>Location of the Proposed Activity</b>     |                                                                                                               |
|          | Survey Number                                | 171/2 (Part) & 176/2 (Part)                                                                                   |
|          | Latitude and Longitude                       | 10°54'53"N to 10°54'56"N<br>77°06'43"E to 77°06'49"E                                                          |
|          | Village                                      | Idayarpalayam                                                                                                 |
|          | Taluk                                        | Suler                                                                                                         |
|          | District                                     | Coimbatore                                                                                                    |

**MEMBER SECRETARY**  
**SEIAA-TN**



|    |                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                              |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| 3  | <b>Proposed Activity</b>                                                                                                                                                                                                                                                                                                                                                                                                   |                                                              |
|    | i. Minor mineral                                                                                                                                                                                                                                                                                                                                                                                                           | Rough Stone & Gravel                                         |
|    | ii. Mining Lease Area                                                                                                                                                                                                                                                                                                                                                                                                      | 1.22.5 Ha                                                    |
|    | iii. Approved quantity                                                                                                                                                                                                                                                                                                                                                                                                     | 58940 cu.m of Rough Stone & 2800 cu.m of Gravel              |
|    | iv. Depth of Mining                                                                                                                                                                                                                                                                                                                                                                                                        | 22 m                                                         |
|    | v. Type of mining                                                                                                                                                                                                                                                                                                                                                                                                          | Opencast Semi Mechanized Method                              |
|    | vi. Category(B1/B2)                                                                                                                                                                                                                                                                                                                                                                                                        | B2                                                           |
|    | vii. Precise area communication                                                                                                                                                                                                                                                                                                                                                                                            | Rc.No. 472/2016/Mines dated 17.08.2016                       |
|    | viii. Mining plan approval                                                                                                                                                                                                                                                                                                                                                                                                 | Assistant Director<br>Rc.No. 472/2016/Mines dated 27.08.2016 |
|    | ix. Mining lease period                                                                                                                                                                                                                                                                                                                                                                                                    | 5 Years                                                      |
| 4  | <b>Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-</b>                                                                                                                                                                                                                                                                                                           | Not attracted. Affidavit furnished                           |
| 5  | <b>Man Power requirement per day:</b>                                                                                                                                                                                                                                                                                                                                                                                      | 14 Employees                                                 |
| 6  | <b>Utilities</b>                                                                                                                                                                                                                                                                                                                                                                                                           |                                                              |
|    | i. Source of Water :                                                                                                                                                                                                                                                                                                                                                                                                       | Water vendors/Existing Borehole                              |
|    | ii. Quantity of Water Requirement in KLD:                                                                                                                                                                                                                                                                                                                                                                                  |                                                              |
|    | a. Domestic<br>b. Industrial<br>c. Green Belt & Dust Suppression                                                                                                                                                                                                                                                                                                                                                           | 0.3KLD<br>} 0.7KLD                                           |
|    | iii. Power Requirement:<br>a. Domestic Purpose<br>b. Industrial Purpose                                                                                                                                                                                                                                                                                                                                                    | TNEB<br>29940 Litres of HSD                                  |
| 7  | <b>Cost</b><br>i. Project Cost<br>ii. EMP Cost                                                                                                                                                                                                                                                                                                                                                                             | Rs.29.15 Lakhs<br>Rs.4.25 Lakhs                              |
| 8  | <b>Public Consultation:-</b>                                                                                                                                                                                                                                                                                                                                                                                               | Not required as per O.M. dated 24.12.2013 of MoEF, Gol.      |
| 9  | <b>Date of Appraisal by SEAC:-<br/>Agenda No:</b>                                                                                                                                                                                                                                                                                                                                                                          | 21.10.2016 & 22.10.2016<br>82-16                             |
| 10 | <b>Date of Review/Discussion by SEIAA and the Remarks:-</b><br>The proposal was placed before the SEIAA in its 218th Meeting held on 13.06.2017 and the Authority after careful consideration, decided to grant environmental clearance to the said project Mining of Rough Stone & Gravel subject to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended. |                                                              |
| 11 | <b>Validity:</b><br>This Environmental Clearance is granted to Mining of Rough Stone & Gravel for the production quantity of 58940 cu.m of Rough Stone & 2800 cu.m of Gravel for the period of 5 Years from the date of execution of the Mining Lease period.                                                                                                                                                              |                                                              |

MEMBER SECRETARY  
SEIAA-TN

**Conditions to be Complied before commencing mining operations:-**

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
  - I. The project has been accorded Environmental Clearance.
  - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
  - III. Environmental Clearance may also be seen on the website of the SEIAA.
  - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
4. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
5. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
6. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
7. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
8. The proponent shall ensure that First Aid Box is available at site.
9. The excavation activity shall not alter the natural drainage pattern of the area.
10. The excavated pit shall be restored by the project proponent for useful purposes.
11. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
12. The quarrying operation shall be restricted between 7AM and 5 PM.
13. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
14. A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.

MEMBER SECRETARY  
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15. 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.
16. 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.
17. 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.
18. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
19. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
20. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
21. 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.
22. 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.
23. 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
24. 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.
25. 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.
26. 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.
27. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
28. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
29. The following measures are to be adopted to control erosion of dumps:-
  - i. Retention/ toe walls shall be provided at the foot of the dumps.

- ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
30. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
31. 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.
32. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
33. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
34. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
35. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
36. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
37. 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.
38. 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
39. Ground water quality monitoring should be conducted once in 3 Months
40. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
41. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
42. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI..
43. Bunds to be provided at the boundary of the project site.
44. 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.

  
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SEIAA-TN



45. At least 10 Neem trees should be planted around the boundary of the quarry site.
46. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
47. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity.
48. The CSR funds should be channelized for planting programme, nature conservation support, tribal development and activities that support forest and environment.
49. The Project Proponent shall provide solar lighting system to the nearby villages
50. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
51. Rainwater shall be pumped out Via Settling Tank only
52. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
53. 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.
54. 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.
55. Safety equipments to be provided to all the employees.
56. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
57. 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.
58. 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.
59. 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.
60. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
61. 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.
62. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
63. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
64. The Project Proponent is also directed to strictly adhere to the Sustainable Sand Mining Management Guidelines, 2016, wherever applicable.
65. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 1m height.
66. The quarrying activity in no way should disturb the Wildlife habitat, free migratory movement of the wildlife nor disturb the wildlife in any way.

  
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**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 SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. 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.

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SEIAA-TN

16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the environmental clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this environmental clearance, if it is found or if it comes to the knowledge of this SEIAA,TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the environmental clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, 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.

  
**MEMBER SECRETARY**  
**SEIAA-TN**

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary, Environment and Forests Department, Government of Tamil Nadu, Tamil Nadu.
3. The Additional Chief Secretary, 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, Guindy, Chennai-32
7. The District Collector, Coimbatore District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. E1 Division, Ministry of Environment & Forests, Parivaran Bhawan, New Delhi.
10. Spare.



Date \_\_\_\_\_

23.06.2023

To  
Mr. V. Saravanan,  
S/O. Velusamy,  
No. 3/165, Atthikuttai Thottam,  
Edayarpalayam Vilage,  
Sulur TK,  
Coimbatore – 641016.

Sub: Blasting Work using Explosives in your proposed quarry – Reg.

Sir,

We have Explosives Magazine in form LE-3, in the name of M/s. Subramaniam Chemicals & Explosives (P) Ltd, License No. E/SC/TN/22/173(E10486). Our office functioning at 208, Trichy Road, Sulur, Coimbatore District – 641402.

We will engage two Explosives Vans for Transporting explosives from our magazine to blasting site and we have well experienced licensed Blasters and Shot Firers for safely blasting work.

We are willing to undertake blasting work on contract basis at your quarry mentioned below.

Survey No.171/2,176/2 (1.84 hec)  
Taluk: Sulur

Village: Edayarpalayam  
District: Coimbatore

The above blasting works will be continued after getting Government or District Collector order.

Thanking You

Yours Faithfully

For SUBRAMANIAM CHEMICALS & EXPLOSIVES (P) LTD

 (Managing Director)

Enclosure: 1. Licence Copies



Cert No. MR /52/875

भारत सरकार/Government of India  
खान अधिनियम, 1952/Mines Act, 1952  
खनन परीक्षा बोर्ड/Board of Mining Examinations  
खनन मेट सक्षमता प्रमाण-पत्र

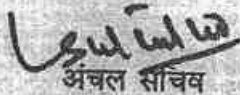
**MINING MATE'S CERTIFICATE OF COMPETENCY**

(केवल ओपेनकास्ट खानों तक सीमित)  
(Restricted to mines having opencast workings only)  
(धात्विकीय खान विनियम, 1961 के अन्तर्गत)  
(Under the Metalliferous Mines Regulations, 1961)

श्री डी. जयकान्तन सुपुत्र धृत है, को अपनी  
जिनकी जन्म तिथि 16.02.1970 आयु, स्वस्थता, सदाचार, साक्षरता और धात्विकीय खानों में काम करने के विहित अनुभव का सन्तोषजनक प्रमाण  
प्रस्तुत करने एवं दिनांक 22.03.2018 को जी.वी.टी.सी. मूची केन्द्र पर आयोजित  
विहित परीक्षा में उत्तीर्ण होने पर एतद्वारा केवल ओपेनकास्ट खानों तक सीमित मेट सक्षमता प्रमाण-पत्र  
प्रदान किया जाता है।

Shri D. Jayakanthan son of Dhuthan  
born on 16.02.1970 having given satisfactory evidence of his age,  
medical fitness, good character, literacy and prescribed experience of working in metalliferous  
mines and having passed the prescribed examination held at GVTC, Trichy  
centre on 22.03.2018 is hereby granted MINING MATE'S CERTIFICATE OF  
COMPETENCY restricted to mines having opencast workings only.

बा [निशान]  
Left hand impression



अंचल सचिव  
खनन परीक्षा बोर्ड  
Zonal Secretary  
Board of Mining  
Examinations

Signed and Sealed  
Date 03/09/2018



अध्यक्ष  
खनन परीक्षा बोर्ड  
Chairman  
Board of Mining  
Examinations

अनुज्ञापि प्ररूप एत. ई.-3 | LICENCE FORM I.E-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)

(See article 3(a) to (d) of Part I of Schedule IV of Explosives Rules, 2008)

(न); उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक का किसी मैगजीन में वर्ग 6 के विस्फोटक रखने के लिए अनुज्ञापि  
Licence to possess (c) for use explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazine

अनुज्ञापि सं. (Licence No.) : E/SC/TN/22/173(E10486)

वार्षिक फीस रूप (Annual Fee Rs): 7200/-

1. Licence is hereby granted to

SUBRAMANIAM CHEMICALS AND EXPLOSIVES (अधिभोगी / Occupier : Shri S.P.VIGNESWARAN), 10, KALANGAL RD, SULUR DIST. COIMBATORE, Town/Village - SULUR, District-COIMBATORE, State-Tamil Nadu, Pincode - 641402



को अनुज्ञापि अनुदत्त की जाती है।

2. अनुज्ञापिधारी की प्रास्थिति | Status of licensee : Company

3. अनुज्ञापि निम्नलिखित प्रयोजनों के लिए विधिमान्य है।

possess for use of Nitrate Mixture, Safety Fuse, Detonating Fuse, Detonators, - के उपयोग के लिए

Licence is valid only for the following purpose.

4. अनुज्ञापि 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.<br>Sr. No. | नाम और विवरण<br>Name and Description | वर्ग और प्रभाग<br>Class & Division | उप-प्रभाग<br>Sub-division | मात्रा किसी एक समय में<br>Quantity at any one time |
|-----------------|--------------------------------------|------------------------------------|---------------------------|----------------------------------------------------|
| 1.              | Nitrate Mixture                      | 2,0                                | 0                         | 1000 Kg.                                           |
| 2.              | Safety Fuse                          | 6,1                                | 0                         | 50000 Mtrs                                         |
| 3.              | Detonating Fuse                      | 6,2                                | 0                         | 50000 Mtrs                                         |
| 4.              | Detonators                           | 6,3                                | 0                         | 44000 Nos.                                         |

(ख) किसी एक कलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा [अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञापि के लिए]

(b) Quantity of explosives to be purchased in a calendar month [applicable for licence under article 3(b) and (c)] :

25 times  
as above.

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञापि परिसर की पुष्टि होती है।

रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/173(E10486)

The licensed premises shall conform to the following drawing(s) :

दिनांक (Dated) 21/08/2002

6. अनुज्ञापि परिसर निम्नलिखित पते पर स्थित हैं। The licensed premises are situated at following address:

Survey No(s). 14 & 15, ग्राम (Town/Village) : SULUR

पुलिस थाना (Police Station) : SULUR

जिला (District)

COIMBATORE

राज्य (State)

Tamil Nadu

पिनकोड (Pincode)

641402

दूरभाष (Phone)

04222888838

ई. मेल (E-Mail)

फैक्स (Fax)

7. अनुज्ञापि परिसर में निम्नलिखित सुविधाएं अंतर्भूत हैं।

The licensed premises consist of following facilities.

main Magazine and lobby

8. अनुज्ञापि समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपाबंधों के अधीन रहते हुए अनुदत्त की जाती है।

The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2004 framed there under and the conditions, additional conditions and the following Annexures.

1. उपर्युक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए)।

Drawings (showing site, constructional and other details) as stated in serial No. 5 above.

2. अनुज्ञापि प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञापि की शर्तों और अतिरिक्त शर्तों।

Conditions and Additional Conditions of this licence signed by the licensing authority.

3. दूरी प्ररूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञापि तारीख 31 मार्च 2008 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2008.

यह अनुज्ञापि, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञापि की शर्तों का अधिकमण करने या यदि अनुज्ञापि परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहत की जा सकती है, जहां वह लागू हो।

This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 21/08/2002

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives  
South Circle, Chennai

Sd/-

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 07/04/2011
- Change in Authorized Signatory/Occupier/Partners/Directors dated : 05/07/2013
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 11/12/2013
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 12/12/2014
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 08/02/2017

नवीनीकरण के पृष्ठांकन के लिए स्थान

Space for Endorsement of Renewal

| नवीकरण की तारीख<br>Date of Renewal | समाप्ति की तारीख<br>Date of Expiry | अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प<br>Signature of licensing authority and stamp |
|------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------|
| 31/03/2023                         | 31/03/2028                         | Jt. Chief Controller of Explosives, South Circle, Chennai                                  |

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चलाने या उनका दुरुपयोग विधि के अधीन गंभीर दंडिक अपराध होगा।  
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.



SPEED POST

भारत सरकार

Government of India

श्रम एवं रोजगार मंत्रालय

Ministry of Labour & Employment

खान सुरक्षा महानिदेशालय

Directorate General of Mines Safety

चेन्नई क्षेत्र/Chennai Region



No. CNR/NC/Med- 5 Yrly/06/ 337

/ Chennai, Dated the 13/02/2023

To

Shri D. Jayakanthan,  
S/o Shri Dhuthan,  
No.01/153, Kaliyammann Kovil Street,  
Jaghir Ammapalayam – Post,  
Salem (TN) – 636 302

### MEMORANDUM

With reference to the application dated 10.01.2023 received in this office on 27.01.2023 requesting for endorsement as per Regulation 30(1) of the Metalliferous Mines Regulations, 1961 your Mining Mate's Certificate No. MR/SZ/875, dated 03.09.2018 is returned herewith duly endorsed in respect of Medical Examination done on 24<sup>th</sup> January, 2023.

Encl: Mining Mate's Cert. No. MR/SZ/875,  
Dated: 03.09.2018

(T.R. Kannan)  
Director of Mines Safety,  
Chennai Region

अनुज्ञप्ति प्रारूप फॉर्म - 7 / LICENCE FORM LE-7  
(विस्फोटक नियम 2008 की अनुसूची 4 के भाग 1 का अनुच्छेद 7 देखें)  
(See article no 7 of Part I of Schedule IV of Explosives Rules, 2008)

अनुज्ञप्ति : सड़क वैन में विस्फोटकों के परिवहन के लिए  
Licence to : transport explosives in a road van



अनुज्ञप्ति संख्या / Licence No. : E/SC/TN/25/857(E81497)  
वार्षिक फीस रकम / Annual Fee Rs. : 2500/-

- अनुज्ञप्ति एतद्वारा जारी की जाती है  
Licence is hereby granted to : **Subramaniam Chemicals & Explosives (P) Ltd (Occupier : S P Vigneswaran)**  
208, Trichy Road, Sullur, Coimbatore City & DL PIN 641402,  
District-COIMBATORE, State-Tamil Nadu, Pincode-641402
- अनुज्ञप्तिधारी की प्राप्ति / Status of licensee : Company
- सड़क वैन की विशेषताएँ / Particulars of the road van:

|                                                                                                              |                                     |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------|
| पंजीकरण संख्या / Registration No.                                                                            | TN-37/CY-1435                       |
| यान का मेक एवं मॉडल / Make and model of vehicle                                                              | MAHINDRA AND MAHINDRA BOLERO PICKUP |
| लदान सहित वजन / Unladen weight                                                                               | 1820 Kg(s)                          |
| लदान सहित अधिकतम वजन / Maximum laden weight                                                                  | 2960 Kg(s)                          |
| परिवहन के लिए अनुज्ञेय विस्फोटकों की अधिकतम मात्रा<br>Maximum quantity of explosives permitted for transport | 1140 Kg(s)                          |
| इंजिन संख्या / Engine No.                                                                                    | GHE1C23331                          |
| चैसिस संख्या / Chassis No.                                                                                   | MA1ZN2GHKE1C29842                   |
| अन्य फिटिंग्स का विवरण / Description of Other Fittings                                                       | As per approved drawings            |
| वाहन के लिए अनुमत्य विस्फोटकों की मात्रा / Quantity of Explosives permitted to carry                         | 1140 Kg(s)                          |

- अनुज्ञात परिसर निम्नलिखित आरेखण ( आरेखणों ) के अनुरूप होना चाहिए / The licensed premises shall conform to the following drawing(s):  
आरेखण संख्या / Drawing No. : E/SC/TN/25/857(E81497) दिनांक / dated : 12/06/2014
- समय समय पर यथा संशोधित विस्फोटक अधिनियम, 1884 और उसके अधीन बनाए गए विस्फोटक नियम, 2008 के उपबन्धों और शर्तों एवं निम्नलिखित अनुलग्नकों के अधीन अनुज्ञप्ति प्रदान 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 thereunder and the conditions and the following annexures...
- (क) उपर्युक्त क्रम संख्या 4 में यथाकथित सड़क वैन का आरेखण / (a) Drawings of the road van as stated in serial no.4 above.  
(ख) अनुज्ञापन प्राधिकारी द्वारा हस्ताक्षरित शर्तें / (b) Conditions signed by the licensing authority.
- यह अनुज्ञप्ति तारीख 31 मार्च 2022 तक विधिमाम्य रहेगी / This licence shall remain valid till 31st day of March 2022

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या इस अनुज्ञप्ति की शर्तों के उल्लंघन, अनुसूची 5 के भाग 4 में सन्दर्भित, जहाँ भी लागू हो, या यदि अनुज्ञात परिसर आरेखण या उससे संलग्न उपाबद्धों में दर्शाए गए विवरण के अनुरूप नहीं पाए जाने पर निलम्बित या प्रतिसंहत की जा सकती है।  
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 Conditions, 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.

दिनांक / Date: 12/06/2014

Sd/-  
संयुक्त मुख्य विस्फोटक नियंत्रक / Joint Chief Controller of Explosives  
दक्षिणांचल, चेन्नै / South Circle, Chennai

अनुज्ञप्ति के नवीनीकरण हेतु पृष्ठांकन / Endorsement for renewal of licence:

| नवीनीकरण की तिथि<br>Date of Renewal | वैधता समाप्ति की तिथि<br>Date of Expiry | अनुज्ञापन प्राधिकारी के हस्ताक्षर<br>Signature of licensing authority |
|-------------------------------------|-----------------------------------------|-----------------------------------------------------------------------|
| 23/03/2022                          | 31/03/2027                              | Jt. Chief Controller of Explosives, South Circle, Chennai             |

वैधानिक चेतावनी : विस्फोटकों का लापरवाही से प्रयोग या दुरुपयोग, विधि के अधीन गम्भीर दण्डित अपराध होगा।  
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

**Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.**

Digitally signed by Manoj N Nandanwar  
Reason: Licence No. : E/SC/TN/25/857  
Location: Chennai [E81497]  
Date: 2022.03.23 05:26:33 +05:30





GOVERNMENT OF INDIA  
MINISTRY OF COMMERCE & INDUSTRY  
PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION (PESO)  
(Formerly Department of Explosives)  
A & D - Wing, Block 1-8, 11th Floor, Shastri Bhavan  
26 Haidous Road, Nungambakkam Chennai 600006  
Tele. 28281023 Fax: 28284848  
Email: jtccechennai@explosives.gov.in

No.E/SC/TN/25/683(E68651)

Dated : 25/03/2021

To,  
Subramaniam Chemicals & Explosives (P) Ltd.,  
208, Trichy Road, Sufur, Coimbatore  
Town/Village - Coimbatore  
Distt. COIMBATORE, State. Tamil Nadu, Pincode-641402

25 MAR 2021

Subject: Road Van for the carriage of Explosives Registration No TN-37/BX-1868 Licence No.E/SC/TN/25/683(E68651) granted in Form LE-7 of of Explosives Rules 2008 - Renewal regarding

Sir(s),

Reference to your letter No.: 38784 dated, 16/02/2021, the subject licence duly renewed upto 31/3/2026 and issued in Form LE-7 of Explosives Rules, 2008 is forwarded herewith.

For further renewal of licence, please submit the following documents so as to reach this office on or before 31/3/2026.

- Application in Form RE-1 duly filled in and signed.
- Licence fees renewable for one to five years, to be submitted online through e-payment facility available on online application portal under the Explosives Rules, 2008.
- Original licence with approved plan.
- In this connection, please also refer to Rule 112 of Explosives Rules, 2008.

Please follow following instructions strictly:

1. The records of explosives transported by the licenced Roadvan shall be maintained in the proforma RE-6 under Part 5 of schedule V of Explosives Rules 2008.
2. Please ensure that persons whose antecedents verified by the local Police shall only be employed with the licenced explosives roadvan/compressor mounded truck as drivers or cleaners. List of such drivers and cleaner's alongwith the personal particulars shall be made available to the local police in advance. The re-verification of such staff shall also be made at least once in a year in compliance to Rule 61(3) of Explosives Rules 2008.
3. Please note that during transportation of explosives, the Roadvan shall always be attended to by two armed guards. If the consignment of explosives is likely to pass through sensitive areas notified by Ministry of Home Affairs, it should be escorted by armed Police escort / guard provided by District Police Administration as required in Rule 67(7) of Explosives Rules 2008.

Enclosures :

Yours faithfully,

(S.C. PANDEY)

Controller of Explosives  
For Joint Chief Controller of Explosives  
South Circle, Chennai

अनुज्ञप्ति प्ररूप एलई - 7 LICENCE FORM LE-7  
 विस्फोटक नियम 2008 की अनुसूची 4 के भाग 1 का अनुच्छेद 7 देखें।  
 (See article no 7 of Part I of Schedule IV of Explosives Rules, 2008)

अनुज्ञप्ति : सड़क वैन में विस्फोटकों के परिवहन के लिए  
 Licence to : transport explosives in a road van

अनुज्ञप्ति संख्या / Licence No. : E/SC/TN/25/683(E68651)  
 वार्षिक फीस रूपर / Annual Fee Rs : 2500/-



1. अनुज्ञप्ति एतदद्वारा जारी की जाती है  
 Licence is hereby granted to : Subramaniam Chemicals & Explosives (P) Ltd.  
 (Occupier : S.Vigneswaran)  
 208, Trichy Road, Sulur, Coimbatore.,  
 District-COIMBATORE, State-Tamil Nadu, Pincode-641402

2. अनुज्ञप्तिधारी की प्रास्थिति / Status of licensee : Company  
 3. सड़क वैन की विशिष्टियाँ / Particulars of the road van:

|                                                                                                              |                                   |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------|
| पंजीकरण संख्या / Registration No.                                                                            | TN-37/BX-1868                     |
| यान का मेक एवं मॉडल / Make and model of vehicle                                                              | MAHINDRA AND MAHINDRA LTD.        |
| लदान रहित वजन / Unladen weight                                                                               | 1690 Kg(s)                        |
| लदान सहित अधिकतम वजन / Maximum laden weight                                                                  | 2880 Kg(s)                        |
| परिवहन के लिए अनुज्ञेय विस्फोटकों की अधिकतम मात्रा<br>Maximum quantity of explosives permitted for transport | 1190 Kg(s)                        |
| इंजिन संख्या / Engine No.                                                                                    | GHC1E25330                        |
| चैसिस संख्या / Chassis No.                                                                                   | MAIZN2GHKC1E38644                 |
| अन्य फिटिंग्स का विवरण / Description of Other Fittings                                                       | Fire Extinguisher, Spark Arrestor |
| वाहन के लिए अनुमत विस्फोटकों की मात्रा / Quantity of Explosives permitted to carry                           | 1190 Kg(s)                        |

4. अनुज्ञप्त परिसर निम्नलिखित आरेखण ( आरेखणों ) के अनुरूप होना चाहिए / The licensed premises shall conform to the following drawing(s):  
 आरेखण संख्या / Drawing No : E/SC/TN/25/683(E68651) दिनांक / dated : 31/08/2012
5. समय समय पर यथा संशोधित विस्फोटक अधिनियम, 1884 और उसके अधीन बनाए गए विस्फोटक नियम, 2008 के उपबन्धों और शर्तों एवं निम्नलिखित अनुलग्नकों के अधीन अनुज्ञप्ति प्रदान 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 thereunder and the conditions and the following annexures....  
 (क) उपर्युक्त क्रम संख्या 4 में यथाकथित सड़क वैन का आरेखण / (a) Drawings of the road van as stated in serial no.4 above.  
 (ख) अनुज्ञापन प्राधिकारी द्वारा हस्ताक्षरित शर्तें / (b) Conditions signed by the licensing authority.
6. यह अनुज्ञप्ति तारीख 31 मार्च 2017 तक विधिमन्य रहेगी / This licence shall remain valid till 31st

day of March 2017

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या इस अनुज्ञप्ति की शर्तों के उल्लंघन, अनुसूची 5 के भाग 4 में सन्दर्भित, जहाँ भी लागू हो, या यदि अनुज्ञप्त परिसर अरेखण या उससे संलग्न उपाबद्धों में दर्शाए गए विवरण के अनुरूप नहीं पाए जाने पर निलम्बित या प्रतिसंहत की जा सकती है।

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, 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.

दिनांक / Date: 31/08/2012

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives  
दक्षिणांचल, चेन्नै | South Circle, Chennai

**Amendments :**

- Change in Authorized Signatory/Occupier/Partners/Directors dated : 05/07/2013  
अनुज्ञप्ति के नवीनीकरण हेतु पृष्ठांकन / Endorsement for renewal of licence:

नवीनीकरण की तिथि  
Date of Renewal

वैधता समाप्ति की तिथि  
Date of Expiry

अनुज्ञापन प्राधिकारी के हस्ताक्षर  
Signature of licensing authority

25/03/2021

31/03/2026

Jt. Chief Controller of Explosives, South Circle, Chennai

**वैधानिक चेतावनी :** विस्फोटकों का लापरवाही से प्रयोग या दुरुपयोग, विधि के अधीन गम्भीर दण्डित अपराध होगा।  
**Statutory Warning :** Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

**Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.**

Hydrogeological Report For  
Rough Stone and Gravel Quarry  
Over an extent of 1.84.0Ha of Patta lands in  
S.F.Nos. 171/2 (P) & 176/2 of Idayarpalayam Village,  
Sulur Taluk,  
Coimbatore District, Tamil Nadu State



## **Hydrogeological Report for Idayarpalayam**

### **Rough Stone and Gravel Quarry**

#### **1. INTRODUCTION**

##### **NAME OF THE APPLICANT WITH ADDRESS-**

**Name of the applicant** : **Thiru.V.Saravanan,**  
S/o. Velusamy,  
**Address** : No. 3/165, Athikuttai Thottam,  
Idayarpalayam,  
Coimbatore District.  
**Pin Code** : 641 016  
**Mobile No** : +91 98422 97204  
**Aadhaar No** : 5780 0708 2637  
**Email ID** : vmslorry@gmail.com

##### **DETAILS OF THE AREA-**

**Land Classification** : Patta land  
**Survey No** : 171/2 (P) & 176/2  
**Extent** : 1.84.0Ha  
**Village** : Idayarpalayam  
**Taluk** : Sulur  
**District** : Coimbatore

The Client requires detailed information on ground water occurrences at proposed project site of Rough Stone and Gravel quarry. The objective of the present study is to assess the availability of groundwater and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and water quality. For this purpose, all available hydrogeological information of the areas has been analyzed, and a geophysical survey was done.

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Client's requirements. The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data
- b) State & District Geological and Hydrogeological Reports and Maps.
- c) Technical reports of the area by various organizations.



## **2. SCOPE OF THE WORKS –**

The scope of works includes:

- ❖ Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to proposed mining activities.
- ❖ To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- ❖ To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- ❖ To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

## **3. BACKGROUND INFORMATION**

### **Geographical information of the study area-**

The investigated site falls in the Toposheet No: 58 – F/01 Latitude between: **10°54'52.4089"N to 10°54'56.6423"N** and Longitude between **77°06'42.1340"E to 77°06'48.7539"E** on WGS datum-1984.

### **GEOMORPHOLOGY**

Coimbatore district forms part of the upland plateau region of Tamil Nadu with manyhill ranges, hillocks and undulating topography with a gentle slope towards east except for the hilly terrain in the west. The undulating topography with innumerable depressions, are used as tanks for storage of rainwater for agriculture.

The prominent geomorphic units in the district are 1) Structural hills, 2) Ridges, 3) Inselbergs, 4) Bazada, 5) Valley fill, 6) Pediment, 7) Shallow Pediments and 8) Deep Pediments.

The Nilgiris on the northwest and Anamalai on the south are the important ranges, which attain a heights of over 2513m above mean sea level (MSL) and the highest elevation in the valleys adjoining the hills is 600 M above MSL. The 'PalghatGap', which is an east-west trending mountain pass, is an important physiographic feature is located in the western part of the district.

**Soils**

The soils of Coimbatore district can be broadly classified into 6 major soils types viz, Red calcareous Soil, Black Soil, Red non-calcareous, Alluvial and Colluvial Soil, Brown Soil, and Forest Soil. About sixty per cent of the district is covered by red soils, of which red calcareous soil is predominant. They occupy most parts of Palladam, Coimbatore, Mettupalayam and Udumalpettaluks. Medium to deep red calcareous soils are found mainly in Pollachi and Udumalpet taluks. Parts of Palladam, Avinashi and Udumalpettaluks are occupied by red non-calcareous soils.

The highlands in Coimbatore, Palladam and Avinashitaluks are mostly occupied by the black soils, which are dark gray to grayish brown in colour.

The Alluvial soils are found in small patches along the Noyil river mainly in the upper reaches. The Colluvial soils are found mainly in Chinnathadagam and Chitrachavadi sub-basins and as scattered patches at the foothills of the Anaimalai. The Forest soils are confined to the reserve forest area and have a surface layer of organic matter.

**Rainfall and Climate**

The district receives the rain under the influence of both southwest and northeast monsoons. The northeast monsoon chiefly contributes to the rainfall in the district and summer rains are negligible.

Rainfall data from six stations over the period 1901-2000 were utilized and a perusal of the analysis shows that the normal annual rainfall over the district varies from about 550mm to 900mm. It is the minimum around Suler (550 mm) in the eastern part of the district. It gradually increases towards south and attains a maximum around Anaimalai hills.

The district enjoys a tropical climate. The weather is pleasant during the period from November to January. Mornings in general are more humid than the afternoons, with the humidity exceeding 78% on an average. In the period June to November the afternoon humidity exceeds 66% on an average. In the rest of the year the afternoons are drier, the summer afternoons being the driest. The period from April to June is generally hot and dry. The temperature recorded varies from 11.7°C to 42.6°C.

**GEOLOGY****Regional Geology of Coimbatore District-**

The district is occupied by Charnockite Group of rocks consisting of Charnockite, pyroxene granulites and associated magnetite quartzite, the Knodalite Group comprising gametiferous – sillimanite gneiss, calc-granulite, crystalline limestone, sillimanite quartzites and associated migmatitic gneisses. The fissile hornblende gneisses (Peninsular gneiss –

younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsite – kyanite quartzites, ferruginous quartzite (Satyamangalam Group) intruded by a number of ultramafic and basic rocks and granites are seen in the Northern portions of the district especially around Mettupalayam, Avinashi and Northern areas of Coimbatore. The granites are Proterozoic age and occupy the Western end and Eastern Part of the District as separate bodies and are recognized as Maruthamalai Granite and Punjapuliampatti Granites respectively. The quaternary alluvium is seen in the West and Northwestern areas of Udumalaipettai and Western areas of Coimbatore town. The alluvium is more than 30m thick in the Chinnathadagam valley northwest of Coimbatore and in the Siruvani valley west of Coimbatore. In the Udumalaipettaitaluk area, it overlies the kankar deposit.

It is revealed the Coimbatore district is occupied by the rocks of Sathiyamangalam, Peninsular gneissic complex-I and Charnockite group of Archaean age, Peninsular Gneissic Complex-II of Archaean to Palaeoproterozoic age, Basic intrusive of Mesoproterozoic age, Younger intrusive of Neoproterozoic age and recent alluvium.

The Peninsular gneissic complex-I comprising hornblende biotite gneiss and granite area the major rock types exposed. Hornblende biotite granite is medium to coarse grained and mesocratic and considered to be retrograded product of product of Charnockite – Pyroxene granulite. It is medium grained, White to pale pink colored with disseminations of limonitised magnetite. The white colored granite appears to be older and the pink colored cuts across the white colored granite. The younger phase of coarse grained granite occur as thin stringers and lesser in the southern part. The peripheral part of granite close to the gneiss is granitic in nature.

#### STRATIGRAPHY SUCCESSION

| Lithology                         | Group            | Super Group                     | Age                           |
|-----------------------------------|------------------|---------------------------------|-------------------------------|
| Gypseous clay                     |                  |                                 | Holocene                      |
| Granite                           | Acid intrusives  |                                 | Neoproterozoic                |
| Dolerite /basic dyke              | Basic intrusives |                                 | Mesoproterozoic               |
| Quartzofeldspathic Gneiss Garnet. |                  | Peninsular Gneissic complex- II | Archaean to Palaeoproterozoic |
| Hornblende biotite gneiss         |                  |                                 |                               |
| Charnockite                       |                  | Southern Granulite Complex      |                               |

|                                      |                        |                              |          |
|--------------------------------------|------------------------|------------------------------|----------|
| Grey HornblendBiotite gneiss         |                        | Peninsular Gneissiccomplex-I | Archaean |
| Gabbro                               | Sitampundi             |                              |          |
| Amphibolite                          | Mettupalayam Complex   |                              |          |
| Magnetite Quartzite                  |                        |                              |          |
| Talc – Termolite – Actinolite Schist | Sathiyamanagalam Group |                              |          |

#### 4. GEOPHYSICAL INVESTIGATION METHODS

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

##### Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

##### Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance  $R$  of a certain material is directly proportional to its length  $L$  and cross-sectional area  $A$ , expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where  $R_s$  is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

$$R = dV/I \text{ (Ohm)}$$

Where  $dV$  is the potential difference across the resistor and  $I$  is the electric current through the resistor. The specific resistivity may be determined by:

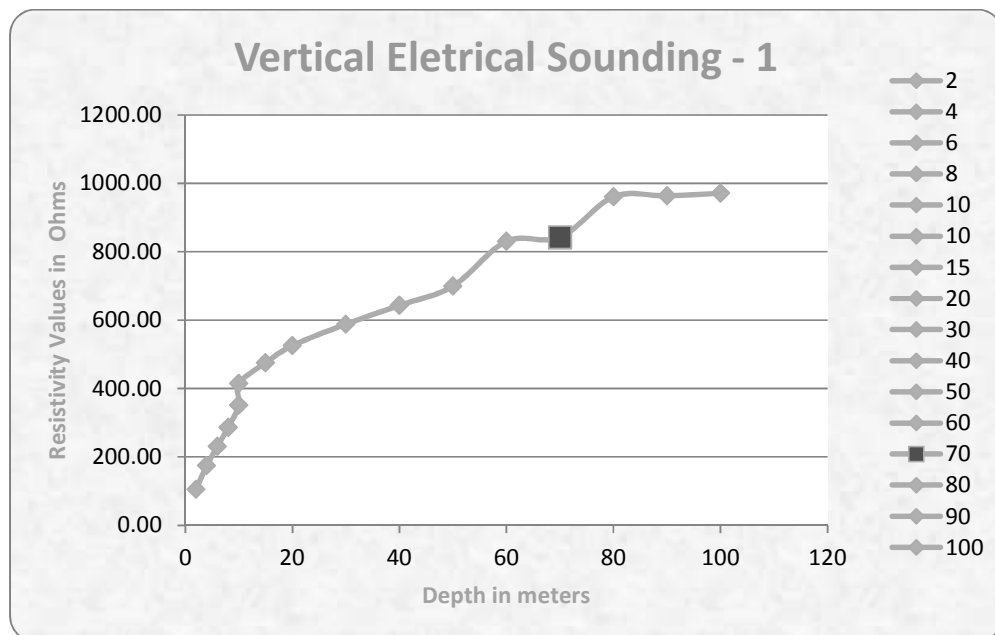
$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

### **Vertical Electrical Sounding (VES)**

When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

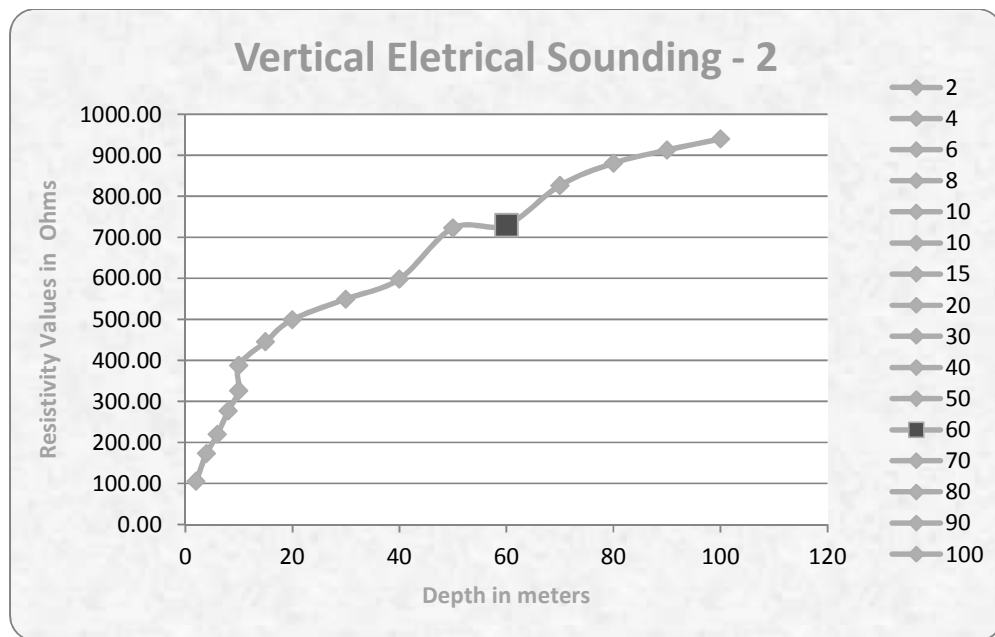
### Vertical Electrical Sounding Data's and Graphs

| STATION-1                                          |         |         |                        |                          |                             |
|----------------------------------------------------|---------|---------|------------------------|--------------------------|-----------------------------|
| GPS Coordinates - 10°54'52.4089"N 77° 06'42.9565"E |         |         |                        |                          |                             |
| S.No                                               | Ab/2(m) | Mn/2(m) | Geometrical Factor (G) | Resistance Value in Ohms | Apparent Resistance in Ohms |
| 1                                                  | 2       | 1       | 4.71                   | 22.26                    | 104.84                      |
| 2                                                  | 4       | 1       | 23.55                  | 7.40                     | 174.27                      |
| 3                                                  | 6       | 1       | 54.95                  | 4.20                     | 230.79                      |
| 4                                                  | 8       | 1       | 98.91                  | 2.89                     | 285.85                      |
| 5                                                  | 10      | 1       | 155.45                 | 2.26                     | 351.32                      |
| 6                                                  | 10      | 5       | 23.55                  | 17.60                    | 414.48                      |
| 7                                                  | 15      | 5       | 62.80                  | 7.56                     | 474.77                      |
| 8                                                  | 20      | 5       | 117.75                 | 4.46                     | 525.17                      |
| 9                                                  | 30      | 5       | 274.75                 | 2.14                     | 587.97                      |
| 10                                                 | 40      | 5       | 494.55                 | 1.30                     | 642.92                      |
| 11                                                 | 50      | 5       | 777.15                 | 0.90                     | 699.44                      |
| 12                                                 | 60      | 5       | 1122.55                | 0.74                     | 830.69                      |
| 13                                                 | 70      | 5       | 1530.75                | 0.55                     | 841.91                      |
| 14                                                 | 80      | 5       | 2001.75                | 0.48                     | 960.84                      |
| 15                                                 | 90      | 5       | 2535.55                | 0.38                     | 963.51                      |
| 16                                                 | 100     | 5       | 3132.15                | 0.31                     | 970.97                      |



*[Signature]*

| STATION-2                                          |         |         |                        |                          |                             |
|----------------------------------------------------|---------|---------|------------------------|--------------------------|-----------------------------|
| GPS Coordinates - 10°54'53.0497"N 77° 06'42.8421"E |         |         |                        |                          |                             |
| S.No                                               | Ab/2(m) | Mn/2(m) | Geometrical factor (G) | Resistance Value in Ohms | Apparent Resistance in Ohms |
| 1                                                  | 2       | 1       | 4.71                   | 22.46                    | 105.79                      |
| 2                                                  | 4       | 1       | 23.55                  | 7.36                     | 173.33                      |
| 3                                                  | 6       | 1       | 54.95                  | 4.00                     | 219.80                      |
| 4                                                  | 8       | 1       | 98.91                  | 2.80                     | 276.95                      |
| 5                                                  | 10      | 1       | 155.45                 | 2.10                     | 326.45                      |
| 6                                                  | 10      | 5       | 23.55                  | 16.46                    | 387.63                      |
| 7                                                  | 15      | 5       | 62.80                  | 7.10                     | 445.88                      |
| 8                                                  | 20      | 5       | 117.75                 | 4.24                     | 499.26                      |
| 9                                                  | 30      | 5       | 274.75                 | 2.00                     | 549.50                      |
| 10                                                 | 40      | 5       | 494.55                 | 1.21                     | 598.41                      |
| 11                                                 | 50      | 5       | 777.15                 | 0.93                     | 722.75                      |
| 12                                                 | 60      | 5       | 1122.55                | 0.65                     | 729.66                      |
| 13                                                 | 70      | 5       | 1530.75                | 0.54                     | 826.61                      |
| 14                                                 | 80      | 5       | 2001.75                | 0.44                     | 880.77                      |
| 15                                                 | 90      | 5       | 2535.55                | 0.36                     | 912.80                      |
| 16                                                 | 100     | 5       | 3132.15                | 0.30                     | 939.65                      |



*[Signature]*



## 5. Conclusion –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium groundwater potential. Productive aquifers are expected at depth of 67m to 62m where minor fractures are observed and shallow aquifers are expected above 65m-70m BGL. The ultimate pit limit as per the approved mining plan depth is 47m (2m Gravel + 45m Rough Stone) below ground level, which will have no impact on the Ground Water.



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K.V. GIRIDHAR, I.F.S  
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY – TAMIL NADU

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Chennai-15.

Phone No.044-24359973

Fax No. 044-24359975

**ENVIRONMENTAL CLEARANCE**

**Lr. No.SEIAA-TN/F.No.7480/1(n)/EC.No:4414/2020 dated: 29.10.2020**

To

Tmt.N.Chithradevi

W/o.S.Nandhagopal

No.3/349, GVP Nagar

Perur Chettipalayam (via)

Coimbatore District - 641010

Sir/Madam,

**Sub:** SEIAA-TN – Proposed Rough stone & Gravel quarry lease over an extent of 3.64.5Ha in S.F.Nos. 179/2(P) of Edayarpalayam Village, Suler Taluk, Coimbatore District, Tamil Nadu – Tmt.N.Chithradevi – issue of Environmental Clearance – Reg.

- Ref:**
1. Online proposal No.SIA/TN/MIN/49671/2019, Dated: 10.01.2020
  2. Your Application for Environmental Clearance dated: 02.03.2020.
  3. Minutes of the 157<sup>th</sup> SEAC Meeting held on 20.06.2020.
  4. Proponent reply dated: 09.09.2020.
  5. Minutes of the 177<sup>th</sup> SEAC meeting held on 26.09.2020.
  6. Minutes of the 406<sup>th</sup> SEIAA meeting held on 21.10.2020 & 22.10.2020.

**Details of Minor Mineral Activity:-**

This has reference to your application second cited. The proposal is for obtaining Environmental Clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below.



  
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|   |                                                                                                    |                                                                                                                            |
|---|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| 1 | <b>Name of Project Proponent and address</b>                                                       | Tmt.N.Chithradevi<br>W/o.S.Nandhagopal<br>No.3/349, GVP Nagar<br>Perur Chettipalayam (via)<br>Coimbatore District - 641010 |
| 2 | <b>Location of the Proposed Activity</b>                                                           |                                                                                                                            |
|   | Survey Number                                                                                      | 179/2(P)                                                                                                                   |
|   | Latitude and Longitude                                                                             | 10°54'33.16"N to 10°54'41.78"N<br>77°06'40.42"E to 77°06'47.14"E                                                           |
|   | Village                                                                                            | Edayarpalayam                                                                                                              |
|   | Taluk                                                                                              | Sulur                                                                                                                      |
|   | District                                                                                           | Coimbatore                                                                                                                 |
| 3 | <b>Proposed Activity</b>                                                                           |                                                                                                                            |
|   | i. Minor mineral                                                                                   | Rough stone & Gravel quarry                                                                                                |
|   | ii. Mining Lease Area                                                                              | 3.64.5 ha                                                                                                                  |
|   | iii. Approved quantity                                                                             | 263226cu.m of Rough stone &<br>27000cu.m of Gravel                                                                         |
|   | iv. Depth of Mining                                                                                | 47m (2m Gravel and 45 m of Rough<br>Stone)                                                                                 |
|   | v. Type of mining                                                                                  | Opencast Mechanized Mining                                                                                                 |
|   | vi. Category(B1/B2)                                                                                | B2                                                                                                                         |
|   | vii. Precise area communication approved<br>by the District Collector with date                    | Na.Ka.No.614/Kanimam/2018,<br>Dated:30.07.2019                                                                             |
|   | viii. Mining plan approval by Assistant<br>Director of Geology and Mining, with<br>date            | Rc.No.614/Mines/2018,<br>Dated:12.09.2019                                                                                  |
|   | ix. Mining period                                                                                  | 5 Years                                                                                                                    |
| 4 | <b>Whether Project area attracts any General<br/>conditions specified in the EIA notification,</b> | Not attracted.                                                                                                             |



|   |                                                                                                                                                                                         |                              |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|   | <b>2006 as amended:-</b>                                                                                                                                                                |                              |
| 5 | <b>Man Power requirement per day:</b>                                                                                                                                                   | 31 Employees                 |
| 6 | <b>Utilities</b>                                                                                                                                                                        |                              |
|   | i. Source of Water :                                                                                                                                                                    | Water Vendors & nearby tanks |
|   | ii. Quantity of Water Requirement in KLD:                                                                                                                                               | 6.3 KLD                      |
|   | a. Domestic & Drinking purpose                                                                                                                                                          | 0.98 KLD                     |
|   | b. Green Belt & Dust Suppression                                                                                                                                                        | 5.32 KLD                     |
|   | iii. Power Requirement:                                                                                                                                                                 |                              |
|   | a. Domestic Purpose                                                                                                                                                                     | TNEB                         |
|   | b. Industrial purpose                                                                                                                                                                   | 215076 Litters of HSD        |
| 7 | <b>Cost</b>                                                                                                                                                                             |                              |
|   | i. Project Cost                                                                                                                                                                         | Rs. 142.60 Lakhs             |
|   | ii. EMP Cost                                                                                                                                                                            | Rs. 3.80 Lakhs               |
| 8 | <b><u>Validity:</u></b>                                                                                                                                                                 |                              |
|   | This Environmental Clearance is granted for the production of 263226cu.m of Rough stone & 27000cu.m of Gravel for the period of 5 Years from the date of execution of the mining lease. |                              |

The Proponent has furnished affidavit in One Hundred Rupees stamp paper attested by the Notary stating that

I, Tmt.N.Chithradevi, W/o.S.Nandha Gopal, No.3/349, GVP Nagar, Perur Chettipalayam (via), Coimbatore District, Tamil Nadu State - 641010, India solemnly declare and sincerely affirm that:

I have apply for getting Environment Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of Rough Stone and Gravel quarry over an extent of 3.64.51 hectares in S S.F.No. 179/2(P) in Edayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu,

1. I swear to state and confirm that within 10kms area of the quarry site, I have applied for environmental clearance; none of the following is situated.

a. Protected areas notified under the wild life (Protection) Act, 1972.



  
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- b. Critically polluted areas as notified by the Central Pollution Control Board constituted under Water (Prevention and Control of Pollution) Act, 1974.
  - c. Eco-Sensitive areas as notified.
  - d. Interstate boundaries within 10 kms radius from the boundary of the proposed site.
2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.

| CER Activity                                                                                                                                                                                                 | Project Cost<br>(Rs. In Lakhs) | CER Cost 2.0%<br>of project cost<br>(Rs. In Lakhs) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------------|
| 1. Developing the Garden maintenance in Edayarpalayam School.<br>2. If we are instructed by RWD/Competent bodies to desilt the water bodies nearby. We assure to spend out funds of the nearby water bodies. | 146.407                        | 2.93                                               |
| <b>Total Cost Allocation</b>                                                                                                                                                                                 | <b>146.407</b>                 | <b>2.93</b>                                        |

3. The total area of following quarries located within 500m radius from the periphery of my quarry site details as shown below.

**Present proposed Quarry**

| Sl. No. | Name of the owner | Village & Taluk                     | S.F.Nos   | Extent in Hect. |
|---------|-------------------|-------------------------------------|-----------|-----------------|
| 1       | N.Chitradevi      | Edayar palayam Village, Sular Taluk | 179/2 (P) | 3.64.5          |

**Existing Quarry**

| Sl. No. | Name of the owner | Village & Taluk                     | S.F.Nos       | Extent in Hect. | Lease Period             |
|---------|-------------------|-------------------------------------|---------------|-----------------|--------------------------|
| 1       | V.Saravanan       | Edayar palayam Village, Sular Taluk | 171/2 & 176/2 | 1.22.5          | 15.09.2017 to 14.09.2022 |

**Expired Quarry**

| Sl. No. | Name of the owner     | Village & Taluk                     | S.F.Nos                | Extent in Hect. | Lease Period             |
|---------|-----------------------|-------------------------------------|------------------------|-----------------|--------------------------|
| 1       | Thiru. R.P.Samynathan | Edayar palayam Village, Sular Taluk | 168/2, 169/1C & 169/2A | 4.10.5          | 10.07.2012 to 09.07.2016 |
| 2       | Robo Silica Pvt Ltd   | Edayar palayam Village, Sular Taluk | 179/2 (P)              | 1.60.0          | 13.04.2010 to 12.04.2015 |



  
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**Abandoned quarry**

| Sl. No. | Name of the owner | Village & Taluk                     | S.F.Nos | Extent in Hect. | Lense Period             |
|---------|-------------------|-------------------------------------|---------|-----------------|--------------------------|
| 1       | Thiru. M.Arumugam | Edayar palayam Village, Sular Taluk | 172/2   | 0.49.5          | 15.08.2008 to 17.05.2013 |
| 2       | Ponnammal         | Edayar palayam Village, Sular Taluk | 178/2   | 2.34.5          | -                        |
| 3       | Government Quarry | Edayar palayam Village, Sular Taluk | 164/1   | 3.13.5          | -                        |

**Future Proposed Quarry**

| Sl. No. | Name of the owner | Village & Taluk | S.F.Nos | Extent in Hect. |
|---------|-------------------|-----------------|---------|-----------------|
| Nil     |                   |                 |         |                 |

4. There will not hindrance or disturbance to the people living no enrooted/nearby my quarry site while transporting the mineral by material and due to quarrying activities.
5. There are no approved habitations within radius of 300 m.
6. I swear that green belt will be carried out during the course of quarrying quarry site.
7. The required insurance will be taken in the name of the labourers working in my quarry site.
8. The existing road from the main road to quarry is in good conditions and the same will be maintained and utilized for Transportation of Rough Stone and Gravel.
9. I will not engage any child labour in my quarry site and I aware that engaging child labour is punishable under the law.
10. All types of safety / protective etc., are located within 500m radius from the working in my quarry.
11. No permanent structures, temples, etc., are located within 500m radius from the periphery of my quarry.

I ensure to do all the social and Environment commitment as mentioned in the Mining Plan to the best of my knowledge.

**Details of 500M radius Proposed quarry:**

The Project Proponent has submitted a copy of the letter obtained from the Assistant Director, i/c./ Joint Director, Department of Geology & Mining, Coimbatore District in his letter



  
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Rc.No.614/Mines/2019 dated: 24.07.2020 has stated that the details of other quarries (Proposed / Existing / Abandoned Quarries) within a radius 500m from the boundary of the proposed quarry site as follows:

Existing quarries:

| Sl. No. | Name of the owner | Village & S.F.Nos                     | Extent in Hect. | Lease Period             | Remarks |
|---------|-------------------|---------------------------------------|-----------------|--------------------------|---------|
| 1       | V.Saravanan       | Edayar palayam Village, 171/2 & 176/2 | 1.22.5          | 15.09.2017 to 14.09.2022 | -       |

Expired quarries:

| Sl. No. | Name of the owner | Village & S.F.Nos | Extent in Hect. | Lease Period | Remarks |
|---------|-------------------|-------------------|-----------------|--------------|---------|
| Nil     |                   |                   |                 |              |         |

Abandoned quarries

| Sl. No. | Name of the owner     | Village & S.F.Nos                             | Extent in Hect. | Lease Period             | Remarks   |
|---------|-----------------------|-----------------------------------------------|-----------------|--------------------------|-----------|
| 1       | Thiru. M.Arumugam     | Edayar palayam Village, 172/2                 | 0.49.5          | 15.08.2008 to 17.05.2013 | Abandoned |
| 2       | Ponnammal             | Edayar palayam Village, 178/2                 | 2.34.5          | 22.10.2004 to 21.10.2009 | Abandoned |
| 3       | Swaminathan           | Edayar palayam Village, 164/1                 | 3.13.5          | 11.10.1991 to 30.06.1994 | Abandoned |
| 4       | Robo Silica Pvt Ltd   | Edayar palayam Village, 179/2(P)              | 1.60.0          | 13.04.2010 to 12.04.2015 | Abandoned |
| 5       | Thiru. R.P.Samynathan | Edayar palayam Village, 168/2, 169/1C, 169/2A | 4.10.5          | 10.07.2012 to 09.07.2016 | Abandoned |

Proposed Quarries

| Sl. No. | Name of the owner | Village & S.F.Nos                 | Extent in Hect. | Lease Period | Remarks      |
|---------|-------------------|-----------------------------------|-----------------|--------------|--------------|
| 1       | N.Chitradevi      | Edayar palayam Village, 179/2 (P) | 3.64.5          | -            | Subject Area |





**Future Proposed Quarries**

| Sl. No. | Name of the owner | Village & S.F.Nos | Extent in Hect. | Lease Period | Remarks |
|---------|-------------------|-------------------|-----------------|--------------|---------|
| Nil     |                   |                   |                 |              |         |

**Appraisal by SEAC:-**

The proposal was placed in the 177<sup>th</sup> SEAC Meeting held on 26.09.2020. Based on the documents furnished by the proponent, the SEAC recommend the proposal for grant of Environmental Clearance to SEIAA subject to the following conditions in addition to normal conditions;

1. Groundwater level and quality should be monitored once in six months in the open wells around the quarry and the record should be maintained and annual report should be submitted to the TNPCB
2. After mining is completed, proper leveling should be done by the Project proponent & Environmental Management Plan furnished by the Proponent should be strictly followed.
3. The project proponent should erect fencing all around the boundary of the proposed area with gates for entry/exit as per the conditions and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
4. Proper barrier to reduce noise level, dust pollution and to arrest flying material (debris) should be done by providing green belt and/or metal sheets along the boundary of the quarrying site considering site specific meteorological conditions.
5. The Project proponent shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to the condition which is fit for growth of fodder, flora, fauna etc.
6. The operation of the quarry should not affect the agriculture activities and water bodies near the project site.
7. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
8. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.



  
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9. The project proponent shall develop adequate green belt with native species on the periphery of the mine lease area before commencement of the mining activity, in consultation with DFO of the concern district/agriculture university.
10. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried well before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
11. The recommendation for the issue of environmental clearance is subject to the outcome of the Hon'ble NGT, Principal Bench, New Delhi in O.A No.186 of 2016 (M.A.No.350/2016) and O.A. No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No. 758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A. No. 843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No. 981 /2016, M.A.No.982/2016 & M.A.No.384/2017).
12. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance.
13. To ensure safety measures along the boundary of the quarry site, security guards to be posted during the entire period of mining operation.
14. The mine closure plan submitted by the project proponent shall be strictly followed after the lapse of the mine.
15. The amount of Rs. 3Lakhs shall be utilized as CER activities to carry out the development of the drinking Water Facilities and infrastructure facilities for providing smart class Edayarpalayam Village Government School as reported before obtaining the CTO from TNPCB.
16. The project proponent shall strictly follow the conditions stipulated in the precisions area communication issued by District Collector, Coimbatore vide Na.Ka. No. 614/ Kanimam/2018 dated: 30.07.2019.

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

The proposal was placed before the SEIAA in its 406<sup>th</sup> Meeting held on 21.10.2020 & 22.10.2020. After detailed discussion the Authority decided to grant Environmental Clearance subject to the conditions as recommended by the SEAC and subject to General conditions in addition to normal conditions.



  
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1. All the condition imposed by the Assistant Director of Geology and Mining vide Rc.No.614/Mines/2018 Dated: 12.09.2019 should be strictly followed.
2. The EMP Cost shall be deposited in a nationalized bank by opening separate account and head wise expense statement shall be furnished to TNPCB with a copy to SEIAA annually.
3. 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.
4. A detailed post-COVID health management plan for workers as per ICMR and MHA guidelines or the State Govt. guideline may be followed and report shall be furnished.
5. If there is any change in the production or lease area application for amendment has to be submitted to SEIAA for further approval.

**Part-A: Conditions to be Complied before commencing mining operations:-**

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
  - I. The project has been accorded Environmental Clearance.
  - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
  - III. Environmental Clearance may also be seen on the website of the SEIAA.
  - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban



  
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- Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
  7. The proponent shall ensure that First Aid Box is available at site.
  8. The excavation activity shall not alter the natural drainage pattern of the area.
  9. The excavated pit shall be restored by the project proponent for useful purposes.
  10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
  11. The quarrying operation shall be restricted between 7AM and 5 PM.
  12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
  13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
  14. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
  15. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
  16. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
  17. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
  18. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.



  
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19. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.
20. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
  - i. Roads shall be graded to mitigate the dust emission.
  - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
21. The following measures are to be implemented to reduce Noise Pollution
  - i. Proper and regular maintenance of vehicles and other equipment
  - ii. Limiting time exposure of workers to excessive noise.
  - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
  - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
  - v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
22. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.
23. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
24. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
25. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
26. The following measures are to be adopted to control erosion of dumps:-
  - i. Retention/ toe walls shall be provided at the foot of the dumps.
  - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.



  
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27. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous & other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.
28. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
29. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
30. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
31. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
32. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
33. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.



  
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34. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
35. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
36. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
37. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
38. Bunds to be provided at the boundary of the project site.
39. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
40. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
41. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
42. The Project Proponent shall provide solar lighting system to the nearby villages.
43. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
44. Safety equipments to be provided to all the employees.
45. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
46. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
47. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
48. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.



  
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49. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
50. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
51. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
52. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
53. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
54. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
55. All the commitment made by the project proponent in the Final EIA/EMP report shall be strictly followed.
56. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
57. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A. No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, O.A.No.404/2016 (M.A.No. 758/2016, M.A. No. 920 /2016, M.A.No.1122/2016, M.A.No. 12/2017 & M.A.No.843/2017), O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).

**Part B: General Conditions:**

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.



  
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**SEIAA-TN**

2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.



  
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SEIAA-TN



13. Workers/labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The project proponent shall ensure that child labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. The Environmental Clearance does not absolve the applicant/proponent of his obligation/requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.
17. This Environmental Clearance does not imply that the other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest



Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.

SEIAA

  
MEMBER SECRETARY  
SEIAA-TN

**Copy to:**

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Additional Chief Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 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, TNPC Board, 76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Coimbatore District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. El Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.



**TEST REPORT**

**ULR-TC606025000000082F**

Report Number : GLCS/TR/08062/2024-25

Report Date : 06-01-2025

|                                                                                                               |                   |                                                                                                                                                                        |                |
|---------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Issued To :<br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | Site Address:<br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br>COIMBATORE |                |
| Attention                                                                                                     | Thiru.V.Saravanan | Sample Receipt Condition                                                                                                                                               | Good           |
| TRF No.                                                                                                       | TRF/2725          | Sample Quantity                                                                                                                                                        | 2.0 kg         |
| Sample Name                                                                                                   | SOIL - 1          | Sampled By                                                                                                                                                             | Laboratory     |
| Sample Description                                                                                            | Powder            | Sampling Method                                                                                                                                                        | GLCS/SOP/S/014 |
| Sample Code                                                                                                   | GLCS/08062        | Sample Receipt Date                                                                                                                                                    | 24-12-2024     |
| Location Name                                                                                                 | CORE ZONE         | Date of Analysis                                                                                                                                                       | 24-12-2024     |
| Sampling Date                                                                                                 | 16-12-2024        | Date of Completion                                                                                                                                                     | 04-01-2025     |

| Sl.No | TEST PARAMETER                            | TEST METHOD                        | UNITS    | RESULT       |
|-------|-------------------------------------------|------------------------------------|----------|--------------|
| 1     | Available Nitrogen as N                   | GLCS/SOP/S/029 ; Issue no:02: 2024 | kg/ha    | 401.41       |
| 2     | Available Phosphorous(as P)               | GLCS/SOP/S/005 ; Issue no:02: 2024 | mg/kg    | 4.9          |
| 3     | Boron                                     | USEPA-6010D:2014                   | mg/kg    | BDL (DL:0.5) |
| 4     | Bulk Density                              | GLCS/SOP/S/017; Issue no:02: 2024  | g/cc     | 1.12         |
| 5     | Cadmium                                   | USEPA-6010 D-2014                  | mg/kg    | 9.7          |
| 6     | Cation Exchange Capacity                  | GLCS/SOP/S/024; Issue no:02: 2024  | meq/100g | 32.77        |
| 7     | Chlorides ( as Cl-) in saturation extract | GLCS/SOP/S/004; Issue no:02: 2024  | meq/l    | 2.8          |
| 8     | Chromium                                  | USEPA-6010D-2014                   | mg/kg    | 9.5          |

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



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Authorised Signatory  
L.Sudha Priya  
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 15 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 reports issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )

**TEST REPORT**

**ULR-TC606025000000082F**

Report Number : GLCS/TR/08062/2024-25

Report Date : 06-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Receipt Condition</b>                                                                                                                                                             | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sample Quantity</b>                                                                                                                                                                      | 2.0 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/08062        | <b>Sample Receipt Date</b>                                                                                                                                                                  | 24-12-2024     |
| <b>Location Name</b>                                                                                                        | CORE ZONE         | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |

| Sl.No | TEST PARAMETER                 | TEST METHOD                        | UNITS    | RESULT |
|-------|--------------------------------|------------------------------------|----------|--------|
| 9     | Copper                         | USEPA-6010D :2014                  | mg/kg    | 6.7    |
| 10    | Exchangeable Calcium (as Ca)   | GLCS/SOP/S/020; Issue no:02: 2024  | meq/100g | 2.4    |
| 11    | Exchangeable Magnesium (as Mg) | GLCS/SOP/S/021; Issue no:02: 2024  | meq/100g | 0.8    |
| 12    | Iron                           | USEPA-6010 D-2014                  | mg/kg    | 21.7   |
| 13    | Lead                           | USEPA-6010D-2014                   | mg/kg    | 3.2    |
| 14    | Manganese                      | USEPA-6010 D-2014                  | mg/kg    | 13.5   |
| 15    | Organic Carbon                 | GLCS/SOP/S/003; Issue no: 02: 2024 | %        | 0.72   |
| 16    | Organic Matter                 | GLCS/SOP/S/003; Issue no:02: 2024  | %        | 1.24   |

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 2 of 4

**Authorised Signatory**  
**L.Sudha Priya**  
 Technical Manager

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BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )

**TEST REPORT**

**ULR-TC606025000000082F**

Report Number : GLCS/TR/08062/2024-25

Report Date : 06-01-2025

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| Issued To :<br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | Site Address:<br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br>COIMBATORE |                |
| Attention                                                                                                     | Thiru.V.Saravanan | Sample Receipt Condition                                                                                                                                               | Good           |
| TRF No.                                                                                                       | TRF/2725          | Sample Quantity                                                                                                                                                        | 2.0 kg         |
| Sample Name                                                                                                   | SOIL - 1          | Sampled By                                                                                                                                                             | Laboratory     |
| Sample Description                                                                                            | Powder            | Sampling Method                                                                                                                                                        | GLCS/SOP/S/014 |
| Sample Code                                                                                                   | GLCS/08062        | Sample Receipt Date                                                                                                                                                    | 24-12-2024     |
| Location Name                                                                                                 | CORE ZONE         | Date of Analysis                                                                                                                                                       | 24-12-2024     |
| Sampling Date                                                                                                 | 16-12-2024        | Date of Completion                                                                                                                                                     | 04-01-2025     |

| Sl.No | TEST PARAMETER                                 | TEST METHOD                              | UNITS   | RESULT |
|-------|------------------------------------------------|------------------------------------------|---------|--------|
| 17    | pH Value                                       | IS 2720 (Part 26): 1987(Reaffirmed 2021) | -       | 7.92   |
| 18    | Soluble Potassium (as K) in saturation extract | GLCS/SOP/S/006; Issue no:02 : 2024       | mg/100g | 0.78   |
| 19    | Specific Electrical Conductivity               | IS 14767: 2000(Reaffirmed 2021)          | μS/cm   | 468    |
| 20    | Sulphate (as SO <sub>4</sub> )                 | GLCS/SOP/S/009; Issue no:02: 2024        | mg/100g | 4.8    |
| 21    | Texture : Clay                                 | GLCS/SOP/S/015 ;Issue no:02: 2024        | %       | 15.0   |
| 22    | Texture : Sand                                 | GLCS/SOP/S/015; Issue no:02: 2024        | %       | 32.6   |
| 23    | Texture : Silt                                 | GLCS/SOP/S/015 ; Issue no:02: 2024       | %       | 52.4   |
| 24    | Water Holding Capacity                         | GLCS/SOP/S/016; Issue no:02: 2024        | %       | 62     |

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 3 of 4

Authorised Signatory  
L.Sudha Priya  
Technical Manager

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| Attention                                                                                                     | Thiru.V.Saravanan | Sample Receipt Condition                                                                                                                                               | Good           |
| TRF No.                                                                                                       | TRF/2725          | Sample Quantity                                                                                                                                                        | 2.0 kg         |
| Sample Name                                                                                                   | SOIL - 1          | Sampled By                                                                                                                                                             | Laboratory     |
| Sample Description                                                                                            | Powder            | Sampling Method                                                                                                                                                        | GLCS/SOP/S/014 |
| Sample Code                                                                                                   | GLCS/08062        | Sample Receipt Date                                                                                                                                                    | 24-12-2024     |
| Location Name                                                                                                 | CORE ZONE         | Date of Analysis                                                                                                                                                       | 24-12-2024     |
| Sampling Date                                                                                                 | 16-12-2024        | Date of Completion                                                                                                                                                     | 04-01-2025     |

| Sl.No | TEST PARAMETER | TEST METHOD      | UNITS | RESULT |
|-------|----------------|------------------|-------|--------|
| 25    | Zinc           | USEPA-6010D-2014 | mg/kg | 13.5   |

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP

Authorised Signatory  
L.Sudha Priya  
Technical Manager

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\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000083F**

Report Number : GLCS/TR/08063/2024-25

Report Date : 06-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SOIL - 2          | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/S/014 |
| <b>Sampling Description</b>                                                                                                 | Powder            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08063     |
| <b>Location Name</b>                                                                                                        | BOGAMPATTI        | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 09.20             | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°54'17.35"N<br>77° 7'26.31"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER                            | TEST METHOD                        | UNITS    | RESULT       |
|-------|-------------------------------------------|------------------------------------|----------|--------------|
| 1     | Available Nitrogen as N                   | GLCS/SOP/S/029 ; Issue no:02: 2024 | kg/ha    | 326          |
| 2     | Available Phosphorous(as P)               | GLCS/SOP/S/005 ; Issue no:02: 2024 | mg/kg    | 11.6         |
| 3     | Boron                                     | USEPA-6010D:2014                   | mg/kg    | BDL (DL:0.5) |
| 4     | Bulk Density                              | GLCS/SOP/S/017; Issue no:02: 2024  | g/cc     | 1.1          |
| 5     | Cadmium                                   | USEPA-6010 D-2014                  | mg/kg    | 12.7         |
| 6     | Cation Exchange Capacity                  | GLCS/SOP/S/024; Issue no:02: 2024  | meq/100g | 36.6         |
| 7     | Chlorides ( as Cl-) in saturation extract | GLCS/SOP/S/004; Issue no:02: 2024  | meq/l    | 2.7          |
| 8     | Chromium                                  | USEPA-6010D-2014                   | mg/kg    | 17.7         |

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 L.Sudha Priya  
 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000083F**

Report Number : GLCS/TR/08063/2024-25

Report Date : 06-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
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| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SOIL - 2          | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/S/014 |
| <b>Sampling Description</b>                                                                                                 | Powder            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08063     |
| <b>Location Name</b>                                                                                                        | BOGAMPATTI        | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 09.20             | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°54'17.35"N<br>77° 7'26.31"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER                 | TEST METHOD                        | UNITS    | RESULT |
|-------|--------------------------------|------------------------------------|----------|--------|
| 9     | Copper                         | USEPA-6010D :2014                  | mg/kg    | 7.2    |
| 10    | Exchangeable Calcium (as Ca)   | GLCS/SOP/S/020; Issue no:02: 2024  | meq/100g | 2.9    |
| 11    | Exchangeable Magnesium (as Mg) | GLCS/SOP/S/021; Issue no:02: 2024  | meq/100g | 1.3    |
| 12    | Iron                           | USEPA-6010 D-2014                  | mg/kg    | 52.0   |
| 13    | Lead                           | USEPA-6010D-2014                   | mg/kg    | 2.5    |
| 14    | Manganese                      | USEPA-6010 D-2014                  | mg/kg    | 16.4   |
| 15    | Organic Carbon                 | GLCS/SOP/S/003; Issue no: 02: 2024 | %        | 0.8    |
| 16    | Organic Matter                 | GLCS/SOP/S/003; Issue no:02: 2024  | %        | 1.38   |

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Technical Manager

Page 2 of 4

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| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SOIL - 2          | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/S/014 |
| <b>Sampling Description</b>                                                                                                 | Powder            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08063     |
| <b>Location Name</b>                                                                                                        | BOGAMPATTI        | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 09.20             | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°54'17.35"N<br>77° 7'26.31"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER                                 | TEST METHOD                              | UNITS   | RESULT |
|-------|------------------------------------------------|------------------------------------------|---------|--------|
| 17    | pH Value                                       | IS 2720 (Part 26): 1987(Reaffirmed 2021) | -       | 8.14   |
| 18    | Soluble Potassium (as K) in saturation extract | GLCS/SOP/S/006; Issue no:02 : 2024       | mg/100g | 1.23   |
| 19    | Specific Electrical Conductivity               | IS 14767: 2000(Reaffirmed 2021)          | µS/cm   | 424    |
| 20    | Sulphate (as SO4)                              | GLCS/SOP/S/009; Issue no:02: 2024        | mg/100g | 5.8    |
| 21    | Texture : Clay                                 | GLCS/SOP/S/015 ;Issue no:02: 2024        | %       | 25.75  |
| 22    | Texture : Sand                                 | GLCS/SOP/S/015; Issue no:02: 2024        | %       | 34.25  |
| 23    | Texture : Silt                                 | GLCS/SOP/S/015 ; Issue no:02: 2024       | %       | 40.0   |
| 24    | Water Holding Capacity                         | GLCS/SOP/S/016; Issue no:02: 2024        | %       | 56     |

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Report Number : GLCS/TR/08063/2024-25

Report Date : 06-01-2025

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| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SOIL - 2          | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/S/014 |
| <b>Sampling Description</b>                                                                                                 | Powder            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08063     |
| <b>Location Name</b>                                                                                                        | BOGAMPATTI        | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 09.20             | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°54'17.35"N<br>77° 7'26.31"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER | TEST METHOD      | UNITS | RESULT |
|-------|----------------|------------------|-------|--------|
| 25    | Zinc           | USEPA-6010D-2014 | mg/kg | 16.9   |

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



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**Authorised Signatory**  
 L.Sudha Priya  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000084F**

Report Number : GLCS/TR/08064/2024-25

Report Date : 06-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SOIL - 3          | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/S/014 |
| <b>Sampling Description</b>                                                                                                 | Powder            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08064     |
| <b>Location Name</b>                                                                                                        | SN PALAYAM        | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 08.50             | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°56'22.11"N<br>77° 8'22.92"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER                            | TEST METHOD                        | UNITS    | RESULT       |
|-------|-------------------------------------------|------------------------------------|----------|--------------|
| 1     | Available Nitrogen as N                   | GLCS/SOP/S/029 ; Issue no:02: 2024 | kg/ha    | 238          |
| 2     | Available Phosphorous(as P)               | GLCS/SOP/S/005 ; Issue no:02: 2024 | mg/kg    | 8.4          |
| 3     | Boron                                     | USEPA-6010D:2014                   | mg/kg    | BDL (DL:0.5) |
| 4     | Bulk Density                              | GLCS/SOP/S/017; Issue no:02: 2024  | g/cc     | 1.16         |
| 5     | Cadmium                                   | USEPA-6010 D-2014                  | mg/kg    | 6.0          |
| 6     | Cation Exchange Capacity                  | GLCS/SOP/S/024; Issue no:02: 2024  | meq/100g | 34.4         |
| 7     | Chlorides ( as Cl-) in saturation extract | GLCS/SOP/S/004; Issue no:02: 2024  | meq/l    | 5.4          |
| 8     | Chromium                                  | USEPA-6010D-2014                   | mg/kg    | 16.5         |

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Page 1 of 4

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 Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000084F**

Report Number : GLCS/TR/08064/2024-25

Report Date : 06-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
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| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SOIL - 3          | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/S/014 |
| <b>Sampling Description</b>                                                                                                 | Powder            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08064     |
| <b>Location Name</b>                                                                                                        | SN PALAYAM        | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 08.50             | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°56'22.11"N<br>77° 8'22.92"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER                 | TEST METHOD                        | UNITS    | RESULT |
|-------|--------------------------------|------------------------------------|----------|--------|
| 9     | Copper                         | USEPA-6010D :2014                  | mg/kg    | 5.0    |
| 10    | Exchangeable Calcium (as Ca)   | GLCS/SOP/S/020; Issue no:02: 2024  | meq/100g | 3.1    |
| 11    | Exchangeable Magnesium (as Mg) | GLCS/SOP/S/021; Issue no:02: 2024  | meq/100g | 1.6    |
| 12    | Iron                           | USEPA-6010 D-2014                  | mg/kg    | 28.0   |
| 13    | Lead                           | USEPA-6010D-2014                   | mg/kg    | 0.75   |
| 14    | Manganese                      | USEPA-6010 D-2014                  | mg/kg    | 13.0   |
| 15    | Organic Carbon                 | GLCS/SOP/S/003; Issue no: 02: 2024 | %        | 0.41   |
| 16    | Organic Matter                 | GLCS/SOP/S/003; Issue no:02: 2024  | %        | 0.71   |

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Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000084F**

Report Number : GLCS/TR/08064/2024-25

Report Date : 06-01-2025

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| Attention                                                                                                     | Thiru.V.Saravanan | Sample Condition                                                                                                                                                       | Good           |
| TRF No.                                                                                                       | TRF/2725          | Sampled by                                                                                                                                                             | Laboratory     |
| Sample Name                                                                                                   | SOIL - 3          | Sampling Method                                                                                                                                                        | GLCS/SOP/S/014 |
| Sampling Description                                                                                          | Powder            | Sample Code                                                                                                                                                            | GLCS/08064     |
| Location Name                                                                                                 | SN PALAYAM        | Date of Analysis                                                                                                                                                       | 24-12-2024     |
| Sampling Hours                                                                                                | 08.50             | Date of Completion                                                                                                                                                     | 04-01-2025     |
| Sampling Date                                                                                                 | 16-12-2024        | Avg Temperature                                                                                                                                                        | - °C           |
| Sampling Receipt Date                                                                                         | 24-12-2024        | Avg Humidity                                                                                                                                                           | - %            |
| Location Co-ordinates                                                                                         |                   | 10°56'22.11"N<br>77° 8'22.92"E                                                                                                                                         |                |

| Sl.No | TEST PARAMETER                                 | TEST METHOD                              | UNITS   | RESULT |
|-------|------------------------------------------------|------------------------------------------|---------|--------|
| 17    | pH Value                                       | IS 2720 (Part 26): 1987(Reaffirmed 2021) | -       | 8.06   |
| 18    | Soluble Potassium (as K) in saturation extract | GLCS/SOP/S/006; Issue no:02 : 2024       | mg/100g | 1.73   |
| 19    | Specific Electrical Conductivity               | IS 14767: 2000(Reaffirmed 2021)          | µS/cm   | 398    |
| 20    | Sulphate (as SO4)                              | GLCS/SOP/S/009; Issue no:02: 2024        | mg/100g | 4.7    |
| 21    | Texture : Clay                                 | GLCS/SOP/S/015 ;Issue no:02: 2024        | %       | 22.0   |
| 22    | Texture : Sand                                 | GLCS/SOP/S/015; Issue no:02: 2024        | %       | 40.0   |
| 23    | Texture : Silt                                 | GLCS/SOP/S/015 ; Issue no:02: 2024       | %       | 38.0   |
| 24    | Water Holding Capacity                         | GLCS/SOP/S/016; Issue no:02: 2024        | %       | 68     |

Note : BDL - Below Detection Limit, DL - Detection Limit,



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**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

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BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )

**TEST REPORT**

**ULR-TC606025000000084F**

Report Number : GLCS/TR/08064/2024-25

Report Date : 06-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SOIL - 3          | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/S/014 |
| <b>Sampling Description</b>                                                                                                 | Powder            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08064     |
| <b>Location Name</b>                                                                                                        | SN PALAYAM        | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 08.50             | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°56'22.11"N<br>77° 8'22.92"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER | TEST METHOD      | UNITS | RESULT |
|-------|----------------|------------------|-------|--------|
| 25    | Zinc           | USEPA-6010D-2014 | mg/kg | 14.8   |

Note : BDL - Below Detection Limit, DL - Detection Limit,



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Page 4 of 4

**Authorised Signatory**  
 L.Sudha Priya  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000085F**

Report Number : GLCS/TR/08065/2024-25

Report Date : 06-01-2025

|                                                                                                                             |                       |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                       | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan     | <b>Sample Receipt Condition</b>                                                                                                                                                             | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725              | <b>Sample Quantity</b>                                                                                                                                                                      | 2.0 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/08065            | <b>Sample Receipt Date</b>                                                                                                                                                                  | 24-12-2024     |
| <b>Location Name</b>                                                                                                        | LAKSHMINAICKENPALAYAM | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024            | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |

| Sl.No | TEST PARAMETER                            | TEST METHOD                        | UNITS    | RESULT       |
|-------|-------------------------------------------|------------------------------------|----------|--------------|
| 1     | Available Nitrogen as N                   | GLCS/SOP/S/029 ; Issue no:02: 2024 | kg/ha    | 288.5        |
| 2     | Available Phosphorous(as P)               | GLCS/SOP/S/005 ; Issue no:02: 2024 | mg/kg    | 5.9          |
| 3     | Boron                                     | USEPA-6010D:2014                   | mg/kg    | BDL (DL:0.5) |
| 4     | Bulk Density                              | GLCS/SOP/S/017; Issue no:02: 2024  | g/cc     | 1.18         |
| 5     | Cadmium                                   | USEPA-6010 D-2014                  | mg/kg    | 4.7          |
| 6     | Cation Exchange Capacity                  | GLCS/SOP/S/024; Issue no:02: 2024  | meq/100g | 37           |
| 7     | Chlorides ( as Cl-) in saturation extract | GLCS/SOP/S/004; Issue no:02: 2024  | meq/l    | 3.7          |
| 8     | Chromium                                  | USEPA-6010D-2014                   | mg/kg    | 22.3         |

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Page 1 of 4

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000085F**

Report Number : GLCS/TR/08065/2024-25

Report Date : 06-01-2025

|                                                                                                                      |                       |                                                                                                                                                                               |                |
|----------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                       | <b>Site Address:</b><br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br>COIMBATORE |                |
| <b>Attention</b>                                                                                                     | Thiru.V.Saravanan     | <b>Sample Receipt Condition</b>                                                                                                                                               | Good           |
| <b>TRF No.</b>                                                                                                       | TRF/2725              | <b>Sample Quantity</b>                                                                                                                                                        | 2.0 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/08065            | <b>Sample Receipt Date</b>                                                                                                                                                    | 24-12-2024     |
| <b>Location Name</b>                                                                                                 | LAKSHMINAICKENPALAYAM | <b>Date of Analysis</b>                                                                                                                                                       | 24-12-2024     |
| <b>Sampling Date</b>                                                                                                 | 16-12-2024            | <b>Date of Completion</b>                                                                                                                                                     | 04-01-2025     |

| Sl.No | TEST PARAMETER                 | TEST METHOD                        | UNITS    | RESULT |
|-------|--------------------------------|------------------------------------|----------|--------|
| 9     | Copper                         | USEPA-6010D :2014                  | mg/kg    | 2.5    |
| 10    | Exchangeable Calcium (as Ca)   | GLCS/SOP/S/020; Issue no:02: 2024  | meq/100g | 2.8    |
| 11    | Exchangeable Magnesium (as Mg) | GLCS/SOP/S/021; Issue no:02: 2024  | meq/100g | 0.9    |
| 12    | Iron                           | USEPA-6010 D-2014                  | mg/kg    | 36.5   |
| 13    | Lead                           | USEPA-6010D-2014                   | mg/kg    | 5.9    |
| 14    | Manganese                      | USEPA-6010 D-2014                  | mg/kg    | 18.9   |
| 15    | Organic Carbon                 | GLCS/SOP/S/003; Issue no: 02: 2024 | %        | 0.57   |
| 16    | Organic Matter                 | GLCS/SOP/S/003; Issue no:02: 2024  | %        | 0.98   |

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Technical Manager

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BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )



**TEST REPORT**

**ULR-TC606025000000085F**

Report Number : GLCS/TR/08065/2024-25

Report Date : 06-01-2025

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| <b>Issued To :</b><br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                       | <b>Site Address:</b><br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br>COIMBATORE |                |
| <b>Attention</b>                                                                                                     | Thiru.V.Saravanan     | <b>Sample Receipt Condition</b>                                                                                                                                               | Good           |
| <b>TRF No.</b>                                                                                                       | TRF/2725              | <b>Sample Quantity</b>                                                                                                                                                        | 2.0 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/08065            | <b>Sample Receipt Date</b>                                                                                                                                                    | 24-12-2024     |
| <b>Location Name</b>                                                                                                 | LAKSHMINAICKENPALAYAM | <b>Date of Analysis</b>                                                                                                                                                       | 24-12-2024     |
| <b>Sampling Date</b>                                                                                                 | 16-12-2024            | <b>Date of Completion</b>                                                                                                                                                     | 04-01-2025     |

| Sl.No | TEST PARAMETER                                 | TEST METHOD                              | UNITS   | RESULT |
|-------|------------------------------------------------|------------------------------------------|---------|--------|
| 17    | pH Value                                       | IS 2720 (Part 26): 1987(Reaffirmed 2021) | -       | 7.63   |
| 18    | Soluble Potassium (as K) in saturation extract | GLCS/SOP/S/006; Issue no:02 : 2024       | mg/100g | 1.38   |
| 19    | Specific Electrical Conductivity               | IS 14767: 2000(Reaffirmed 2021)          | μS/cm   | 412    |
| 20    | Sulphate (as SO <sub>4</sub> )                 | GLCS/SOP/S/009; Issue no:02: 2024        | mg/100g | 4.5    |
| 21    | Texture : Clay                                 | GLCS/SOP/S/015 ;Issue no:02: 2024        | %       | 27.0   |
| 22    | Texture : Sand                                 | GLCS/SOP/S/015; Issue no:02: 2024        | %       | 36.62  |
| 23    | Texture : Silt                                 | GLCS/SOP/S/015 ; Issue no:02: 2024       | %       | 36.38  |
| 24    | Water Holding Capacity                         | GLCS/SOP/S/016; Issue no:02: 2024        | %       | 52     |

Note : BDL - Below Detection Limit, DL - Detection Limit,



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Technical Manager

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**TEST REPORT**

**ULR-TC606025000000085F**

Report Number : GLCS/TR/08065/2024-25

Report Date : 06-01-2025

|                                                                                                                             |                       |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                       | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan     | <b>Sample Receipt Condition</b>                                                                                                                                                             | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725              | <b>Sample Quantity</b>                                                                                                                                                                      | 2.0 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/08065            | <b>Sample Receipt Date</b>                                                                                                                                                                  | 24-12-2024     |
| <b>Location Name</b>                                                                                                        | LAKSHMINAICKENPALAYAM | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024            | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |

| Sl.No | TEST PARAMETER | TEST METHOD      | UNITS | RESULT |
|-------|----------------|------------------|-------|--------|
| 25    | Zinc           | USEPA-6010D-2014 | mg/kg | 16.4   |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP

**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

Page 4 of 4

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000086F**

Report Number : GLCS/TR/08066/2024-25

Report Date : 06-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SOIL - 5          | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/S/014 |
| <b>Sampling Description</b>                                                                                                 | Powder            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08066     |
| <b>Location Name</b>                                                                                                        | PANAPATTI         | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.20             | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°52'43.98"N<br>77° 6'2.22"E                                                                                                                                                               |                |

| Sl.No | TEST PARAMETER                            | TEST METHOD                        | UNITS    | RESULT       |
|-------|-------------------------------------------|------------------------------------|----------|--------------|
| 1     | Available Nitrogen as N                   | GLCS/SOP/S/029 ; Issue no:02: 2024 | kg/ha    | 313.6        |
| 2     | Available Phosphorous(as P)               | GLCS/SOP/S/005 ; Issue no:02: 2024 | mg/kg    | 5.8          |
| 3     | Boron                                     | USEPA-6010D:2014                   | mg/kg    | BDL (DL:0.5) |
| 4     | Bulk Density                              | GLCS/SOP/S/017; Issue no:02: 2024  | g/cc     | 1.15         |
| 5     | Cadmium                                   | USEPA-6010 D-2014                  | mg/kg    | 7.7          |
| 6     | Cation Exchange Capacity                  | GLCS/SOP/S/024; Issue no:02: 2024  | meq/100g | 27.0         |
| 7     | Chlorides ( as Cl-) in saturation extract | GLCS/SOP/S/004; Issue no:02: 2024  | meq/l    | 3.6          |
| 8     | Chromium                                  | USEPA-6010D-2014                   | mg/kg    | 28.4         |

**Note : BDL - Below Detection Limit, DL - Detection Limit,**



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Page 1 of 4

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 L.Sudha Priya  
 Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000086F**

Report Number : GLCS/TR/08066/2024-25

Report Date : 06-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SOIL - 5          | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/S/014 |
| <b>Sampling Description</b>                                                                                                 | Powder            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08066     |
| <b>Location Name</b>                                                                                                        | PANAPATTI         | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.20             | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°52'43.98"N<br>77° 6'2.22"E                                                                                                                                                               |                |

| Sl.No | TEST PARAMETER                 | TEST METHOD                        | UNITS    | RESULT |
|-------|--------------------------------|------------------------------------|----------|--------|
| 9     | Copper                         | USEPA-6010D :2014                  | mg/kg    | 8.2    |
| 10    | Exchangeable Calcium (as Ca)   | GLCS/SOP/S/020; Issue no:02: 2024  | meq/100g | 3.4    |
| 11    | Exchangeable Magnesium (as Mg) | GLCS/SOP/S/021; Issue no:02: 2024  | meq/100g | 0.5    |
| 12    | Iron                           | USEPA-6010 D-2014                  | mg/kg    | 19.9   |
| 13    | Lead                           | USEPA-6010D-2014                   | mg/kg    | 5.2    |
| 14    | Manganese                      | USEPA-6010 D-2014                  | mg/kg    | 13.9   |
| 15    | Organic Carbon                 | GLCS/SOP/S/003; Issue no: 02: 2024 | %        | 0.34   |
| 16    | Organic Matter                 | GLCS/SOP/S/003; Issue no:02: 2024  | %        | 0.59   |

**Note : BDL - Below Detection Limit, DL - Detection Limit,**



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**Authorised Signatory**  
 L.Sudha Priya  
 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000086F**

Report Number : GLCS/TR/08066/2024-25

Report Date : 06-01-2025

|                                                                                                               |                   |                                                                                                                                                                        |                |
|---------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Issued To :<br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | Site Address:<br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br>COIMBATORE |                |
| Attention                                                                                                     | Thiru.V.Saravanan | Sample Condition                                                                                                                                                       | Good           |
| TRF No.                                                                                                       | TRF/2725          | Sampled by                                                                                                                                                             | Laboratory     |
| Sample Name                                                                                                   | SOIL - 5          | Sampling Method                                                                                                                                                        | GLCS/SOP/S/014 |
| Sampling Description                                                                                          | Powder            | Sample Code                                                                                                                                                            | GLCS/08066     |
| Location Name                                                                                                 | PANAPATTI         | Date of Analysis                                                                                                                                                       | 24-12-2024     |
| Sampling Hours                                                                                                | 10.20             | Date of Completion                                                                                                                                                     | 04-01-2025     |
| Sampling Date                                                                                                 | 16-12-2024        | Avg Temperature                                                                                                                                                        | - °C           |
| Sampling Receipt Date                                                                                         | 24-12-2024        | Avg Humidity                                                                                                                                                           | - %            |
| Location Co-ordinates                                                                                         |                   | 10°52'43.98"N<br>77° 6'2.22"E                                                                                                                                          |                |

| Sl.No | TEST PARAMETER                                 | TEST METHOD                              | UNITS   | RESULT |
|-------|------------------------------------------------|------------------------------------------|---------|--------|
| 17    | pH Value                                       | IS 2720 (Part 26): 1987(Reaffirmed 2021) | -       | 7.84   |
| 18    | Soluble Potassium (as K) in saturation extract | GLCS/SOP/S/006; Issue no:02 : 2024       | mg/100g | 0.78   |
| 19    | Specific Electrical Conductivity               | IS 14767: 2000(Reaffirmed 2021)          | µS/cm   | 468    |
| 20    | Sulphate (as SO4)                              | GLCS/SOP/S/009; Issue no:02: 2024        | mg/100g | 6.7    |
| 21    | Texture : Clay                                 | GLCS/SOP/S/015 ;Issue no:02: 2024        | %       | 24.25  |
| 22    | Texture : Sand                                 | GLCS/SOP/S/015; Issue no:02: 2024        | %       | 36.0   |
| 23    | Texture : Silt                                 | GLCS/SOP/S/015 ; Issue no:02: 2024       | %       | 39.75  |
| 24    | Water Holding Capacity                         | GLCS/SOP/S/016; Issue no:02: 2024        | %       | 60.0   |

Note : BDL - Below Detection Limit, DL - Detection Limit,



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L.Sudha Priya  
Technical Manager

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BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )

**TEST REPORT**

**ULR-TC606025000000086F**

Report Number : GLCS/TR/08066/2024-25

Report Date : 06-01-2025

|                                                                                                               |                   |                                                                                                                                                                        |                |
|---------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Issued To :<br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | Site Address:<br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br>COIMBATORE |                |
| Attention                                                                                                     | Thiru.V.Saravanan | Sample Condition                                                                                                                                                       | Good           |
| TRF No.                                                                                                       | TRF/2725          | Sampled by                                                                                                                                                             | Laboratory     |
| Sample Name                                                                                                   | SOIL - 5          | Sampling Method                                                                                                                                                        | GLCS/SOP/S/014 |
| Sampling Description                                                                                          | Powder            | Sample Code                                                                                                                                                            | GLCS/08066     |
| Location Name                                                                                                 | PANAPATTI         | Date of Analysis                                                                                                                                                       | 24-12-2024     |
| Sampling Hours                                                                                                | 10.20             | Date of Completion                                                                                                                                                     | 04-01-2025     |
| Sampling Date                                                                                                 | 16-12-2024        | Avg Temperature                                                                                                                                                        | - °C           |
| Sampling Receipt Date                                                                                         | 24-12-2024        | Avg Humidity                                                                                                                                                           | - %            |
| Location Co-ordinates                                                                                         |                   | 10°52'43.98"N<br>77° 6'2.22"E                                                                                                                                          |                |

| Sl.No | TEST PARAMETER | TEST METHOD      | UNITS | RESULT |
|-------|----------------|------------------|-------|--------|
| 25    | Zinc           | USEPA-6010D-2014 | mg/kg | 12.2   |

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



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Authorised Signatory  
L.Sudha Priya  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000088F**

Report Number : GLCS/TR/08067/2024-25

Report Date : 06-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SOIL - 6          | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/S/014 |
| <b>Sampling Description</b>                                                                                                 | Powder            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08067     |
| <b>Location Name</b>                                                                                                        | CHINNAKUYILI      | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.45             | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°55'35.80"N<br>77° 5'14.84"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER                            | TEST METHOD                        | UNITS    | RESULT |
|-------|-------------------------------------------|------------------------------------|----------|--------|
| 1     | Available Nitrogen as N                   | GLCS/SOP/S/029 ; Issue no:02: 2024 | kg/ha    | 213    |
| 2     | Available Phosphorous(as P)               | GLCS/SOP/S/005 ; Issue no:02: 2024 | mg/kg    | 9.2    |
| 3     | Boron                                     | USEPA-6010D:2014                   | mg/kg    | 11.2   |
| 4     | Bulk Density                              | GLCS/SOP/S/017; Issue no:02: 2024  | g/cc     | 1.16   |
| 5     | Cadmium                                   | USEPA-6010 D-2014                  | mg/kg    | 1.9    |
| 6     | Cation Exchange Capacity                  | GLCS/SOP/S/024; Issue no:02: 2024  | meq/100g | 23.6   |
| 7     | Chlorides ( as Cl-) in saturation extract | GLCS/SOP/S/004; Issue no:02: 2024  | meq/l    | 5.2    |
| 8     | Chromium                                  | USEPA-6010D-2014                   | mg/kg    | 26.7   |

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For Global Lab and Consultancy Services LLP



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 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000088F**

Report Number : GLCS/TR/08067/2024-25

Report Date : 06-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SOIL - 6          | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/S/014 |
| <b>Sampling Description</b>                                                                                                 | Powder            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08067     |
| <b>Location Name</b>                                                                                                        | CHINNAKUYILI      | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.45             | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°55'35.80"N<br>77° 5'14.84"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER                 | TEST METHOD                        | UNITS    | RESULT |
|-------|--------------------------------|------------------------------------|----------|--------|
| 9     | Copper                         | USEPA-6010D :2014                  | mg/kg    | 15.2   |
| 10    | Exchangeable Calcium (as Ca)   | GLCS/SOP/S/020; Issue no:02: 2024  | meq/100g | 3.7    |
| 11    | Exchangeable Magnesium (as Mg) | GLCS/SOP/S/021; Issue no:02: 2024  | meq/100g | 1.0    |
| 12    | Iron                           | USEPA-6010 D-2014                  | mg/kg    | 44     |
| 13    | Lead                           | USEPA-6010D-2014                   | mg/kg    | 4.8    |
| 14    | Manganese                      | USEPA-6010 D-2014                  | mg/kg    | 10.2   |
| 15    | Organic Carbon                 | GLCS/SOP/S/003; Issue no: 02: 2024 | %        | 0.68   |
| 16    | Organic Matter                 | GLCS/SOP/S/003; Issue no:02: 2024  | %        | 1.17   |

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For Global Lab and Consultancy Services LLP



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Technical Manager

Page 2 of 4

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**



**TEST REPORT**

**ULR-TC606025000000088F**

Report Number : GLCS/TR/08067/2024-25

Report Date : 06-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SOIL - 6          | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/S/014 |
| <b>Sampling Description</b>                                                                                                 | Powder            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08067     |
| <b>Location Name</b>                                                                                                        | CHINNAKUYILI      | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.45             | <b>Date of Completion</b>                                                                                                                                                                   | 04-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | <b>10°55'35.80"N</b><br><b>77° 5'14.84"E</b>                                                                                                                                                |                |

| Sl.No | TEST PARAMETER                                 | TEST METHOD                              | UNITS   | RESULT |
|-------|------------------------------------------------|------------------------------------------|---------|--------|
| 17    | pH Value                                       | IS 2720 (Part 26): 1987(Reaffirmed 2021) | -       | 8.26   |
| 18    | Soluble Potassium (as K) in saturation extract | GLCS/SOP/S/006; Issue no:02 : 2024       | mg/100g | 1.22   |
| 19    | Specific Electrical Conductivity               | IS 14767: 2000(Reaffirmed 2021)          | µS/cm   | 536    |
| 20    | Sulphate (as SO <sub>4</sub> )                 | GLCS/SOP/S/009; Issue no:02: 2024        | mg/100g | 6.8    |
| 21    | Texture : Clay                                 | GLCS/SOP/S/015 ; Issue no:02: 2024       | %       | 23.95  |
| 22    | Texture : Sand                                 | GLCS/SOP/S/015; Issue no:02: 2024        | %       | 35.0   |
| 23    | Texture : Silt                                 | GLCS/SOP/S/015 ; Issue no:02: 2024       | %       | 41.05  |
| 24    | Water Holding Capacity                         | GLCS/SOP/S/016; Issue no:02: 2024        | %       | 52     |

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For Global Lab and Consultancy Services LLP



Page 3 of 4

**Authorised Signatory**  
**L.Sudha Priya**  
 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000088F**

**Report Number : GLCS/TR/08067/2024-25**

**Report Date : 06-01-2025**

|                                                                                                                      |                   |                                                                                                                                                                                      |                |
|----------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                     | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                              | Good           |
| <b>TRF No.</b>                                                                                                       | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                    | Laboratory     |
| <b>Sample Name</b>                                                                                                   | SOIL - 6          | <b>Sampling Method</b>                                                                                                                                                               | GLCS/SOP/S/014 |
| <b>Sampling Description</b>                                                                                          | Powder            | <b>Sample Code</b>                                                                                                                                                                   | GLCS/08067     |
| <b>Location Name</b>                                                                                                 | CHINNAKUYILI      | <b>Date of Analysis</b>                                                                                                                                                              | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                | 10.45             | <b>Date of Completion</b>                                                                                                                                                            | 04-01-2025     |
| <b>Sampling Date</b>                                                                                                 | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                               | - °C           |
| <b>Sampling Receipt Date</b>                                                                                         | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                  | - %            |
| <b>Location Co-ordinates</b>                                                                                         |                   | 10°55'35.80"N<br>77° 5'14.84"E                                                                                                                                                       |                |

| Sl.No | TEST PARAMETER | TEST METHOD      | UNITS | RESULT |
|-------|----------------|------------------|-------|--------|
| 25    | Zinc           | USEPA-6010D-2014 | mg/kg | 10.9   |

**Note : BDL - Below Detection Limit, DL - Detection Limit,**



**For Global Lab and Consultancy Services LLP**



**Page 4 of 4**

**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

**\*\*\*\*\*End of Report\*\*\*\*\***

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**TEST REPORT**

**ULR-TC606025000000043F**

Report Number : GLCS/TR/08068/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SURFACE WATER     | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08068     |
| <b>Location Name</b>                                                                                                        | PALLAPALAYAM LAKE | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 15.10             | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°59'25.25"N<br>77° 4'43.75"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER                                     | TEST METHOD                               | UNITS | RESULT         |
|-------|----------------------------------------------------|-------------------------------------------|-------|----------------|
| 1     | Aluminium                                          | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | 0.031          |
| 2     | Ammoniacal Nitrogen as NH <sub>3</sub> -N          | IS 3025 (Part 34)/Sec 1: 2023             | mg/l  | BDL (DL:1.0)   |
| 3     | Arsenic as As                                      | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.002) |
| 4     | Barium as Ba                                       | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | 0.051          |
| 5     | Biochemical Oxygen Demand (BOD) at 27°C for 3 Days | IS 3025 (Part 44): 2023                   | mg/l  | 9              |
| 6     | Boron as B                                         | IS 3025 (Part 57): 2021                   | mg/l  | BDL (DL:0.1)   |
| 7     | Cadmium as Cd                                      | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 8     | Calcium as Ca                                      | IS 3025 (Part 40): 1991 (Reaffirmed 2019) | mg/l  | 60             |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 1 of 5

**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

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**TEST REPORT**

**ULR-TC606025000000043F**

Report Number : GLCS/TR/08068/2024-25

Report Date : 04-01-2025

|                                                                                                                      |                   |                                                                                                                                                                                      |                |
|----------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                     | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                              | Good           |
| <b>TRF No.</b>                                                                                                       | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                    | Laboratory     |
| <b>Sample Name</b>                                                                                                   | SURFACE WATER     | <b>Sampling Method</b>                                                                                                                                                               | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                          | Liquid            | <b>Sample Code</b>                                                                                                                                                                   | GLCS/08068     |
| <b>Location Name</b>                                                                                                 | PALLAPALAYAM LAKE | <b>Date of Analysis</b>                                                                                                                                                              | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                | 15.10             | <b>Date of Completion</b>                                                                                                                                                            | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                 | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                               | - °C           |
| <b>Sampling Receipt Date</b>                                                                                         | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                  | - %            |
| <b>Location Co-ordinates</b>                                                                                         |                   | 10°59'25.25"N<br>77° 4'43.75"E                                                                                                                                                       |                |

| Sl.No | TEST PARAMETER               | TEST METHOD                               | UNITS | RESULT        |
|-------|------------------------------|-------------------------------------------|-------|---------------|
| 9     | Chemical Oxygen Demand (COD) | IS 3025 (Part 58): 2023                   | mg/l  | 30            |
| 10    | Chloride as Cl <sup>-</sup>  | IS 3025 (Part 32): 1988 (Reaffirmed 2019) | mg/l  | 215           |
| 11    | Chromium as Cr               | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |
| 12    | Color                        | IS 3025 (Part 4): 2021                    | CU    | <1            |
| 13    | Copper as Cu                 | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |
| 14    | Cyanide as CN                | IS 3025 part 27/Sec 1: 2021               | mg/l  | BDL (DL:0.02) |
| 15    | Dissolved Oxygen (DO)        | IS 3025 (Part 38): 1989 (Reaffirmed 2019) | mg/l  | 6.2           |
| 16    | Electrical Conductivity      | IS 3025 (Part 14): 2013 (Reaffirmed 2019) | µS/cm | 1502          |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



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Technical Manager

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**TEST REPORT**

**ULR-TC606025000000043F**

Report Number : GLCS/TR/08068/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SURFACE WATER     | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08068     |
| <b>Location Name</b>                                                                                                        | PALLAPALAYAM LAKE | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 15.10             | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°59'25.25"N<br>77° 4'43.75"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER                            | TEST METHOD                               | UNITS | RESULT         |
|-------|-------------------------------------------|-------------------------------------------|-------|----------------|
| 17    | Fluoride as F-                            | GLCS/SOP/W/015; Issue no :02: 2024        | mg/l  | 0.29           |
| 18    | Free Residual Chlorine as Cl <sub>2</sub> | IS 3025 (Part 26): 2021                   | mg/l  | BDL (DL:1.0)   |
| 19    | Iron as Fe                                | IS 3025 (Part 53): 2024                   | mg/l  | 0.17           |
| 20    | Lead as Pb                                | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 21    | Magnesium as Mg                           | IS 3025 (Part 46): 2023                   | mg/l  | 56             |
| 22    | Manganese as Mn                           | IS 3025 (Part 59): 2023                   | mg/l  | BDL (DL:0.1)   |
| 23    | Mercury as Hg                             | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.002) |
| 24    | Molybdenum as Mo                          | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



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 L.Sudha Priya  
 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000043F**

Report Number : GLCS/TR/08068/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | SURFACE WATER     | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08068     |
| <b>Location Name</b>                                                                                                        | PALLAPALAYAM LAKE | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 15.10             | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°59'25.25"N<br>77° 4'43.75"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER                    | TEST METHOD                               | UNITS | RESULT         |
|-------|-----------------------------------|-------------------------------------------|-------|----------------|
| 25    | Nitrate as NO3                    | IS 3025 (Part 34)/Sec 1: 2023             | mg/l  | BDL (DL:2.0)   |
| 26    | Odor                              | IS 3025 (Part 5): 2018                    | -     | Agreeable      |
| 27    | pH                                | IS 3025 (Part 11): 2022                   | -     | 8.12           |
| 28    | Phenols                           | IS 3025 PART 43 SECTION 1: 2022           | mg/l  | BDL (DL:0.1)   |
| 29    | Selenium as Se                    | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.005) |
| 30    | Sulphate as SO4                   | IS 3025 (Part 24) SECTION 1: 2022         | mg/l  | 82             |
| 31    | Sulphide as S (Iodometric Method) | GLCS/SOP/W/066: 2023                      | mg/l  | BDL (DL:1.0)   |
| 32    | Total Alkalinity as CaCO3         | IS 3025 (Part 23): 2023                   | mg/l  | 420            |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



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 L.Sudha Priya  
 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000043F**

Report Number : GLCS/TR/08068/2024-25

Report Date : 04-01-2025

|                                                                                                                      |                   |                                                                                                                                                                                      |                |
|----------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                     | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                              | Good           |
| <b>TRF No.</b>                                                                                                       | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                    | Laboratory     |
| <b>Sample Name</b>                                                                                                   | SURFACE WATER     | <b>Sampling Method</b>                                                                                                                                                               | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                          | Liquid            | <b>Sample Code</b>                                                                                                                                                                   | GLCS/08068     |
| <b>Location Name</b>                                                                                                 | PALLAPALAYAM LAKE | <b>Date of Analysis</b>                                                                                                                                                              | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                | 15.10             | <b>Date of Completion</b>                                                                                                                                                            | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                 | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                               | - °C           |
| <b>Sampling Receipt Date</b>                                                                                         | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                  | - %            |
| <b>Location Co-ordinates</b>                                                                                         |                   | 10°59'25.25"N<br>77° 4'43.75"E                                                                                                                                                       |                |

| Sl.No | TEST PARAMETER                      | TEST METHOD                               | UNITS | RESULT        |
|-------|-------------------------------------|-------------------------------------------|-------|---------------|
| 33    | Total Dissolved Solids (TDS)        | IS 3025 (Part 16): 2023                   | mg/l  | 975           |
| 34    | Total Hardness as CaCO <sub>3</sub> | IS 3025 (Part 21): 2009 (Reaffirmed 2019) | mg/l  | 380           |
| 35    | Total Suspended Solids              | is 3025 part 17: 2022                     | mg/l  | 24            |
| 36    | Turbidity                           | IS 3025 (Part 10): 2023                   | NTU   | 12            |
| 37    | Zinc as Zn                          | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

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\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606024000010051F**

**Report Number : GLCS/TR/08068/2024-25**

**Report Date : 28-12-2024**

|                                                                                                                      |                   |                                                                                                                                                                                      |               |
|----------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>Issued To :</b><br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br><b>COIMBATORE</b> |               |
| <b>Attention</b>                                                                                                     | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                              | Good          |
| <b>TRF No.</b>                                                                                                       | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                    | Laboratory    |
| <b>Sample Name</b>                                                                                                   | SURFACE WATER     | <b>Sampling Method</b>                                                                                                                                                               | GLCS/SOP/M/05 |
| <b>Sampling Description</b>                                                                                          | Liquid            | <b>Sample Code</b>                                                                                                                                                                   | GLCS/08068    |
| <b>Location Name</b>                                                                                                 | PALLAPALAYAM LAKE | <b>Date of Analysis</b>                                                                                                                                                              | 24-12-2024    |
| <b>Sampling Hours</b>                                                                                                | 15.10             | <b>Date of Completion</b>                                                                                                                                                            | 26-12-2024    |
| <b>Sampling Date</b>                                                                                                 | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                               | - °C          |
| <b>Sampling Receipt Date</b>                                                                                         | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                  | - %           |
| <b>Location Co-ordinates</b>                                                                                         |                   | 10°59'25.25"N<br>77° 4'43.75"E                                                                                                                                                       |               |

| Sl.No | TEST PARAMETER   | TEST METHOD                      | UNITS     | RESULT |
|-------|------------------|----------------------------------|-----------|--------|
| 1     | Escherichia coli | IS: 1622 – 1981(Reaffirmed 2019) | MPN/100ml | <2     |
| 2     | Total Coliforms  | IS: 1622 – 1981(Reaffirmed 2019) | MPN/100ml | <2     |

**Note : MPN - Most Probable Number**



**For Global Lab and Consultancy Services LLP**



**Authorised Signatory**

A. Sathishkumar

Technical Manager- Microbiology

Page 1 of 1

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000050F**

Report Number : GLCS/TR/08069/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | WELL WATER - 1    | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08069     |
| <b>Location Name</b>                                                                                                        | EDAIYARPALAYAM    | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 14.20             | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°55'32.16"N<br>77° 6'48.21"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER               | TEST METHOD                               | UNITS | RESULT         |
|-------|------------------------------|-------------------------------------------|-------|----------------|
| 1     | Aluminium                    | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 2     | Ammoniacal Nitrogen as NH3-N | IS 3025 PART 34/Sec 1: 2023               | mg/l  | BDL (DL:1.0)   |
| 3     | Arsenic as As                | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.002) |
| 4     | Barium as Ba                 | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 5     | Boron as B                   | IS 3025 (Part 57): 2021                   | mg/l  | BDL (DL:0.1)   |
| 6     | Cadmium as Cd                | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 7     | Calcium as Ca                | IS 3025 (Part 40): 1991 (Reaffirmed 2019) | mg/l  | 80             |
| 8     | Chloride as Cl-              | IS 3025 (Part 32): 1988 (Reaffirmed 2019) | mg/l  | 180            |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 1 of 5

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L.Sudha Priya  
Technical Manager

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**TEST REPORT**

**ULR-TC606025000000050F**

Report Number : GLCS/TR/08069/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | WELL WATER - 1    | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08069     |
| <b>Location Name</b>                                                                                                        | EDAIYARPALAYAM    | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 14.20             | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°55'32.16"N<br>77° 6'48.21"E                                                                                                                                                              |                |

| SI.No | TEST PARAMETER                | TEST METHOD                               | UNITS | RESULT        |
|-------|-------------------------------|-------------------------------------------|-------|---------------|
| 9     | Chromium as Cr                | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |
| 10    | Color                         | IS 3025 (Part 4): 2021                    | CU    | <1            |
| 11    | Copper as Cu                  | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |
| 12    | Cyanide as CN                 | IS 3025 part 27/Sec 1: 2021               | mg/l  | BDL (DL:0.02) |
| 13    | Electrical Conductivity (EC)  | IS 3025 (Part 14): 2013 (Reaffirmed 2019) | µS/cm | 1258          |
| 14    | Fluoride as F-                | GLCS/SOP/W/015; Issue No:02: 2024         | mg/l  | 0.24          |
| 15    | Free Residual Chlorine as Cl2 | IS 3025 (Part 26): 2021                   | mg/l  | BDL (DL:1.0)  |
| 16    | Iron as Fe                    | IS 3025 (Part 53): 2024                   | mg/l  | 0.4           |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP

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**Authorised Signatory**  
 L.Sudha Priya  
 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000050F**

Report Number : GLCS/TR/08069/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | WELL WATER - 1    | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08069     |
| <b>Location Name</b>                                                                                                        | EDAIYARPALAYAM    | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 14.20             | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°55'32.16"N<br>77° 6'48.21"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER   | TEST METHOD                               | UNITS | RESULT         |
|-------|------------------|-------------------------------------------|-------|----------------|
| 17    | Lead as Pb       | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 18    | Magnesium as Mg  | IS 3025 (Part 46): 2023                   | mg/l  | 56             |
| 19    | Manganese as Mn  | IS 3025 (Part 59): 2023                   | mg/l  | BDL (DL:0.1)   |
| 20    | Mercury as Hg    | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.002) |
| 21    | Molybdenum as Mo | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 22    | Nitrate as NO3   | IS 3025 (Part 34)/Sec 1: 2023             | mg/l  | BDL (DL:2.0)   |
| 23    | Odor             | IS 3025 (Part 5): 2018                    | -     | Agreeable      |
| 24    | pH               | IS 3025 (Part 11): 2022                   | -     | 7.48           |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



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**Authorised Signatory**  
 L.Sudha Priya  
 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000050F**

Report Number : GLCS/TR/08069/2024-25

Report Date : 04-01-2025

|                                                                                                               |                   |                                                                                                                                                                        |                |
|---------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Issued To :<br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | Site Address:<br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br>COIMBATORE |                |
| Attention                                                                                                     | Thiru.V.Saravanan | Sample Condition                                                                                                                                                       | Good           |
| TRF No.                                                                                                       | TRF/2725          | Sampled by                                                                                                                                                             | Laboratory     |
| Sample Name                                                                                                   | WELL WATER - 1    | Sampling Method                                                                                                                                                        | GLCS/SOP/W/028 |
| Sampling Description                                                                                          | Liquid            | Sample Code                                                                                                                                                            | GLCS/08069     |
| Location Name                                                                                                 | EDAIYARPALAYAM    | Date of Analysis                                                                                                                                                       | 24-12-2024     |
| Sampling Hours                                                                                                | 14.20             | Date of Completion                                                                                                                                                     | 02-01-2025     |
| Sampling Date                                                                                                 | 16-12-2024        | Avg Temperature                                                                                                                                                        | - °C           |
| Sampling Receipt Date                                                                                         | 24-12-2024        | Avg Humidity                                                                                                                                                           | - %            |
| Location Co-ordinates                                                                                         |                   | 10°55'32.16"N<br>77° 6'48.21"E                                                                                                                                         |                |

| Sl.No | TEST PARAMETER                        | TEST METHOD                               | UNITS | RESULT         |
|-------|---------------------------------------|-------------------------------------------|-------|----------------|
| 25    | Phenols                               | IS 3025 PART 43 Section 1: 2022           | mg/l  | BDL (DL:0.1)   |
| 26    | Selenium as Se                        | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.005) |
| 27    | Sulphate as SO <sub>4</sub>           | IS 3025 (Part 24) Section 1: 2022         | mg/l  | 59             |
| 28    | Sulphide as S (Iodometric Method)     | GLCS/SOP/W/066: 2023                      | mg/l  | BDL (DL:1.0)   |
| 29    | Total Alkalinity as CaCO <sub>3</sub> | IS 3025 (Part 23): 2023                   | mg/l  | 390            |
| 30    | Total Dissolved Solids (TDS)          | IS 3025 (Part 16): 2023                   | mg/l  | 816            |
| 31    | Total Hardness as CaCO <sub>3</sub>   | IS 3025 (Part 21): 2009 (Reaffirmed 2019) | mg/l  | 430            |
| 32    | Total Suspended Solids (TSS)          | IS 3025 (Part 17): 2022                   | mg/l  | BDL (DL:2.0)   |

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



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**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

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BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )

**TEST REPORT**

**ULR-TC606025000000050F**

Report Number : GLCS/TR/08069/2024-25

Report Date : 04-01-2025

|                                                                                                               |                   |                                                                                                                                                                        |                |
|---------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Issued To :<br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | Site Address:<br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br>COIMBATORE |                |
| Attention                                                                                                     | Thiru.V.Saravanan | Sample Condition                                                                                                                                                       | Good           |
| TRF No.                                                                                                       | TRF/2725          | Sampled by                                                                                                                                                             | Laboratory     |
| Sample Name                                                                                                   | WELL WATER - 1    | Sampling Method                                                                                                                                                        | GLCS/SOP/W/028 |
| Sampling Description                                                                                          | Liquid            | Sample Code                                                                                                                                                            | GLCS/08069     |
| Location Name                                                                                                 | EDAIYARPALAYAM    | Date of Analysis                                                                                                                                                       | 24-12-2024     |
| Sampling Hours                                                                                                | 14.20             | Date of Completion                                                                                                                                                     | 02-01-2025     |
| Sampling Date                                                                                                 | 16-12-2024        | Avg Temperature                                                                                                                                                        | - °C           |
| Sampling Receipt Date                                                                                         | 24-12-2024        | Avg Humidity                                                                                                                                                           | - %            |
| Location Co-ordinates                                                                                         |                   | 10°55'32.16"N<br>77° 6'48.21"E                                                                                                                                         |                |

| Sl.No | TEST PARAMETER | TEST METHOD                               | UNITS | RESULT        |
|-------|----------------|-------------------------------------------|-------|---------------|
| 33    | Turbidity      | IS 3025 (Part 10): 2023                   | NTU   | <1            |
| 34    | Zinc as Zn     | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP

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Authorised Signatory  
L.Sudha Priya  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606024000010053F**

**Report Number : GLCS/TR/08069/2024-25**

**Report Date : 28-12-2024**

|                                                                                                                      |                   |                                                                                                                                                                                      |               |
|----------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>Issued To :</b><br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |               |
| <b>Attention</b>                                                                                                     | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                              | Good          |
| <b>TRF No.</b>                                                                                                       | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                    | Laboratory    |
| <b>Sample Name</b>                                                                                                   | WELL WATER - 1    | <b>Sampling Method</b>                                                                                                                                                               | GLCS/SOP/M/05 |
| <b>Sampling Description</b>                                                                                          | Liquid            | <b>Sample Code</b>                                                                                                                                                                   | GLCS/08069    |
| <b>Location Name</b>                                                                                                 | EDAIYARPALAYAM    | <b>Date of Analysis</b>                                                                                                                                                              | 24-12-2024    |
| <b>Sampling Hours</b>                                                                                                | 14.20             | <b>Date of Completion</b>                                                                                                                                                            | 26-12-2024    |
| <b>Sampling Date</b>                                                                                                 | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                               | - °C          |
| <b>Sampling Receipt Date</b>                                                                                         | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                  | - %           |
| <b>Location Co-ordinates</b>                                                                                         |                   | 10°55'32.16"N<br>77° 6'48.21"E                                                                                                                                                       |               |

| Sl.No | TEST PARAMETER   | TEST METHOD                      | UNITS     | RESULT |
|-------|------------------|----------------------------------|-----------|--------|
| 1     | Escherichia coli | IS: 1622 – 1981(Reaffirmed 2019) | MPN/100ml | <2     |
| 2     | Total Coliforms  | IS: 1622 – 1981(Reaffirmed 2019) | MPN/100ml | <2     |

**Note : MPN - Most Probable Number**



**For Global Lab and Consultancy Services LLP**



**Authorised Signatory**

A. Sathishkumar

Technical Manager- Microbiology

Page 1 of 1

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000051F**

Report Number : GLCS/TR/08070/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                       |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                       | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan     | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725              | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | WELL WATER - 2        | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid                | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08070     |
| <b>Location Name</b>                                                                                                        | LAKSHMINAICKENPALAYAM | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.00                 | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024            | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024            | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                       | 10°55'22.78"N<br>77° 8'58.13"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER               | TEST METHOD                               | UNITS | RESULT         |
|-------|------------------------------|-------------------------------------------|-------|----------------|
| 1     | Aluminium                    | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 2     | Ammoniacal Nitrogen as NH3-N | IS 3025 PART 34/Sec 1: 2023               | mg/l  | BDL (DL:1.0)   |
| 3     | Arsenic as As                | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.002) |
| 4     | Barium as Ba                 | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 5     | Boron as B                   | IS 3025 (Part 57): 2021                   | mg/l  | BDL (DL:0.1)   |
| 6     | Cadmium as Cd                | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 7     | Calcium as Ca                | IS 3025 (Part 40): 1991 (Reaffirmed 2019) | mg/l  | 92             |
| 8     | Chloride as Cl-              | IS 3025 (Part 32): 1988 (Reaffirmed 2019) | mg/l  | 205            |

**Note : BDL - Below Detection Limit, DL - Detection Limit,**



For Global Lab and Consultancy Services LLP



Page 1 of 5

**Authorised Signatory**  
 L.Sudha Priya  
 Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000051F**

Report Number : GLCS/TR/08070/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                       |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                       | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan     | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725              | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | WELL WATER - 2        | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid                | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08070     |
| <b>Location Name</b>                                                                                                        | LAKSHMINAICKENPALAYAM | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.00                 | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024            | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024            | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                       | 10°55'22.78"N<br>77° 8'58.13"E                                                                                                                                                              |                |

| SI.No | TEST PARAMETER                | TEST METHOD                               | UNITS | RESULT        |
|-------|-------------------------------|-------------------------------------------|-------|---------------|
| 9     | Chromium as Cr                | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |
| 10    | Color                         | IS 3025 (Part 4): 2021                    | CU    | <1            |
| 11    | Copper as Cu                  | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |
| 12    | Cyanide as CN                 | IS 3025 part 27/Sec 1: 2021               | mg/l  | BDL (DL:0.02) |
| 13    | Electrical Conductivity (EC)  | IS 3025 (Part 14): 2013 (Reaffirmed 2019) | µS/cm | 1328          |
| 14    | Fluoride as F-                | GLCS/SOP/W/015; Issue No:02: 2024         | mg/l  | 0.21          |
| 15    | Free Residual Chlorine as Cl2 | IS 3025 (Part 26): 2021                   | mg/l  | BDL (DL:1.0)  |
| 16    | Iron as Fe                    | IS 3025 (Part 53): 2024                   | mg/l  | 0.26          |

**Note : BDL - Below Detection Limit, DL - Detection Limit,**



For Global Lab and Consultancy Services LLP



**Authorised Signatory**  
 L.Sudha Priya  
 Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**



**TEST REPORT**

**ULR-TC606025000000051F**

Report Number : GLCS/TR/08070/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                       |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                       | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan     | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725              | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | WELL WATER - 2        | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid                | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08070     |
| <b>Location Name</b>                                                                                                        | LAKSHMINAICKENPALAYAM | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.00                 | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024            | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024            | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                       | 10°55'22.78"N<br>77° 8'58.13"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER   | TEST METHOD                               | UNITS | RESULT         |
|-------|------------------|-------------------------------------------|-------|----------------|
| 17    | Lead as Pb       | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 18    | Magnesium as Mg  | IS 3025 (Part 46): 2023                   | mg/l  | 61             |
| 19    | Manganese as Mn  | IS 3025 (Part 59): 2023                   | mg/l  | BDL (DL:0.1)   |
| 20    | Mercury as Hg    | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.002) |
| 21    | Molybdenum as Mo | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 22    | Nitrate as NO3   | IS 3025 (Part 34)/Sec 1: 2023             | mg/l  | BDL (DL:2.0)   |
| 23    | Odor             | IS 3025 (Part 5): 2018                    | -     | Agreeable      |
| 24    | pH               | IS 3025 (Part 11): 2022                   | -     | 7.32           |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



**Authorised Signatory**

L.Sudha Priya  
Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000051F**

Report Number : GLCS/TR/08070/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                       |                                                                                                                                                                                             |                |
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| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                       | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan     | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725              | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | WELL WATER - 2        | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid                | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08070     |
| <b>Location Name</b>                                                                                                        | LAKSHMINAICKENPALAYAM | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.00                 | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024            | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024            | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                       | 10°55'22.78"N<br>77° 8'58.13"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER                        | TEST METHOD                               | UNITS | RESULT         |
|-------|---------------------------------------|-------------------------------------------|-------|----------------|
| 25    | Phenols                               | IS 3025 PART 43 Section 1: 2022           | mg/l  | BDL (DL:0.1)   |
| 26    | Selenium as Se                        | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.005) |
| 27    | Sulphate as SO <sub>4</sub>           | IS 3025 (Part 24) Section 1: 2022         | mg/l  | 59             |
| 28    | Sulphide as S (Iodometric Method)     | GLCS/SOP/W/066: 2023                      | mg/l  | BDL (DL:1.0)   |
| 29    | Total Alkalinity as CaCO <sub>3</sub> | IS 3025 (Part 23): 2023                   | mg/l  | 440            |
| 30    | Total Dissolved Solids (TDS)          | IS 3025 (Part 16): 2023                   | mg/l  | 860            |
| 31    | Total Hardness as CaCO <sub>3</sub>   | IS 3025 (Part 21): 2009 (Reaffirmed 2019) | mg/l  | 480            |
| 32    | Total Suspended Solids (TSS)          | IS 3025 (Part 17): 2022                   | mg/l  | BDL (DL:2.0)   |

**Note : BDL - Below Detection Limit, DL - Detection Limit,**



For Global Lab and Consultancy Services LLP



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**Authorised Signatory**  
 L.Sudha Priya  
 Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000051F**

Report Number : GLCS/TR/08070/2024-25

Report Date : 04-01-2025

|                                                                                                               |                       |                                                                                                                                                                        |                |
|---------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Issued To :<br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                       | Site Address:<br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br>COIMBATORE |                |
| Attention                                                                                                     | Thiru.V.Saravanan     | Sample Condition                                                                                                                                                       | Good           |
| TRF No.                                                                                                       | TRF/2725              | Sampled by                                                                                                                                                             | Laboratory     |
| Sample Name                                                                                                   | WELL WATER - 2        | Sampling Method                                                                                                                                                        | GLCS/SOP/W/028 |
| Sampling Description                                                                                          | Liquid                | Sample Code                                                                                                                                                            | GLCS/08070     |
| Location Name                                                                                                 | LAKSHMINAICKENPALAYAM | Date of Analysis                                                                                                                                                       | 24-12-2024     |
| Sampling Hours                                                                                                | 10.00                 | Date of Completion                                                                                                                                                     | 02-01-2025     |
| Sampling Date                                                                                                 | 16-12-2024            | Avg Temperature                                                                                                                                                        | - °C           |
| Sampling Receipt Date                                                                                         | 24-12-2024            | Avg Humidity                                                                                                                                                           | - %            |
| Location Co-ordinates                                                                                         |                       | 10°55'22.78"N<br>77° 8'58.13"E                                                                                                                                         |                |

| Sl.No | TEST PARAMETER | TEST METHOD                               | UNITS | RESULT        |
|-------|----------------|-------------------------------------------|-------|---------------|
| 33    | Turbidity      | IS 3025 (Part 10): 2023                   | NTU   | <1            |
| 34    | Zinc as Zn     | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



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Authorised Signatory  
L.Sudha Priya  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606024000010052F**

Report Number : GLCS/TR/08070/2024-25

Report Date : 28-12-2024

|                                                                                                                      |                       |                                                                                                                                                                                      |               |
|----------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>Issued To :</b><br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                       | <b>Site Address:</b><br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br><b>COIMBATORE</b> |               |
| <b>Attention</b>                                                                                                     | Thiru.V.Saravanan     | <b>Sample Condition</b>                                                                                                                                                              | Good          |
| <b>TRF No.</b>                                                                                                       | TRF/2725              | <b>Sampled by</b>                                                                                                                                                                    | Laboratory    |
| <b>Sample Name</b>                                                                                                   | WELL WATER - 2        | <b>Sampling Method</b>                                                                                                                                                               | GLCS/SOP/M/05 |
| <b>Sampling Description</b>                                                                                          | Liquid                | <b>Sample Code</b>                                                                                                                                                                   | GLCS/08070    |
| <b>Location Name</b>                                                                                                 | LAKSHMINAICKENPALAYAM | <b>Date of Analysis</b>                                                                                                                                                              | 24-12-2024    |
| <b>Sampling Hours</b>                                                                                                | 10.00                 | <b>Date of Completion</b>                                                                                                                                                            | 26-12-2024    |
| <b>Sampling Date</b>                                                                                                 | 16-12-2024            | <b>Avg Temperature</b>                                                                                                                                                               | - °C          |
| <b>Sampling Receipt Date</b>                                                                                         | 24-12-2024            | <b>Avg Humidity</b>                                                                                                                                                                  | - %           |
| <b>Location Co-ordinates</b>                                                                                         |                       | 10°55'22.78"N<br>77° 8'58.13"E                                                                                                                                                       |               |

| Sl.No | TEST PARAMETER   | TEST METHOD                      | UNITS     | RESULT |
|-------|------------------|----------------------------------|-----------|--------|
| 1     | Escherichia coli | IS: 1622 – 1981(Reaffirmed 2019) | MPN/100ml | <2     |
| 2     | Total Coliforms  | IS: 1622 – 1981(Reaffirmed 2019) | MPN/100ml | <2     |

Note : MPN - Most Probable Number



For Global Lab and Consultancy Services LLP

Authorised Signatory

A. Sathishkumar

Technical Manager- Microbiology

Page 1 of 1

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000052F**

Report Number : GLCS/TR/08071/2024-25

Report Date : 04-01-2025

|                                                                                                                      |                   |                                                                                                                                                                                      |                |
|----------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                     | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                              | Good           |
| <b>TRF No.</b>                                                                                                       | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                    | Laboratory     |
| <b>Sample Name</b>                                                                                                   | WELL WATER - 3    | <b>Sampling Method</b>                                                                                                                                                               | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                          | Liquid            | <b>Sample Code</b>                                                                                                                                                                   | GLCS/08071     |
| <b>Location Name</b>                                                                                                 | CHINNAKUYILI      | <b>Date of Analysis</b>                                                                                                                                                              | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                | 10.40             | <b>Date of Completion</b>                                                                                                                                                            | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                 | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                               | - °C           |
| <b>Sampling Receipt Date</b>                                                                                         | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                  | - %            |
| <b>Location Co-ordinates</b>                                                                                         |                   | 10°55'30.38"N<br>77° 5'4.07"E                                                                                                                                                        |                |

| Sl.No | TEST PARAMETER               | TEST METHOD                               | UNITS | RESULT         |
|-------|------------------------------|-------------------------------------------|-------|----------------|
| 1     | Aluminium                    | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 2     | Ammoniacal Nitrogen as NH3-N | IS 3025 PART 34/Sec 1: 2023               | mg/l  | BDL (DL:1.0)   |
| 3     | Arsenic as As                | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.002) |
| 4     | Barium as Ba                 | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | 0.026          |
| 5     | Boron as B                   | IS 3025 (Part 57): 2021                   | mg/l  | BDL (DL:0.1)   |
| 6     | Cadmium as Cd                | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 7     | Calcium as Ca                | IS 3025 (Part 40): 1991 (Reaffirmed 2019) | mg/l  | 88             |
| 8     | Chloride as Cl-              | IS 3025 (Part 32): 1988 (Reaffirmed 2019) | mg/l  | 225            |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP

Page 1 of 5

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L.Sudha Priya  
Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000052F**

Report Number : GLCS/TR/08071/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
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| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | WELL WATER - 3    | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08071     |
| <b>Location Name</b>                                                                                                        | CHINNAKUYILI      | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.40             | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°55'30.38"N<br>77° 5'4.07"E                                                                                                                                                               |                |

| Sl.No | TEST PARAMETER                            | TEST METHOD                               | UNITS | RESULT        |
|-------|-------------------------------------------|-------------------------------------------|-------|---------------|
| 9     | Chromium as Cr                            | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |
| 10    | Color                                     | IS 3025 (Part 4): 2021                    | CU    | <1            |
| 11    | Copper as Cu                              | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |
| 12    | Cyanide as CN                             | IS 3025 part 27/Sec 1: 2021               | mg/l  | BDL (DL:0.02) |
| 13    | Electrical Conductivity (EC)              | IS 3025 (Part 14): 2013 (Reaffirmed 2019) | µS/cm | 1330          |
| 14    | Fluoride as F-                            | GLCS/SOP/W/015; Issue No:02: 2024         | mg/l  | 0.16          |
| 15    | Free Residual Chlorine as Cl <sub>2</sub> | IS 3025 (Part 26): 2021                   | mg/l  | BDL (DL:1.0)  |
| 16    | Iron as Fe                                | IS 3025 (Part 53): 2024                   | mg/l  | 0.30          |

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For Global Lab and Consultancy Services LLP



Page 2 of 5

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 L.Sudha Priya  
 Technical Manager

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Report Number : GLCS/TR/08071/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
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| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | WELL WATER - 3    | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08071     |
| <b>Location Name</b>                                                                                                        | CHINNAKUYILI      | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.40             | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°55'30.38"N<br>77° 5'4.07"E                                                                                                                                                               |                |

| Sl.No | TEST PARAMETER   | TEST METHOD                               | UNITS | RESULT         |
|-------|------------------|-------------------------------------------|-------|----------------|
| 17    | Lead as Pb       | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 18    | Magnesium as Mg  | IS 3025 (Part 46): 2023                   | mg/l  | 58             |
| 19    | Manganese as Mn  | IS 3025 (Part 59): 2023                   | mg/l  | BDL (DL:0.1)   |
| 20    | Mercury as Hg    | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.002) |
| 21    | Molybdenum as Mo | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 22    | Nitrate as NO3   | IS 3025 (Part 34)/Sec 1: 2023             | mg/l  | BDL (DL:2.0)   |
| 23    | Odor             | IS 3025 (Part 5): 2018                    | -     | Agreeable      |
| 24    | pH               | IS 3025 (Part 11): 2022                   | -     | 7.58           |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



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**Authorised Signatory**  
 L.Sudha Priya  
 Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000052F**

Report Number : GLCS/TR/08071/2024-25

Report Date : 04-01-2025

|                                                                                                               |                   |                                                                                                                                                                               |                |
|---------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Issued To :<br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | Site Address:<br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| Attention                                                                                                     | Thiru.V.Saravanan | Sample Condition                                                                                                                                                              | Good           |
| TRF No.                                                                                                       | TRF/2725          | Sampled by                                                                                                                                                                    | Laboratory     |
| Sample Name                                                                                                   | WELL WATER - 3    | Sampling Method                                                                                                                                                               | GLCS/SOP/W/028 |
| Sampling Description                                                                                          | Liquid            | Sample Code                                                                                                                                                                   | GLCS/08071     |
| Location Name                                                                                                 | CHINNAKUYILI      | Date of Analysis                                                                                                                                                              | 24-12-2024     |
| Sampling Hours                                                                                                | 10.40             | Date of Completion                                                                                                                                                            | 02-01-2025     |
| Sampling Date                                                                                                 | 16-12-2024        | Avg Temperature                                                                                                                                                               | - °C           |
| Sampling Receipt Date                                                                                         | 24-12-2024        | Avg Humidity                                                                                                                                                                  | - %            |
| Location Co-ordinates                                                                                         |                   | 10°55'30.38"N<br>77° 5'4.07"E                                                                                                                                                 |                |

| Sl.No | TEST PARAMETER                        | TEST METHOD                               | UNITS | RESULT         |
|-------|---------------------------------------|-------------------------------------------|-------|----------------|
| 25    | Phenols                               | IS 3025 PART 43 Section 1: 2022           | mg/l  | BDL (DL:0.1)   |
| 26    | Selenium as Se                        | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.005) |
| 27    | Sulphate as SO <sub>4</sub>           | IS 3025 (Part 24) Section 1: 2022         | mg/l  | 42             |
| 28    | Sulphide as S (Iodometric Method)     | GLCS/SOP/W/066: 2023                      | mg/l  | BDL (DL:1.0)   |
| 29    | Total Alkalinity as CaCO <sub>3</sub> | IS 3025 (Part 23): 2023                   | mg/l  | 410            |
| 30    | Total Dissolved Solids (TDS)          | IS 3025 (Part 16): 2023                   | mg/l  | 864            |
| 31    | Total Hardness as CaCO <sub>3</sub>   | IS 3025 (Part 21): 2009 (Reaffirmed 2019) | mg/l  | 460            |
| 32    | Total Suspended Solids (TSS)          | IS 3025 (Part 17): 2022                   | mg/l  | BDL (DL:2.0)   |

Note : BDL - Below Detection Limit, DL - Detection Limit,



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**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

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**TEST REPORT**

**ULR-TC606025000000052F**

Report Number : GLCS/TR/08071/2024-25

Report Date : 04-01-2025

|                                                                                                               |                   |                                                                                                                                                                               |                |
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| Attention                                                                                                     | Thiru.V.Saravanan | Sample Condition                                                                                                                                                              | Good           |
| TRF No.                                                                                                       | TRF/2725          | Sampled by                                                                                                                                                                    | Laboratory     |
| Sample Name                                                                                                   | WELL WATER - 3    | Sampling Method                                                                                                                                                               | GLCS/SOP/W/028 |
| Sampling Description                                                                                          | Liquid            | Sample Code                                                                                                                                                                   | GLCS/08071     |
| Location Name                                                                                                 | CHINNAKUYILI      | Date of Analysis                                                                                                                                                              | 24-12-2024     |
| Sampling Hours                                                                                                | 10.40             | Date of Completion                                                                                                                                                            | 02-01-2025     |
| Sampling Date                                                                                                 | 16-12-2024        | Avg Temperature                                                                                                                                                               | - °C           |
| Sampling Receipt Date                                                                                         | 24-12-2024        | Avg Humidity                                                                                                                                                                  | - %            |
| Location Co-ordinates                                                                                         |                   | 10°55'30.38"N<br>77° 5'4.07"E                                                                                                                                                 |                |

| Sl.No | TEST PARAMETER | TEST METHOD                               | UNITS | RESULT        |
|-------|----------------|-------------------------------------------|-------|---------------|
| 33    | Turbidity      | IS 3025 (Part 10): 2023                   | NTU   | <1            |
| 34    | Zinc as Zn     | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP

Page 5 of 5

Authorised Signatory  
L.Sudha Priya  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606024000010054F**

Report Number : GLCS/TR/08071/2024-25

Report Date : 28-12-2024

|                                                                                                                             |                   |                                                                                                                                                                                             |               |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |               |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good          |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory    |
| <b>Sample Name</b>                                                                                                          | WELL WATER - 3    | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/M/05 |
| <b>Sampling Description</b>                                                                                                 | Liquid            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08071    |
| <b>Location Name</b>                                                                                                        | CHINNAKUYILI      | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024    |
| <b>Sampling Hours</b>                                                                                                       | 10.40             | <b>Date of Completion</b>                                                                                                                                                                   | 26-12-2024    |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C          |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %           |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°55'30.38"N<br>77° 5'4.07"E                                                                                                                                                               |               |

| Sl.No | TEST PARAMETER   | TEST METHOD                      | UNITS     | RESULT |
|-------|------------------|----------------------------------|-----------|--------|
| 1     | Escherichia coli | IS: 1622 – 1981(Reaffirmed 2019) | MPN/100ml | <2     |
| 2     | Total Coliforms  | IS: 1622 – 1981(Reaffirmed 2019) | MPN/100ml | <2     |

**Note :** MPN - Most Probable Number



For Global Lab and Consultancy Services LLP



**Authorised Signatory**

A. Sathishkumar

Technical Manager- Microbiology

Page 1 of 1

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000053F**

Report Number : GLCS/TR/08072/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | BOREWELL WATER    | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08072     |
| <b>Location Name</b>                                                                                                        | CORE ZONE         | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 8.00              | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°54'50.77"N<br>77° 6'54.48"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER               | TEST METHOD                               | UNITS | RESULT         |
|-------|------------------------------|-------------------------------------------|-------|----------------|
| 1     | Aluminium                    | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 2     | Ammoniacal Nitrogen as NH3-N | IS 3025 PART 34/Sec 1: 2023               | mg/l  | BDL (DL:1.0)   |
| 3     | Arsenic as As                | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.002) |
| 4     | Barium as Ba                 | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | 0.022          |
| 5     | Boron as B                   | IS 3025 (Part 57): 2021                   | mg/l  | BDL (DL:0.1)   |
| 6     | Cadmium as Cd                | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 7     | Calcium as Ca                | IS 3025 (Part 40): 1991 (Reaffirmed 2019) | mg/l  | 112            |
| 8     | Chloride as Cl-              | IS 3025 (Part 32): 1988 (Reaffirmed 2019) | mg/l  | 270            |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 1 of 5

**Authorised Signatory**  
 L.Sudha Priya  
 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000053F**

Report Number : GLCS/TR/08072/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
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| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | BOREWELL WATER    | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08072     |
| <b>Location Name</b>                                                                                                        | CORE ZONE         | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 8.00              | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°54'50.77"N<br>77° 6'54.48"E                                                                                                                                                              |                |

| SI.No | TEST PARAMETER                | TEST METHOD                               | UNITS | RESULT        |
|-------|-------------------------------|-------------------------------------------|-------|---------------|
| 9     | Chromium as Cr                | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |
| 10    | Color                         | IS 3025 (Part 4): 2021                    | CU    | <1            |
| 11    | Copper as Cu                  | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |
| 12    | Cyanide as CN                 | IS 3025 part 27/Sec 1: 2021               | mg/l  | BDL (DL:0.02) |
| 13    | Electrical Conductivity (EC)  | IS 3025 (Part 14): 2013 (Reaffirmed 2019) | µS/cm | 1578          |
| 14    | Fluoride as F-                | GLCS/SOP/W/015; Issue No:02: 2024         | mg/l  | 0.32          |
| 15    | Free Residual Chlorine as Cl2 | IS 3025 (Part 26): 2021                   | mg/l  | BDL (DL:1.0)  |
| 16    | Iron as Fe                    | IS 3025 (Part 53): 2024                   | mg/l  | BDL (DL:0.1)  |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



Page 2 of 5

For Global Lab and Consultancy Services LLP



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L.Sudha Priya  
Technical Manager

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**TEST REPORT**

**ULR-TC606025000000053F**

Report Number : GLCS/TR/08072/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                   |                                                                                                                                                                                             |                |
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| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | BOREWELL WATER    | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08072     |
| <b>Location Name</b>                                                                                                        | CORE ZONE         | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 8.00              | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°54'50.77"N<br>77° 6'54.48"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER   | TEST METHOD                               | UNITS | RESULT         |
|-------|------------------|-------------------------------------------|-------|----------------|
| 17    | Lead as Pb       | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 18    | Magnesium as Mg  | IS 3025 (Part 46): 2023                   | mg/l  | 61             |
| 19    | Manganese as Mn  | IS 3025 (Part 59): 2023                   | mg/l  | BDL (DL:0.1)   |
| 20    | Mercury as Hg    | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.002) |
| 21    | Molybdenum as Mo | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 22    | Nitrate as NO3   | IS 3025 (Part 34)/Sec 1: 2023             | mg/l  | BDL (DL:2.0)   |
| 23    | Odor             | IS 3025 (Part 5): 2018                    | -     | Agreeable      |
| 24    | pH               | IS 3025 (Part 11): 2022                   | -     | 7.16           |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



Page 3 of 5

For Global Lab and Consultancy Services LLP



**Authorised Signatory**

L.Sudha Priya  
Technical Manager

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**TEST REPORT**

**ULR-TC606025000000053F**

Report Number : GLCS/TR/08072/2024-25

Report Date : 04-01-2025

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| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | BOREWELL WATER    | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid            | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08072     |
| <b>Location Name</b>                                                                                                        | CORE ZONE         | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 8.00              | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                   | 10°54'50.77"N<br>77° 6'54.48"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER                        | TEST METHOD                               | UNITS | RESULT         |
|-------|---------------------------------------|-------------------------------------------|-------|----------------|
| 25    | Phenols                               | IS 3025 PART 43 Section 1: 2022           | mg/l  | BDL (DL:0.1)   |
| 26    | Selenium as Se                        | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.005) |
| 27    | Sulphate as SO <sub>4</sub>           | IS 3025 (Part 24) Section 1: 2022         | mg/l  | 96             |
| 28    | Sulphide as S (Iodometric Method)     | GLCS/SOP/W/066: 2023                      | mg/l  | BDL (DL:1.0)   |
| 29    | Total Alkalinity as CaCO <sub>3</sub> | IS 3025 (Part 23): 2023                   | mg/l  | 480            |
| 30    | Total Dissolved Solids (TDS)          | IS 3025 (Part 16): 2023                   | mg/l  | 1026           |
| 31    | Total Hardness as CaCO <sub>3</sub>   | IS 3025 (Part 21): 2009 (Reaffirmed 2019) | mg/l  | 530            |
| 32    | Total Suspended Solids (TSS)          | IS 3025 (Part 17): 2022                   | mg/l  | BDL (DL:2.0)   |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



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**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000053F**

Report Number : GLCS/TR/08072/2024-25

Report Date : 04-01-2025

|                                                                                                                      |                   |                                                                                                                                                                                      |                |
|----------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | <b>Site Address:</b><br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                     | Thiru.V.Saravanan | <b>Sample Condition</b>                                                                                                                                                              | Good           |
| <b>TRF No.</b>                                                                                                       | TRF/2725          | <b>Sampled by</b>                                                                                                                                                                    | Laboratory     |
| <b>Sample Name</b>                                                                                                   | BOREWELL WATER    | <b>Sampling Method</b>                                                                                                                                                               | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                          | Liquid            | <b>Sample Code</b>                                                                                                                                                                   | GLCS/08072     |
| <b>Location Name</b>                                                                                                 | CORE ZONE         | <b>Date of Analysis</b>                                                                                                                                                              | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                | 8.00              | <b>Date of Completion</b>                                                                                                                                                            | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                 | 16-12-2024        | <b>Avg Temperature</b>                                                                                                                                                               | - °C           |
| <b>Sampling Receipt Date</b>                                                                                         | 24-12-2024        | <b>Avg Humidity</b>                                                                                                                                                                  | - %            |
| <b>Location Co-ordinates</b>                                                                                         |                   | 10°54'50.77"N<br>77° 6'54.48"E                                                                                                                                                       |                |

| Sl.No | TEST PARAMETER | TEST METHOD                               | UNITS | RESULT        |
|-------|----------------|-------------------------------------------|-------|---------------|
| 33    | Turbidity      | IS 3025 (Part 10): 2023                   | NTU   | <1            |
| 34    | Zinc as Zn     | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP

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**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606024000010055F**

Report Number : GLCS/TR/08072/2024-25

Report Date : 28-12-2024

|                                                                                                               |                   |                                                                                                                                                                        |               |
|---------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Issued To :<br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                   | Site Address:<br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br>COIMBATORE |               |
| Attention                                                                                                     | Thiru.V.Saravanan | Sample Condition                                                                                                                                                       | Good          |
| TRF No.                                                                                                       | TRF/2725          | Sampled by                                                                                                                                                             | Laboratory    |
| Sample Name                                                                                                   | BOREWELL WATER    | Sampling Method                                                                                                                                                        | GLCS/SOP/M/05 |
| Sampling Description                                                                                          | Liquid            | Sample Code                                                                                                                                                            | GLCS/08072    |
| Location Name                                                                                                 | CORE ZONE         | Date of Analysis                                                                                                                                                       | 24-12-2024    |
| Sampling Hours                                                                                                | 8.00              | Date of Completion                                                                                                                                                     | 27-12-2024    |
| Sampling Date                                                                                                 | 16-12-2024        | Avg Temperature                                                                                                                                                        | - °C          |
| Sampling Receipt Date                                                                                         | 24-12-2024        | Avg Humidity                                                                                                                                                           | - %           |
| Location Co-ordinates                                                                                         |                   | 10°54'50.77"N<br>77° 6'54.48"E                                                                                                                                         |               |

| Sl.No | TEST PARAMETER   | TEST METHOD                       | UNITS     | RESULT  |
|-------|------------------|-----------------------------------|-----------|---------|
| 1     | Escherichia coli | IS: 15185 - 2016(Reaffirmed 2021) | Per 100ml | Absent  |
| 2     | Total Coliforms  | IS: 15185 - 2016(Reaffirmed 2021) | Per 100ml | Present |



For Global Lab and Consultancy Services LLP



Authorised Signatory

A. Sathishkumar

Technical Manager- Microbiology

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\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000054F**

Report Number : GLCS/TR/08073/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                    |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                    | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan  | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725           | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | BOREWELL WATER- 02 | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid             | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08073     |
| <b>Location Name</b>                                                                                                        | PANAPATTI          | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.25              | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024         | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024         | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                    | 10°52'42.12"N<br>77° 5'56.69"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER               | TEST METHOD                               | UNITS | RESULT         |
|-------|------------------------------|-------------------------------------------|-------|----------------|
| 1     | Aluminium                    | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 2     | Ammoniacal Nitrogen as NH3-N | IS 3025 PART 34/Sec 1: 2023               | mg/l  | BDL (DL:1.0)   |
| 3     | Arsenic as As                | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.002) |
| 4     | Barium as Ba                 | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | 0.025          |
| 5     | Boron as B                   | IS 3025 (Part 57): 2021                   | mg/l  | BDL (DL:0.1)   |
| 6     | Cadmium as Cd                | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 7     | Calcium as Ca                | IS 3025 (Part 40): 1991 (Reaffirmed 2019) | mg/l  | 100            |
| 8     | Chloride as Cl-              | IS 3025 (Part 32): 1988 (Reaffirmed 2019) | mg/l  | 215            |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 1 of 5

**Authorised Signatory**  
 L.Sudha Priya  
 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000054F**

Report Number : GLCS/TR/08073/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                    |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                    | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan  | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725           | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | BOREWELL WATER- 02 | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid             | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08073     |
| <b>Location Name</b>                                                                                                        | PANAPATTI          | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.25              | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024         | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024         | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                    | 10°52'42.12"N<br>77° 5'56.69"E                                                                                                                                                              |                |

| SI.No | TEST PARAMETER                            | TEST METHOD                               | UNITS | RESULT        |
|-------|-------------------------------------------|-------------------------------------------|-------|---------------|
| 9     | Chromium as Cr                            | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |
| 10    | Color                                     | IS 3025 (Part 4): 2021                    | CU    | <1            |
| 11    | Copper as Cu                              | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |
| 12    | Cyanide as CN                             | IS 3025 part 27/Sec 1: 2021               | mg/l  | BDL (DL:0.02) |
| 13    | Electrical Conductivity (EC)              | IS 3025 (Part 14): 2013 (Reaffirmed 2019) | µS/cm | 1410          |
| 14    | Fluoride as F-                            | GLCS/SOP/W/015; Issue No:02: 2024         | mg/l  | 0.34          |
| 15    | Free Residual Chlorine as Cl <sub>2</sub> | IS 3025 (Part 26): 2021                   | mg/l  | BDL (DL:1.0)  |
| 16    | Iron as Fe                                | IS 3025 (Part 53): 2024                   | mg/l  | BDL (DL:0.1)  |

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For Global Lab and Consultancy Services LLP



Page 2 of 5

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 Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000054F**

Report Number : GLCS/TR/08073/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                    |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                    | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan  | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725           | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | BOREWELL WATER- 02 | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid             | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08073     |
| <b>Location Name</b>                                                                                                        | PANAPATTI          | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.25              | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024         | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024         | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                    | 10°52'42.12"N<br>77° 5'56.69"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER   | TEST METHOD                               | UNITS | RESULT         |
|-------|------------------|-------------------------------------------|-------|----------------|
| 17    | Lead as Pb       | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 18    | Magnesium as Mg  | IS 3025 (Part 46): 2023                   | mg/l  | 58             |
| 19    | Manganese as Mn  | IS 3025 (Part 59): 2023                   | mg/l  | BDL (DL:0.1)   |
| 20    | Mercury as Hg    | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.002) |
| 21    | Molybdenum as Mo | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01)  |
| 22    | Nitrate as NO3   | IS 3025 (Part 34)/Sec 1: 2023             | mg/l  | BDL (DL:2.0)   |
| 23    | Odor             | IS 3025 (Part 5): 2018                    | -     | Agreeable      |
| 24    | pH               | IS 3025 (Part 11): 2022                   | -     | 7.27           |

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For Global Lab and Consultancy Services LLP

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 L.Sudha Priya  
 Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000054F**

Report Number : GLCS/TR/08073/2024-25

Report Date : 04-01-2025

|                                                                                                                             |                    |                                                                                                                                                                                             |                |
|-----------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                    | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br><b>COIMBATORE</b> |                |
| <b>Attention</b>                                                                                                            | Thiru.V.Saravanan  | <b>Sample Condition</b>                                                                                                                                                                     | Good           |
| <b>TRF No.</b>                                                                                                              | TRF/2725           | <b>Sampled by</b>                                                                                                                                                                           | Laboratory     |
| <b>Sample Name</b>                                                                                                          | BOREWELL WATER- 02 | <b>Sampling Method</b>                                                                                                                                                                      | GLCS/SOP/W/028 |
| <b>Sampling Description</b>                                                                                                 | Liquid             | <b>Sample Code</b>                                                                                                                                                                          | GLCS/08073     |
| <b>Location Name</b>                                                                                                        | PANAPATTI          | <b>Date of Analysis</b>                                                                                                                                                                     | 24-12-2024     |
| <b>Sampling Hours</b>                                                                                                       | 10.25              | <b>Date of Completion</b>                                                                                                                                                                   | 02-01-2025     |
| <b>Sampling Date</b>                                                                                                        | 16-12-2024         | <b>Avg Temperature</b>                                                                                                                                                                      | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                | 24-12-2024         | <b>Avg Humidity</b>                                                                                                                                                                         | - %            |
| <b>Location Co-ordinates</b>                                                                                                |                    | 10°52'42.12"N<br>77° 5'56.69"E                                                                                                                                                              |                |

| Sl.No | TEST PARAMETER                        | TEST METHOD                               | UNITS | RESULT         |
|-------|---------------------------------------|-------------------------------------------|-------|----------------|
| 25    | Phenols                               | IS 3025 PART 43 Section 1: 2022           | mg/l  | BDL (DL:0.1)   |
| 26    | Selenium as Se                        | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.005) |
| 27    | Sulphate as SO <sub>4</sub>           | IS 3025 (Part 24) Section 1: 2022         | mg/l  | 84             |
| 28    | Sulphide as S (Iodometric Method)     | GLCS/SOP/W/066: 2023                      | mg/l  | BDL (DL:1.0)   |
| 29    | Total Alkalinity as CaCO <sub>3</sub> | IS 3025 (Part 23): 2023                   | mg/l  | 460            |
| 30    | Total Dissolved Solids (TDS)          | IS 3025 (Part 16): 2023                   | mg/l  | 916            |
| 31    | Total Hardness as CaCO <sub>3</sub>   | IS 3025 (Part 21): 2009 (Reaffirmed 2019) | mg/l  | 490            |
| 32    | Total Suspended Solids (TSS)          | IS 3025 (Part 17): 2022                   | mg/l  | BDL (DL:2.0)   |

**Note :** BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP



Page 4 of 5

**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

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**TEST REPORT**

**ULR-TC606025000000054F**

Report Number : GLCS/TR/08073/2024-25

Report Date : 04-01-2025

|                                                                                                               |                    |                                                                                                                                                                        |                |
|---------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Issued To :<br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                    | Site Address:<br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br>COIMBATORE |                |
| Attention                                                                                                     | Thiru.V.Saravanan  | Sample Condition                                                                                                                                                       | Good           |
| TRF No.                                                                                                       | TRF/2725           | Sampled by                                                                                                                                                             | Laboratory     |
| Sample Name                                                                                                   | BOREWELL WATER- 02 | Sampling Method                                                                                                                                                        | GLCS/SOP/W/028 |
| Sampling Description                                                                                          | Liquid             | Sample Code                                                                                                                                                            | GLCS/08073     |
| Location Name                                                                                                 | PANAPATTI          | Date of Analysis                                                                                                                                                       | 24-12-2024     |
| Sampling Hours                                                                                                | 10.25              | Date of Completion                                                                                                                                                     | 02-01-2025     |
| Sampling Date                                                                                                 | 16-12-2024         | Avg Temperature                                                                                                                                                        | - °C           |
| Sampling Receipt Date                                                                                         | 24-12-2024         | Avg Humidity                                                                                                                                                           | - %            |
| Location Co-ordinates                                                                                         |                    | 10°52'42.12"N<br>77° 5'56.69"E                                                                                                                                         |                |

| Sl.No | TEST PARAMETER | TEST METHOD                               | UNITS | RESULT        |
|-------|----------------|-------------------------------------------|-------|---------------|
| 33    | Turbidity      | IS 3025 (Part 10): 2023                   | NTU   | <1            |
| 34    | Zinc as Zn     | GLCS/SOP/W/62 Issue No:1:Dated:10.09.2022 | mg/l  | BDL (DL:0.01) |

Note : BDL - Below Detection Limit, DL - Detection Limit,



For Global Lab and Consultancy Services LLP

Page 5 of 5

Authorised Signatory  
L.Sudha Priya  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

**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 15 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 reports 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-TC606024000010056F**

Report Number : GLCS/TR/08073/2024-25

Report Date : 28-12-2024

|                                                                                                               |                    |                                                                                                                                                                        |                |
|---------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Issued To :<br>Thiru.V.Saravanan<br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore |                    | Site Address:<br>Thiru.V.Saravanan<br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Sulur Taluk<br>COIMBATORE |                |
| Attention                                                                                                     | Thiru.V.Saravanan  | Sample Condition                                                                                                                                                       | Good           |
| TRF No.                                                                                                       | TRF/2725           | Sampled by                                                                                                                                                             | Laboratory     |
| Sample Name                                                                                                   | BOREWELL WATER- 02 | Sampling Method                                                                                                                                                        | GLCS/SOP/M/005 |
| Sampling Description                                                                                          | Liquid             | Sample Code                                                                                                                                                            | GLCS/08073     |
| Location Name                                                                                                 | PANAPATTI          | Date of Analysis                                                                                                                                                       | 24-12-2024     |
| Sampling Hours                                                                                                | 10.25              | Date of Completion                                                                                                                                                     | 27-12-2024     |
| Sampling Date                                                                                                 | 16-12-2024         | Avg Temperature                                                                                                                                                        | - °C           |
| Sampling Receipt Date                                                                                         | 24-12-2024         | Avg Humidity                                                                                                                                                           | - %            |
| Location Co-ordinates                                                                                         |                    | 10°52'42.12"N<br>77° 5'56.69"E                                                                                                                                         |                |

| Sl.No | TEST PARAMETER   | TEST METHOD                       | UNITS     | RESULT  |
|-------|------------------|-----------------------------------|-----------|---------|
| 1     | Escherichia coli | IS: 15185 - 2016(Reaffirmed 2021) | Per 100ml | Absent  |
| 2     | Total Coliforms  | IS: 15185 - 2016(Reaffirmed 2021) | Per 100ml | Present |



For Global Lab and Consultancy Services LLP

Authorised Signatory

A. Sathishkumar

Technical Manager- Microbiology

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\*\*\*\*\*End of Report\*\*\*\*\*

**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 15 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 reports issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.



Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

S.F.No.92/3A2, Geetha Nagar,

Alagapuram Pudur,

Salem - 636 016. Tamil Nadu.

Phone: 0427 - 2970989 / +91 70944 52628

E-Mail: lab@glcs.in

Web: www.glcs.in

**SUMMARY REPORT**

|                      |                                                                                                                                                             |                   |                  |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------|
| Issued To            | Thiru.V,Saravanan,<br>S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore District.                                                      |                   |                  |
| Site Location        | Rough Stone & Gravel Quarry,<br>Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0),<br>Edayarpalayam Village, Suler Taluk, Coimbatore District. |                   |                  |
| Sampling Method      | GLCS/SOP/AAQ/015                                                                                                                                            | Sample Drawn by   | Laboratory       |
| Sample Name          | Air Quality Monitoring                                                                                                                                      | Sampling Location | AAQ1 – Core Zone |
| Sample Description   | Ambient Air Quality Monitoring                                                                                                                              | Sample Condition  | Good             |
| Sample Code          | GLCS/5390,5419,5647,5668,5841,5906,6042, 6042,6094,6337,6360,6678,6738,7081,7140,<br>7432,7510,8055,8097,8302,8332,8620,8648,9075,9089,9318,9349            |                   |                  |
| Location Coordinates | 10°54'52.83"N 77° 6'43.96"E                                                                                                                                 |                   |                  |
| Report Date          | 07.02.2025                                                                                                                                                  |                   |                  |

| Date           | Period. hrs | PM10<br>(µg/m3) | PM2.5<br>(µg/m3) | SO2<br>(µg/m3) | NO2<br>(µg/m3) | O3 (µg/m3)  | NH3 (µg/m3)  | CO (mg/ m3)  |
|----------------|-------------|-----------------|------------------|----------------|----------------|-------------|--------------|--------------|
| 21/10/2024     | 7.15-7.15   | 48.4            | 22.9             | 4.5            | 19.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 22/10/2024     | 7.20-7.20   | 42.8            | 20.0             | BDL(DL:4.0)    | 22.8           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 28/10/2024     | 7.15-7.15   | 40.4            | 19.5             | 5.0            | 19.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 29/10/2024     | 7.30-7.30   | 42.6            | 20.4             | 4.2            | 22.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 04/11/2024     | 7.15-7.15   | 40.7            | 19.1             | 4.9            | 21.0           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 05/11/2024     | 7.30-7.30   | 41.6            | 20.4             | 4.3            | 22.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 11/11/2024     | 7.15 - 7.15 | 40.5            | 18.7             | 4.4            | 20.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 12/11/2024     | 7.25 - 7.25 | 41.9            | 19.5             | 5.1            | 22.2           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 18/11/2024     | 7.15 - 7.15 | 42.4            | 21.6             | 4.6            | 23.3           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 19/11/2024     | 7.30 - 7.30 | 42.3            | 22.8             | 4.2            | 23.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 25/11/2024     | 7.30 - 7.30 | 40.3            | 21.2             | 4.5            | 19.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 26/11/2024     | 7.40 - 7.40 | 40.2            | 19.2             | BDL(DL:4.0)    | 18.5           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 02/12/2024     | 7.30-7.30   | 40.9            | 21.6             | 4.7            | 17.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 03/12/2024     | 7.40-7.40   | 42.8            | 22.5             | 4.5            | 18.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 09/12/2024     | 7.30-7.30   | 43.0            | 22.0             | 4.1            | 19.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 10/12/2024     | 7.40-7.40   | 42.5            | 19.5             | 5.1            | 17.7           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 16/12/2024     | 7.00-7.00   | 40.9            | 19.5             | BDL(DL:4.0)    | 19.3           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 17/12/2024     | 7.15-7.15   | 42.8            | 19.2             | 4.3            | 19.2           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 23/12/2024     | 7.00-7.00   | 42.4            | 22.9             | 4.5            | 19.0           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 24/12/2024     | 7.15-7.15   | 40.6            | 19.5             | 4.7            | 18.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 30/12/2024     | 7.20-7.20   | 41.4            | 20.4             | 4.3            | 17.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 31/12/2024     | 7.30-7.30   | 40.9            | 20.0             | 4.5            | 16.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 06/01/2025     | 7.20-7.20   | 41.5            | 20.4             | 4.8            | 18.5           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 07/01/2025     | 7.30-7.30   | 40.8            | 20.8             | 5.4            | 17.5           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 13/01/2025     | 7.10-7.10   | 40.9            | 20.0             | 5.2            | 21.7           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 14/01/2025     | 7.20-7.20   | 42.6            | 21.6             | 4.6            | 19.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| NAAQ* Standard |             | <100            | <60              | <80            | <80            | <180        | <400         | <4           |

**Note:**BDL: Below Detection Limit; DL: Detection Limit**Remarks:** The values observed for the pollutants given above are within the CPCB standards.
  
Verified by
L. SUDHAPRIYA  
Technical Manager

### SUMMARY REPORT

|                      |                                                                                                                                                             |                   |                  |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------|
| Issued To            | Thiru.V,Saravanan,<br>S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore District.                                                      |                   |                  |
| Site Location        | Rough Stone & Gravel Quarry,<br>Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0),<br>Edayarpalayam Village, Suler Taluk, Coimbatore District. |                   |                  |
| Sampling Method      | GLCS/SOP/AAQ/015                                                                                                                                            | Sample Drawn by   | Laboratory       |
| Sample Name          | Air Quality Monitoring                                                                                                                                      | Sampling Location | AAQ1 – Core Zone |
| Sample Description   | Ambient Air Quality Monitoring                                                                                                                              | Sample Condition  | Good             |
| Sample Code          | GLCS/5390,5419,5647,5668,5841,5906, 6042,6094, 6337,6360, 6678,6738, 7081,7140,<br>7432,7510, 8055,8097,8302,8332,8620,8648,9075,9089,9318,9349             |                   |                  |
| Location Coordinates | 10°54'52.83"N 77° 6'43.96"E                                                                                                                                 |                   |                  |
| Report Date          | 07.02.2025                                                                                                                                                  |                   |                  |

| Date           | Period. hrs | Ni (ng/m <sup>3</sup> ) | As (ng/m <sup>3</sup> ) | C6H6 (µg/m <sup>3</sup> ) | BaP (ng/m <sup>3</sup> ) | Pb(µg/m <sup>3</sup> ) |
|----------------|-------------|-------------------------|-------------------------|---------------------------|--------------------------|------------------------|
| 21/10/2024     | 7.15-7.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 22/10/2024     | 7.20-7.20   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 28/10/2024     | 7.15-7.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 29/10/2024     | 7.30-7.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 04/11/2024     | 7.15-7.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 05/11/2024     | 7.30-7.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 11/11/2024     | 7.15 - 7.15 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 12/11/2024     | 7.25 - 7.25 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 18/11/2024     | 7.15 - 7.15 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 19/11/2024     | 7.30 - 7.30 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 25/11/2024     | 7.30 - 7.30 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 26/11/2024     | 7.40 - 7.40 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 02/12/2024     | 7.30-7.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 03/12/2024     | 7.40-7.40   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 09/12/2024     | 7.30-7.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 10/12/2024     | 7.40-7.40   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 16/12/2024     | 7.00-7.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 17/12/2024     | 7.15-7.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 23/12/2024     | 7.00-7.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 24/12/2024     | 7.15-7.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 30/12/2024     | 7.20-7.20   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 31/12/2024     | 7.30-7.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 06/01/2025     | 7.20-7.20   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 07/01/2025     | 7.30-7.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 13/01/2025     | 7.10-7.10   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 14/01/2025     | 7.20-7.20   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| NAAQ* Standard |             | <20                     | <6.0                    | <5.0                      | <1.0                     | <1.0                   |

**Note:**BDL: Below Detection Limit; DL: Detection Limit

**Remarks:** The values observed for the pollutants given above are within the CPCB standards.



*[Signature]*  
Verified by

L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

209 A





Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

S.F.No.92/3A2, Geetha Nagar,

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Phone: 0427 - 2970989 / +91 70944 52628

E-Mail: lab@glcs.in

Web: www.glcs.in

**SUMMARY REPORT**

|                      |                                                                                                                                                             |                   |                                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------|
| Issued To            | Thiru.V,Saravanan,<br>S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore District.                                                      |                   |                                     |
| Site Location        | Rough Stone & Gravel Quarry,<br>Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0),<br>Edayarpalayam Village, Suler Taluk, Coimbatore District. |                   |                                     |
| Sampling Method      | GLCS/SOP/AAQ/015                                                                                                                                            | Sample Drawn by   | Laboratory                          |
| Sample Name          | Air Quality Monitoring                                                                                                                                      | Sampling Location | AAQ 2 – Core Zone-Near Project Area |
| Sample Description   | Ambient Air Quality Monitoring                                                                                                                              | Sample Condition  | Good                                |
| Sample Code          | GLCS/5391,5420,5648,5669,5842,5907, 6043,6095, 6338,6361, 6679,6739, 7082,7141,<br>7433,7511, 8056,8098,8303,8333,8621,8649,9076,9090,9319,9350             |                   |                                     |
| Location Coordinates | 10°54'44.79"N 77° 6'52.63"E                                                                                                                                 |                   |                                     |
| Report Date          | 07.02.2025                                                                                                                                                  |                   |                                     |

| Date           | Period. hrs | PM10<br>(µg/m3) | PM2.5<br>(µg/m3) | SO2<br>(µg/m3) | NO2<br>(µg/m3) | O3 (µg/m3)  | NH3 (µg/m3)  | CO (mg/ m3)  |
|----------------|-------------|-----------------|------------------|----------------|----------------|-------------|--------------|--------------|
| 21/10/2024     | 7.50-7.50   | 49.8            | 22.5             | 4.9            | 19.0           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 22/10/2024     | 7.55-7.55   | 42.1            | 19.5             | BDL(DL:4.0)    | 21.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 28/10/2024     | 7.45-7.45   | 41.0            | 20.4             | BDL(DL:4.0)    | 19.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 29/10/2024     | 7.50-7.50   | 41.6            | 20.0             | 4.8            | 20.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 04/11/2024     | 7.45-7.45   | 41.6            | 19.5             | BDL(DL:4.0)    | 21.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 05/11/2024     | 7.50-7.50   | 42.5            | 21.6             | 4.8            | 20.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 11/11/2024     | 7.45 - 7.45 | 41.6            | 20.8             | BDL(DL:4.0)    | 19.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 12/11/2024     | 7.50 - 7.50 | 43.6            | 22.5             | 4.5            | 21.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 18/11/2024     | 7.45 - 7.45 | 42.0            | 22.9             | BDL(DL:4.0)    | 22.8           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 19/11/2024     | 7.50 - 7.50 | 41.0            | 21.2             | 4.9            | 20.8           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 25/11/2024     | 7.50 - 7.50 | 42.6            | 23.7             | 4.1            | 18.3           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 26/11/2024     | 8.00-8.00   | 42.3            | 20.8             | 4.2            | 19.7           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 02/12/2024     | 7.50 - 7.50 | 42.4            | 24.1             | BDL(DL:4.0)    | 18.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 03/12/2024     | 8.00-8.00   | 42.3            | 20.8             | 4.1            | 17.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 09/12/2024     | 7.50 - 7.50 | 42.0            | 21.2             | 4.3            | 19.2           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 10/12/2024     | 8.00-8.00   | 42.1            | 21.2             | 4.3            | 19.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 16/12/2024     | 7.35-7.35   | 42.0            | 21.2             | 4.2            | 19.8           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 17/12/2024     | 7.45-7.45   | 43.1            | 22.5             | BDL(DL:4.0)    | 18.8           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 23/12/2024     | 7.35-7.35   | 41.9            | 20.8             | 4.2            | 20.2           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 24/12/2024     | 7.45-7.45   | 42.0            | 20.8             | 4.3            | 18.2           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 30/12/2024     | 7.40-7.40   | 42.2            | 21.6             | BDL(DL:4.0)    | 17.7           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 31/12/2024     | 7.50-7.50   | 42.0            | 20.4             | BDL(DL:4.0)    | 18.0           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 06/01/2025     | 7.20-7.20   | 42.3            | 20.5             | 4.3            | 23.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 07/01/2025     | 7.50-7.50   | 42.0            | 22.0             | BDL(DL:4.0)    | 18.0           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 13/01/2025     | 7.20-7.20   | 47.6            | 24.1             | 4.1            | 20.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 14/01/2025     | 7.30-7.30   | 42.2            | 23.3             | 4.2            | 18.5           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| NAAQ* Standard |             | <100            | <60              | <80            | <80            | <180        | <400         | <4           |

Note:BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA  
Technical Manager

**SUMMARY REPORT**

|                      |                                                                                                                                                             |                   |                                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------|
| Issued To            | Thiru.V,Saravanan,<br>S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore District.                                                      |                   |                                     |
| Site Location        | Rough Stone & Gravel Quarry,<br>Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0),<br>Edayarpalayam Village, Sulur Taluk, Coimbatore District. |                   |                                     |
| Sampling Method      | GLCS/SOP/AAQ/015                                                                                                                                            | Sample Drawn by   | Laboratory                          |
| Sample Name          | Air Quality Monitoring                                                                                                                                      | Sampling Location | AAQ 2 – Core Zone-Near Project Area |
| Sample Description   | Ambient Air Quality Monitoring                                                                                                                              | Sample Condition  | Good                                |
| Sample Code          | GLCS/5391,5420,5648,5669,5842,5907, 6043,6095, 6338,6361, 6679,6739, 7082,7141,<br>7433,7511, 8056,8098,8303,8333,8621,8649,9076,9090,9319,9350             |                   |                                     |
| Location Coordinates | 10°54'44.79"N 77° 6'52.63"E                                                                                                                                 |                   |                                     |
| Report Date          | 07.02.2025                                                                                                                                                  |                   |                                     |

| Date           | Period. hrs | Ni (ng/m <sup>3</sup> ) | As (ng/m <sup>3</sup> ) | C6H6 (µg/m <sup>3</sup> ) | BaP (ng/m <sup>3</sup> ) | Pb(µg/m <sup>3</sup> ) |
|----------------|-------------|-------------------------|-------------------------|---------------------------|--------------------------|------------------------|
| 21/10/2024     | 7.50-7.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 22/10/2024     | 7.55-7.55   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 28/10/2024     | 7.45-7.45   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 29/10/2024     | 7.50-7.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 04/11/2024     | 7.45-7.45   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 05/11/2024     | 7.50-7.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 11/11/2024     | 7.45 - 7.45 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 12/11/2024     | 7.50 - 7.50 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 18/11/2024     | 7.45 - 7.45 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 19/11/2024     | 7.50 - 7.50 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 25/11/2024     | 7.50 - 7.50 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 26/11/2024     | 8.00-8.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 02/12/2024     | 7.50 - 7.50 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 03/12/2024     | 8.00-8.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 09/12/2024     | 7.50 - 7.50 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 10/12/2024     | 8.00-8.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 16/12/2024     | 7.35-7.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 17/12/2024     | 7.45-7.45   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 23/12/2024     | 7.35-7.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 24/12/2024     | 7.45-7.45   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 30/12/2024     | 7.40-7.40   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 31/12/2024     | 7.50-7.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 06/01/2025     | 7.20-7.20   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 07/01/2025     | 7.50-7.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 13/01/2025     | 7.20-7.20   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 14/01/2025     | 7.30-7.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| NAAQ* Standard |             | <20                     | <6.0                    | <5.0                      | <1.0                     | <1.0                   |

**Note:**BDL: Below Detection Limit; DL: Detection Limit**Remarks:** The values observed for the pollutants given above are within the CPCB standards.

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2

  
Verified by

**L. SUDHAPRIYA**  
Technical Manager

### SUMMARY REPORT

|                      |                                                                                                                                                             |                   |                    |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|
| Issued To            | Thiru.V,Saravanan,<br>S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore District.                                                      |                   |                    |
| Site Location        | Rough Stone & Gravel Quarry,<br>Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0),<br>Edayarpalayam Village, Suler Taluk, Coimbatore District. |                   |                    |
| Sampling Method      | GLCS/SOP/AAQ/015                                                                                                                                            | Sample Drawn by   | Laboratory         |
| Sample Name          | Air Quality Monitoring                                                                                                                                      | Sampling Location | AAQ 3 – SN palayam |
| Sample Description   | Ambient Air Quality Monitoring                                                                                                                              | Sample Condition  | Good               |
| Sample Code          | GLCS/5392,5421,5649,5670,5843,5908, 6044,6096, 6339,6362, 6680,6740, 7083,7142, 7434,7512, 8057,8099,8304,8334,8622,8650,9077,9091,9320,9351                |                   |                    |
| Location Coordinates | 10°56'23.05"N 77° 8'23.14"E                                                                                                                                 |                   |                    |
| Report Date          | 07.02.2025                                                                                                                                                  |                   |                    |

| Date           | Period. hrs | PM10 (µg/m3) | PM2.5 (µg/m3) | SO2 (µg/m3) | NO2 (µg/m3) | O3 (µg/m3)  | NH3 (µg/m3)  | CO (mg/ m3)  |
|----------------|-------------|--------------|---------------|-------------|-------------|-------------|--------------|--------------|
| 21/10/2024     | 8.20-8.20   | 47.6         | 21.6          | BDL(DL:4.0) | 26.2        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 22/10/2024     | 8.25-8.25   | 44.1         | 21.2          | BDL(DL:4.0) | 21.3        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 28/10/2024     | 8.15-8.15   | 42.8         | 22.9          | 5.2         | 21.2        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 29/10/2024     | 8.25-8.25   | 45.2         | 23.3          | 4.4         | 18.0        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 04/11/2024     | 8.15-8.15   | 48.0         | 25.3          | 4.94        | 20.6        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 05/11/2024     | 8.25-8.25   | 44.6         | 24.1          | 5.2         | 19.2        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 11/11/2024     | 8.05-8.05   | 42.1         | 21.6          | 5.2         | 19.5        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 12/11/2024     | 8.15-8.15   | 42.7         | 21.6          | 4.9         | 19.1        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 18/11/2024     | 8.15-8.15   | 43.7         | 24.1          | 4.6         | 23.2        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 19/11/2024     | 8.25-8.25   | 44.8         | 24.5          | 4.1         | 17.8        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 25/11/2024     | 8.25-8.25   | 44.1         | 25.4          | 6.0         | 20.0        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 26/11/2024     | 8.30-8.30   | 44.0         | 22.4          | 4.6         | 20.7        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 02/12/2024     | 8.25-8.25   | 44.2         | 24.5          | 5.5         | 20.3        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 03/12/2024     | 8.30-8.30   | 45.5         | 24.9          | 4.6         | 19.8        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 09/12/2024     | 8.25-8.25   | 45.2         | 24.5          | 5.1         | 20.1        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 10/12/2024     | 8.30-8.30   | 45.2         | 24.1          | BDL(DL:4.0) | 20.8        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 16/12/2024     | 8.00-8.00   | 43.1         | 23.3          | 4.8         | 20.5        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 17/12/2024     | 8.05-8.05   | 44.5         | 23.7          | 4.5         | 22.6        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 23/12/2024     | 8.00-8.00   | 43.9         | 23.3          | 4.5         | 20.8        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 24/12/2024     | 8.05-8.05   | 43.6         | 21.6          | 4.1         | 18.6        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 30/12/2024     | 8.15-8.15   | 44.9         | 22.9          | 4.8         | 18.3        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 31/12/2024     | 8.25-8.25   | 44.5         | 22.0          | BDL(DL:4.0) | 18.5        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 06/01/2025     | 8.15-8.15   | 45.7         | 24.5          | 4.6         | 18.4        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 07/01/2025     | 8.25-8.25   | 44.6         | 23.3          | 4.1         | 19.2        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 13/01/2025     | 7.45-7.45   | 46.4         | 25.4          | 4.5         | 20.3        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 14/01/2025     | 7.55-7.55   | 47.1         | 27.0          | 5.8         | 20.3        | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| NAAQ* Standard |             | <100         | <60           | <80         | <80         | <180        | <400         | <4           |

Note:BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA  
Technical Manager



### SUMMARY REPORT

|                      |                                                                                                                                                             |                   |                    |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|
| Issued To            | Thiru.V,Saravanan,<br>S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore District.                                                      |                   |                    |
| Site Location        | Rough Stone & Gravel Quarry,<br>Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0),<br>Edayarpalayam Village, Suler Taluk, Coimbatore District. |                   |                    |
| Sampling Method      | GLCS/SOP/AAQ/015                                                                                                                                            | Sample Drawn by   | Laboratory         |
| Sample Name          | Air Quality Monitoring                                                                                                                                      | Sampling Location | AAQ 3 – SN palayam |
| Sample Description   | Ambient Air Quality Monitoring                                                                                                                              | Sample Condition  | Good               |
| Sample Code          | GLCS/5392,5421,5649,5670,5843,5908, 6044,6096, 6340,6363, 6680,6740, 7083,7142,<br>7434,7512, 8057,8099,8304,8334,8622,8650,9077,9091,9320,9351             |                   |                    |
| Location Coordinates | 10°56'23.05"N 77° 8'23.14"E                                                                                                                                 |                   |                    |
| Report Date          | 07.02.2025                                                                                                                                                  |                   |                    |

| Date           | Period. hrs | Ni (ng/m <sup>3</sup> ) | As (ng/m <sup>3</sup> ) | C6H6 (µg/m <sup>3</sup> ) | BaP (ng/m <sup>3</sup> ) | Pb(µg/m <sup>3</sup> ) |
|----------------|-------------|-------------------------|-------------------------|---------------------------|--------------------------|------------------------|
| 21/10/2024     | 8.20-8.20   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 22/10/2024     | 8.25-8.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 28/10/2024     | 8.15-8.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 29/10/2024     | 8.25-8.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 04/11/2024     | 8.15-8.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 05/11/2024     | 8.25-8.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 11/11/2024     | 8.05-8.05   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 12/11/2024     | 8.15-8.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 18/11/2024     | 8.15-8.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 19/11/2024     | 8.25-8.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 25/11/2024     | 8.25-8.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 26/11/2024     | 8.30-8.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 02/12/2024     | 8.25-8.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 03/12/2024     | 8.30-8.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 09/12/2024     | 8.25-8.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 10/12/2024     | 8.30-8.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 16/12/2024     | 8.00-8.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 17/12/2024     | 8.05-8.05   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 23/12/2024     | 8.00-8.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 24/12/2024     | 8.05-8.05   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 30/12/2024     | 8.15-8.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 31/12/2024     | 8.25-8.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 06/01/2025     | 8.15-8.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 07/01/2025     | 8.25-8.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 13/01/2025     | 7.45-7.45   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 14/01/2025     | 7.55-7.55   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| NAAQ* Standard |             | <20                     | <6.0                    | <5.0                      | <1.0                     | <1.0                   |

**Note:**BDL: Below Detection Limit; DL: Detection Limit

**Remarks:** The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*  
Page 2 of 2

**SUMMARY REPORT**

|                      |                                                                                                                                                             |                   |                    |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|
| Issued To            | Thiru.V,Saravanan,<br>S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore District.                                                      |                   |                    |
| Site Location        | Rough Stone & Gravel Quarry,<br>Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0),<br>Edayarpalayam Village, Sulur Taluk, Coimbatore District. |                   |                    |
| Sampling Method      | GLCS/SOP/AAQ/015                                                                                                                                            | Sample Drawn by   | Laboratory         |
| Sample Name          | Air Quality Monitoring                                                                                                                                      | Sampling Location | AAQ 4 – Bagampatti |
| Sample Description   | Ambient Air Quality Monitoring                                                                                                                              | Sample Condition  | Good               |
| Sample Code          | GLCS/5393,5422,5650,5671,5844,5909, 6045,6097, 6341,6364, 6681,6741, 7084,7143,<br>7435,7513, 8058,8100,8305,8335,8623,8651,9078,9092,9321,9352             |                   |                    |
| Location Coordinates | 10°54'17.60"N 77° 7'27.62"E                                                                                                                                 |                   |                    |
| Report Date          | 07.02.2025                                                                                                                                                  |                   |                    |

| Date           | Period. hrs | PM10<br>(µg/m3) | PM2.5<br>(µg/m3) | SO2<br>(µg/m3) | NO2<br>(µg/m3) | O3 (µg/m3)  | NH3 (µg/m3)  | CO (mg/ m3)  |
|----------------|-------------|-----------------|------------------|----------------|----------------|-------------|--------------|--------------|
| 21/10/2024     | 8.45-8.45   | 46.7            | 21.2             | BDL(DL:4.0)    | 22.8           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 22/10/2024     | 8.50-8.50   | 42.6            | 20.8             | BDL(DL:4.0)    | 20.3           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 28/10/2024     | 8.45-8.45   | 43.8            | 23.3             | 4.4            | 21.2           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 29/10/2024     | 9.00-9.00   | 44.0            | 22.5             | 5.0            | 19.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 04/11/2024     | 8.45-8.45   | 43.4            | 23.7             | 5.1            | 20.64          | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 05/11/2024     | 9.00-9.00   | 44.4            | 24.9             | 5.2            | 19.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 11/11/2024     | 8.30-8.30   | 44.9            | 24.1             | 5.3            | 19.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 12/11/2024     | 8.40-8.40   | 43.8            | 24.1             | 5.4            | 20.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 18/11/2024     | 8.45-8.45   | 44.6            | 25.4             | 5.0            | 23.3           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 19/11/2024     | 9.00-9.00   | 46.0            | 25.8             | 4.5            | 19.7           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 25/11/2024     | 9.00-9.00   | 45.1            | 26.2             | BDL(DL:4.0)    | 17.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 26/11/2024     | 9.10-9.10   | 45.5            | 24.1             | 4.9            | 21.2           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 02/12/2024     | 9.00-9.00   | 45.8            | 25.8             | 5.2            | 19.8           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 03/12/2024     | 9.10-9.10   | 44.0            | 24.1             | 5.8            | 19.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 09/12/2024     | 9.00-9.00   | 46.7            | 25.4             | 5.0            | 20.5           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 10/12/2024     | 9.10-9.10   | 47.3            | 27.8             | 4.9            | 20.5           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 16/12/2024     | 8.20-8.20   | 46.3            | 27.4             | 4.7            | 20.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 17/12/2024     | 8.30-8.30   | 47.0            | 27.0             | 4.8            | 22.2           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 23/12/2024     | 8.25-8.25   | 45.3            | 24.5             | 4.8            | 21.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 24/12/2024     | 8.30-8.30   | 45.2            | 24.1             | BDL(DL:4.0)    | 19.8           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 30/12/2024     | 8.55-8.55   | 46.0            | 24.5             | 5.0            | 19.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 31/12/2024     | 9.00-9.00   | 46.0            | 23.7             | 4.5            | 19.3           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 06/01/2025     | 8.55-8.55   | 46.6            | 25.8             | 5.5            | 20.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 07/01/2025     | 9.00-9.00   | 47.8            | 27.0             | 4.3            | 19.7           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 13/01/2025     | 8.10-8.10   | 47.1            | 26.6             | 4.8            | 20.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 14/01/2025     | 8.20-8.20   | 44.7            | 24.1             | BDL(DL:4.0)    | 18.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| NAAQ* Standard |             | <100            | <60              | <80            | <80            | <180        | <400         | <4           |

**Note:**BDL: Below Detection Limit; DL: Detection Limit**Remarks:** The values observed for the pollutants given above are within the CPCB standards.

Verified by

L. SUDHAPRIYA  
Technical Manager

**SUMMARY REPORT**

|                      |                                                                                                                                                             |                   |                    |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|
| Issued To            | Thiru.V,Saravanan,<br>S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore District.                                                      |                   |                    |
| Site Location        | Rough Stone & Gravel Quarry,<br>Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0),<br>Edayarpalayam Village, Sulur Taluk, Coimbatore District. |                   |                    |
| Sampling Method      | GLCS/SOP/AAQ/015                                                                                                                                            | Sample Drawn by   | Laboratory         |
| Sample Name          | Air Quality Monitoring                                                                                                                                      | Sampling Location | AAQ 4 – Bagampatti |
| Sample Description   | Ambient Air Quality Monitoring                                                                                                                              | Sample Condition  | Good               |
| Sample Code          | GLCS/5393,5422,5650,5671,5844,5909, 6045,6097, 6341,6364, 6681,6741, 7084,7143,<br>7435,7513, 8058,8100,8305,8335,8623,8651,9078,9092,9321,9352             |                   |                    |
| Location Coordinates | 10°54'17.60"N 77° 7'27.62"E                                                                                                                                 |                   |                    |
| Report Date          | 07.02.2025                                                                                                                                                  |                   |                    |

| Date           | Period. hrs | Ni (ng/m <sup>3</sup> ) | As (ng/m <sup>3</sup> ) | C6H6 (µg/m <sup>3</sup> ) | BaP (ng/m <sup>3</sup> ) | Pb(µg/m <sup>3</sup> ) |
|----------------|-------------|-------------------------|-------------------------|---------------------------|--------------------------|------------------------|
| 21/10/2024     | 8.45-8.45   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 22/10/2024     | 8.50-8.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 28/10/2024     | 8.45-8.45   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 29/10/2024     | 9.00-9.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 04/11/2024     | 8.45-8.45   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 05/11/2024     | 9.00-9.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 11/11/2024     | 8.30-8.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 12/11/2024     | 8.40-8.40   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 18/11/2024     | 8.45-8.45   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 19/11/2024     | 9.00-9.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 25/11/2024     | 9.00-9.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 26/11/2024     | 9.10-9.10   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 02/12/2024     | 9.00-9.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 03/12/2024     | 9.10-9.10   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 09/12/2024     | 9.00-9.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 10/12/2024     | 9.10-9.10   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 16/12/2024     | 8.20-8.20   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 17/12/2024     | 8.30-8.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 23/12/2024     | 8.55-8.55   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 24/12/2024     | 8.30-8.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 30/12/2024     | 8.55-8.55   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 31/12/2024     | 9.00-9.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 06/01/2025     | 8.55-8.55   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 07/01/2025     | 9.00-9.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 13/01/2025     | 8.10-8.10   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 14/01/2025     | 8.20-8.20   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| NAAQ* Standard |             | <20                     | <6.0                    | <5.0                      | <1.0                     | <1.0                   |

**Note:**BDL: Below Detection Limit; DL: Detection Limit**Remarks:** The values observed for the pollutants given above are within the CPCB standards.
  
Verified by

**L. SUDHAPRIYA**  
 - Technical Manager

 \*\*\*\*\*End of Report\*\*\*\*\*  
 Page 2 of 2



SUMMARY REPORT

|                      |                                                                                                                                                             |                   |                               |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------|
| Issued To            | Thiru.V.Saravanan,<br>S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore District.                                                      |                   |                               |
| Site Location        | Rough Stone & Gravel Quarry,<br>Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0),<br>Edayarpalayam Village, Sulur Taluk, Coimbatore District. |                   |                               |
| Sampling Method      | GLCS/SOP/AAQ/015                                                                                                                                            | Sample Drawn by   | Laboratory                    |
| Sample Name          | Air Quality Monitoring                                                                                                                                      | Sampling Location | AAQ 5 – Lakshmi naickenpaayam |
| Sample Description   | Ambient Air Quality Monitoring                                                                                                                              | Sample Condition  | Good                          |
| Sample Code          | GLCS/5394,5423,5651,5672,5845,5910, 6046,6098, 6342,6365, 6682,6742, 7085,7144,<br>7436,7514, 8059,8101,8306,83368624,8652,9079,9093,9322,9353              |                   |                               |
| Location Coordinates | 10°55'15.25"N 77° 9'15.62"E                                                                                                                                 |                   |                               |
| Report Date          | 07.02.2025                                                                                                                                                  |                   |                               |

| Date           | Period. hrs | PM10<br>(µg/m3) | PM2.5<br>(µg/m3) | SO2<br>(µg/m3) | NO2<br>(µg/m3) | O3 (µg/m3)  | NH3 (µg/m3)  | CO (mg/ m3)  |
|----------------|-------------|-----------------|------------------|----------------|----------------|-------------|--------------|--------------|
| 21/10/2024     | 9.10-9.10   | 44.9            | 20.8             | BDL(DL:4.0)    | 21.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 22/10/2024     | 9.15-9.15   | 41.3            | 20.4             | 5.3            | 20.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 28/10/2024     | 9.15-9.15   | 45.0            | 24.5             | 4.6            | 22.2           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 29/10/2024     | 9.25-9.25   | 43.1            | 22.0             | 5.2            | 20.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 04/11/2024     | 9.15-9.15   | 45.1            | 24.1             | 5.3            | 20.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 05/11/2024     | 9.25-9.25   | 45.2            | 22.5             | 5.7            | 19.2           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 11/11/2024     | 9.00-9.00   | 42.8            | 21.2             | BDL(DL:4.0)    | 20.5           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 12/11/2024     | 9.10-9.10   | 45.6            | 24.9             | 5.0            | 19.3           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 18/11/2024     | 9.15-9.15   | 45.0            | 26.6             | 5.1            | 20.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 19/11/2024     | 9.25-9.25   | 46.1            | 26.6             | 4.6            | 21.3           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 25/11/2024     | 9.25-9.25   | 46.1            | 25.7             | 4.6            | 18.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 26/11/2024     | 9.35-9.35   | 47.0            | 26.6             | 5.1            | 21.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 02/12/2024     | 9.25-9.25   | 41.8            | 22.0             | 4.5            | 19.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 03/12/2024     | 9.35-9.35   | 46.8            | 27.0             | 5.4            | 19.8           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 09/12/2024     | 9.25-9.25   | 46.4            | 27.0             | 4.9            | 19.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 10/12/2024     | 9.35-9.35   | 46.9            | 26.6             | 6.2            | 20.5           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 16/12/2024     | 8.55-8.55   | 44.8            | 24.1             | 5.0            | 20.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 17/12/2024     | 9.00-9.00   | 45.6            | 26.2             | 4.7            | 20.7           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 23/12/2024     | 8.55-8.55   | 46.1            | 25.4             | 4.8            | 20.0           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 24/12/2024     | 9.00-9.00   | 45.8            | 25.4             | 5.2            | 19.2           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 30/12/2024     | 9.15-9.15   | 46.5            | 25.8             | 5.1            | 22.0           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 31/12/2024     | 9.25-9.25   | 46.8            | 25.4             | 4.4            | 21.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 06/01/2025     | 9.15-9.15   | 48.1            | 27.9             | 4.6            | 18.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 07/01/2025     | 9.25-9.25   | 46.1            | 25.4             | 4.5            | 23.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 13/01/2025     | 8.30-8.30   | 47.6            | 27.9             | 4.1            | 21.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 14/01/2025     | 8.40-8.40   | 46.9            | 25.8             | 4.3            | 18.5           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| NAAQ* Standard |             | <100            | <60              | <80            | <80            | <180        | <400         | <4           |

Note:BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.


  
Verified by

L. SUDHAPRIYA  
Technical Manager

**SUMMARY REPORT**

|                      |                                                                                                                                                             |                   |                                |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------|
| Issued To            | Thiru.V.Saravanan,<br>S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore District.                                                      |                   |                                |
| Site Location        | Rough Stone & Gravel Quarry,<br>Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0),<br>Edayarpalayam Village, Suler Taluk, Coimbatore District. |                   |                                |
| Sampling Method      | GLCS/SOP/AAQ/015                                                                                                                                            | Sample Drawn by   | Laboratory                     |
| Sample Name          | Air Quality Monitoring                                                                                                                                      | Sampling Location | AAQ 5 – Lakshmi naickenpalayam |
| Sample Description   | Ambient Air Quality Monitoring                                                                                                                              | Sample Condition  | Good                           |
| Sample Code          | GLCS/5394,5423,5651,5672,5845,5910, 6046,6098, 6342,6365, 6682,6742, 7085,7144,<br>7436,7514, 8059,8101,8306,8336,8624,8652,9079,9093,9322,9353             |                   |                                |
| Location Coordinates | 10°55'15.25"N 77° 9'15.62"E                                                                                                                                 |                   |                                |
| Report Date          | 07.02.2025                                                                                                                                                  |                   |                                |

| Date           | Period. hrs | Ni (ng/m <sup>3</sup> ) | As (ng/m <sup>3</sup> ) | C6H6 (µg/m <sup>3</sup> ) | BaP (ng/m <sup>3</sup> ) | Pb(µg/m <sup>3</sup> ) |
|----------------|-------------|-------------------------|-------------------------|---------------------------|--------------------------|------------------------|
| 21/10/2024     | 9.10-9.10   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 22/10/2024     | 9.15-9.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 28/10/2024     | 9.15-9.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 29/10/2024     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 04/11/2024     | 9.15-9.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 05/11/2024     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 11/11/2024     | 9.00-9.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 12/11/2024     | 9.10-9.10   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 18/11/2024     | 9.15-9.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 19/11/2024     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 25/11/2024     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 26/11/2024     | 9.35-9.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 02/12/2024     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 03/12/2024     | 9.35-9.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 09/12/2024     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 10/12/2024     | 9.35-9.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 16/12/2024     | 8.55-8.55   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 17/12/2024     | 9.00-9.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 23/12/2024     | 8.55-8.55   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 24/12/2024     | 9.00-9.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 30/12/2024     | 9.15-9.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 31/12/2024     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 06/01/2025     | 9.15-9.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 07/01/2025     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 13/01/2025     | 8.30-8.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 14/01/2025     | 8.40-8.40   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| NAAQ* Standard |             | <20                     | <6.0                    | <5.0                      | <1.0                     | <1.0                   |

**Note:**BDL: Below Detection Limit; DL: Detection Limit**Remarks:** The values observed for the pollutants given above are within the CPCB standards.

Verified by

**L. SUDHAPRIYA**  
 Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

Page 2 of 2





Committed to Precision

LABORATORY | CONSULTANCY | SUSTAINABILITY

S.F.No.92/3A2, Geetha Nagar,

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Phone: 0427 - 2970989 / +91 70944 52628

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**SUMMARY REPORT**

|                      |                                                                                                                                                             |                   |                   |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|
| Issued To            | Thiru.V.Saravanan,<br>S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore District.                                                      |                   |                   |
| Site Location        | Rough Stone & Gravel Quarry,<br>Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0),<br>Edayarpalayam Village, Sulur Taluk, Coimbatore District. |                   |                   |
| Sampling Method      | GLCS/SOP/AAQ/015                                                                                                                                            | Sample Drawn by   | Laboratory        |
| Sample Name          | Air Quality Monitoring                                                                                                                                      | Sampling Location | AAQ 6 - Panapatti |
| Sample Description   | Ambient Air Quality Monitoring                                                                                                                              | Sample Condition  | Good              |
| Sample Code          | GLCS/5395,5424,5652,5673,5846,5911, 6047,6099, 6343,6366, 6683,6743, 7086,7145, 7437,7515,<br>8060,8102,8307,8337,8625,8653,9080,9094,9323,9354             |                   |                   |
| Location Coordinates | 10°52'43.85"N 77° 6'1.60"E                                                                                                                                  |                   |                   |
| Report Date          | 07.02.2025                                                                                                                                                  |                   |                   |

| Date           | Period. hrs | PM10<br>(µg/m3) | PM2.5<br>(µg/m3) | SO2<br>(µg/m3) | NO2<br>(µg/m3) | O3 (µg/m3)  | NH3 (µg/m3)  | CO (mg/ m3)  |
|----------------|-------------|-----------------|------------------|----------------|----------------|-------------|--------------|--------------|
| 21/10/2024     | 9.30-9.30   | 46.0            | 21.2             | 4.3            | 21.5           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 22/10/2024     | 9.35-9.35   | 42.8            | 21.6             | 4.1            | 19.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 28/10/2024     | 9.40-9.40   | 43.5            | 24.1             | 5.1            | 21.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 29/10/2024     | 9.50-9.50   | 42.5            | 21.2             | 5.5            | 20.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 04/11/2024     | 9.40-9.40   | 44.8            | 23.3             | 5.0            | 19.5           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 05/11/2024     | 9.50-9.50   | 42.8            | 19.5             | 5.0            | 18.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 11/11/2024     | 9.25-9.25   | 40.8            | 20.4             | 4.4            | 21.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 12/11/2024     | 9.35-9.35   | 43.4            | 23.3             | 4.5            | 19.7           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 18/11/2024     | 9.40-9.40   | 44.8            | 25.8             | 4.8            | 19.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 19/11/2024     | 9.50-9.50   | 43.6            | 23.7             | 5.1            | 22.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 25/11/2024     | 9.50-9.50   | 47.4            | 24.5             | 4.8            | 20.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 26/11/2024     | 10.00-10.00 | 45.9            | 25.7             | 4.9            | 17.8           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 02/12/2024     | 9.50-9.50   | 43.8            | 23.7             | 4.9            | 20.8           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 03/12/2024     | 10.00-10.00 | 45.0            | 26.2             | 4.7            | 18.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 09/12/2024     | 9.50-9.50   | 44.6            | 24.1             | 5.2            | 20.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 10/12/2024     | 10.00-10.00 | 45.0            | 25.4             | 6.0            | 20.7           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 16/12/2024     | 9.35-9.35   | 46.1            | 25.8             | 5.2            | 20.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 17/12/2024     | 9.35-9.35   | 46.3            | 26.6             | 5.5            | 20.0           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 23/12/2024     | 9.35-9.35   | 47.1            | 27.0             | 4.7            | 18.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 24/12/2024     | 9.25-9.25   | 44.9            | 24.5             | 5.1            | 22.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 30/12/2024     | 9.15-9.15   | 46.5            | 26.6             | 6.2            | 20.0           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 31/12/2024     | 9.25-9.25   | 47.9            | 25.8             | 4.7            | 19.8           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 06/01/2025     | 9.15-9.15   | 47.3            | 26.6             | 5.1            | 20.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 07/01/2025     | 9.25-9.25   | 47.2            | 24.5             | 4.8            | 19.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 13/01/2025     | 9.00-9.00   | 48.3            | 26.2             | 5.8            | 20.7           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 14/01/2025     | 9.10-9.10   | 47.1            | 26.6             | 4.9            | 19.2           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| NAAQ* Standard |             | <100            | <60              | <80            | <80            | <180        | <400         | <4           |

Note:BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA  
Technical Manager

### SUMMARY REPORT

|                      |                                                                                                                                                             |                   |                   |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|
| Issued To            | Thiru.V.Saravanan,<br>S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore District.                                                      |                   |                   |
| Site Location        | Rough Stone & Gravel Quarry,<br>Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0),<br>Edayarpalayam Village, Sulur Taluk, Coimbatore District. |                   |                   |
| Sampling Method      | GLCS/SOP/AAQ/015                                                                                                                                            | Sample Drawn by   | Laboratory        |
| Sample Name          | Air Quality Monitoring                                                                                                                                      | Sampling Location | AAQ 6 - Panapatti |
| Sample Description   | Ambient Air Quality Monitoring                                                                                                                              | Sample Condition  | Good              |
| Sample Code          | GLCS/5395,5424,5652,5673,5846,5911,6047,6099, 6343,6366, 6683,6743, 7086,7145,<br>7438,7516, 7437,7515, 8060,8102,8307,8337,8625,8653,9080,9094,9323,9354   |                   |                   |
| Location Coordinates | 10°52'43.85"N 77° 6'1.60"E                                                                                                                                  |                   |                   |
| Report Date          | 07.02.2025                                                                                                                                                  |                   |                   |

| Date           | Period. hrs | Ni (ng/m <sup>3</sup> ) | As (ng/m <sup>3</sup> ) | C6H6 (µg/m <sup>3</sup> ) | BaP (ng/m <sup>3</sup> ) | Pb(µg/m <sup>3</sup> ) |
|----------------|-------------|-------------------------|-------------------------|---------------------------|--------------------------|------------------------|
| 21/10/2024     | 9.30-9.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 22/10/2024     | 9.35-9.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 28/10/2024     | 9.40-9.40   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 29/10/2024     | 9.50-9.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 04/11/2024     | 9.40-9.40   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 05/11/2024     | 9.50-9.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 11/11/2024     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 12/11/2024     | 9.35-9.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 18/11/2024     | 9.40-9.40   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 19/11/2024     | 9.50-9.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 25/11/2024     | 9.50-9.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 26/11/2024     | 10.00-10.00 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 02/12/2024     | 9.50-9.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 03/12/2024     | 10.00-10.00 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 09/12/2024     | 9.50-9.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 10/12/2024     | 10.00-10.00 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 16/12/2024     | 9.35-9.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 17/12/2024     | 9.35-9.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 23/12/2024     | 9.35-9.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 24/12/2024     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 30/12/2024     | 9.15-9.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 31/12/2024     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 06/01/2025     | 9.15-9.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 07/01/2025     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 13/01/2025     | 9.00-9.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 14/01/2025     | 9.10-9.10   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| NAAQ* Standard |             | <20                     | <6.0                    | <5.0                      | <1.0                     | <1.0                   |

Note:BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



\*\*\*\*\*End of Report\*\*\*\*\*

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Verified by  
L. SUDHAPRIYA  
Technical Manager

**SUMMARY REPORT**

|                      |                                                                                                                                                             |                   |                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------|
| Issued To            | Thiru.V,Saravanan,<br>S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore District.                                                      |                   |                     |
| Site Location        | Rough Stone & Gravel Quarry,<br>Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0),<br>Edayarpalayam Village, Sulur Taluk, Coimbatore District. |                   |                     |
| Sampling Method      | GLCS/SOP/AAQ/015                                                                                                                                            | Sample Drawn by   | Laboratory          |
| Sample Name          | Air Quality Monitoring                                                                                                                                      | Sampling Location | AAQ 7 – Chinnakuili |
| Sample Description   | Ambient Air Quality Monitoring                                                                                                                              | Sample Condition  | Good                |
| Sample Code          | GLCS/5396,5425,5653,5674,5847,5912, 6048,6100, 6344,6367, 6684,6744, 7087,7146, 7438,7516, 8061,8103,8308,8338,8626,8654,9081,9095,9324,9355                |                   |                     |
| Location Coordinates | 10°55'39.11"N 77° 5'13.51"E                                                                                                                                 |                   |                     |
| Report Date          | 07.02.2025                                                                                                                                                  |                   |                     |

| Date           | Period, hrs | PM10<br>(µg/m3) | PM2.5<br>(µg/m3) | SO2<br>(µg/m3) | NO2<br>(µg/m3) | O3 (µg/m3)  | NH3 (µg/m3)  | CO (mg/ m3)  |
|----------------|-------------|-----------------|------------------|----------------|----------------|-------------|--------------|--------------|
| 21/10/2024     | 9.55-9.55   | 46.1            | 22.0             | BDL(DL:4.0)    | 24.7           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 22/10/2024     | 10.00-10.00 | 44.1            | 22.5             | BDL(DL:4.0)    | 19.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 28/10/2024     | 10.15-10.15 | 43.8            | 22.5             | 4.8            | 20.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 29/10/2024     | 10.30-10.30 | 44.4            | 23.3             | 5.3            | 21.2           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 04/11/2024     | 10.15-10.15 | 43.0            | 22.0             | 4.3            | 20.1           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 05/11/2024     | 10.30-10.30 | 43.6            | 21.2             | 4.6            | 19.5           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 11/11/2024     | 10.00-10.00 | 44.7            | 22.0             | BDL(DL:4.0)    | 21.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 12/11/2024     | 10.10-10.10 | 42.2            | 22.0             | BDL(DL:4.0)    | 20.3           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 18/11/2024     | 10.15-10.15 | 43.0            | 24.1             | 4.5            | 22.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 19/11/2024     | 10.30-10.30 | 42.8            | 22.5             | BDL(DL:4.0)    | 23.0           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 25/11/2024     | 10.30-10.30 | 45.3            | 23.3             | 5.0            | 18.7           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 26/11/2024     | 10.00-10.00 | 44.3            | 23.7             | 4.8            | 18.0           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 02/12/2024     | 10.30-10.30 | 45.5            | 26.2             | 5.2            | 20.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 03/12/2024     | 10.40-40.40 | 44.0            | 24.5             | 5.2            | 19.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 09/12/2024     | 10.30-10.30 | 43.8            | 22.5             | 5.4            | 21.3           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 10/12/2024     | 10.40-40.40 | 43.9            | 23.7             | BDL(DL:4.0)    | 19.5           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 16/12/2024     | 9.50-9.50   | 44.4            | 24.5             | 5.1            | 19.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 17/12/2024     | 10.00-10.00 | 47.2            | 27.0             | 5.0            | 20.3           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 23/12/2024     | 9.50-9.50   | 45.1            | 24.1             | 5.0            | 18.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 24/12/2024     | 10.00-10.00 | 46.0            | 26.2             | 5.3            | 21.0           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 30/12/2024     | 10.20-10.20 | 47.6            | 24.5             | 4.3            | 21.3           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 31/12/2024     | 10.30-10.30 | 48.2            | 27.0             | 5.0            | 21.8           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 06/01/2025     | 10.20-10.20 | 46.6            | 25.8             | 4.7            | 20.4           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 07/01/2025     | 10.30-10.30 | 46.7            | 26.2             | 5.5            | 18.6           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 13/01/2025     | 9.15-9.15   | 47.1            | 26.6             | 5.5            | 21.0           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| 14/01/2025     | 9.25-9.25   | 46.0            | 24.5             | 5.1            | 18.9           | BDL(DL:5.0) | BDL(DL:20.0) | BDL(DL:1.15) |
| NAAQ* Standard |             | <100            | <60              | <80            | <80            | <180        | <400         | <4           |

**Note:**BDL: Below Detection Limit; DL: Detection Limit**Remarks:** The values observed for the pollutants given above are within the CPCB standards.

Verified by

**L. SUDHAPRIYA**  
 Technical Manager



### SUMMARY REPORT

|                      |                                                                                                                                                             |                   |                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------|
| Issued To            | Thiru.V.Saravanan,<br>S/o. Velusamy, 3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore District.                                                      |                   |                     |
| Site Location        | Rough Stone & Gravel Quarry,<br>Lease Area:1.84.0 Ha, SF.NO:171/2(Part)(0.46.0), 176/2(1.38.0),<br>Edayarpalayam Village, Suler Taluk, Coimbatore District. |                   |                     |
| Sampling Method      | GLCS/SOP/AAQ/015                                                                                                                                            | Sample Drawn by   | Laboratory          |
| Sample Name          | Air Quality Monitoring                                                                                                                                      | Sampling Location | AAQ 7 – Chinnakulli |
| Sample Description   | Ambient Air Quality Monitoring                                                                                                                              | Sample Condition  | Good                |
| Sample Code          | GLCS/5396,5425,5653,5674,5847,5912,6048,6100, 6344,6367, 6684,6744, 7087,7146,<br>7438,7516, 8061,8103,8308,8338,8626,8654,9081,9095,93249355               |                   |                     |
| Location Coordinates | 10°55'39.11"N 77° 5'13.51"E                                                                                                                                 |                   |                     |
| Report Date          | 07.02.2025                                                                                                                                                  |                   |                     |

| Date           | Period. hrs | Ni (ng/m <sup>3</sup> ) | As (ng/m <sup>3</sup> ) | C6H6 (µg/m <sup>3</sup> ) | BaP (ng/m <sup>3</sup> ) | Pb(µg/m <sup>3</sup> ) |
|----------------|-------------|-------------------------|-------------------------|---------------------------|--------------------------|------------------------|
| 21/10/2024     | 9.30-9.30   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 22/10/2024     | 9.35-9.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 28/10/2024     | 9.40-9.40   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 29/10/2024     | 9.50-9.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 04/11/2024     | 9.40-9.40   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 05/11/2024     | 9.50-9.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 11/11/2024     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 12/11/2024     | 9.35-9.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 18/11/2024     | 9.40-9.40   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 19/11/2024     | 9.50-9.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 25/11/2024     | 9.50-9.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 26/11/2024     | 10.00-10.00 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 02/12/2024     | 9.50-9.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 03/12/2024     | 10.00-10.00 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 09/12/2024     | 9.50-9.50   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 10/12/2024     | 10.00-10.00 | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 16/12/2024     | 9.35-9.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 17/12/2024     | 9.35-9.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 23/12/2024     | 9.35-9.35   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 24/12/2024     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 30/12/2024     | 9.15-9.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 31/12/2024     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 06/01/2025     | 9.15-9.15   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 07/01/2025     | 9.25-9.25   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 13/01/2025     | 9.00-9.00   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| 14/01/2025     | 9.10-9.10   | BDL (DL:1)              | BDL (DL:1)              | BDL (DL:1.0)              | BDL (DL:0.5)             | BDL (DL:0.01)          |
| NAAQ* Standard |             | <20                     | <6.0                    | <5.0                      | <1.0                     | <1.0                   |

Note:BDL: Below Detection Limit; DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.



Verified by

L. SUDHAPRIYA  
Technical Manager

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000480F**

Report Number : GLCS/TR/08104/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 1 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08104     |
| <b>Location Name</b>                                                                                                         | CORE ZONE                    | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 7.45 - 7.45                  | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°54'55.64"N<br>77° 6'43.26"E                                                                                                                                                                  |                |

| Sl.No. | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day |
|--------|-----------|----------------|----------------|----------------|
| 1      | 08.45     | 32.9           | 40.1           | 37.85          |
| 2      | 09.45     | 34.2           | 41.9           | 39.57          |
| 3      | 10.45     | 36.3           | 42.5           | 40.42          |
| 4      | 11.45     | 34.1           | 43.6           | 41.05          |
| 5      | 12.45     | 34.7           | 46.5           | 43.77          |
| 6      | 13.45     | 34.9           | 45.8           | 43.13          |
| 7      | 14.45     | 34.2           | 43.3           | 40.79          |
| 8      | 15.45     | 34.1           | 44.7           | 40.05          |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



**For Global Lab and Consultancy Services LLP**



Page 1 of 3

**Authorised Signatory**  
**L.Sudha Priya**  
 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 15 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 reports issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000480F**

Report Number : GLCS/TR/08104/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 1 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08104     |
| <b>Location Name</b>                                                                                                         | CORE ZONE                    | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 7.45 - 7.45                  | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°54'55.64"N<br>77° 6'43.26"E                                                                                                                                                                  |                |

| Sl.No. | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day |
|--------|-----------|----------------|----------------|----------------|
| 9      | 16.45     | 35.5           | 45.3           | 38.79          |
| 10     | 17.45     | 36.3           | 42.1           | 40.10          |
| 11     | 18.45     | 32.2           | 41.3           | 38.79          |
| 12     | 19.45     | 32.7           | 37.5           | 35.73          |
| 13     | 20.45     | 30.5           | 36.1           | 34.15          |
| 14     | 21.45     | 32.5           | 37.2           | 35.46          |
| 15     | 22.45     | 31.7           | 36.8           | 34.96          |
| 16     | 23.45     | 32.3           | 36.1           | 34.60          |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



**For Global Lab and Consultancy Services LLP**



Page 2 of 3

**Authorised Signatory**  
**L.Sudha Priya**  
 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 15 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 reports issued by us can be verified by submitting on E-mail request with report number and report date along with report copy.

**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000480F**

Report Number : GLCS/TR/08104/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 1 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08104     |
| <b>Location Name</b>                                                                                                         | CORE ZONE                    | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 7.45 - 7.45                  | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°54'55.64"N<br>77° 6'43.26"E                                                                                                                                                                  |                |

| Sl.No.                                                                                                  | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day         |
|---------------------------------------------------------------------------------------------------------|-----------|----------------|----------------|------------------------|
| 17                                                                                                      | 00.45     | 31.6           | 35.6           | 34.05                  |
| 18                                                                                                      | 01.45     | 31.1           | 35.7           | 35.33                  |
| 19                                                                                                      | 02.45     | 32.3           | 37.1           | 35.33                  |
| 20                                                                                                      | 03.45     | 33.8           | 36.9           | 35.62                  |
| 21                                                                                                      | 04.45     | 31.2           | 35.2           | 33.65                  |
| 22                                                                                                      | 05.45     | 32.8           | 36.6           | 35.10                  |
| 23                                                                                                      | 06.45     | 35.6           | 37.5           | 36.65                  |
| 24                                                                                                      | 07.45     | 33.1           | 39.8           | 37.63                  |
| Day Mean dB(A)                                                                                          |           |                |                | 39.4                   |
| Night Mean dB(A)                                                                                        |           |                |                | 34.7                   |
| Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial Area) |           |                |                | Day Time : 75 dB (A)   |
|                                                                                                         |           |                |                | Night Time : 70 dB (A) |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



For Global Lab and Consultancy Services LLP



**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

Page 3 of 3

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000481F**

Report Number : GLCS/TR/08105/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 2 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08105     |
| <b>Location Name</b>                                                                                                         | CORE ZONE                    | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 08.10 - 08.10                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°54'46.62"N<br>77° 6'47.59"E                                                                                                                                                                  |                |

| Sl.No. | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day |
|--------|-----------|----------------|----------------|----------------|
| 1      | 09.10     | 36.1           | 45.9           | 43.32          |
| 2      | 10.10     | 34.5           | 38.5           | 36.95          |
| 3      | 11.10     | 39.4           | 49.9           | 47.26          |
| 4      | 12.10     | 40.2           | 52.6           | 49.83          |
| 5      | 13.10     | 41.9           | 55.1           | 52.29          |
| 6      | 14.10     | 39.8           | 55.2           | 52.31          |
| 7      | 15.10     | 41.8           | 53.9           | 51.15          |
| 8      | 16.10     | 40.5           | 51.4           | 48.73          |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



**For Global Lab and Consultancy Services LLP**



Page 1 of 3

**Authorised Signatory**  
**L.Sudha Priya**  
 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000481F**

Report Number : GLCS/TR/08105/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
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| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 2 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08105     |
| <b>Location Name</b>                                                                                                         | CORE ZONE                    | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 08.10 - 08.10                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°54'46.62"N<br>77° 6'47.59"E                                                                                                                                                                  |                |

| Sl.No. | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day |
|--------|-----------|----------------|----------------|----------------|
| 9      | 17.10     | 38.9           | 50.6           | 47.87          |
| 10     | 18.10     | 34.1           | 36.5           | 35.46          |
| 11     | 19.10     | 33.6           | 35.5           | 34.65          |
| 12     | 20.10     | 32.9           | 36.1           | 34.79          |
| 13     | 21.10     | 33.7           | 37.4           | 35.93          |
| 14     | 22.10     | 32.1           | 36.9           | 35.13          |
| 15     | 23.10     | 31.6           | 35.5           | 33.97          |
| 16     | 00.10     | 32.2           | 36.3           | 37.72          |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



**For Global Lab and Consultancy Services LLP**



Page 2 of 3

**Authorised Signatory**  
**L.Sudha Priya**  
 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000481F**

Report Number : GLCS/TR/08105/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 2 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08105     |
| <b>Location Name</b>                                                                                                         | CORE ZONE                    | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 08.10 - 08.10                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°54'46.62"N<br>77° 6'47.59"E                                                                                                                                                                  |                |

| Sl.No.                                                                                                  | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day         |
|---------------------------------------------------------------------------------------------------------|-----------|----------------|----------------|------------------------|
| 17                                                                                                      | 01.10     | 33.9           | 37.1           | 35.79                  |
| 18                                                                                                      | 02.10     | 32.8           | 39.5           | 37.33                  |
| 19                                                                                                      | 03.10     | 33.5           | 40.2           | 39.03                  |
| 20                                                                                                      | 04.10     | 34.2           | 42.2           | 39.83                  |
| 21                                                                                                      | 05.10     | 32.9           | 44.3           | 41.59                  |
| 22                                                                                                      | 06.10     | 39.1           | 45.1           | 43.06                  |
| 23                                                                                                      | 07.10     | 37.5           | 49.2           | 46.47                  |
| 24                                                                                                      | 08.10     | 38.5           | 47.1           | 44.65                  |
| Day Mean dB(A)                                                                                          |           |                |                | 44.0                   |
| Night Mean dB(A)                                                                                        |           |                |                | 36.9                   |
| Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial Area) |           |                |                | Day Time : 75 dB (A)   |
|                                                                                                         |           |                |                | Night Time : 70 dB (A) |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



For Global Lab and Consultancy Services LLP



**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

Page 3 of 3

\*\*\*\*\*End of Report\*\*\*\*\*

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000482F**

Report Number : GLCS/TR/08106/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 3 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08106     |
| <b>Location Name</b>                                                                                                         | SN PALAYAM                   | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 08.40 - 08.40                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°56'23.14"N<br>77° 8'22.82"E                                                                                                                                                                  |                |

| Sl.No. | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day |
|--------|-----------|----------------|----------------|----------------|
| 1      | 09.40     | 36.6           | 42.5           | 40.48          |
| 2      | 10.40     | 37.2           | 51.7           | 48.84          |
| 3      | 11.40     | 38.5           | 52.3           | 49.47          |
| 4      | 12.40     | 39.6           | 53.9           | 51.05          |
| 5      | 13.40     | 40.1           | 54.2           | 51.36          |
| 6      | 14.40     | 42.8           | 51.8           | 49.30          |
| 7      | 15.40     | 41.7           | 53.2           | 50.49          |
| 8      | 16.40     | 38.6           | 52.7           | 49.86          |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



**For Global Lab and Consultancy Services LLP**



Page 1 of 3

**Authorised Signatory**  
**L.Sudha Priya**  
 Technical Manager

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Report Number : GLCS/TR/08106/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 3 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08106     |
| <b>Location Name</b>                                                                                                         | SN PALAYAM                   | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 08.40 - 08.40                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°56'23.14"N<br>77° 8'22.82"E                                                                                                                                                                  |                |

| Sl.No. | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day |
|--------|-----------|----------------|----------------|----------------|
| 9      | 17.40     | 39.1           | 51.5           | 48.73          |
| 10     | 18.40     | 40.2           | 50.3           | 47.69          |
| 11     | 19.40     | 40.4           | 51.7           | 49.00          |
| 12     | 20.40     | 38.6           | 55.3           | 52.38          |
| 13     | 21.40     | 37.1           | 48.1           | 45.42          |
| 14     | 22.40     | 34.2           | 47.6           | 44.78          |
| 15     | 23.40     | 32.5           | 40.2           | 37.87          |
| 16     | 00.40     | 32.3           | 38.5           | 36.42          |

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**For Global Lab and Consultancy Services LLP**



Page 2 of 3

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**L.Sudha Priya**  
 Technical Manager

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**ULR-TC606025000000482F**

Report Number : GLCS/TR/08106/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
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| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 3 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08106     |
| <b>Location Name</b>                                                                                                         | SN PALAYAM                   | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 08.40 - 08.40                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°56'23.14"N<br>77° 8'22.82"E                                                                                                                                                                  |                |

| Sl.No.                                                                                                   | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day         |
|----------------------------------------------------------------------------------------------------------|-----------|----------------|----------------|------------------------|
| 17                                                                                                       | 01.40     | 33.6           | 39.1           | 37.17                  |
| 18                                                                                                       | 02.40     | 32.7           | 37.1           | 35.43                  |
| 19                                                                                                       | 03.40     | 33.9           | 39.6           | 37.62                  |
| 20                                                                                                       | 04.40     | 33.1           | 39.3           | 37.22                  |
| 21                                                                                                       | 05.40     | 32.7           | 37.1           | 35.43                  |
| 22                                                                                                       | 06.40     | 32.4           | 38.2           | 37.20                  |
| 23                                                                                                       | 07.40     | 32.6           | 40.3           | 37.97                  |
| 24                                                                                                       | 08.40     | 34.5           | 41.9           | 39.62                  |
| Day Mean dB(A)                                                                                           |           |                |                | 45.7                   |
| Night Mean dB(A)                                                                                         |           |                |                | 35.0                   |
| Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Residential Area) |           |                |                | Day Time : 55 dB (A)   |
|                                                                                                          |           |                |                | Night Time : 45 dB (A) |

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For Global Lab and Consultancy Services LLP



**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

Page 3 of 3

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000483F**

Report Number : GLCS/TR/08107/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 4 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08107     |
| <b>Location Name</b>                                                                                                         | BOGAMPATTI                   | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 09.15 - 09.15                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°54'17.66"N<br>77° 7'27.41"E                                                                                                                                                                  |                |

| Sl.No. | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day |
|--------|-----------|----------------|----------------|----------------|
| 1      | 10.15     | 35.3           | 59.1           | 56.11          |
| 2      | 11.15     | 32.6           | 53.5           | 50.52          |
| 3      | 12.15     | 34.9           | 53.6           | 50.65          |
| 4      | 13.15     | 38.5           | 56.3           | 53.36          |
| 5      | 14.15     | 40.1           | 54.4           | 51.55          |
| 6      | 15.15     | 42.7           | 54.6           | 51.86          |
| 7      | 16.15     | 40.2           | 55.7           | 52.81          |
| 8      | 17.15     | 39.8           | 53.6           | 50.77          |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



**For Global Lab and Consultancy Services LLP**



Page 1 of 3

**Authorised Signatory**  
**L.Sudha Priya**  
 Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000483F**

Report Number : GLCS/TR/08107/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 4 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08107     |
| <b>Location Name</b>                                                                                                         | BOGAMPATTI                   | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 09.15 - 09.15                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°54'17.66"N<br>77° 7'27.41"E                                                                                                                                                                  |                |

| Sl.No. | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day |
|--------|-----------|----------------|----------------|----------------|
| 9      | 18.15     | 38.3           | 52.1           | 49.27          |
| 10     | 19.15     | 37.4           | 56.3           | 53.35          |
| 11     | 20.15     | 35.6           | 50.5           | 47.63          |
| 12     | 21.15     | 32.3           | 49.2           | 46.28          |
| 13     | 22.15     | 32.2           | 46.5           | 43.65          |
| 14     | 23.15     | 32.7           | 43.5           | 40.84          |
| 15     | 00.15     | 32.3           | 40.1           | 37.76          |
| 16     | 01.15     | 33.3           | 38.5           | 36.64          |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



**For Global Lab and Consultancy Services LLP**



Page 2 of 3

**Authorised Signatory**  
**L.Sudha Priya**  
 Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000483F**

Report Number : GLCS/TR/08107/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 4 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08107     |
| <b>Location Name</b>                                                                                                         | BOGAMPATTI                   | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 09.15 - 09.15                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°54'17.66"N<br>77° 7'27.41"E                                                                                                                                                                  |                |

| Sl.No.                                                                                                  | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day         |
|---------------------------------------------------------------------------------------------------------|-----------|----------------|----------------|------------------------|
| 17                                                                                                      | 02.15     | 32.9           | 30.5           | 31.86                  |
| 18                                                                                                      | 03.15     | 34.1           | 39.7           | 37.75                  |
| 19                                                                                                      | 04.15     | 33.8           | 38.5           | 36.76                  |
| 20                                                                                                      | 05.15     | 34.2           | 40.5           | 38.40                  |
| 21                                                                                                      | 06.15     | 33.4           | 40.5           | 42.75                  |
| 22                                                                                                      | 07.15     | 33.2           | 46.1           | 43.31                  |
| 23                                                                                                      | 08.15     | 35.6           | 49.5           | 46.66                  |
| 24                                                                                                      | 09.15     | 36.7           | 53.6           | 50.68                  |
| Day Mean dB(A)                                                                                          |           |                |                | 49.5                   |
| Night Mean dB(A)                                                                                        |           |                |                | 38.0                   |
| Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial Area) |           |                |                | Day Time : 75 dB (A)   |
|                                                                                                         |           |                |                | Night Time : 70 dB (A) |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



For Global Lab and Consultancy Services LLP



**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

Page 3 of 3

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000484F**

Report Number : GLCS/TR/08108/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 5 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08108     |
| <b>Location Name</b>                                                                                                         | LAKSHMINAICKENPALAYAM        | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 09.45 - 09.45                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°55'15.52"N<br>77° 9'15.45"E                                                                                                                                                                  |                |

| Sl.No. | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day |
|--------|-----------|----------------|----------------|----------------|
| 1      | 10.45     | 40.5           | 49.2           | 46.74          |
| 2      | 11.45     | 41.5           | 52.1           | 49.45          |
| 3      | 12.45     | 42.5           | 55.4           | 52.61          |
| 4      | 13.45     | 40.8           | 56.3           | 53.41          |
| 5      | 14.45     | 41.7           | 50.8           | 48.29          |
| 6      | 15.45     | 42.3           | 53.6           | 50.90          |
| 7      | 16.45     | 39.6           | 55.1           | 52.21          |
| 8      | 17.45     | 37.1           | 54.8           | 51.86          |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



**For Global Lab and Consultancy Services LLP**



Page 1 of 3

**Authorised Signatory**  
**L.Sudha Priya**  
 Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000484F**

Report Number : GLCS/TR/08108/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 5 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08108     |
| <b>Location Name</b>                                                                                                         | LAKSHMINAICKENPALAYAM        | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 09.45 - 09.45                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°55'15.52"N<br>77° 9'15.45"E                                                                                                                                                                  |                |

| Sl.No. | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day |
|--------|-----------|----------------|----------------|----------------|
| 9      | 18.45     | 36.3           | 57.1           | 54.13          |
| 10     | 19.45     | 34.7           | 55.6           | 52.62          |
| 11     | 20.45     | 35.3           | 51.1           | 48.20          |
| 12     | 21.45     | 33.6           | 50.2           | 47.28          |
| 13     | 22.45     | 35.1           | 41.7           | 39.55          |
| 14     | 23.45     | 35.8           | 39.8           | 38.03          |
| 15     | 00.45     | 33.3           | 37.8           | 36.11          |
| 16     | 01.45     | 34.8           | 39.1           | 37.46          |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



**For Global Lab and Consultancy Services LLP**



Page 2 of 3

**Authorised Signatory**  
**L.Sudha Priya**  
 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000484F**

Report Number : GLCS/TR/08108/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 5 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08108     |
| <b>Location Name</b>                                                                                                         | LAKSHMINAICKENPALAYAM        | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 09.45 - 09.45                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°55'15.52"N<br>77° 9'15.45"E                                                                                                                                                                  |                |

| Sl.No.                                                                                                   | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day         |
|----------------------------------------------------------------------------------------------------------|-----------|----------------|----------------|------------------------|
| 17                                                                                                       | 02.45     | 34.1           | 40.2           | 38.14                  |
| 18                                                                                                       | 03.45     | 33.6           | 36.9           | 35.56                  |
| 19                                                                                                       | 04.45     | 34.7           | 39.1           | 37.43                  |
| 20                                                                                                       | 05.45     | 33.2           | 39.1           | 37.08                  |
| 21                                                                                                       | 06.45     | 34.7           | 38.5           | 37.00                  |
| 22                                                                                                       | 07.45     | 35.6           | 45.6           | 43.00                  |
| 23                                                                                                       | 08.45     | 37.1           | 47.1           | 44.50                  |
| 24                                                                                                       | 09.45     | 38.5           | 50.1           | 47.38                  |
| Day Mean dB(A)                                                                                           |           |                |                | 48.9                   |
| Night Mean dB(A)                                                                                         |           |                |                | 37.1                   |
| Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Residential Area) |           |                |                | Day Time : 55 dB (A)   |
|                                                                                                          |           |                |                | Night Time : 45 dB (A) |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



For Global Lab and Consultancy Services LLP



**Authorised Signatory**  
 L.Sudha Priya  
 Technical Manager

Page 3 of 3

\*\*\*\*\*End of Report\*\*\*\*\*

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**TEST REPORT**

**ULR-TC606025000000485F**

Report Number : GLCS/TR/08109/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 6 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08109     |
| <b>Location Name</b>                                                                                                         | PANAPATTI                    | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 10.45 - 10.45                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°52'43.62"N<br>77° 6'1.10"E                                                                                                                                                                   |                |

| Sl.No. | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day |
|--------|-----------|----------------|----------------|----------------|
| 1      | 11.45     | 42.9           | 54.8           | 52.06          |
| 2      | 12.45     | 45.6           | 55.4           | 52.82          |
| 3      | 13.45     | 42.7           | 56.3           | 53.48          |
| 4      | 14.45     | 44.3           | 57.2           | 54.41          |
| 5      | 15.45     | 42.9           | 54.2           | 51.50          |
| 6      | 16.45     | 41.5           | 53.3           | 50.57          |
| 7      | 17.45     | 39.1           | 51.2           | 48.45          |
| 8      | 18.45     | 38.7           | 47.5           | 45.03          |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



**For Global Lab and Consultancy Services LLP**



Page 1 of 3

**Authorised Signatory**  
**L.Sudha Priya**  
 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000485F**

Report Number : GLCS/TR/08109/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 6 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08109     |
| <b>Location Name</b>                                                                                                         | PANAPATTI                    | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 10.45 - 10.45                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°52'43.62"N<br>77° 6'1.10"E                                                                                                                                                                   |                |

| Sl.No. | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day |
|--------|-----------|----------------|----------------|----------------|
| 9      | 19.45     | 36.8           | 45.9           | 43.39          |
| 10     | 20.45     | 35.2           | 43.4           | 41.00          |
| 11     | 21.45     | 34.9           | 41.5           | 39.35          |
| 12     | 22.45     | 34.7           | 40.8           | 38.74          |
| 13     | 23.45     | 32.6           | 38.1           | 36.17          |
| 14     | 00.45     | 33.9           | 37.6           | 36.13          |
| 15     | 01.45     | 34.1           | 38.4           | 36.76          |
| 16     | 02.45     | 32.8           | 37.2           | 35.53          |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



**For Global Lab and Consultancy Services LLP**



Page 2 of 3

**Authorised Signatory**  
**L.Sudha Priya**  
 Technical Manager

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000485F**

Report Number : GLCS/TR/08109/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 6 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08109     |
| <b>Location Name</b>                                                                                                         | PANAPATTI                    | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 10.45 - 10.45                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°52'43.62"N<br>77° 6'1.10"E                                                                                                                                                                   |                |

| Sl.No.                                                                                                  | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day         |
|---------------------------------------------------------------------------------------------------------|-----------|----------------|----------------|------------------------|
| 17                                                                                                      | 03.45     | 30.2           | 35.1           | 33.31                  |
| 18                                                                                                      | 04.45     | 33.8           | 36.9           | 35.62                  |
| 19                                                                                                      | 05.45     | 32.7           | 35.4           | 34.26                  |
| 20                                                                                                      | 06.45     | 33.1           | 38.1           | 36.28                  |
| 21                                                                                                      | 07.45     | 34.6           | 45.2           | 42.55                  |
| 22                                                                                                      | 08.45     | 37.8           | 46.9           | 44.39                  |
| 23                                                                                                      | 09.45     | 36.3           | 48.1           | 45.37                  |
| 24                                                                                                      | 10.45     | 40.1           | 52.3           | 49.54                  |
| Day Mean dB(A)                                                                                          |           |                |                | 47.0                   |
| Night Mean dB(A)                                                                                        |           |                |                | 35.9                   |
| Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Industrial Area) |           |                |                | Day Time : 75 dB (A)   |
|                                                                                                         |           |                |                | Night Time : 70 dB (A) |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



For Global Lab and Consultancy Services LLP



**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

Page 3 of 3

\*\*\*\*\*End of Report\*\*\*\*\*

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**

**TEST REPORT**

**ULR-TC606025000000486F**

Report Number : GLCS/TR/08110/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 7 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08110     |
| <b>Location Name</b>                                                                                                         | CHINNAKUYILI                 | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 11.45 - 11.45                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°55'39.20"N<br>77° 5'13.11"E                                                                                                                                                                  |                |

| Sl.No. | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day |
|--------|-----------|----------------|----------------|----------------|
| 1      | 12.45     | 41.2           | 53.5           | 50.74          |
| 2      | 13.45     | 40.5           | 51.7           | 49.01          |
| 3      | 14.45     | 42.9           | 53.3           | 50.67          |
| 4      | 15.45     | 40.8           | 51.1           | 48.48          |
| 5      | 16.45     | 40.1           | 54.4           | 51.55          |
| 6      | 17.45     | 41.4           | 52.9           | 50.19          |
| 7      | 18.45     | 38.9           | 50.7           | 47.97          |
| 8      | 19.45     | 39.8           | 47.9           | 45.52          |

**Note : MoEFCC - Ministry of Environment, Forest and Climate Change, CPCB - Central Pollution Control Board,**



**For Global Lab and Consultancy Services LLP**



Page 1 of 3

**Authorised Signatory**  
**L.Sudha Priya**  
 Technical Manager

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**ULR-TC606025000000486F**

Report Number : GLCS/TR/08110/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 7 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08110     |
| <b>Location Name</b>                                                                                                         | CHINNAKUYILI                 | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 11.45 - 11.45                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°55'39.20"N<br>77° 5'13.11"E                                                                                                                                                                  |                |

| Sl.No. | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day |
|--------|-----------|----------------|----------------|----------------|
| 9      | 20.45     | 30.9           | 39.5           | 36.26          |
| 10     | 21.45     | 31.4           | 38.5           | 36.26          |
| 11     | 22.45     | 30.5           | 39.1           | 36.65          |
| 12     | 23.45     | 31.4           | 36.6           | 34.74          |
| 13     | 00.45     | 30.9           | 37.4           | 35.27          |
| 14     | 01.45     | 32.4           | 38.5           | 36.44          |
| 15     | 02.45     | 30.9           | 39.1           | 36.70          |
| 16     | 03.45     | 31.1           | 38.5           | 36.22          |

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**For Global Lab and Consultancy Services LLP**



Page 2 of 3

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**L.Sudha Priya**  
 Technical Manager

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**TEST REPORT**

**ULR-TC606025000000486F**

Report Number : GLCS/TR/08110/2024-25

Report Date : 17-01-2025

|                                                                                                                              |                              |                                                                                                                                                                                                 |                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Issued To :</b><br><b>Thiru.V.Saravanan</b><br>S/o. Velusamy,<br>3/165, Athikuttai Thottam, Edayarpalayam,<br>Coimbatore- |                              | <b>Site Address:</b><br><b>Thiru.V.Saravanan</b><br>Rough Stone and Gravel Quarry<br>SF.No:171/2(Part),176/2, Lease Area:1.84.0 Ha, Edayarpalayam Village, Suler<br>Taluk<br><b>COIMBATORE-</b> |                |
| <b>Attention</b>                                                                                                             | Thiru.V.Saravanan            | <b>Sample Condition</b>                                                                                                                                                                         | Good           |
| <b>TRF No.</b>                                                                                                               | TRF/2732                     | <b>Sampled by</b>                                                                                                                                                                               | Laboratory     |
| <b>Sample Name</b>                                                                                                           | AMBIENT NOISE MONITORING - 7 | <b>Sampling Method</b>                                                                                                                                                                          | GLCS/SOP/N/014 |
| <b>Sampling Description</b>                                                                                                  | -                            | <b>Sample Code</b>                                                                                                                                                                              | GLCS/08110     |
| <b>Location Name</b>                                                                                                         | CHINNAKUYILI                 | <b>Date of Analysis</b>                                                                                                                                                                         | 30-12-2024     |
| <b>Sampling Hours</b>                                                                                                        | 11.45 - 11.45                | <b>Date of Completion</b>                                                                                                                                                                       | 30-12-2024     |
| <b>Sampling Date</b>                                                                                                         | 17-12-2024 - 18-12-2024      | <b>Avg Temperature</b>                                                                                                                                                                          | - °C           |
| <b>Sampling Receipt Date</b>                                                                                                 | 26-12-2024                   | <b>Avg Humidity</b>                                                                                                                                                                             | - %            |
| <b>Location Co-ordinates</b>                                                                                                 |                              | 10°55'39.20"N<br>77° 5'13.11"E                                                                                                                                                                  |                |

| Sl.No.                                                                                                   | Time(Hrs) | Min dB (A) Day | Max dB (A) Day | Leq dB (A) Day         |
|----------------------------------------------------------------------------------------------------------|-----------|----------------|----------------|------------------------|
| 17                                                                                                       | 04.45     | 31.5           | 37.1           | 35.38                  |
| 18                                                                                                       | 05.45     | 32.5           | 38.6           | 36.67                  |
| 19                                                                                                       | 06.45     | 33.1           | 38.6           | 36.67                  |
| 20                                                                                                       | 07.45     | 35.6           | 44.5           | 42.02                  |
| 21                                                                                                       | 08.45     | 34.9           | 43.9           | 41.40                  |
| 22                                                                                                       | 09.45     | 37.4           | 41.9           | 40.21                  |
| 23                                                                                                       | 10.45     | 38.1           | 48.5           | 45.87                  |
| 24                                                                                                       | 11.45     | 40.9           | 51.1           | 48.49                  |
| Day Mean dB(A)                                                                                           |           |                |                | 44.5                   |
| Night Mean dB(A)                                                                                         |           |                |                | 36.1                   |
| Limits as per The Noise Pollution (Regulation & Control) Rules, 2010 of MoEFCC / CPCB (Residential Area) |           |                |                | Day Time : 55 dB (A)   |
|                                                                                                          |           |                |                | Night Time : 45 dB (A) |

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For Global Lab and Consultancy Services LLP



**Authorised Signatory**  
L.Sudha Priya  
Technical Manager

Page 3 of 3

\*\*\*\*\*End of Report\*\*\*\*\*

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**BRANCH OFFICES : CHENNAI ( Mobile : 7094453636 ) & COIMBATORE ( Mobile : 7094454646 )**



QUALITY COUNCIL  
OF INDIA  
Creating an Ecosystem for Quality



## 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.

