DRAFT ENVIRONMENTAL IMPACT ASSESSMENT

&

ENVIRONMENT MANAGEMENT PLAN

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

EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES

At

Edayarpalayam Village, Sulur Taluk, Coimbatore District

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

IN CLUSTER OVER AN EXTENT OF 14.33.33 Ha

NAME OF PROPOSED PROJECT PROPONENTS APPLYING IN CLUSTER

Code	Proponent Name	Extent (Ha)
P1	M/s.Ultra Ready Mix Concrete Pvt Ltd	2.94.01
P2	Thiru.N.Kathiresh	1.42.82

Lr.No. SEIAA-TN/F.No.9572/SEAC/ToR-1332/2022 Dated: 10.02.2023 -M/s.Ultraready Mix Concrete Pvt Ltd- P1

Lr.No. SEIAA-TN/F.No.9034/ToR-1165/2022 Dated: 06.06.2022 - Thiru.N.Kathiresh -P2

Environmental Consultant

GEO EXPLORATION AND MINING SOLUTIONS

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

Accredited for sector 1 Category 'A', sector 31 Category 'B' & 38 Category 'B'
Certificate No : NABET/EIA/2225/RA 0276 Dated: 20.02.2023

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ENVIRONMENTAL LAB

EHS 360 LABS PRIVATE LIMITED

(Approved by ISO/IEC 17025:2017)

10/2, Ground Floor, 50th Street, 7th Avenue, Ashok Nagar, Chennai – 600 083, Tamil Nadu, India.

Baseline Monitoring Season – Dec 2022 to Feb 2023

JULY 2023

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	**M/s.Ultra Ready Mix Concrete Pvt Ltd**	168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P) Edayarpalayam Village, Sulur Taluk	2.94.01	Obtained ToR vide, Lr.No. SEIAA-TN/F.No.9572/SEAC/ToR-1332/2022 Dated:10.02.2023
P2	**Thiru.N. Kathiresh**	172/1B, 172/2 & 173/2A2 Edayarpalayam Village, Sulur Taluk	1.42.82	Obtained ToR vide, Lr.No. SEIAA-TN/F.No.9034/ToR-1165/2022 Dated:06.06.2022
P3	**Thiru. N. Vivek Prithviraj**	180/3 (P), Edayarpalayam Village, Sulur Taluk	1.62.0	EC Under Process
P4	**Thiru.K. Ranganathan**	174/4 & 176/1 of Edayarpalayam Village, Sulur Taluk	2.28.0	EC Under Process
	Total		**8.26.83**	
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, Sulur Taluk	3.64.5	14.07.2021 to 13.07.2026
E2	Thiru.B.Sakthivel	164/6A (P) & 164/7, Edayarpalayam Village, Sulur Taluk	1.19.5	07.10.2017 to 06.10.2022
E3	Thiru.V.Saravanan	171/2(P) & 176/2 (P), Edayarpalayam Village, Sulur Taluk	1.22.5	15.09.2017 to 14.09.2022
	Total		**6.06.5**	
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, Sulur Taluk	2.34.5	-
A-2	Government Quarry	164/1, Edayarpalayam Village, Sulur 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**
NIL				
TOTAL CLUSTER EXTENT			**14.33.33**	

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

M/s.Ultra Ready Mix Concrete Pvt Ltd

"ToR issued vide Lr.No. SEIAA-TN/F.No.9572/SEAC/ToR-1332/2022 Dated:10.02.2023"

SPECIFIC CONDITIONS		
1	The srructures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m shall be enumerated with details such as dwelling houses with number ofoccupants, whether it belongs to the owner (oi) not, places ofworship' industries' factories' sheds' etc.	Noted and agreed
2	The study on impact of the dust & other environmental impacts due to proposed quarrying operations on the Rose flowers being cultivated through greenhouse nearby.	Noted and agreed
3	The Proponent shall furnish photographs of greenbelt' fencing and garland drain around the boundary ofthe Proposed quarry.	Noted and agreed
4	The proponent shall fumish a revised EMP budget for entire life of proposed mining.	Detail explained in chapter - 10
5	The revised and corrected version of the Production & Development Plan shall be produced with showing the safety berm width of 2m is maintained for the bench height of 2m distinctty in the gravel formation and it shall be duly signed by the concerned QP & approved by the concerned AD (Geology & Mining).	Noted and agreed
6	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 prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.	Noted and agreed
7	The Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, as the depth of the working is extended beyond 30 m bgl.	Noted and agreed
8	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	Noted and agreed
9	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 controlred as well as no fly rook travel beyond 30 m from the blast site.	Noted and agreed
10	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated b) the	Noted and agreed

	proponent in the past. Either in the same location or elsewhere in the State with video and photographic evidences.	
11	If the proponent has already caried out the mining activity in the proposed mining lease area after 15.01.2016. Then the proponent shall fumish the following details from AD/DD, mines. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? a. Quality of minerals mined out. b. Highest production achieved in any one year c. Detail of approved depth of mining. d. Actual depth of the mining achieved earlier' e. Name of the person already mined in that lease area. f. If EC and CTO already obtained, the copy of the same shall be submitted. g. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	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. Existing pit dimension : 98m (L)*70m(W)*18m(D)
12	All comer 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).	Noted and agreed. Project area boundary coordinates superimposed on Toposheet – Figure No. 1.3.
13	The PP shall carry out Drone video survey covering the cluster, green belt. fencing etc..	Noted and agreed
14	The pp shan furnish the revised manpower including the statutory & competent persons as required under the provisions ofthe MMR 1961 for the prosed quarry based on the volume of rock handled & area ofexcavation.	Noted and agreed
15	The proponent shall fumish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	Noted and agreed
16	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.	Details of Geological Resources and Proposed reserves are discussed under Chapter No. 2.
17	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 196l for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to	Discussed about Organization chart in Chapter 6

	protect the environment.	
18	The Project Proponent shall conduct the hydrogeological 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 I 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.	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.
19	The proponent shall fumish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality. soil quality & flora/fauna including traffic /vehicular movement study.	Baseline Data were collected for One Season (Winter Season) Dec 2022 Feb2023 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
20	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 air pollution. water pollution. & Health impacts. Accordingly. the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Cumulative impact study due to mining operations is explained in chapter – 7
21	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Noted and agreed
22	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary. national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3.
23	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
24	Proximity to Areas declared critically Polluted (or) the Project areas which attracts the court restrictions for mining operation. should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
25	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in	Mine Closure in Chapter -2

	the Project, if any, should be provided.	
26	Impact on local transport infrastructure due to the Project should be indicated.	Transportation details mentioned in Chapter -2
27	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	Details of the trees in the buffer zone given in Chapter No.3.
28	A detailed mine closure plan for the proposed project shall be included in EIAEMP report which should be site-specific.	Mine closure plan is detailed in Chapter:4.
29	Public Hearing points raised and commitments of the project proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF-& CC accordingly.	Noted and agreed
30	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Noted and agreed
31	The PP shall produce/display the EIA report (, Executive summery and other related information with respect to public hearing in Tamil Language also.	Noted and agreed
32	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.	Noted and agreed
33	The purpose of green belt around the project is to capture the fugitive emissions. Carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO. State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planed in a mixed manner.	Species are proposed to plant in the safety barrier as mentioned in the ToR appendix. Proposed species are given in the Chapter No 4
34	Taller/one year old Saplings raised in appropriate size of bags. preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	It is an existing Lease. Around 1800 trees are proposed to plant
35	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan details in Chapter-7
36	A Risk Assessment and management Plan shall be	A Risk Assessment and management Plan Chapter- 7

	prepared and included in the EIA/EMP Report.	
37	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts chapter- 10
38	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	It is explained in Chapter -3
39	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.	Details are listed in Chapter:3.
40	Details of litigation pending against the project, if any. with direction /order passed by any Court of Law against the Project should be given	No Litigation is pending
41	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.	Noted and agreed
42	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought. fie Project Proponent shall fumish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is Fresh Lease
43	The PP shall prepare the EMP for the entire life of mine and also fumish the sworn affidavit stating to abide the EMP for the entire life of mine.	Noted and agreed
44	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 and agreed

TERMS OF REFERENCE (ToR) COMPLIANCE

P-2 - Thiru.N. Kathiresh

"ToR issued vide Lr.No. SEIAA-TN/F.No.9034/ToR-1165/2022 Dated:06.06.2022"

SPECIFIC CONDITIONS		
1	The srructures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m shall be enumerated with details such as dwelling houses with number ofoccupants, whether it belongs to the owner (oi) not, places ofworship' industries' factories' sheds' etc.	Noted and agreed
2	The study on impact of the dust & other environmental impacts due to proposed quarrying operations on the Rose flowers being cultivated through greenhouse nearby.	Noted and agreed
3	The Proponent shall furnish photographs of greenbelt' fencing and garland drain around the boundary ofthe Proposed quarry.	Noted and agreed
4	The proponent shall fumish a revised EMP budget for entire life of proposed mining.	Noted and agreed
5	The revised and corrected version of the Production & Development Plan shall be produced with showing the safety berm width of 2m is maintained for the bench height of 2m distinctty in the gravel formation and it shall be duly signed by the concerned QP & approved by the concerned AD (Geology & Mining).	Noted and agreed
6	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 prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.	Noted and agreed
7	The Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, as the depth of the working is extended beyond 30 m bgl.	Noted and agreed
8	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	Noted and agreed
9	The PP shall present a conceptuar 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 controlred as well as no fly rook travel beyond 30 m from the blast site.	Noted and agreed
10	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated b) the proponent in the past. either in the same location or elsewhere in the State with video and	Noted and agreed

	photographic evidences.	
11	If the proponent has already caried out the mining activity in the proposed mining lease area after 15.01.2016. then the proponent shall fumish the following details from AD/DD, mines. a) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? b) Quality of minerals mined out. c) Highest production achieved in any one year d) Detail of approved depth of mining. e) Actual depth of the mining achieved earlier' f) Name of the person already mined in that lease area. g) If EC and CTO already obtained, the copy of the same shall be submitted. h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	Patta Land (Patta No.978,501&1051) 27m bgl (2m Gravel + 25m Roughstone)
12	All comer 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).	Noted and agreed. Project area boundary coordinates superimposed on Toposheet – Figure No. 1.3.
13	The PP shall carry out Drone video survey covering the cluster, green belt. fencing etc..	Noted and agreed
14	The pp shan furnish the revised manpower including the statutory & competent persons as required under the provisions ofthe MMR 1961 for the prosed quarry based on the volume of rock handled & area ofexcavation.	Noted and agreed
15	The proponent shall fumish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	Noted and agreed
16	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.	Details of Geological Resources and Proposed reserves are discussed under Chapter No. 2.
17	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 196l for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Discussed about Organization chart in Chapter 6
18	The Project Proponent shall conduct the	The hydro-geological study was conducted to

	hydrogeological 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 I 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.	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.
19	The proponent shall fumish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality. soil quality & flora/fauna including traffic /vehicular movement study.	Baseline Data were collected for One Season (Winter Season) Dec2022-Feb2023 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
20	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 air pollution. water pollution. & Health impacts. Accordingly. the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Cumulative impact study due to mining operations is explained in chapter – 7
21	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Noted and agreed
22	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary. national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3.
23	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
24	Proximity to Areas declared critically Polluted (or) the Project areas which attracts the court restrictions for mining operation. should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
25	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.	Mine Closure in Chapter -2

26	Impact on local transport infrastructure due to the Project should be indicated.	Transportation details mentioned in Chapter -2
27	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	Details of the trees in the buffer zone given in Chapter No.3.
28	A detailed mine closure plan for the proposed project shall be included in EIAEMP report which should be site-specific.	Mine closure plan is detailed in Chapter:4.
29	Public Hearing points raised and commitments of the project proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF-& CC accordingly.	Noted and agreed
30	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Noted and agreed
31	The PP shall produce/display the EIA report (, Executive summery and other related information with respect to public hearing in Tamil Language also.	Noted and agreed
32	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.	Noted and agreed
33	The purpose of green belt around the project is to capture the fugitive emissions. Carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO. State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planed in a mixed manner.	Species are proposed to plant in the safety barrier as mentioned in the ToR appendix. Proposed species are given in the Chapter No 4
34	Taller/one year old Saplings raised in appropriate size of bags. preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	It is a fresh Lease. Around 58trees are proposed to plant
35	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan details in Chapter-7
36	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP	A Risk Assessment and management Plan Chapter- 7

	Report for the complete life ofthe proposed quarry (or) till the end ofthe lease period.	
37	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts chapter- 10
38	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	It is explained in Chapter -3
39	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.	Details are listed in Chapter:3.
40	Details of litigation pending against the project, if any. with direction /order passed by any Court of Law against the Project should be given	No Litigation is pending
41	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.	Noted and agreed
42	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought. fie Project Proponent shall fumish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is Fresh Lease
43	The PP shall prepare the EMP for the entire life of mine and also fumish the sworn affidavit stating to abide the EMP for the entire life of mine.	Noted and agreed
44	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 and agreed

ADDITIONAL CONDITIONS-Annexure-B

Cluster Management committee		
1.	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Details in 7 salient features of quarry with existing quarry.
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling. tree plantation, blasting etc..	Noted & agreed
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Noted & agreed
4	Detaited operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situatcd in the cluster, the usage of haul roads by the individual quarry in the form ofroute map and network.	Transport details in chapter-2
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation ofthe cluster and evacuation plan	Noted & agreed
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Noted & agreed
7	The committee shall fumish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Noted & agreed
8	The committee shall fumish the Emergency ManaBement plan within the cluster.	Details discussed in chapter 7.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health ofthe public.	Details discussed in chapter 10.
10	The committee shall fumish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Noted & agreed
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Detailed discussed in chapter 7.
Impact study of mining		
12	Detailed study shall be caried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise arca communication order issued from reputed research institutions on the following a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood of the local people. d) Possibilities of water contamination and impact	Species Recommended for Plantation in chapter 3&10.

	on aquatic ecosystem health' e) Agriculture, Forestry & Traditional practices. 1) Hydrothermal/Geothermal effect due to destruction in the Environment' g) Bio-geochemical processes and its foot prints including environmental stress' h) Sediment geochemistry in the surface steams.	
Agriculture & Agro-Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining Area.	Detailed discussed in chapter 4.
14	Impact on soil flora & vegetation around the project site.	Detailed discussed in chapter 4.
15	Details of type ofvegetations including no. oftrees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	Details in Chapter 2,3 and 7
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora. fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Details in Chapter 3
17	Action should specifically suggest lbr sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted & agreed
18	The project proponent shall srudy and fumish the impact of project on plantations in adjoining patta lands. Horticulture, Agriculture and livesrock.	The project area is bounded by Existing quarries on the East and west side . Proponent proposed to erect green mesh along with fencing on the South side besides, Budgetary allocation given in the Chapter No. 10.
Forest		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	Noted and agreed, there is no reserve forest and wildlife in the buffer zone.
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Ecology and Biodiversity environment deals in Chapter-3
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Ecology and Biodiversity environment deals in Chapter-3
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Anticipated Environment Impact and Mitigation measures are detailed in Chapter No.4
Water Environment		
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks. canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect roundwater. Necessary data and documentation in this regard	Hydro-geological study considering the contour map of the water table detailing Chapter-3

	may be provided, covering the entire mine lease period.	
24	Erosion Control measures.	Noted & Agreed
25	Detailed study shalt be carried out in regard to impact of mining around the proposed mine lease area on the nearby villages, water-bodies/ Rivers. & any ecological fragile areas.	Details in Chapter 2
26	The project proponenl shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Details in Chapter 2 and 4 impact of bio diversity
27	The project proponent shall study and furnish the details on potential fragmentation impact on natural envhonment by the activities.	Noted & agreed
28	The project proponent shall study and fumish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.	Noted & agreed. Detailed under Chapter 3.
29	The Terms ol Reference should specifically study impact on soil health, soil erosion, the soil, physical, chemical components and microbial components.	Details in Chapter 3 soil environment.
30	The Environmental lmpact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	Nearest agriculture activity is coconut plantation located North side of the project area. Proponent erected fencing in the previous lease period. The same will be reconstructed around the quarry pits
Energy		
31	The measures taken to control Noise. Air, Water. Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.	Details in Chapter 3 environmental monitoring details.
Climate Change		
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigale carbon emission including development ofcarbon sinks and temperature reduction including control ofother emission and climate mitigation activities.	Details of carbon emission and mitigation activities are given int the Chapter No.4
33	The Environmenlal lmpact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Details in Chapter-3 for metorological and climate/weather data representation of graphs.
Mine Closure Plan		
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.	Details in Chapter 2 mine closure plan
EMP		
35	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed under Chapter 10
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for green belt development and mine closure plan including disaster management plan.	Details in Green belt development in chapter 4
Risk Assessment		

37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Detailed under Chapter 7
Disaster Management Plan		
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Details study 7.3 Disaster Management Plan in Chapter -7
Others		
39	The project proponent shall furnish VAO certiticate with retbrence to 300m radius regard to approved habitations. schools. Archaeological sites. Structures. railway lines, roads. Water bodies such as streams, odai, vaari, canal, channel. river, lake pond, tank etc.	Noted & agreed. Detailed under Chapter 4
40	As per the MoEF& CC office memorandum tr.No.22-651201 7-lA.lll dated: 30.09.2020 and 20.10.2020 the proponenr shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management PIan.	Noted and agreed
41	The project proponent shall study and fumish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	Details of carbon emission and mitigation activities are given int the Chapter No.4
STANDARD TERMS OF REFERENCE		
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	**Not applicable.** This is Not a violation category project. This proposal falls under B1 Category
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The applied land for quarrying is a Patta Land. Document is enclosed along with Approved Mining Plan as Annexure Volume 1.
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	**Noted & agreed.**
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the	Map showing – Project area is with adjacent quarries details is enclosed in Figure No1.1 Project area boundary coordinates superimposed on Toposheet – Figure No. 1.1A Toposheet of the project area covering 10km radius – Figure No. 1.2

	study area (core and buffer zone).	Geology map of the project area covering 10km radius - Figure No. 2.11
5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	**Map showing –** Geology map of the project area covering 10km radius - Figure No. 2.11 Geomorphological features are incorporated in the Toposheet map covering 10km radius around the project area Figure No. 2.12
6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The applied area was inspected by the officers of Department of Geology along with revenue officials and found that the land is fit for quarrying under the policy of State Government.
7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	The proponent has framed their Environmental Policy and the same is discussed in the Chapter No 10.1.
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an opencast quarrying operation proposed to operate in Mechanized method. The rough stone formation is a hard, compact and homogeneous body. The height and width of the bench will be maintained as 5m with 90^0 bench angles. Quarrying activities will be carried out under the supervision of Competent Persons like Mines Manager, Mines Foreman and Mining Mate. Necessary permissions will be obtained from DGMS after obtaining Environmental Clearance.
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc., should be for the life of the mine / lease period.	**Noted & Agreed.** The study area considered for this study is 10 km radius and all data contained in the EIA report such as waste generation etc., is for the Life of the Mine / lease period.
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3. Land use plan of the project area showing pre-operational, operational and post-operational phases are discussed in Chapter No. 2, Table No 2.3
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area,	**Not Applicable.** There is no waste anticipated during this quarry

	distance from mine lease, its land use, R&R issues, if any, should be given	operation. The entire quarried out Rough stone will be transported to the needy customers. No Dumps is proposed outside the lease area.
12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	**Not Applicable.** There is no Forest Land involved in the proposed project area. The proposed project area is a Patta land. Approved Mining Plan is enclosed as Annexure Volume 1.
13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	**Not Applicable.** The proposed project area does not involve any Forest Land.
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	**Not Applicable.** The project doesn't attract Recognition of Forest Rights Act, 2006.
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	No Reserve Forest within the Study Area.
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	**Not Applicable.** There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 KM of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished	**Not Applicable.** There are No National Parks, Biosphere Reserves, Wildlife Corridors, and Tiger/Elephant Reserves within 10 km Radius from the periphery of the project area.
18	A detailed biological study of the study area [core zone and buffer zone (10 KM radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions	Detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] was carried out and discussed under Chapter No. 3. There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area.

	for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	
19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	**Not Applicable.** Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	**Not Applicable.** The project doesn't attract The C. R. Z. Notification, 2018.
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	**Not Applicable.** There are no approved habitations within a radius of 300 meters. Therefore, R&R Plan / Compensation details for the Project Affected People (PAP) is not anticipated and Not Applicable for this project.
22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season); December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The	Baseline Data were collected for Winter Season (Dec 2022-Feb 2023) as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.

	mineralogical composition of PM10, particularly for free silica, should be given.	
23	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD view 9.6.1 Model. Details in Chapter No. 4,
24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Total Water Requirement for this project is given in the chapter No 2, Table No 2.13.
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Water for dust suppression, greenbelt development and domestic use will be obtained from accumulated rainwater/seepage water in mine pits. Drinking water will be sourced from the approved water vendors, No 2, Table No 2.13.
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The rain water collected in the pits after spell of rain will be used for greenbelt development and dust suppression.
27	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact Studies and Mitigation Measures of Water Quality discussed in Chapter No. 4.
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The ground water table is at 65-70m below ground level. The ultimate depth of this projects is 46m from the general ground profile. Maximum depth is proposed in this cumulative EIA project is 46m. It is inferred the quarrying activities in the Cumulative EIA project (Quarries) will not intersect the Ground water table.
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	Highest elevation of the project area is 400m AMSL Ultimate depth of the mine is 38-27m AMSL Water level in the area is 70m BGL to 65m BGL
30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.	Progressive greenbelt development plan has been prepared and discussed along with Recommended Species details are given in the Chapter 4, Table No.4.9.
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating	Traffic density survey was carried out to analyse the impact of Transportation in the study area as per IRC

	the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	guidelines 1961 and it is inferred that there is no much significant impact due to the proposed transportation from the project area. Details in Chapter 2.
32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease and the same has been discussed in the Chapter No.2. .
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Discussed in chapter No 2.
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Details in Chapter 10.
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Details in Chapter 10.
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Details in Chapter 4,.
37	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Environment Management Plan Chapter 10.

38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	The outcome of public hearing will be updated in the final EIA/AMP report
39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	No litigation is pending in any court against this project.
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	The proposed capital cost for Environmental Monitoring Programme is Rs 3,80,000/- and the recurring cost is Rs 76,000/- per annum. Details in Chapter 6 .
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Details in Chapter 10.
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Details in Chapter 7.
43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Details in Chapter.8.
44	**Besides the above, the below mentioned general points are also to be followed: -**	
A	Executive Summary of the EIA/EMP Report	Encloses as separate volume
B	All documents to be properly referenced with index and continuous page numbering.	All the documents are properly referenced with index and continuous page numbering.
C	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	List of Tables and source of the data collected are given properly.
D	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC / NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project	Baseline monitoring reports are enclosed with mining plan
E	Where the documents provided are in a language other than English, an English translation should be provided.	Not Applicable.
F	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Will be enclosed along with Final EIA /EMP Report.
G	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA. II(I) Dated: 4th August, 2009, which are available on the website of this Ministry, should be followed.	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) Dated: 4th August, 2009 are followed.
H	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF & CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public	Noted & agreed.

	Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	
I	As per the circular no. J-11011/618/2010-IA. II(I) Dated: 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	Not applicable.
J	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Surface Plan – Figure No. 2.2. Geological Plan – Figure No 2.9. Working Plan – Figure No 2.9. Closure Plan – Figure No.2.10.

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CHAPTER – 1: INTRODUCTION

1.0 Preamble

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

Rough Stone and Gravel are the major requirements for construction industry. This EIA report is prepared by considering Cumulative load of all proposed & existing quarries of Edayarpalayam Rough Stone and Gravel Cluster Quarries consisting of four Proposed and three Existing Quarries with total extent of Cluster of 14.33.33 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 1st July 2016.

This EIA Report is prepared in compliance with ToR obtained for the below proposals in Table 1.1 and the Baseline Monitoring study has been carried out during the period of Dec 2022-Feb 2023

TABLE 1.1: ToR OBTAINED PROJECTS

CODE	Name of the proponent	Extent (Ha)	Terms of Reference (ToR)
P1	M/s.Ultra Ready Mix Concrete Pvt Ltd	2.94.01	Lr.No.SEIAA-TN/F.No.9572/SEAC/ToR-1332/2022 Dated:10.02.2023
P2	Thiru.N. Kathiresh	1.42.82	Lr.No.SEIAA-TN/F.No.9034/ToR-1165/2022 Dated:06.06.2022

Source: ToR Letter's of the respective project proponents

1.1 Purpose of the report

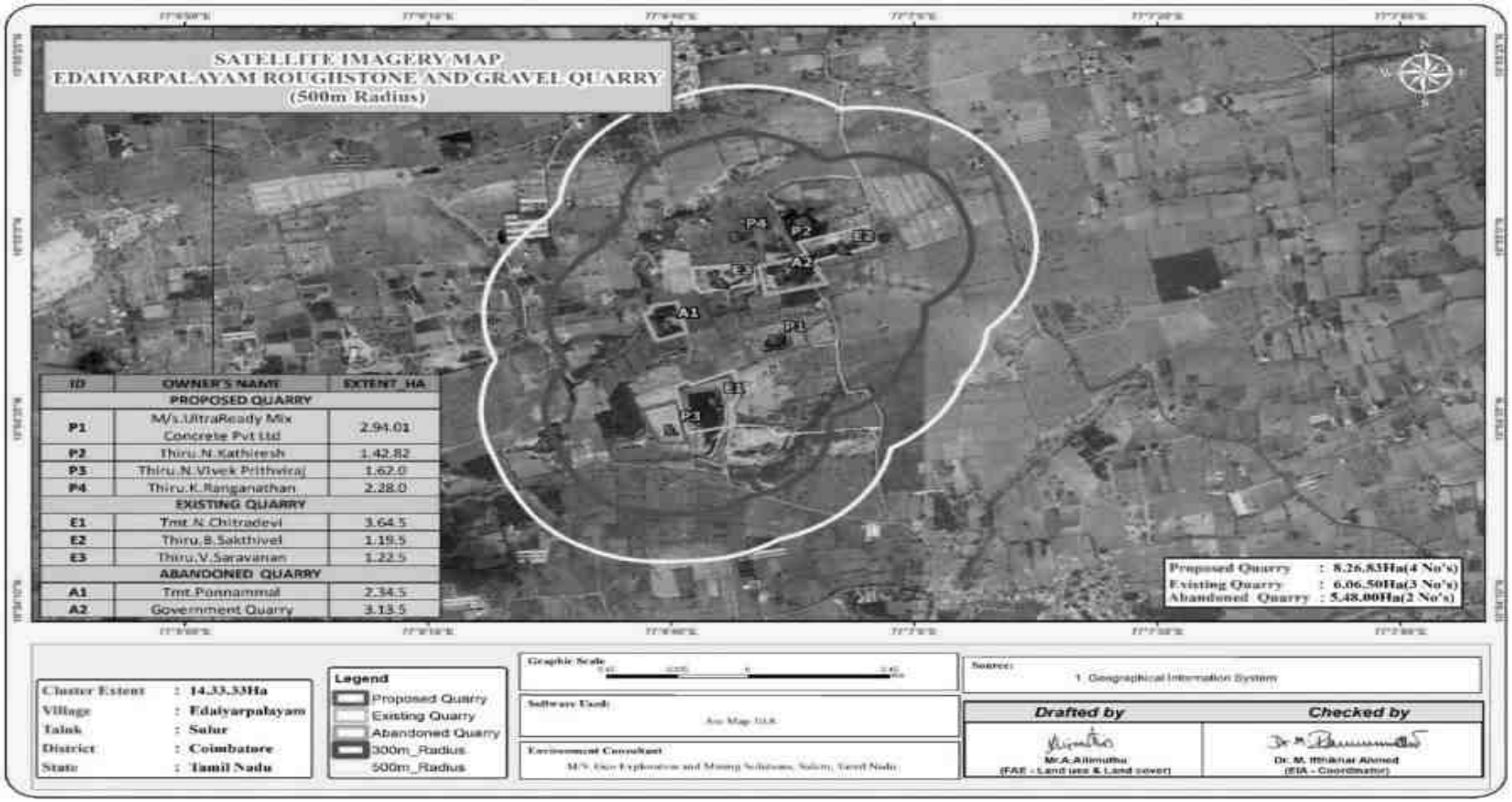
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 3977 (E) of 14thAugust 2018, Mining Projects are classified under two categories i.e. A (> 100 Ha) and B (≤ 100 Ha),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

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

The proposed 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 9th September, 2013

1.2 Identification of Project and Project Proponent

1.2.1 Identification of Project

The project areas in the cluster are Patta Land, no forest land is involved

TABLE 1.2: PROPOSED PROJECTS IN THE CLUSTER

Description	P1	P2
Name of the Project	**M/s.Ultra Ready Mix Concrete Pvt Ltd** Rough Stone & Gravel Quarry	**Thiru.N. Kathiresh,** Rough stone and Gravel quarry
S.F. No.	S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P)	172/1B, 172/2 & 173/2A2
Extent	2.94.01Ha	1.42.82 Ha
Village, Taluk	Edayarpalayam Village, Sulur Taluk	
District	Coimbatore District	

Source: Approved Mining Plan

1.2.2 Identification of Project Proponent

TABLE 1.3: DETAILS OF PROJECT PROPONENT

PROPOSAL – P1	
Name of the Company	**M/s.Ultra ReadyMix Concrete Pvt Ltd**
Address	No.25, Trichy Road, Kannampalayam, Coimbatore District -641 402
Mobile	+91 94431 49816
Status	Private Company
PROPOSAL – P2	
Name of the Company	**Thiru.N. Kathiresh,** Rough Stone & Gravel Quarry Project
Address	S/o.V.Nataraj, No.3/175, Karacheri, Periyakuyili Post, Chettipalayam Via, Coimbatore District- 641 201.
Mobile	+91 97882 70883
Status	Proprietor (Individual)

Source: Approved Mining Plan of the respective projects

1.3 Brief description of the project

1.3.1 Nature and size of the Project

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

TABLE 1.4: SALIENT FEATURES OF THE PROPOSED PROJECTS IN CLUSTER

SALIENT FEATURES OF PROPOSAL "P1"			
Name of the Mine	M/s.Ultra ReadyMix Concrete Pvt Ltd Rough Stone & Gravel Quarry Project		
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^3	24,300	48,600 m^3
Mineable Reserves	Rough Stone	Weathered Rock	Gravel
	3,18,706 m^3	13,884 m^3	32,304 m^3
Proposed Quantity of Reserves/Production for mining Period	3,18,706 m^3	13,884 m^3	32,304 m^3
Mining Plan Period / Lease Period	5 Years		
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	950m-NW		
SALIENT FEATURES OF PROPOSAL "P2"			
Name of the Mine	Thiru.N. Kathiresh Roughstone 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	Operated by ꕥ 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 ꕥ 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 ꕥ Now the same applicant has again applied the Rough stone and Gravel quarry lease on 07.10.2021.		
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	**Rough Stone**	**Gravel**	
	2,86,860m^3	11,230 m^3	
Mineable Reserves	**Rough Stone**	**Gravel**	
	65,140 m^3	5,712	
Proposed production for five years	65,140 m^3	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	540m-NW	

Source: Approved Mining Plan of the respective proposals

1.3.2 Location of the project

The lease applied area is located about 20km Southeast of Coimbatore, 12km Southwest of Sulur and 1km Southeast side of Edaiyarpalayam Village.

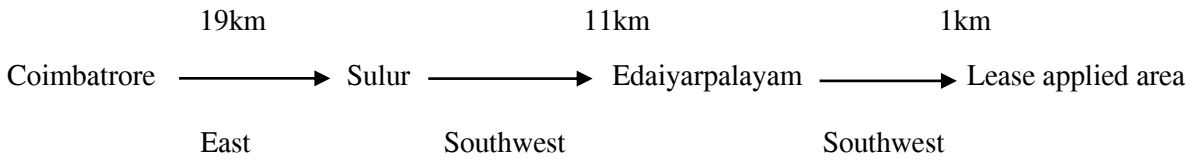


FIG1.1A KEY MAP SHOWING THE LOCATION OF THE PROJECT SITE

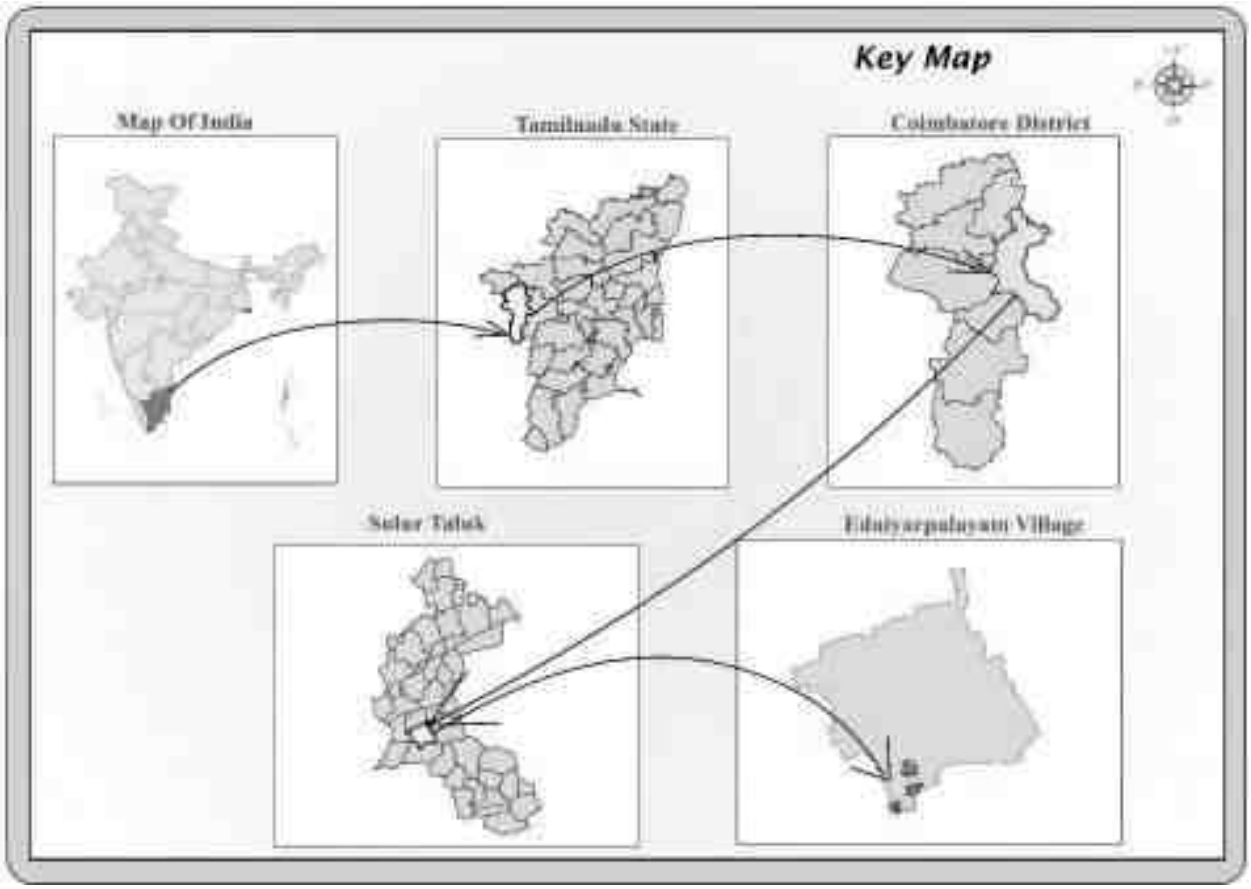


FIGURE 1.2: TOPOSHEET SHOWING LOCATION OF THE PROJECT SITE AROUND 10 KM RADIUS

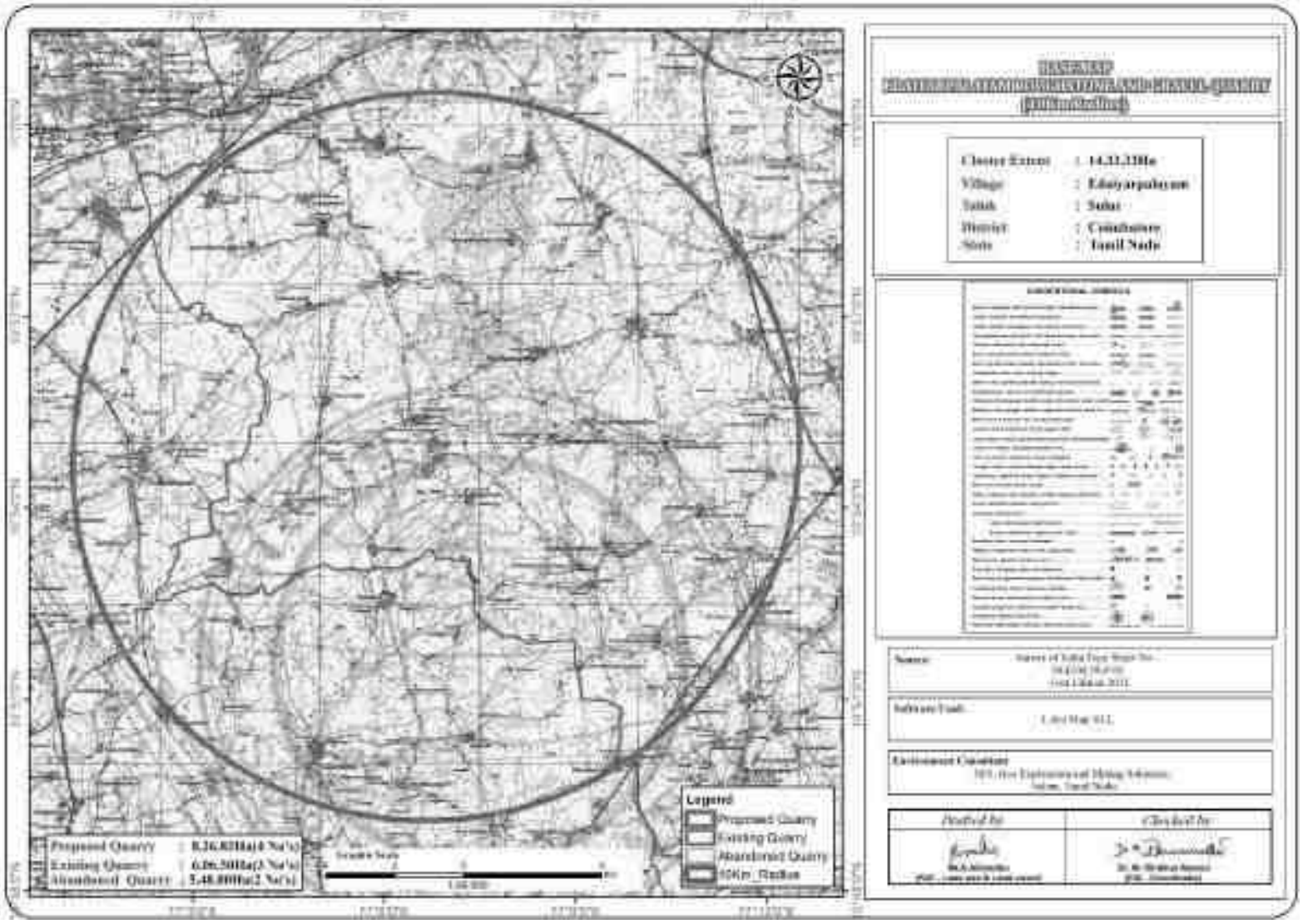
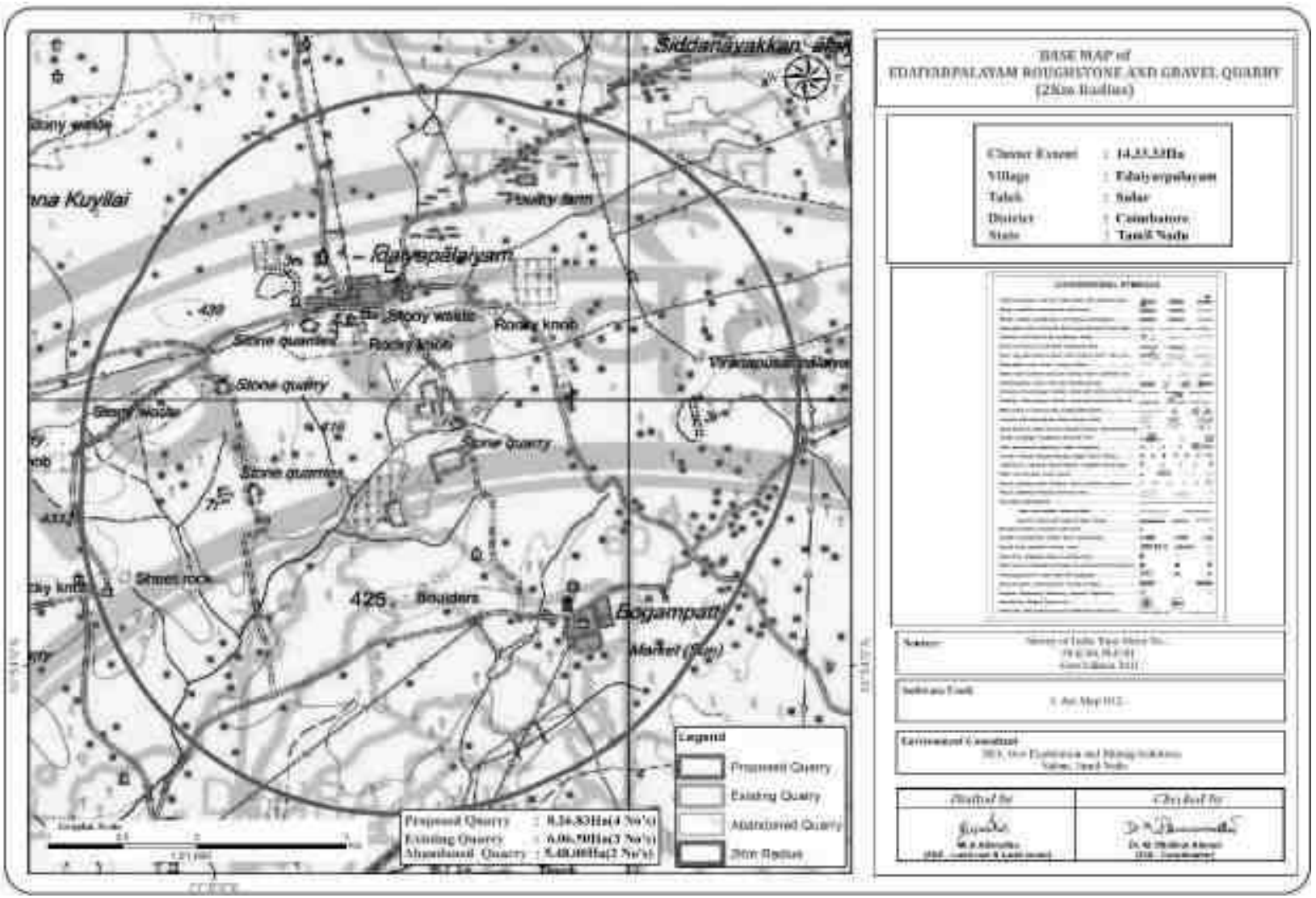


FIGURE 1.2: TOPOSHEET SHOWING LOCATION OF THE PROJECT SITE AROUND 2 KM RADIUS



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 –

Project – P1

- The proponent applied for Rough Stone and Gravel Quarry Lease Dated: 02.08.2021 & 15.06.2022
- The precise area communication letter was received from the Assistant Director, Department of Geology and Mining, Coimbatore District vide Rc.No. 931/Mines/2021, Dated: 04.07.2022.
- The Mining plan was approved by the Assistant Director, Department of Geology and Mining, Coimbatore vide Rc.No. 931/Mines/2021, Dated: 11.07.2022
- Proponent applied for ToR for Environmental Clearance vides online Proposal No. SIA/TN/MIN/401183/2022, Dated: 08.11.2022.

Project – P2

- The proponent applied for Rough Stone and Gravel Quarry Lease Date from 20.01.2021 and 07.10.2021
- The precise area communication letter was received from the Assistant Director, Department of Geology and Mining, Coimbatore District vide Rc.No.111/Mines/2021, Dated: 21.10.2021.
- The Mining plan was approved by the Assistant Director, Department of Geology and Mining, Coimbatore vide Rc.No.111/Mines/2021, Dated: 05.01.2022
- Proponent applied for ToR for Environmental Clearance vides online Proposal No. SIA/TN/MIN/72484/2022, Dated:22.02.2022

SCOPING –

Project – P1 –

- The proposal was placed in 346th SEAC meeting held on 12.01.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 591st SEIAA meeting held on 10.02.2023 and issued ToR vide Lr.No. SEIAA-TN/F.No.9572/SEAC/ToR-1332/2022 Dated:10.02.2023.

Project – P2 –

- The proposal was placed in 273rd SEAC meeting held on 14.05.2022 and the committee recommended for issue of ToR.
- The proposal was considered in 518th SEIAA meeting held on 06.06.2022 and issued ToR vide Letter No Lr.No. SEIAA-TN/F.No.9034/ToR-1165/2022 Dated:06.06.2022

Public Consultation –

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

Appraisal –

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

The report has been prepared using the following references:

- Guidance Manual of Environmental Impact Assessment for Mining of Minerals, Ministry of Environment and Forests, 2010
- EIA Notification, 14th September, 2006
- ToR Letter No. SEIAA-TN/F.No.9572/SEAC/ToR-1332/2022 Dated:10.02.2023 -M/s.Ultra ReadyMix Concrete Pvt Ltd- P1
- ToR Letter No. SEIAA-TN/F.No.9034/ToR-1165/2022 Dated:06.06.2022 - Thiru.N. Kathiresh -P2
- Approved Mining of P1 to P2 the Rough stone and Gravel quarry projects

1.5 Post Environment Clearance Monitoring

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

1.6 Generic Structure of EIA Document

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

TABLE 1.5 – STRUCTURE OF THE EIA REPORT

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

1.7 Scope of the Study

The main scope of the EIA study is to quantify the cumulative impact in the study area due to cluster quarries and formulate the effective mitigation measures for each individual leases. A detailed account of the emission sources, emissions control equipment, background Air quality levels, Meteorological measurements, Dispersion model and all other aspects of pollution like effluent discharge, Dust generation etc., have been discussed in this report. The baseline monitoring study has been carried out during the Winter season (Dec 2022 – Feb 2023) for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project.

TABLE 1.6 – ENVIRONMENT ATTRIBUTES

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM_{10}, $PM_{2.5}$, SO_2, NO_2	24 hourly samples twice a week for three months at 8 locations
2	Meteorology	Wind speed and direction, temperature, relative humidity and rainfall	Near project site continuous for three months with hourly recording and from secondary sources of IMD station, 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. SEIAA-TN/F.No.9572/SEAC/ToR-1332/2022 Dated:10.02.2023 -M/s.Ultra ReadyMix Concrete Pvt Ltd- P1
- ToR Letter No. SEIAA-TN/F.No.9034/ToR-1165/2022 Dated:06.06.2022 - Thiru.N. Kathiresh -P2
- Approved Mining of P1 to P2 the Rough stone and Gravel quarry projects

CHAPTER – 2: PROJECT DESCRIPTION

2.0 General

The Proposed Rough Stone and Gravel Quarries requires Environmental Clearance. There are four proposed and two existing quarry forming a cluster; calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is 14.33.32 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 Cluster quarries are located in Edayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State.
- The project falls in Toposheet No: 58 F/01.
- The cluster areas fall in the Latitude between 10°54'43.0036"N to 10º54’76.23” N and Longitude between 77°06'46.9047"E to 77°06'56.1903"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 CLUSTER QUARRIES

Nearest Roadway	NH544 - Thirussur – Coimbatore Road -1.0km-N SH163 - Othakalmandapam – Palladam Road – 4.0km-NE
Nearest Village	Edaiyarpalayam – 1.0Km- NW
Nearest Town	Sulur – 12.0Km – NE
Nearest Railway	Chettipalayam Railway station – 8.0Km - West
Nearest Airport	Coimbatore Airport – 20Km - NW
Seaport	Kochi- 145 Km-SW

Source: Survey of India Toposheet

The cluster quarries corners co-ordinates are given below.

TABLE 2.2 – BOUNDARY CO-ORDINATES OF PROPOSED PROJECTS

Proposed Quarries-P1		
S.No	**Latitude**	**Longitude**
1	10°54'43.0036"N	77°06'48.1595"E
2	10°54'44.8458"N	77°06'47.5905"E
3	10°54'47.0664"N	77°06'46.9047"E
4	10°54'47.2141"N	77°06'47.1980"E
5	10°54'47.7385"N	77°06'48.6290"E
6	10°54'48.6511"N	77°06'51.1961"E
7	10°54'49.7345"N	77°06'56.0527"E
8	10°54'49.3340"N	77°06'56.1903"E
9	10°54'47.0280"N	77°06'53.7206"E
10	10°54'45.0421"N	77°06'54.2074"E
11	10°54'44.8881"N	77°06'52.9428"E
12	10°54'44.6185"N	77°06'52.8453"E
13	10°54'43.6452"N	77°06'49.6433"E
Datum: UTM-WGS84		

Proposed Quarries-P2		
S.No.	Latitude	Longitude
1	10º54’56.31” N	77º06’49.67” E
2	10º54’59.48” N	77º06’49.03” E
3	10º54’59.71” N	77º06’49.57” E
4	10º55’02.00” N	77º06’49.05” E
5	10º55’02.21” N	77º06’51.05” E
6	10º54’59.73” N	77º06’51.92” E
7	10º54’76.23” N	77º06’53.12” E
8	10º54’56.65” N	77º06’51.01” E

Source: Quarry Lease Plan of the respective proposals

FIGURE 2.1: TOPOGRAPHICAL VIEW OF THE PROJECT SITE

P1– M/s.Ultra Ready Mix Concrete Pvt Ltd

P2– Thiru.N. Kathiresh

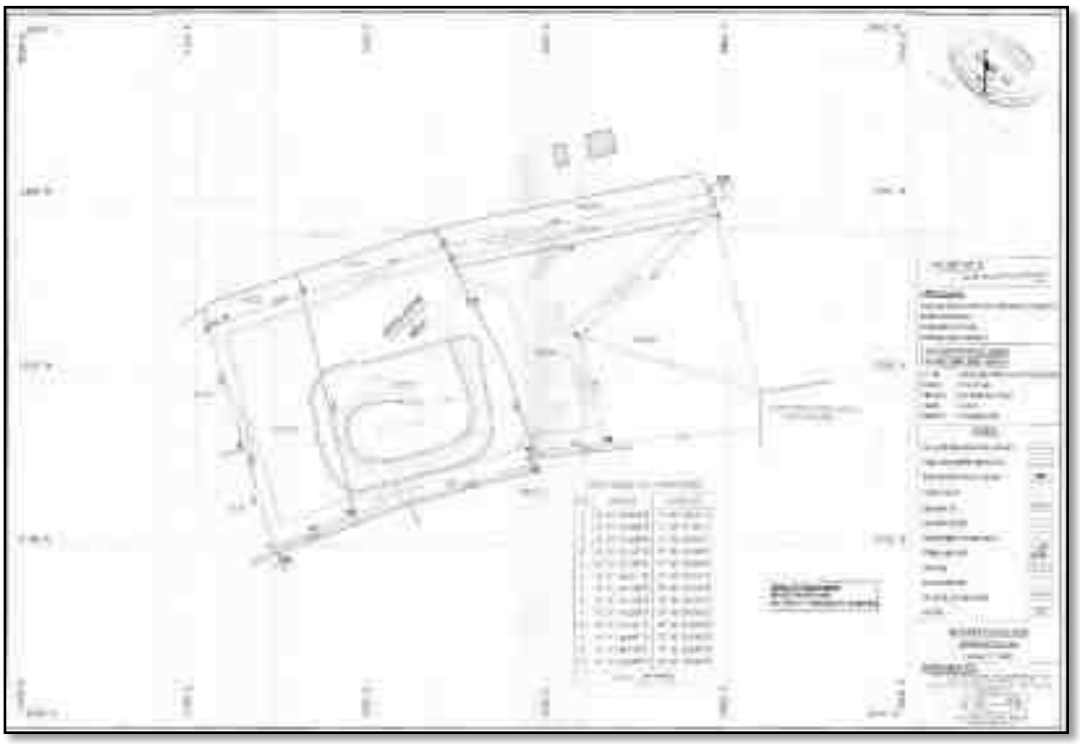
FIGURE 2.2: SHOWING GOOGLE IMAGE ROUGH STONE AND GRAVEL QUARRY PROJECT AREAS

SATELLITE IMAGERY OF P1

SATELLITE IMAGERY OF P2

FIGURE 2.3: QUARRY LEASE PLAN

P1– M/s.Ultra Ready Mix Concrete Pvt Ltd



P2– Thiru.N. Kathiresh

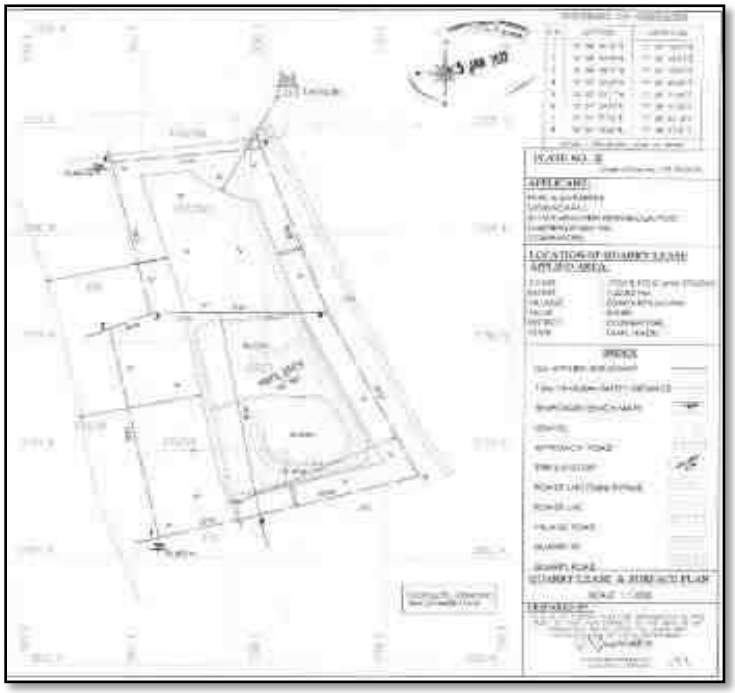


FIGURE 2.4: SATELLITE IMAGERY OF CLUSTER QUARRIES

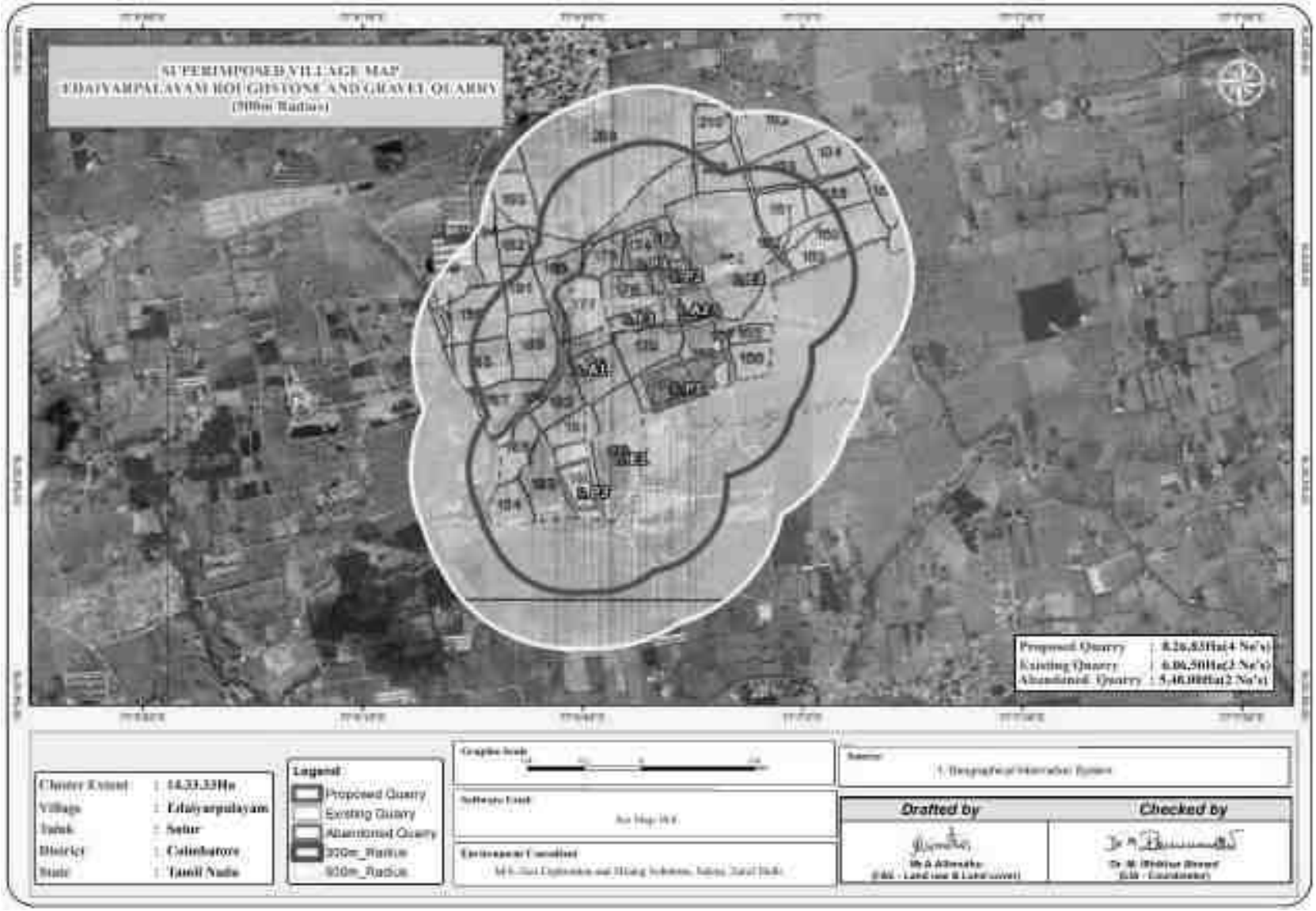


FIGURE 2.5: DIGITIZED MAP OF THE STUDY AREA (10 KM RADIUS FROM PROJECT SITE)

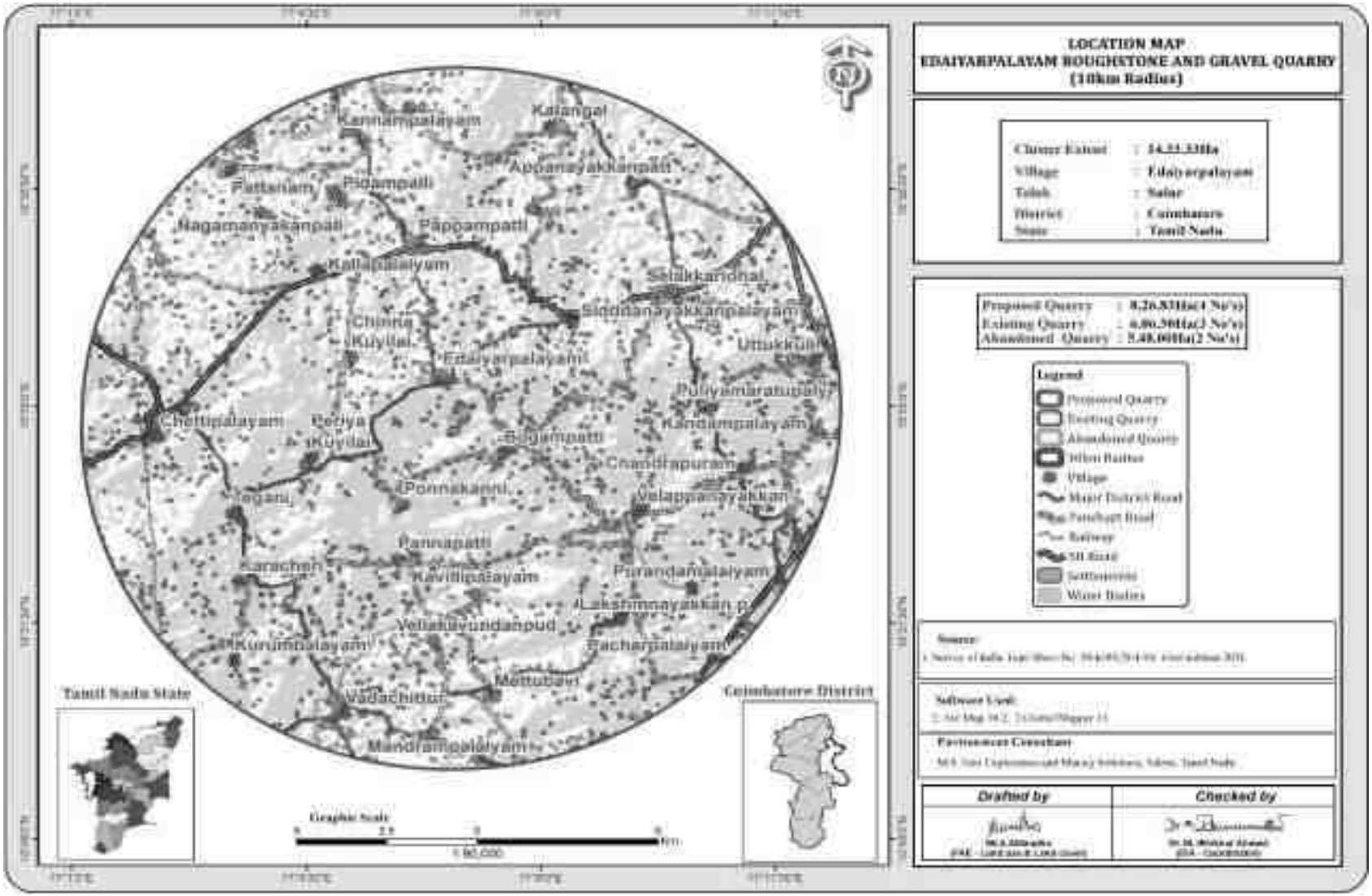


FIGURE 2.6: DIGITIZED MAP OF THE STUDY AREA (5 KM RADIUS FROM PROJECT SITE)

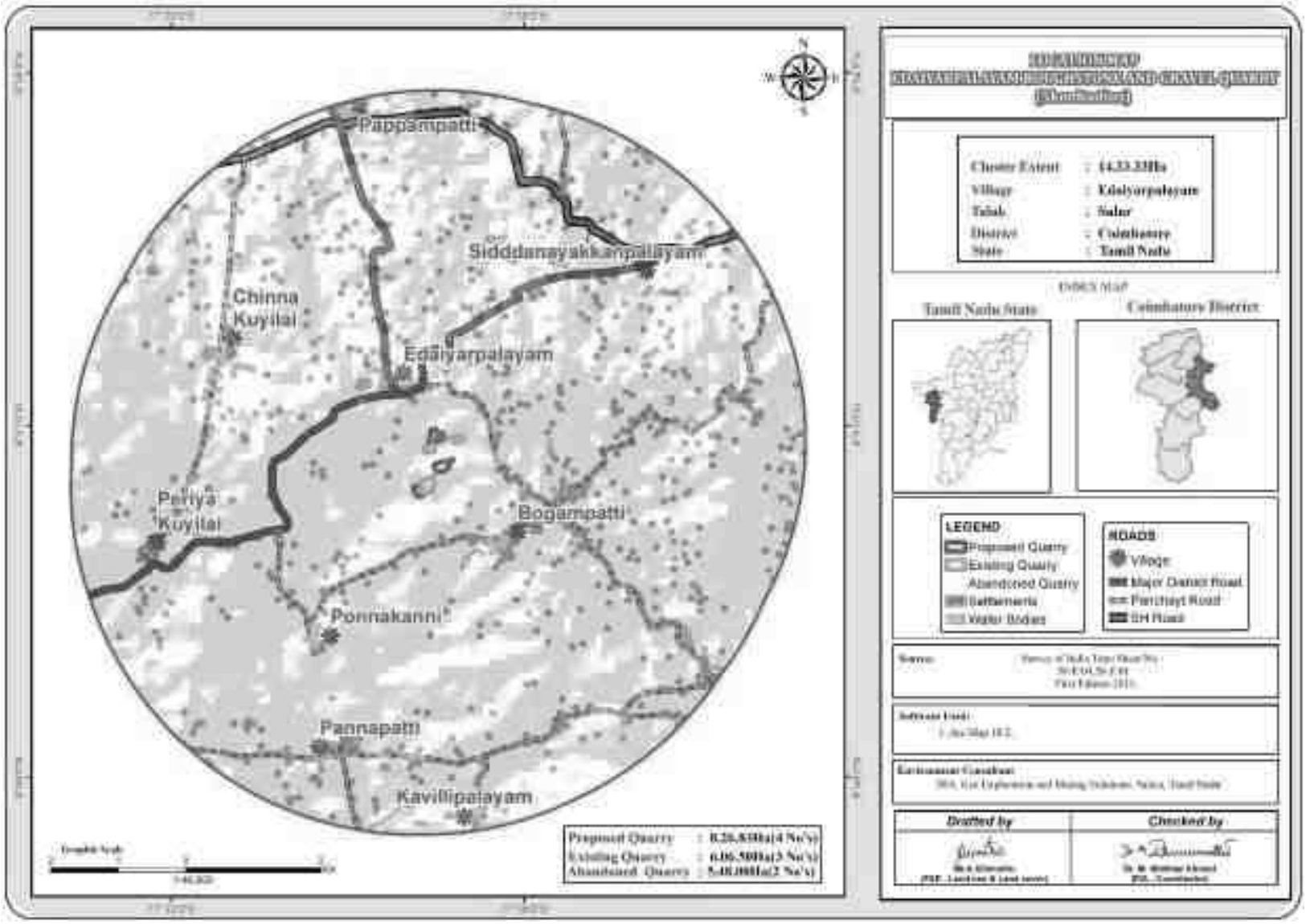
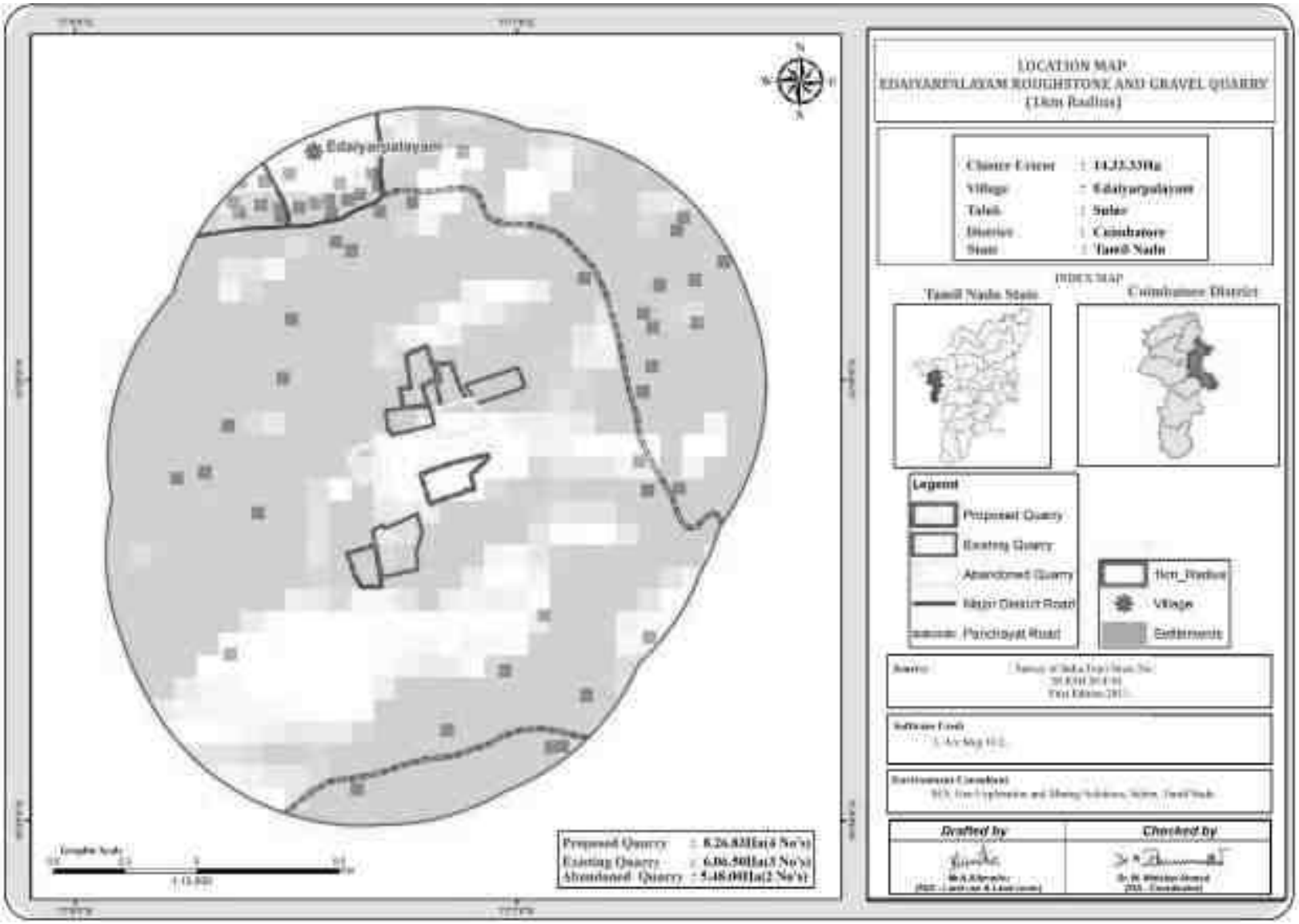


FIGURE 2.7: DIGITIZED MAP OF THE STUDY AREA (1 KM RADIUS FROM PROJECT SITE)



2.2.1 Project Area

(i) All the projects under cluster are site specific, there is No beneficiation or processing proposed inside the project area.

(ii) There is no forest land involved in the proposed project area and is devoid of major vegetation and trees.

TABLE 2.3 – LAND USE PATTERN OF THE PROPOSED PROJECTS

LAND USE PATTERN OF PROJECT – P1		
Description	**Present area in (ha)**	**Area at the end of life of quarry (Ha)**
Area under quarrying	0.67.30	2.30.0
Infrastructure	Nil	0.01.0
Roads	0.01.0	0.03.0
Green Belt	Nil	0.60.01
Un – utilized area	2.25.71	Nil
Grand Total	**2.94.0**	**2.94.0**
LAND USE PATTERN OF PROJECT – P2		
Description	**Present area in (ha)**	**Area at the end of life of quarry (Ha)**
Area under quarrying	0.40.70	0.73.00
Infrastructure	Nil	0.01.00
Road	0.01.0	0.02.00
Green Belt	Nil	0.26.08
Unutilized area	1.01.12	0.40.74
Grand Total	**1.42.82**	**1.42.82**

Source: Approved Mining Plan

2.2.2 Size or Magnitude of Operation

TABLE 2.4: OPERATIONAL DETAILS FOR PROPOSED PROJECTS

OPERATIONAL DETAILS FOR PROJECT – P1			
PARTICULARS	**DETAILS**		
	Rough Stone (m^3) (5Year Plan period)	**Weathered Rock (m^3) (3 Years Plan period)**	**Gravel (m^3) (3 Years Plan period)**
Geological Resources	10,07,006 m^3	24,300 m^3	48,600 m^3
Mineable Reserves	3,18,706 m^3	13,884 m^3	32,304 m^3
Production for five-year plan period	3,18,706 m^3	13,884 m^3	32,304 m^3
Mining Plan Period / Lease Applied Period	5Years		
Number of Working Days	300 Days		
Production per day	212	15	36
No of Lorry loads (6m^3 per load)	35	3	6
Total Depth of Mining	38m (2m Gravel +1m Weathered Rock +35m Rough Stone)		
OPERATIONAL DETAILS FOR PROJECT – P2			
PARTICULARS	**DETAILS**		
	Rough Stone (m^3) (5Year Plan period)	**Weathered Rock (m^3)**	**Gravel (m^3) (3 Years Plan period)**
Geological Resources	2,86,860m^3	--	11,230 m^3
Mineable Reserves	65,140 m^3	--	5,712 m^3
Production for five years Plan	65,140 m^3	--	5,712 m^3
Mining Plan Period / Lease Applied Period	5Years		
Number of Working Days	300 Days		
Production per day	43	--	6
No of Lorry loads (6m^3 per load)	7	--	1
Total Depth of mining	27m bgl (2m Gravel + 25m Roughstone)		

Source: approved mining plan

* Gravel and weathered formation are proposed to excavate for first year, second year and third years 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 Plestocene rocks of Cainozoic age.

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

The fissile homblende gneisses (Peninsular gneiss – younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsite – kyanite quartzites, ferruginous quartzite (Satya Mangalam Group) intruded by a number of ultramafic and basic rocks and granites are seen in the Northern portions of the district especially around Mettupalayam and Northern areas of Coimbatore. The granites are Proterozoic age and occupy the Western end and Eastern Part of the District as separate bodies and are recognized as Maruthamalai Granite and Punjapuliyampatti 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^3 /day and in bore well between 260 and 430 m^3 /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 brakish 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

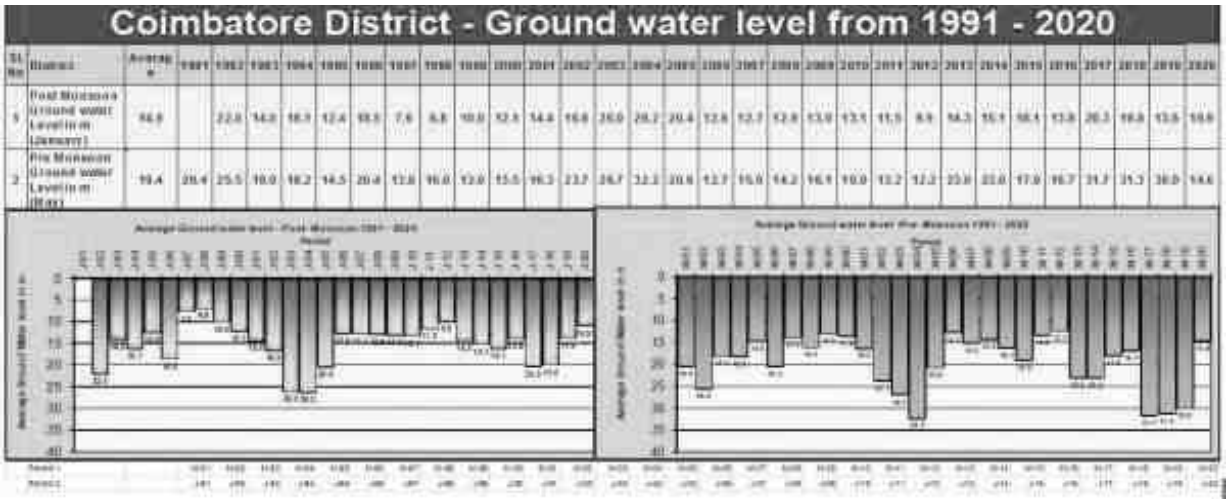
The thickness of aquifer in this district is highly erratic and varies between 15 m to 40 m below ground level. The inter granular Porosity is essentially dependent on the intensity and degree of weathering and fracture development in the bed rock. As discussed earlier deep weathering has developed in 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) m2 /day	1.49-164.18 m2 /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

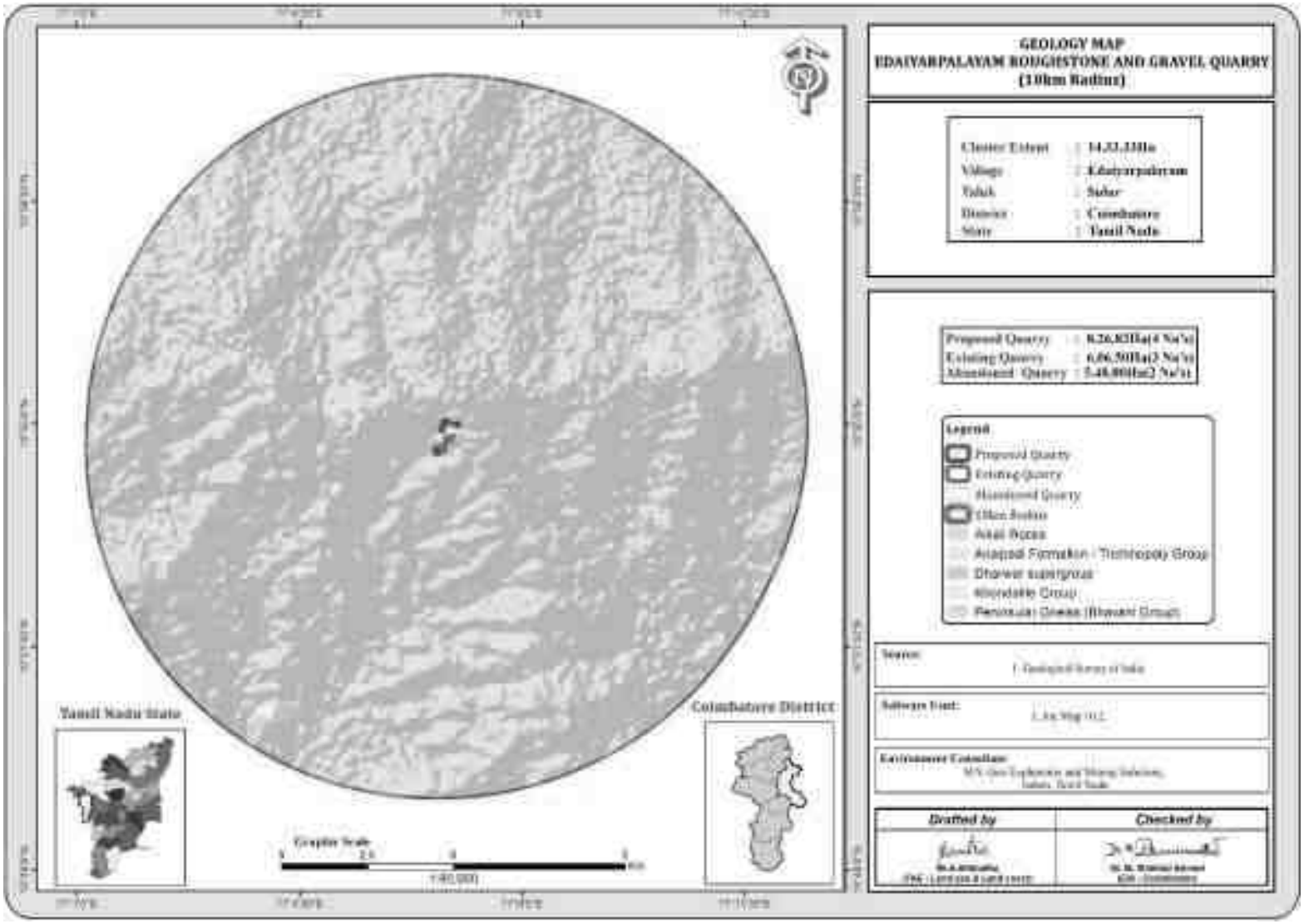


FIGURE 2.10: GEOMORPHOLOGY MAP

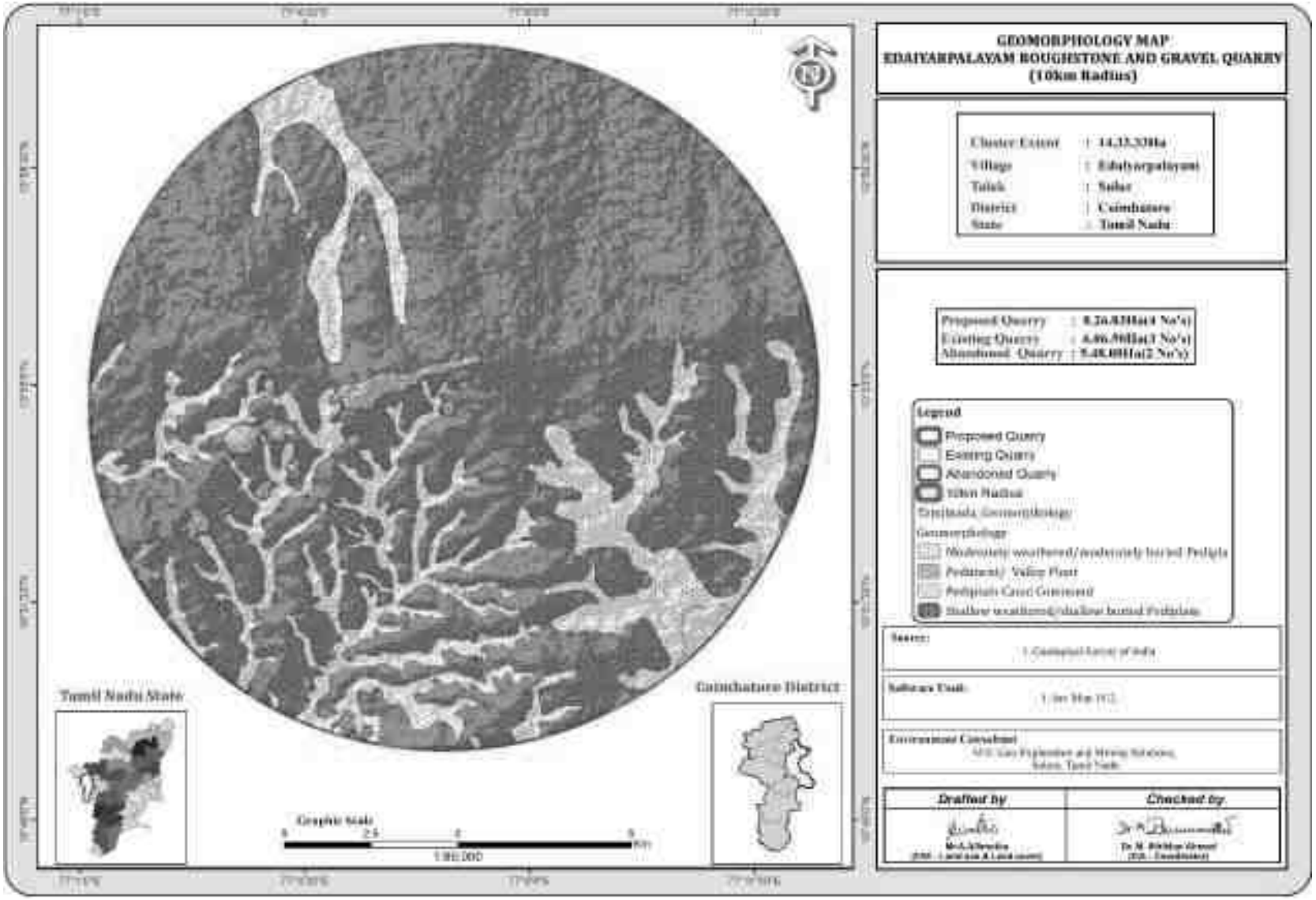
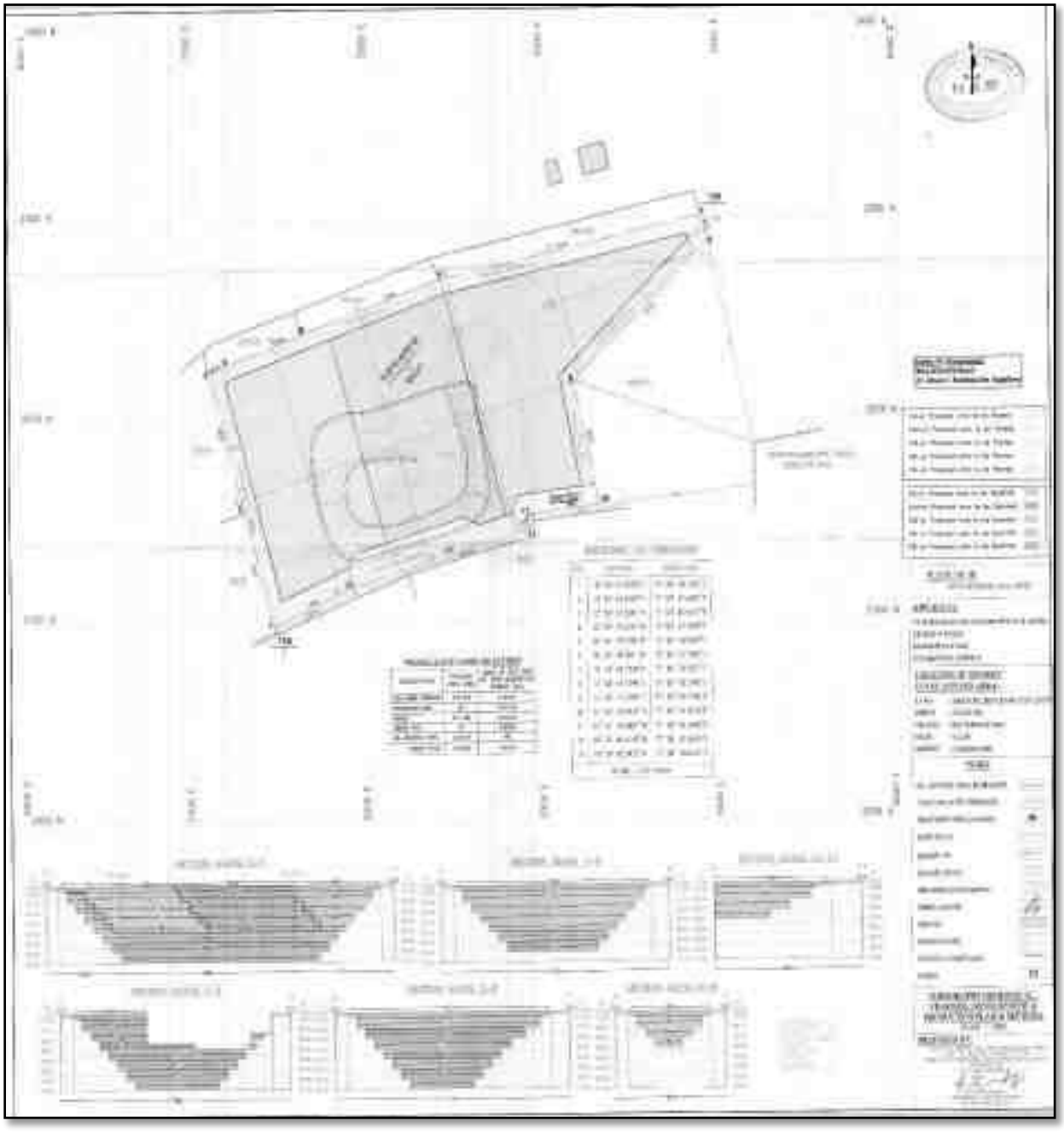
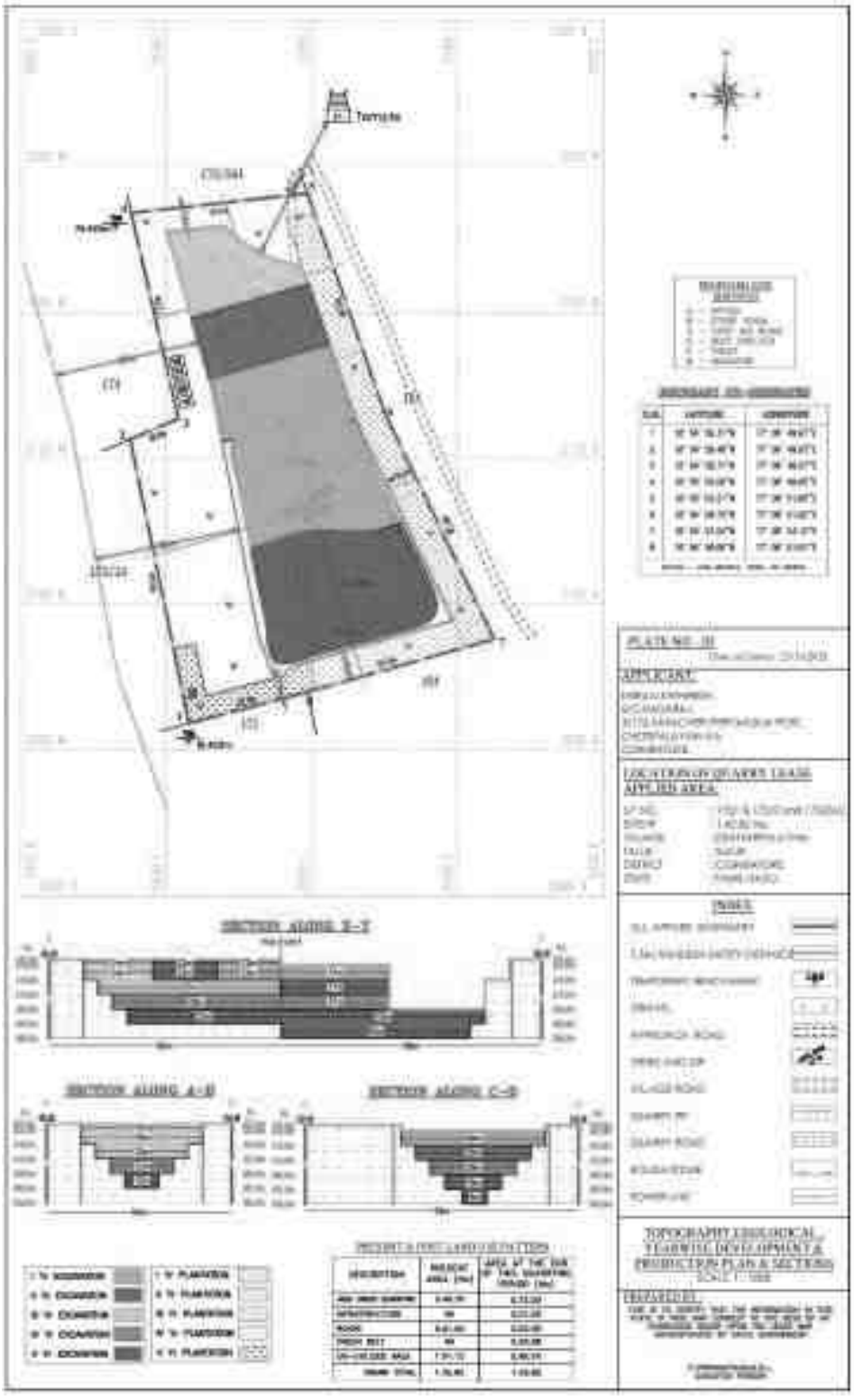


FIGURE 2.11: TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT PRODUCTION PLAN AND SECTION -P1-P2

M/s.Ultra Ready Mix Concrete Pvt Ltd - P1



Thiru.N. Kathiresh -P2



2.4 Resources and Reserves of the Cluster quarries

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 PROJECTS- P1 & P2

Description	P1			P2	
	Rough Stone quarry	Weathered Rock	Gravel	Rough Stone quarry	Gravel
Geological Resource	10,07,006 m^3	24,300 m^3	48,600 m^3	2,86,860m^3	11,230 m^3
Mineable Reserves	3,18,706 m^3	13,884 m^3	32,304 m^3	65,140 m^3	5,712

Source: Approved Mining Plan

TABLE 2.8: YEAR-WISE PROPOSAL FOR FIRST FIVE YEARS PRODUCTION PLAN-P1

YEAR	ROUGH STONE QUARRY (m^3)	WEATHERED ROCK (m^3)	GRAVEL (m^3)
I	69,710	6,936	16788
II	65,615	2,508	5658
III	64,181	4,440	9858
IV	60,050	-	-
V	59,150	-	-
TOTAL	**3,18,706**	**13884**	**32304**

Source: Approved Mining Plan

TABLE 2.9: YEAR-WISE PROPOSAL FOR FIRST FIVE YEARS PRODUCTION PLAN-P2

YEAR	ROUGH STONE QUARRY (m^3)	GRAVEL (m^3)
I	13,685	1848
II	11,835	1848
III	15,120	2016
IV	11,745	-
V	12,755	-
TOTAL	**65,140**	**5,712**

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

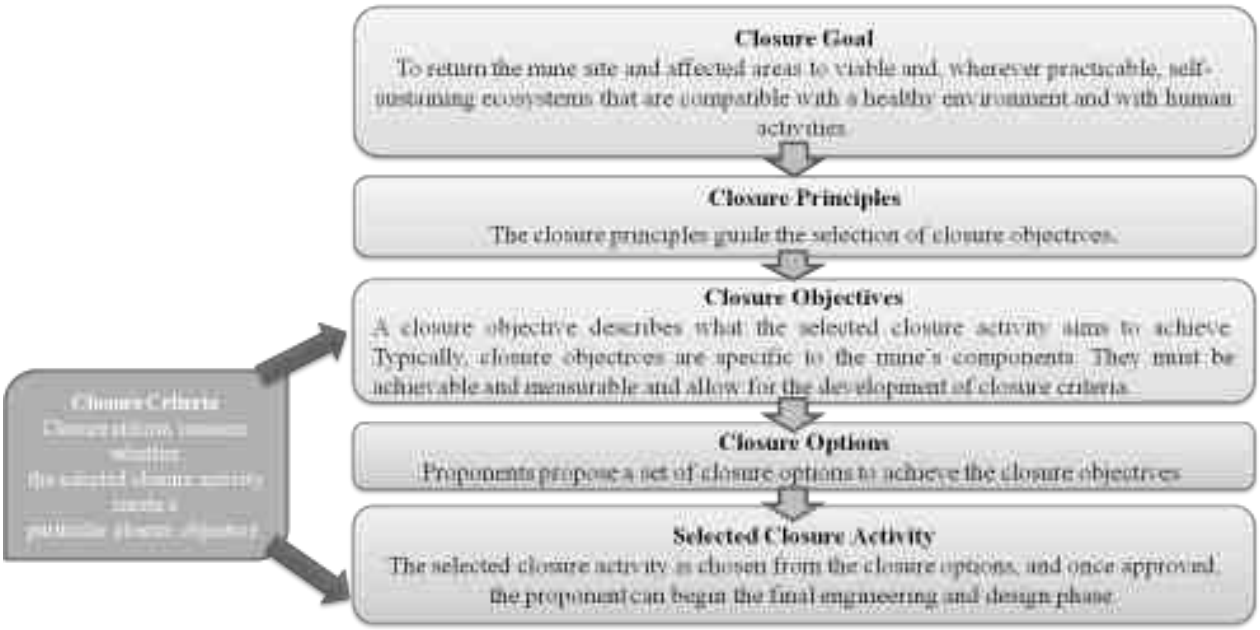
The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area, etc.

TABLE 2.10: ULTIMATE PIT DIMENSIONS- P1& P2

Code	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)
PI	247	113	38 m
Pit	**Length (Max) (m)**	**Width (Max) (m)**	**Depth (Max) (m)**
P2	146	49	27 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.



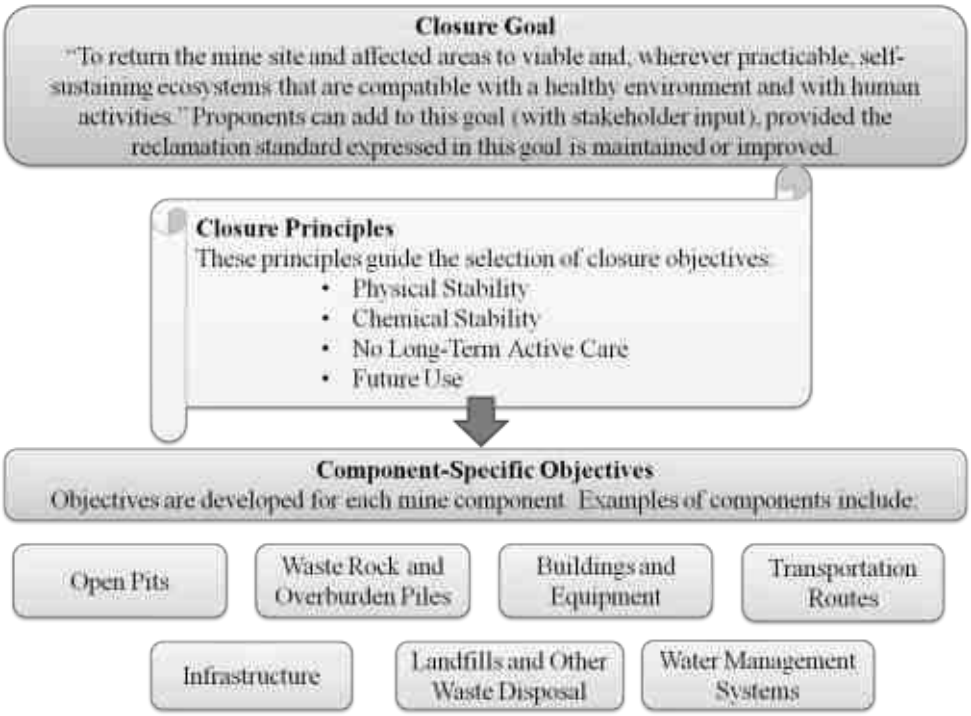
Closure Objectives

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



Post-Closure Monitoring –

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

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

TABLE 2.11: MINE CLOSURE BUDGET-P1

ACTIVITY		YEAR					RATE	AMOUNT (INR)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	130	130	130	130	130	@100 Rs Per sapling	Rs.65,000/-
	Cost	13,000	13,000	13,000	13,000	13,000		
Plantation in around approach road and nearby village roads	Nos	110	110	110	110	110		Rs.55,000/-
	Cost	11,000	11,000	11,000	11,000	11,000		
Wire Fencing (In Mtrs) 790 Mtrs		2,37,000	-	-	-	-	@300 Rs Per Meter	Rs.2,37,000/-
Garland drain (In Mtrs) 740 Mtrs		2,22,000	-	-	-	-	@300 Rs Per Meter	Rs.2,22,000/-
TOTAL								**Rs.5,79,000/-**

TABLE 2.12: MINE CLOSURE BUDGET-P2

ACTIVITY		YEAR					RATE	AMOUNT (Rs.)
		I	II	III	IV	V		
Plantation under safety zone	**Nos.**	58	58	58	58	58	@100 Rs Per sapling	29,000
	Cost	5800	5800	5800	5800	5800		
Plantation in the quarried out top benches, approach & Panchayat Road	Nos.	50	50	50	50	50		25,000
	Cost	5,000	5,000	5,000	5,000	5,000		
Wire Fencing (In Mtrs) 520		1,56,000					@300 Rs Per Meter	1,56,000
Garland drain (In Mtrs) 410		1,23,000					@300 Rs Per Meter	1,23,000
TOTAL								**3,33,000**

Source: Proposed by FAE's and EC

2.5 Method of Mining

The method of mining is common for all the proposed projects – The method of mining is Opencast Mechanized Mining Method is being proposed by formation of 5.0-meter height bench with a bench width not less than the bench height. However, as far as the quarrying of Rough Stone 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	=	**3,83,846** m^3
	=	**3,83,846** /5
	=	**76,769** /300
	=	256* 2.6
	=	665Tonnes per day
Therefore, Number of Holes per day	=	665/3
	=	222 Holes per day (for 2 Quarries)

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

PROPOSAL – P1				
S.NO.	**TYPE**	**NOS**	**SIZE/CAPACITY**	**MOTIVE POWER**
1	Jack hammers	8	1.2m to 2.0m	Compressed air
2	Compressor	2	400psi	Diesel Drive
3	Excavator with Bucket / Rock Breaker	2	300 HP	Diesel Drive
4	Tippers	4	20 Tonnes	Diesel Drive
PROPOSAL – P2				
S.NO.	**TYPE**	**NOS**	**SIZE/CAPACITY**	**MOTIVE POWER**
1	Jack hammers	2	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	1	20 Tonnes	Diesel Drive

Source: Approved Mining Plan of the respective projects.

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

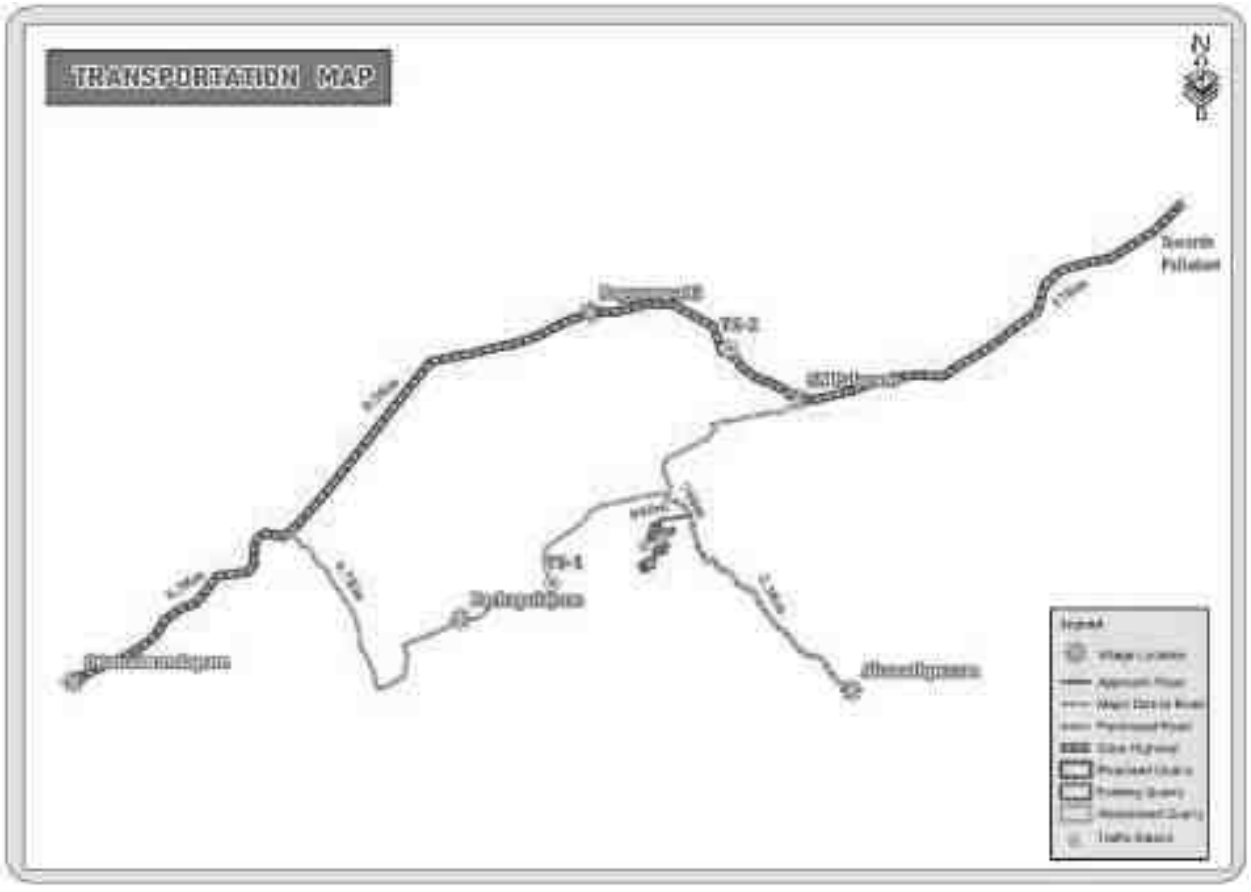
Traffic density measurements were performed as per IRC 1960 Guidelines at three locations based on the transportation route. Traffic density measurement were made continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., heavy motor vehicles, light motor vehicles 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 & 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	52 per day (42 Trips of Rough stone and 10 Trips of Gravel) ie., 8 Tippers per hour	156

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 & 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 -P1-P2

PROPOSAL – P1		
*Purpose	Quantity	Source
Dust Suppression	1.0 KLD	From Existing bore wells from nearby area
Green Belt development	1.3 KLD	From Existing bore wells from nearby area
Sanitation & Drinking purpose	0.7KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	**3.0 KLD**	
PROPOSAL – P2		
*Purpose	Quantity	Source
Dust Suppression	1.0 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.
Total	**2.0 KLD**	

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
= Total of 1,000 Liters of HSD per day for two proposed projects

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 QUARRIES

Identification code	Employment in Nos
P1	40
P2	15
Total	**55**

A total of 55 people will get employment due to these 2 quarries in the cluster quarries.

2.7.5 Project Cost

TABLE 2.20 – PROJECT COST OF PROPOSED PROJECTS P1-P2

Identification code	Project Cost
P1	Rs. 85,44,000/-
P2	Rs. 62,32,000/-
Total	**Rs. 1,47,76,000 /-**

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

2.8 Project Implementation Schedule

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

TABLE 2.21 – EXPECTED TIME SCHEDULE FOR THE PROPOSED QUARRIES

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

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

CHAPTER – 3: DESCRIPTION OF ENVIRONMENT

3.0 General

This chapter presents a regional background to the baseline data at the very onset, which will help in better appreciation of micro-level field data, generated on several environmental and ecological attributes of the study area. The baseline status of the project environment is described section wise for better understanding of the broad-spectrum conditions. The baseline environment quality represents the background environmental scenario of various environmental components such as Land, Water, Air, Noise, Biological and Socio-economic status of the study area. Field monitoring studies to evaluate the base line status of the project site were carried out covering Dec 2022, Jan 2023 & Feb 2023 with CPCB guidelines. Environmental data has been collected with reference to cluster quarries by EHS 360 LABS PRIVATE LIMITED Approved by ISO/IEC 17025:2017, 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 winter season i.e. Dec 2022 – Feb 2023.

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_{10} and SO_2, NO_X with gaseous attachments &

Fine Dust Samplers (FDS) for $PM_{2.5}$ and other parameters as per NAAQ norms and analysed for primary air pollutants to work out the existing status of air quality

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

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

TABLE 3.1 – ENVIRONMENTAL MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data's from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
*Soil	Physio-Chemical Characteristics	Once during the study period	6 (2 core & 4 buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (1 surface water & 5 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Automatic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
*Ambient Air Quality	PM_{10} $PM_{2.5}$ SO_2 NO_X Fugitive Dust	24 hourly twice a week (Oct – Dec 2022)	8 (2 core & 6 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	8 (2 core & 6 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrate & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio–Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.

Source: On-site monitoring/sampling by EHS 360 Labs Private Limited in association with GEMS

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

3.1 LAND ENVIRONMENT

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

3.1.1 LAND USE/ LAND COVER

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

Point No. 4 All comer 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 ofthe study area (core and buffer zone).

Point No. 10. Lard 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 µm	23.5 meters
Band 2	Red	0.62-0.68 µm	23.5meters
Band 3	NIR	0.77-0.86 µm	23.5meters
Band 4	SWIR	1.55-1.70 µm	70meters

Source: NRSC, Hyderabad

3.1.3 METHODOLOGY

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

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

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

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

S.No	Classification	Area_Ha	Area_%
BUILTUP			
1	Builtup Urban	315.07	0.93
2	Builtup Rural	1054.32	3.11
3	Builtup Mining	346.79	1.02
AGRICULTURAL LAND			
4	Crop Land	19816.84	58.38
5	Agricultural Plantation	3655.31	10.77
6	Fallow Land	7558.23	22.27

BARREN/WASTELAND			
7	Barren Rocky	13.93	0.04
8	Scrub Land	1033.26	3.04
WATERBODIES			
9	Waterbodies	151.94	0.45
		33945.70	100.00

Source: Bhuvan, NRSC.

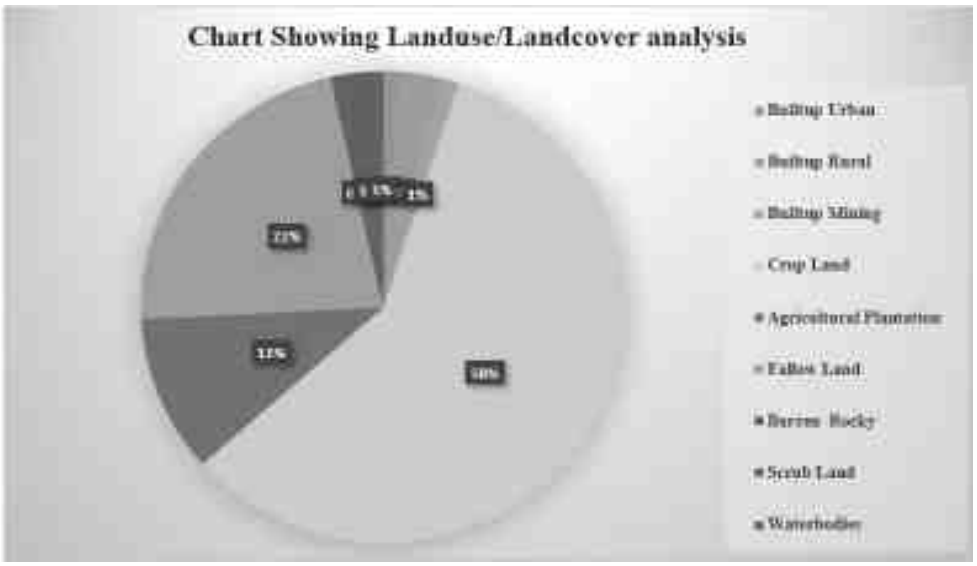


FIGURE 3.1: CHART SHOWING LANDUSE/LANDCOVER ANALYSIS USING LISS III .Data

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

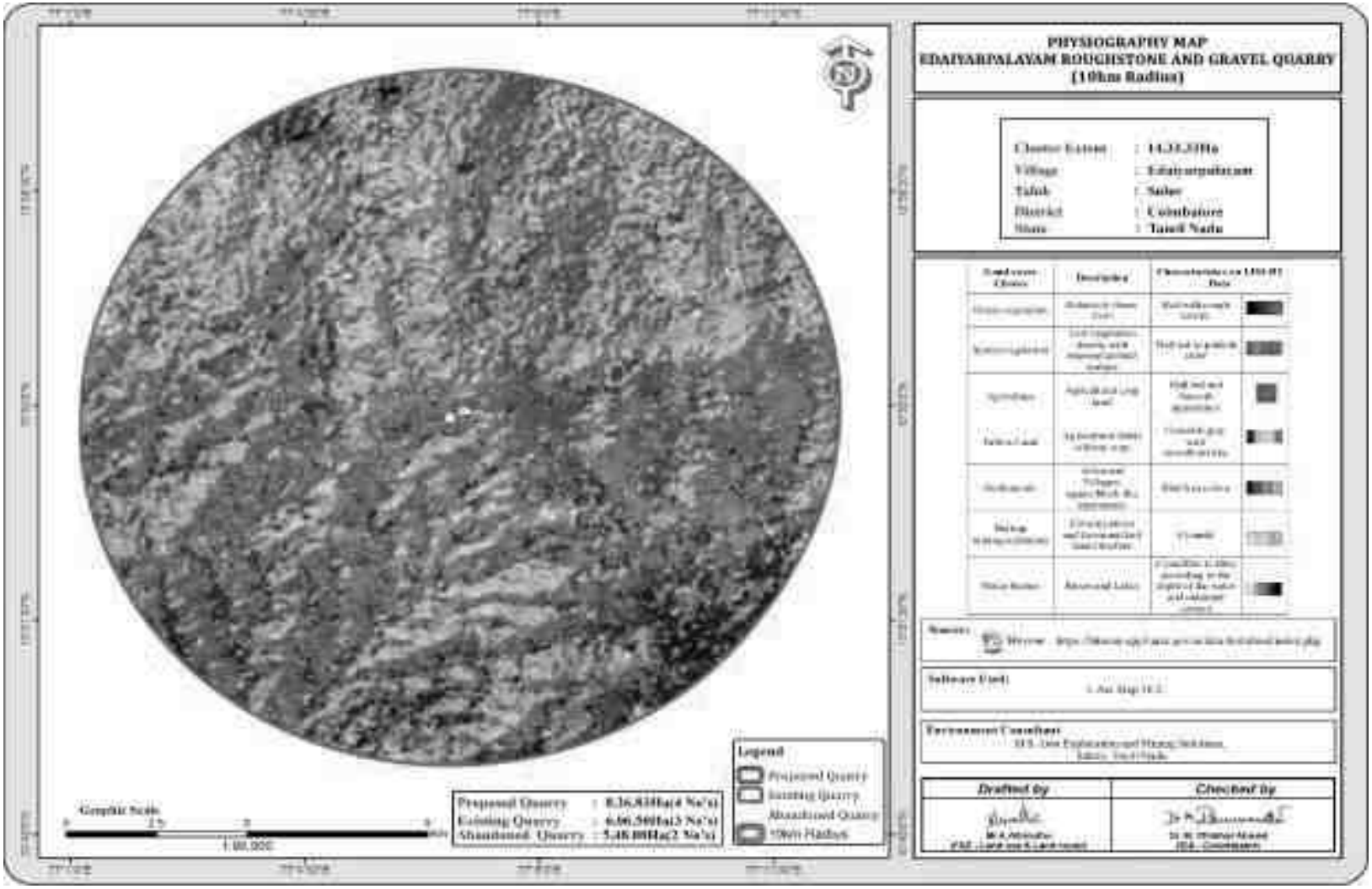
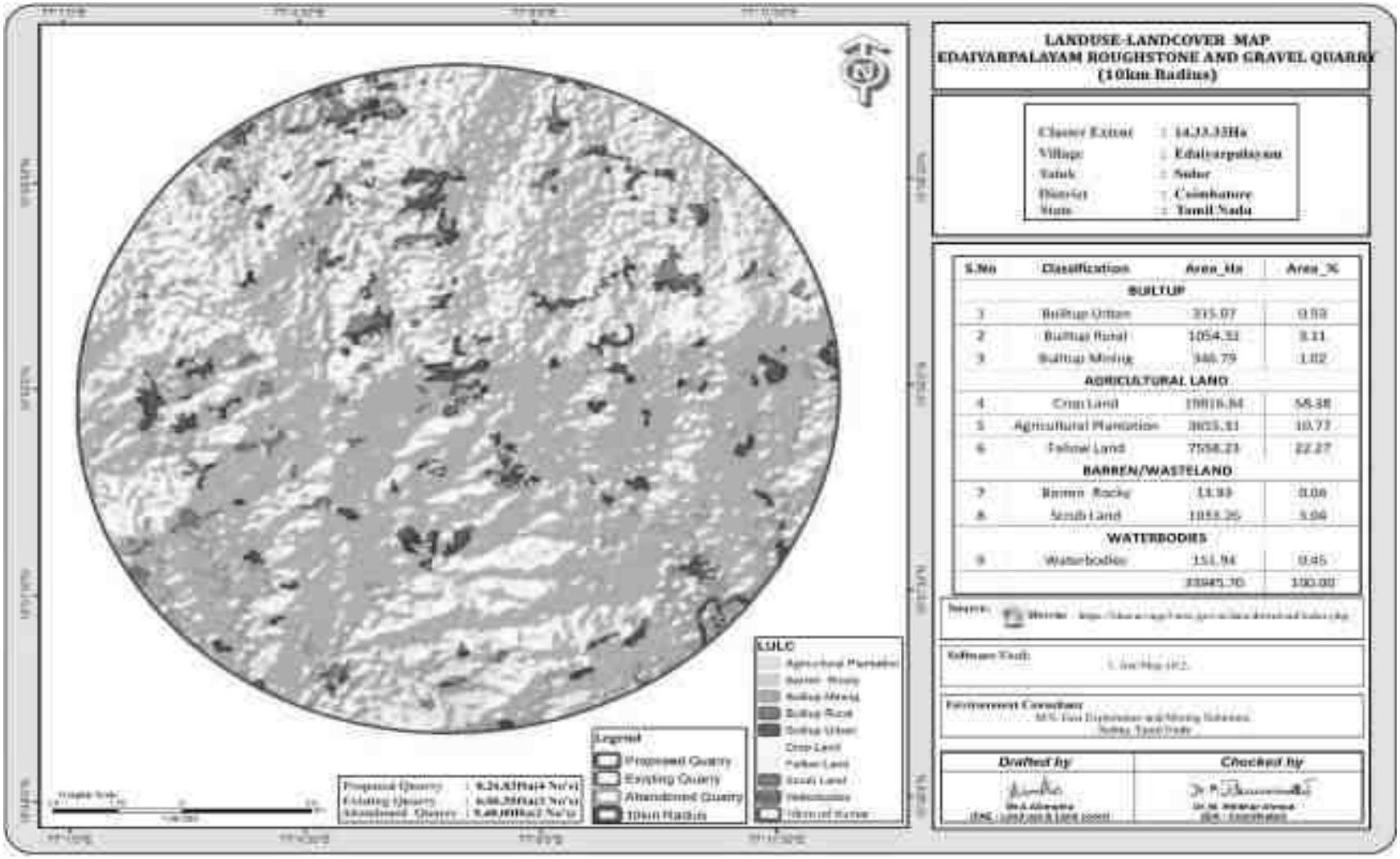


FIGURE 3.3: LAND USE LAND COVER MAP 10KM RADIUS



3.1.4 Interpretation

- The 10 km radius study area mainly comprises of crop land & Agriculture Plantation land accounting of 58.38% & 1.77% 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 0.45% of the total buffer area. There are some lake found in the study area like Odai (180m-NW), Pallapalayam lake (9km-NW), Kammampalayam Lake (9.4km-NW) of the total study area.
- The Scrub land accounts of 3%. 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.
- 5% 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 Edayarpalaym, 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 II, low damage risk zone as per BMTPC, Vulnerability Atlas of Seismic zone of India IS: 1893 – 2002. The project area falls in the hard rock terrain on the peninsular shield of south India which is highly stable.

TABLE 3.3 – DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE PROJECT AREA

Sl. No	Sensitive Ecological Features	Name	Arial Distance in km from Mine Lease Boundary
1	National Park / Wild life Sanctuaries	None	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 CLUSTER FROM PROPOSED QUARRIES

M/s.Ultra Ready Mix Concrete Pvt Ltd -P1			
S.No	**LABEL**	**DISTANCE & DIRECTION**	**Habitation**
1	Odai	180m_NW	540m NW
2	Odai	1.1Km_SE	
3	Pallapalayam Lake	9Km_NW	
4	Kannampalayam Lake	9.4Km_NW	
5	P.A.P Canal	9Km_SE	
Thiru.N. Kathiresh -P2			
S.No	**LABEL**	**DISTANCE & DIRECTION**	**Habitation**
1	Odai	300m_NW	9500m NW
2	Odai	820m_SE	
3	Pallapalayam Lake	9.2Km_NW	
4	Kannampalayam Lake	9.8Km_NW	
5	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°55'1.31"N 77° 6'49.39"E
2	S-2	Core Zone	Project Area	10°54'49.29"N 77° 6'55.69"E
3	S-3	SN Palayam	3.8km NE	10°56'22.11"N 77° 8'22.92"E
4	S-4	Lakshminaickenpalayam	4.4km East	10°55'14.50"N 77° 9'15.07"E
5	S-5	Panapatti	4.3km 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 **EHS 360 Labs Private Limited** Services Laboratories in association with GEMS

FIGURE 3.4: SITE PHOTOGRAPHS OF SOIL SAMPLING LOCATIONS

The objective of the soil sampling is -

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

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

Methodology –

For studying soil quality, sampling locations were selected to assess the existing soil conditions in and around the proposed quarry site representing various land use conditions. The samples were collected by auger boring into the soil up to 90-cm depth. eight (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 EHS 360 Labs Private Limited

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

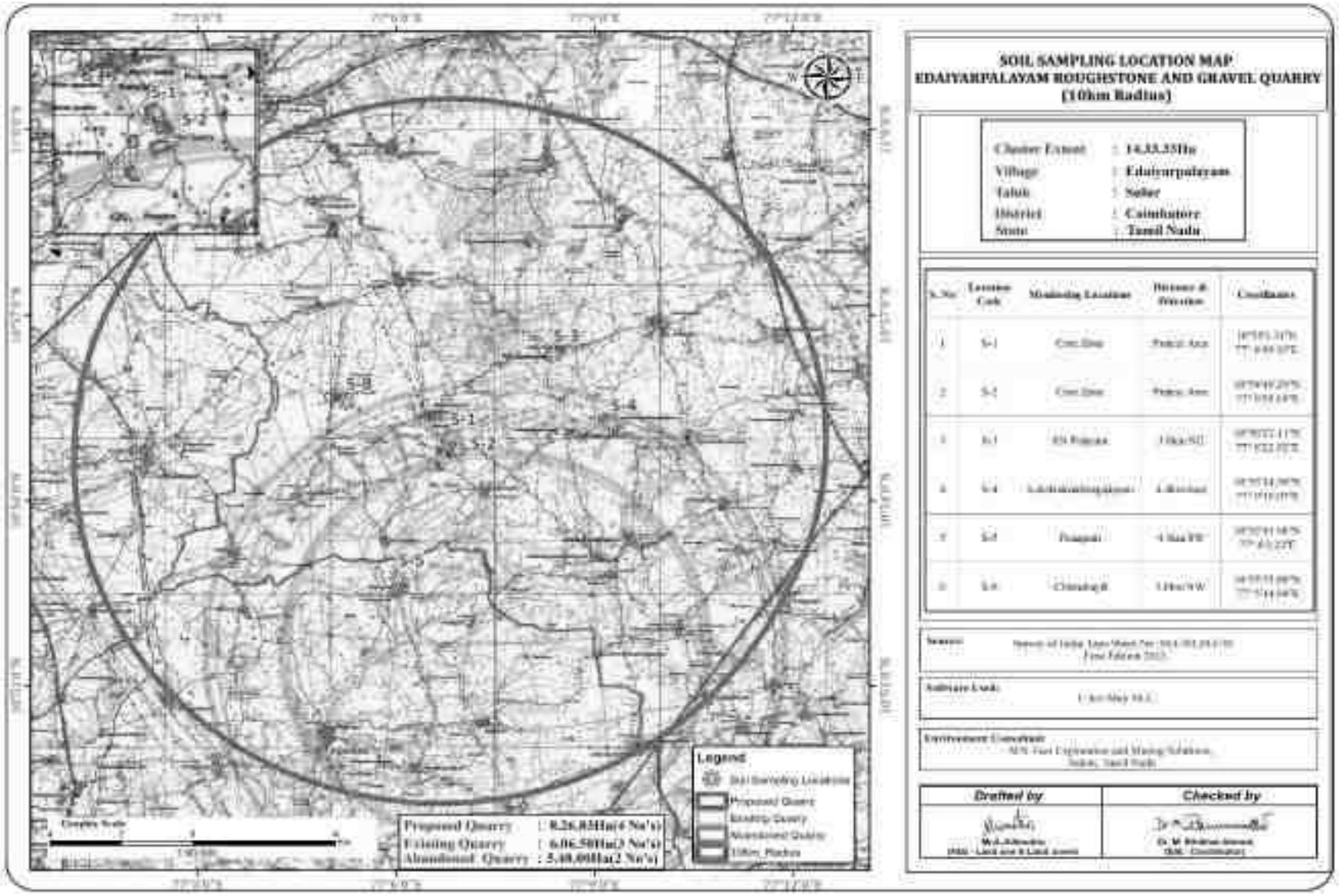


FIGURE 3.6: SOIL MAP

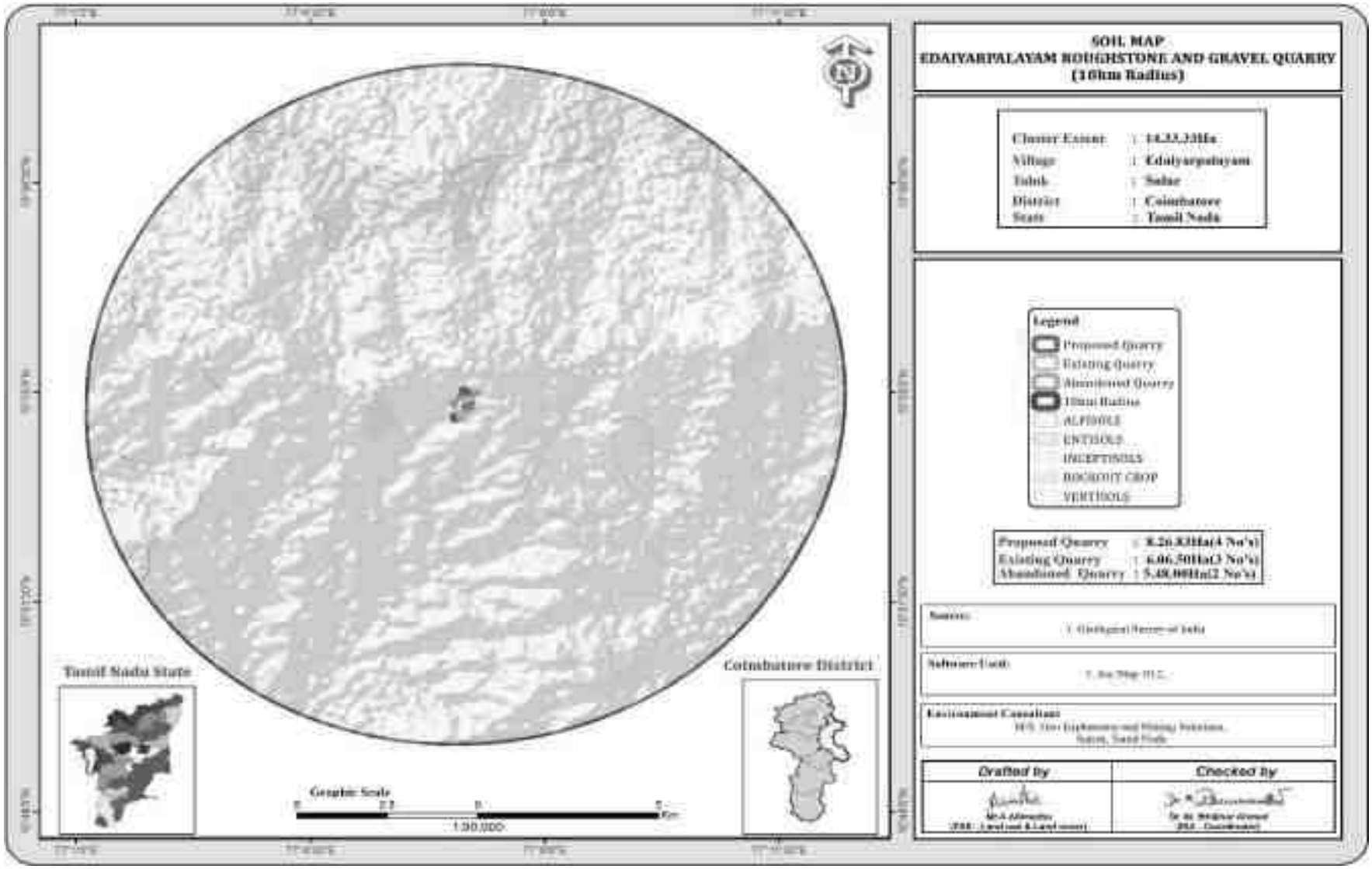


TABLE 3.7 – SOIL QUALITY MONITORING DATA

Sno	Test Parameters	Protocols	S1-core Zone	S2-core Zone	S3- KSN Palayam	S4- Lakshminaickenpalayam	S5- Panapatti	S6- Chinnakuyili
1	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.53	7.54	8.55	8.07	7.84	7.69
2	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	485 µmhos/cm	510 µmhos/cm	581 µmhos/cm	476 µmhos/cm	500 µmhos/cm	442 µmhos/cm
3	Texture :							
	Clay	Gravimetric Method	37.9 %	32.3 %	37.9 %	0.335	34.2 %	27.6 %
	Sand		38.8 %	31.9 %	38.5 %	0.351	37.9 %	36.6 %
	Silt		23.3 %	35.8 %	23.6 %	0.314	27.9 %	35.8 %
4	Water Holding Capacity	By Gravimetric Method	48.1 %	47.2 %	45.4 %	46.2. %	44.1 %	48.9 %
5	Bulk Density	By Cylindrical Method	1.08 g/cm^3	1.01 g/cm^3	1.03 g/cm^3	0.89 g/cm^3	1.03 g/cm^3	1.27 g/cm^3
6	Porosity	By Gravimetric Method	40.5 %	44.6 %	48.7 %	41.5 %	45.4 %	40.6 %
7	Calcium as Ca	USEPA 3050 B – 1996 &	135.8 mg/kg	166 mg/kg	101 mg/kg	223 mg/kg	86 mg/kg	150 mg/kg
8	Magnesium as Mg	USEPA 6010 C - 2000	62.5 mg/kg	80.4 mg/kg	76 mg/kg	65.6 mg/kg	60.1 mg/kg	70.5 mg/kg
9	Manganese as Mn		30.7 mg/kg	24.6 mg/kg	20.5 mg/kg	29 mg/kg	20.2 mg/kg	29 mg/kg
10	Zinc as Zn		1.85 mg/kg	3.5 mg/kg	1.05 mg/kg	1.08 mg/kg	1.2 mg/kg	1.19 mg/kg
11	Boron as B		3.01 mg/kg	2.2 mg/kg	2.88 mg/kg	1.27 mg/kg	2.9 mg/kg	2.5 mg/kg
12	Chloride as Cl	APHA 23rd Edn 2019 4500 Cl B	133 mg/kg	130.6 mg/kg	100 mg/kg	76 mg/kg	93.3 mg/kg	52.7 mg/kg
13	Total Soluble Sulphate as SO_4	IS 2720 Part 27 : 1977 (Reaff:2015)	0.008 %	0.0004 %	0.0084 %	0.0053 %	0.0026 %	0.0006 %
14	Potassium as K	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	35.4 mg/kg	39.7 mg/kg	35.9 mg/kg	48 mg/kg	25.3 mg/kg	2.5 mg/kg
15	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	4.4 mg/kg	1.11 mg/kg	1.60 mg/kg	1.44 mg/kg	2.03 mg/kg	3.1 mg/kg
16	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	325 mg/kg	290.5 mg/kg	341 mg/kg	440 mg/kg	366 mg/kg	426 mg/kg
17	Cadmium as Cd	USEPA 3050 B – 1996 &	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
18	Total Chromium as Cr	USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)	BDL (DL : 1.0 mg/kg)
20	Lead as Pb		0.87 mg/kg	0.77 mg/kg	0.53 mg/kg	0.96 mg/kg	0.43 mg/kg	0.9 mg/kg
21	Iron as Fe		2.05 mg/kg	1.02 mg/kg	1.4 mg/kg	2.91 mg/kg	2.65 mg/kg	2.58 mg/kg
22	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.17 %	2.31 %	2.29 %	2.22 %	2.24 %	1.74 %
23	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.68 %	1.34 %	1.33 %	1.29 %	1.30 %	1.01 %
24	Cation Exchange Capacity	USEPA 9080 – 1986	40.1 meq/100g of soil	34.4 meq/100g of soil	44 meq/100g of soil	37.9 meq/100g of soil	37 meq/100g of soil	46.7 meq/100g of soil

Source: Sampling Results by EHS 360 Labs Private Limited

Interpretation & Conclusion

Physical Characteristics –

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay to Sandy Soil and Bulk Density of Soils in the study area varied between 0.89– 1.27 g/cc. The Water Holding Capacity 44.1 to 48.9% and Porosity of the soil samples is found to be medium i.e. ranging from 40.5 – 48.7 %.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline in nature with pH range 7.54 to 8.55
- The available Nitrogen content range between 290.5 to 440 mg/kg
- The available Phosphorus content range between 1.11 to 4.4 mg/kg
- The available Potassium range between 2.5 to 48 mg/kg

Whereas, the micronutrient as zinc (Zn), iron (Fe) and copper (Cu) were found in the range of 1.05 to 3.5mg/kg; 1.02 to 2.91 mg/kg and ND

Wilting co efficient in significant level would mean that the soil would support the vegetation. The soil properties in the buffer zone reve al 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	8.8km NW	10°59'25.25"N 77° 4'43.75"E
2	WW-1	Edaiyarpalayam	920m North	10°55'32.16"N 77° 6'48.21"E
3	WW-2	Lakshminaickenpalayam	3.8km East	10°55'22.78"N 77° 8'58.13"E
4	WW-3	Chinnakuyili	3.3km NW	10°55'30.38"N 77° 5'4.07"E
5	BW-1	Core Zone	Near Project Area	10°54'50.77"N 77° 6'54.48"E
6	BW-2	Periyakuyili	4.5km SW	10°53'57.81"N 77° 4'34.40"E

Source: On-site monitoring/sampling by EHS 360 Labs Private Limited

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

FIGURE 3.7: SITE PHOTOGRAPHS OF WATER SAMPLING LOCATIONS

TABLE 3.9 – SURFACE WATER ANALYSIS RESULTS

SNO	TEST	PROTOCOL	Surface Water (SW-1) - Pallapalayam Lake	Ground Water (WW-1) – Edaiyarpalayam
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	15 Hazen	5
2	Odour	IS 3025 Part 5:2018	Agreeable	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.85	7.17
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	1117 µmhos/cm	688 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	4.2 NTU	1.2 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	659 mg/l	406 mg/l
7	Total Hardness as $CaCO_3$	IS 3025 Part 21:2009 (Reaff:2019)	172.59 mg/l	135 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	32.1 mg/l	28.9 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	22.5 mg/l	15.4 mg/l
10	Total Alkalinity as $CaCO_3$	IS 3025 Part 23:1986 (Reaff:2019)	240 mg/l	117 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	188 mg/l	90 mg/l
12	Sulphate as SO_4	IS 3025 Part 24:1986 (Reaff:2019)	60.7 mg/l	51.3 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.12 mg/l	0.27 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23rd Edn. 2017:4500 F,D	0.4 mg/l	0.15 mg/l
16	Nitrate as NO_3	IS 3025 Part 34:1988 (Reaff:2019)	7.1 mg/l	7.7 mg/l
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C_6H_5OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	8.3 mg/l	BDL (DL:0.01 mg/l)
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	48 mg/l	BDL (DL:0.01 mg/l)
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.6 mg/l	BDL (DL:0.01 mg/l)
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
36	Sulphide as H_2S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	22.2 mg/l	BDL (DL:1.0 mg/l)
40	**Total Coliform**	**APHA 23rd Edn. 2017:9221B**	810 MPN/100ml	170 MPN/100ml
41	***Escherichia coli***	**APHA 23rd Edn. 2017:9221F**	110 MPN/100ml	< 1.8 MPN/100ml
Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number				

TABLE 3.10 – GROUND WATER ANALYSIS RESULTS

Sno	Test	Protocol	Ground Water (WW-2) Lakshminaickenpalayam	Ground Water (WW-3) – Chinnakuyili	Ground Water (BW-1) – Core Zone	Ground Water (BW-2) – Periyakuyili
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5	5	5	5
2	Odour	IS 3025 Part 5:2018	Agreeable	Agreeable	Agreeable	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.11	7.50	8.03	7.06
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	844 µmhos/cm	843 µmhos/cm	902 µmhos/cm	926 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	2.0 NTU	1.4 NTU	1.3 NTU	1.3 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	497 mg/l	497 mg/l	532 mg/l	546 mg/l
7	Total Hardness as $CaCO_3$	IS 3025 Part 21:2009 (Reaff:2019)	177.3 mg/l	130.49 mg/l	211.59 mg/l	163.52 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	29.9 mg/l	23.3 mg/l	38.5 mg/l	31.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	25 mg/l	17.6 mg/l	28.1 mg/l	20.9 mg/l
10	Total Alkalinity as $CaCO_3$	IS 3025 Part 23:1986 (Reaff:2019)	141.5 mg/l	153.1 mg/l	157.6 mg/l	175 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	122 mg/l	120 mg/l	140 mg/l	123.2 mg/l
12	Sulphate as SO_4	IS 3025 Part 24:1986 (Reaff:2019)	68.3 mg/l	70.1 mg/l	60.5 mg/l	70 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.24 mg/l	0.3 mg/l	0.11 mg/l	0.16 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23rd Edn. 2017:4500 F,D	0.29 mg/l	0.21 mg/l	0.16 mg/l	0.3 mg/l
16	Nitrate as NO_3	IS 3025 Part 34:1988 (Reaff:2019)	5.4 mg/l	14.5 mg/l	6.8 mg/l	6.5 mg/l
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C_6H_5OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
30	Barium as Ba	IS 3025 Part 27-1986 (Reaff. 2019)	BDL(DL:0.05 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
31	Ammonia (as total ammonia-N)	IS 3025 Part 44:1993 (Reaff:2019)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
32	Sulphide as H_2S	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
33	Molybdenum as Mo	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
34	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
35	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)
36	Total Coliform	APHA 23rd Edn. 2017:9221B	110 MPN/100ml	70 MPN/100ml	170 MPN/100ml	160 MPN/100ml
37	*Escherichia coli*	APHA 23rd Edn. 2017:9221F	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml
Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number						

* 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 EHS 360 Labs Private Limited

3.2.4 Interpretation& Conclusion

Surface Water

The pH of surface 7.85 while turbidity found within the standards. Total Dissolved Solids 659 mg/l and Chloride 188 mg/l. Nitrates 7.1 mg/l, while sulphates 60.7mg/l.

Ground Water

The pH of the water samples collected ranged from 7.06 to 8.03 and within the acceptable limit of 6.5 to 8.5. pH, Sulphates and Chlorides of water samples from all the sources are within the limits as per the Standard. on Turbidity, the water samples meet the requirement. Total Dissolved Solids were found in the range of 406 - 546 mg/l in all samples. The Total hardness varied between 130.49 – 211.59 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

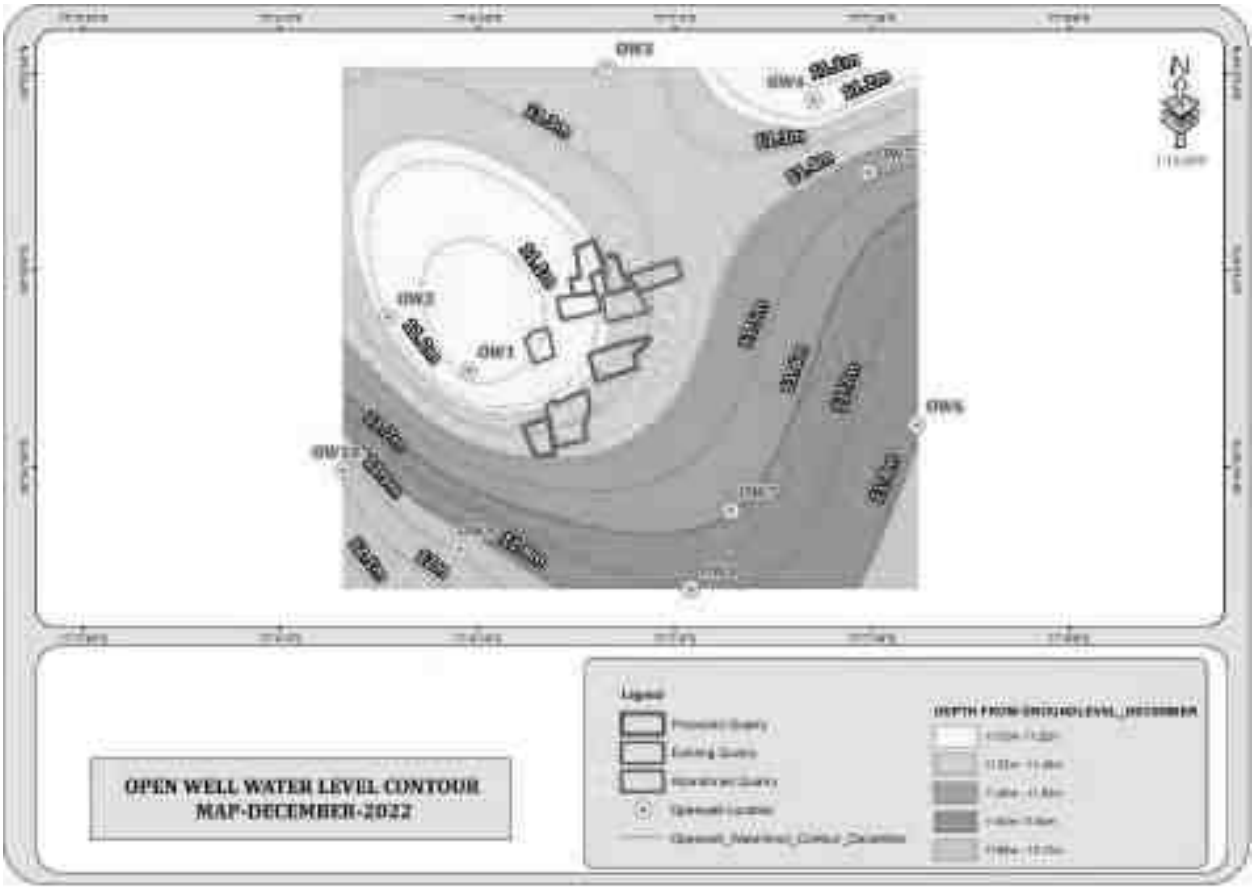
The district is underlain by hard rock formation Fissured and Fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-80 Instrument by qualified Geo physicist with the help of IGIS software and it was inferred 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.

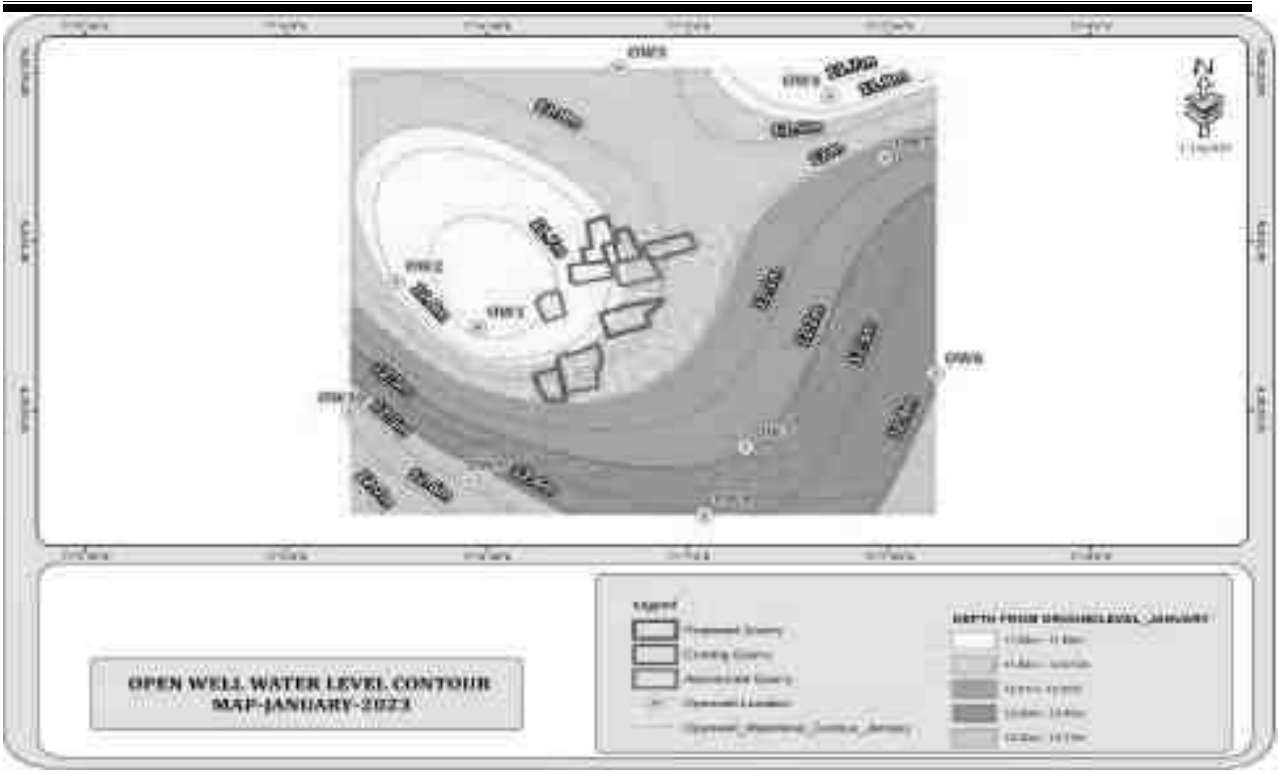
During the rainy season there is a possibility of collection of seepage water from the subsurface levels this is due to the high intensity of fracture and weathered portion upto a depth of 10m thus the collected seepage water will be stored in the mine sump pits and will be used for dust suppression 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	Dec 2022	Jan 2023	Feb 2023
1	OW-1	10° 54' 44.70"N	77° 06' 28.59"E	11	11.6	12.2
2	OW-2	10° 54' 52.82"N	77° 06' 16.36"E	11.2	11.8	12.4
3	OW-3	10° 55' 30.89"N	77° 06' 49.66"E	11.4	12	12.6
4	OW-4	10° 55' 25.85"N	77° 07' 21.13"E	11.1	11.7	12.3
5	OW-5	10° 55' 14.86"N	77° 07' 29.41"E	11.5	12.1	12.7
6	OW-6	10° 54' 36.45"N	77° 07' 36.88"E	11.8	12.4	13
7	OW-7	10° 54' 23.37"N	77° 07' 08.50"E	11.6	12.2	12.8
8	OW-8	10° 54' 11.41"N	77° 07' 02.43"E	11.7	12.3	12.9
9	OW-9	10° 54' 17.44"N	77° 06' 27.28"E	11.9	12.5	13.1
10	OW-10	10° 54' 29.47"N	77° 06' 09.55"E	12	12.6	13.2

FIGURE 3.8: CONTOUR MAP OF OPEN WELL WATER LEVEL




OW5
OW2
OW1
OW6
OW4
OPEN WELL WATER LEVEL CONTOUR
MAP-JANUARY-2023

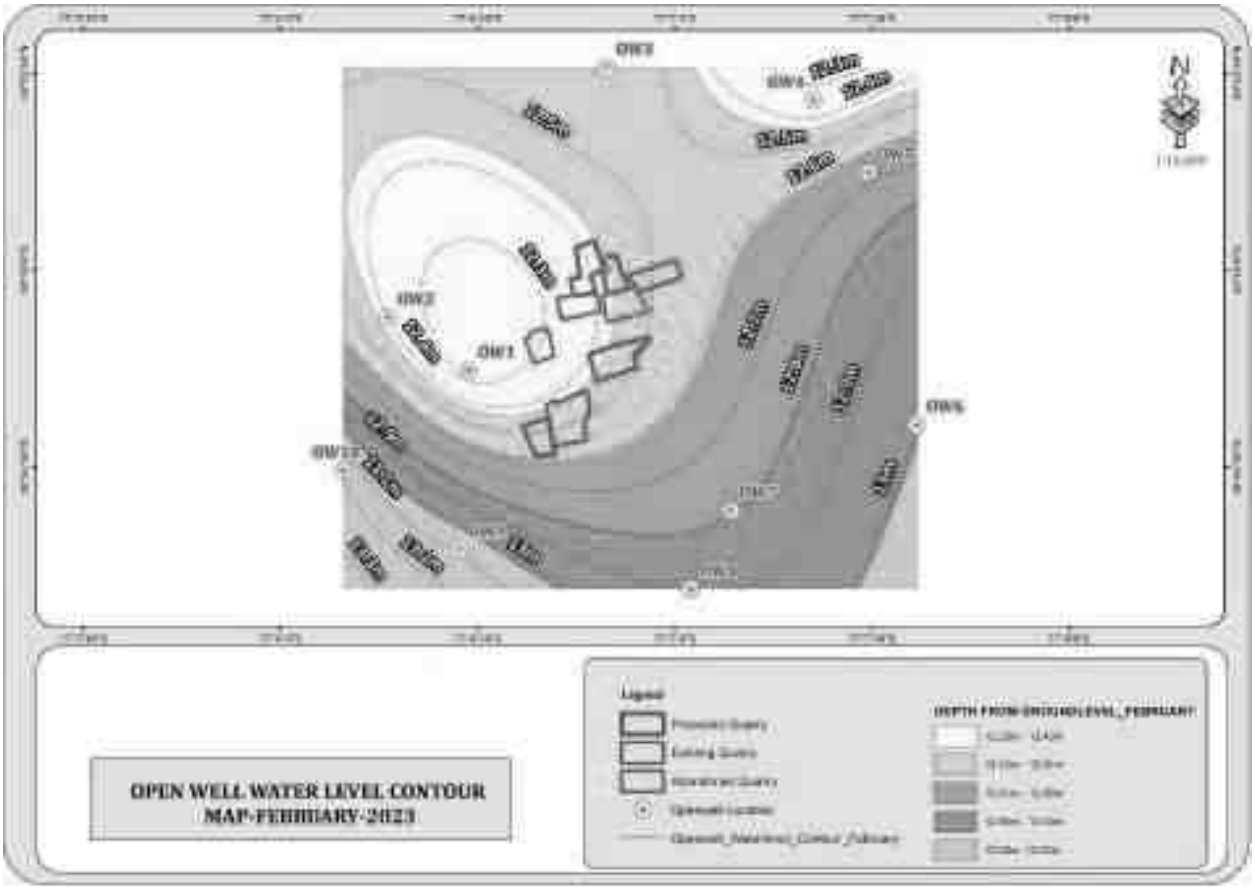
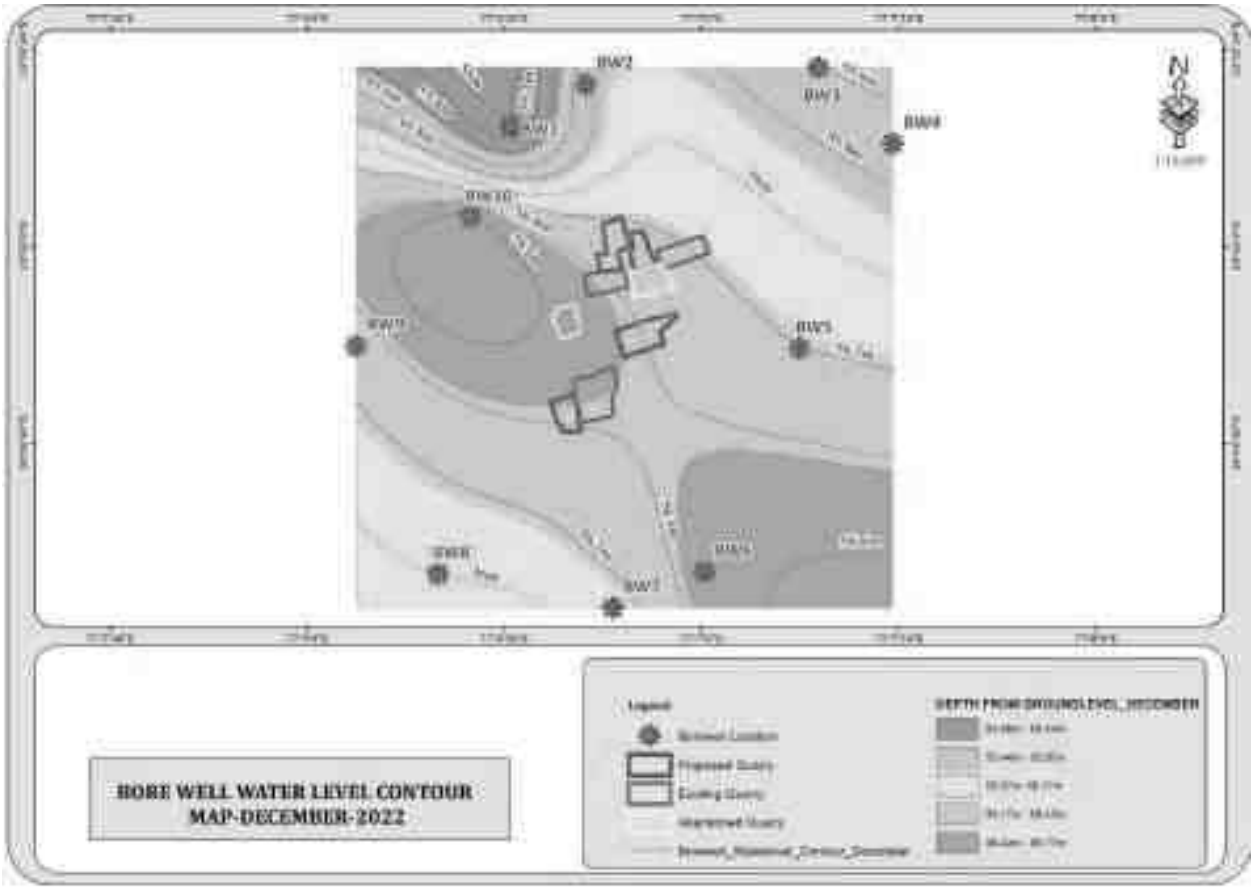
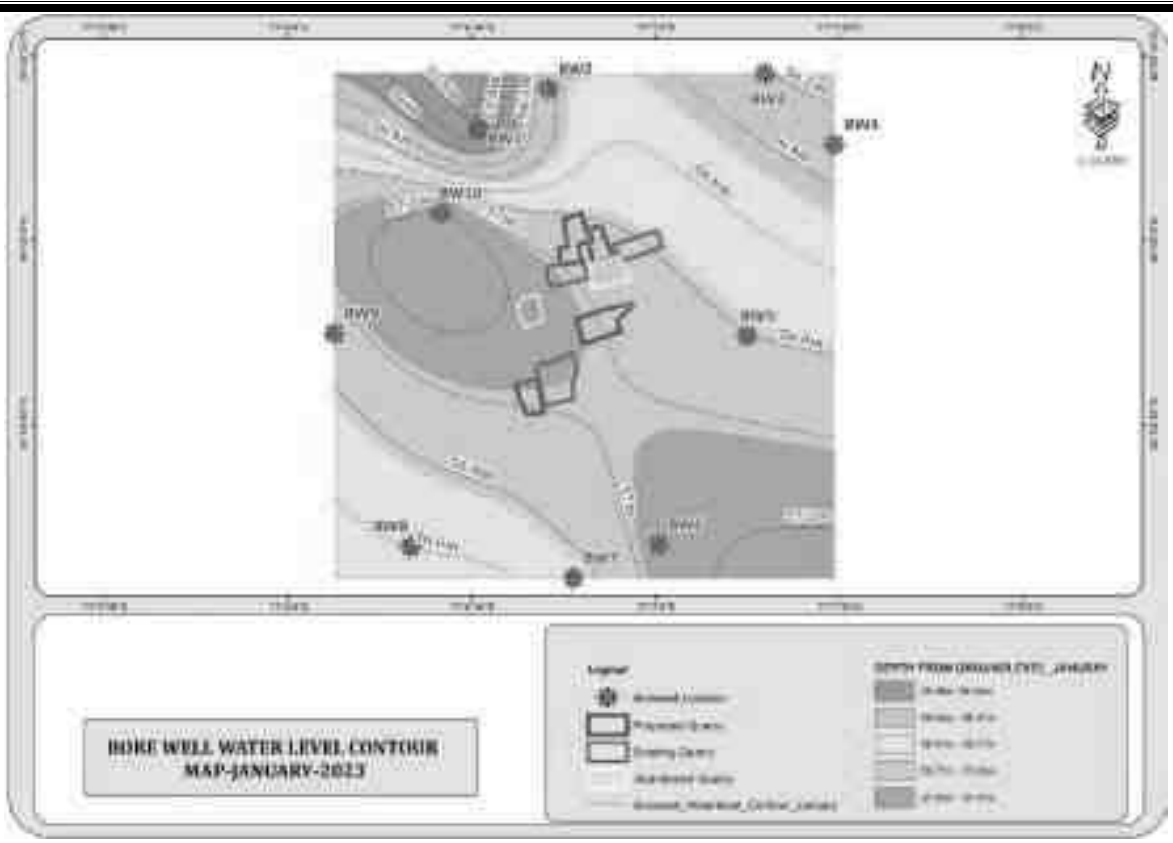

OW3
OW5
OW2
OW1
OW6
OW4
OPEN WELL WATER LEVEL CONTOUR
MAP-FEBRUARY-2023

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

S.No	LABEL	LONGITUDE	LATITUDE	Dec2022	Jan 23	Feb 23
1	BW-1	10° 55' 18.16"N	77° 06' 30.90"E	55	55.6	56.2
2	BW-2	10° 55' 24.59"N	77° 06' 42.37"E	55.8	56.4	57
3	BW-3	10° 55' 27.18"N	77° 07' 17.78"E	55.6	56.2	56.8
4	BW-4	10° 55' 15.55"N	77° 07' 29.09"E	55.7	56.3	56.9
5	BW-5	10° 54' 44.38"N	77° 07' 14.84"E	56.2	56.8	57.4
6	BW-6	10° 54' 10.31"N	77° 07' 00.38"E	56.5	57.1	57.7
7	BW-7	10° 54' 04.88"N	77° 06' 46.48"E	56.1	56.7	57.3
8	BW-8	10° 54' 10.04"N	77° 06' 19.91"E	56	56.6	57.2
9	BW-9	10° 54' 44.78"N	77° 06' 07.38"E	56.3	56.9	57.5
10	BW-10	10° 55' 04.34"N	77° 06' 24.84"E	56.7	57.3	57.9

FIGURE 3.9: CONTOUR MAP OF BORE WELL WATER LEVEL




BW2
BW1
BW5
BW10
BW7
BW6
BW8
BW4
BORE WELL WATER LEVEL CONTOUR
MAP-JANUARY-2023

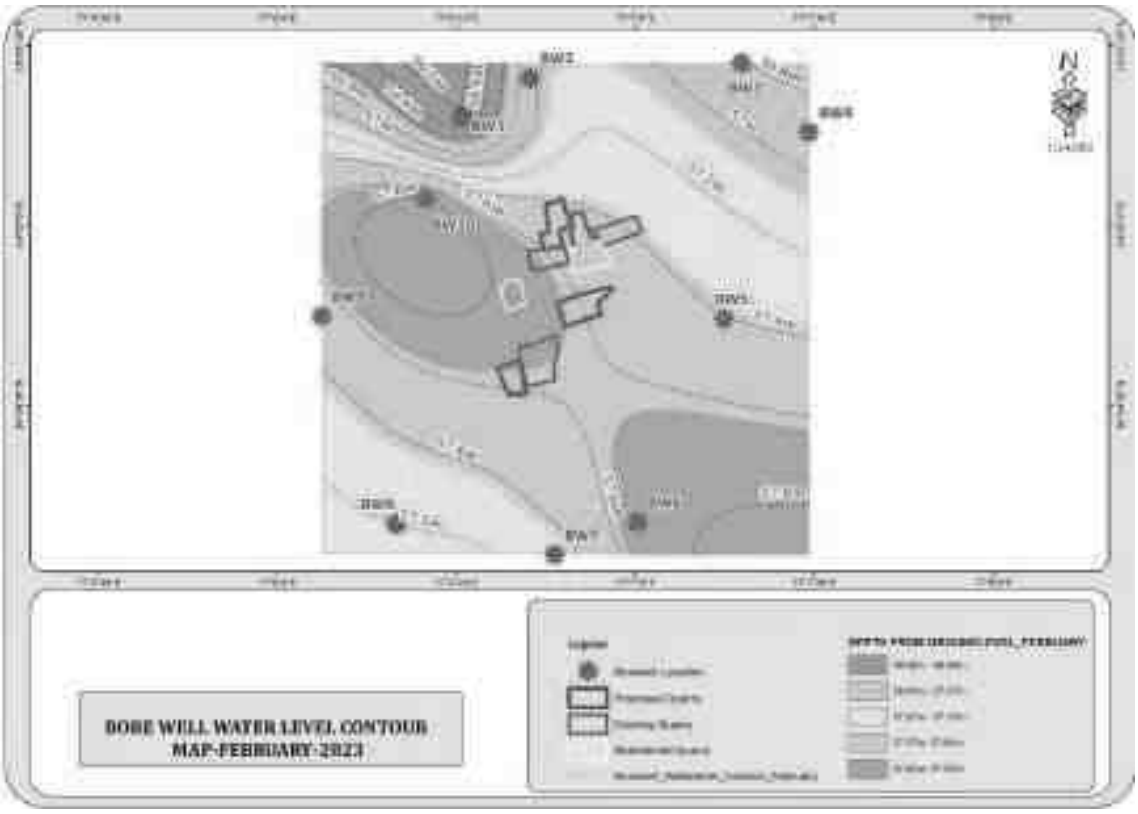

BW2
BW1
BW5
BW10
BW7
BW6
BW8
BW4
BORE WELL WATER LEVEL CONTOUR
MAP-FEBRUARY-2023

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

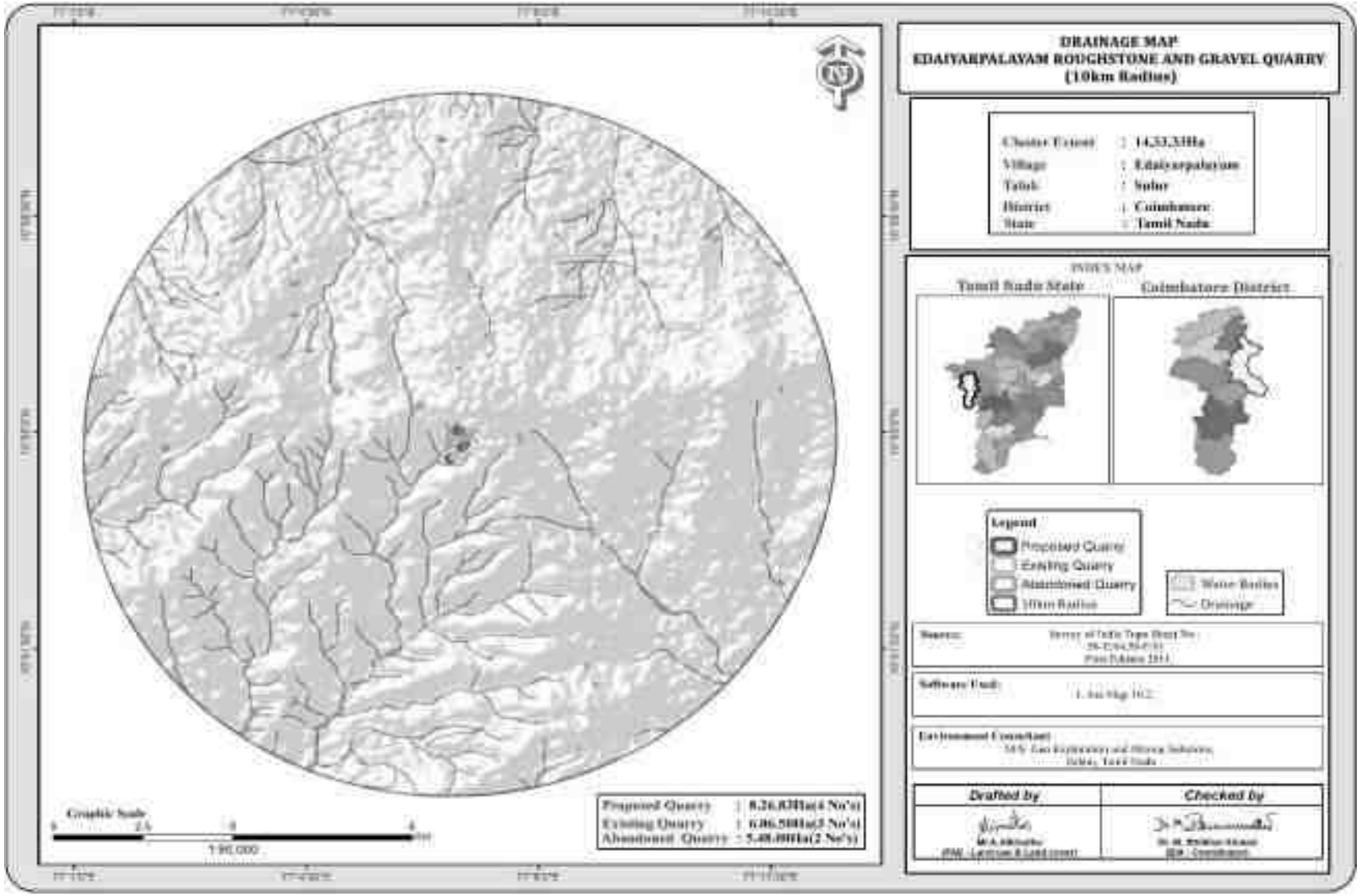
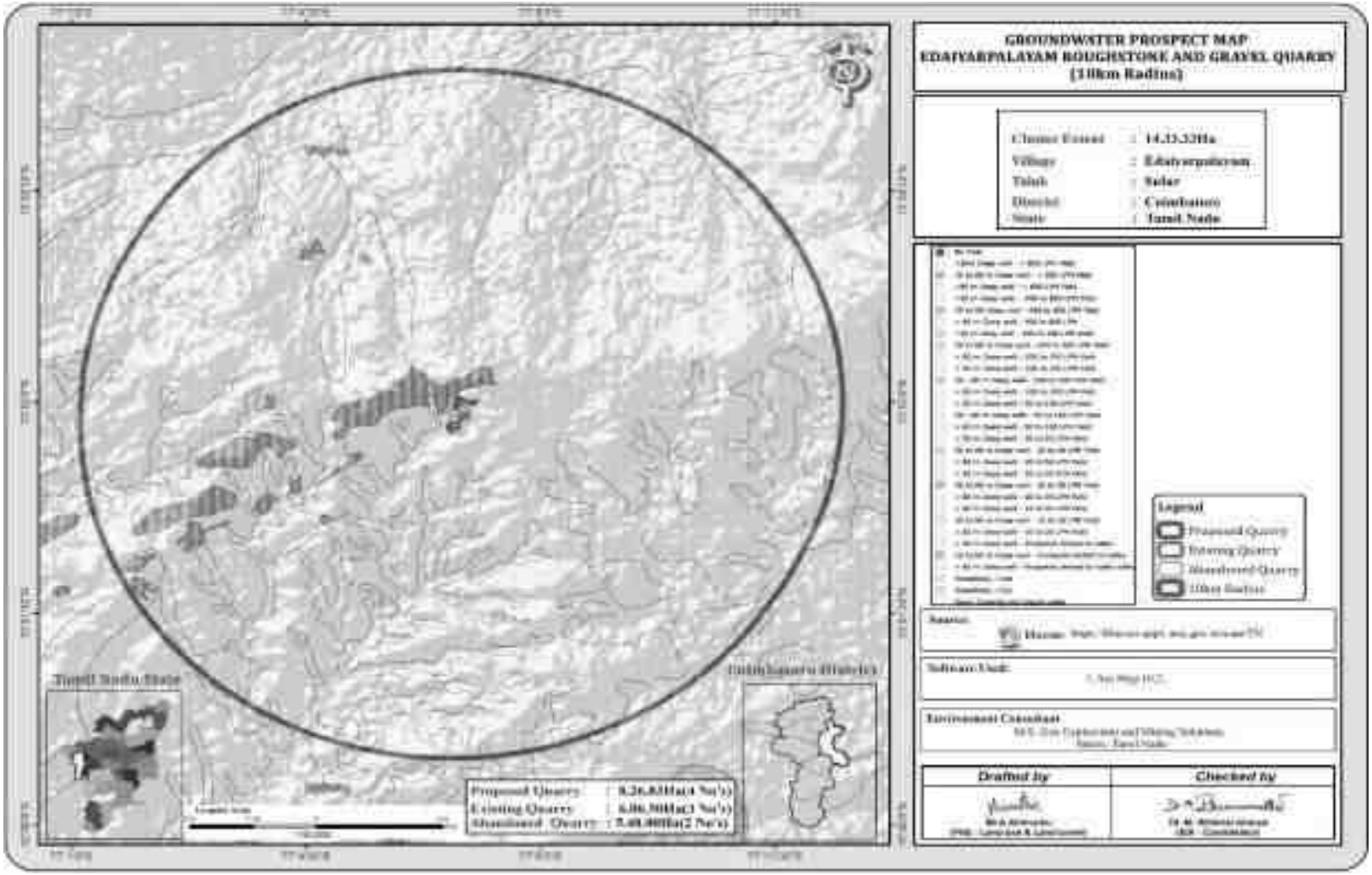


FIGURE 3.11: GROUND WATER LEVEL MAP



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 in homogeneities 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 farm 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 in homogeneities that is consistent with the measured data.
For a Schlumberger among the Apparent resistivity can be calculated as follows

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

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

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

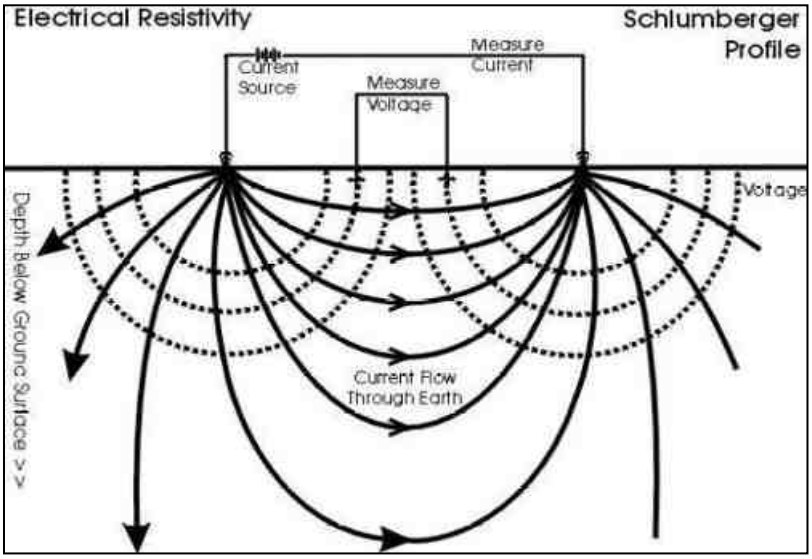
ρr = Resistivity of Rocks
ρw = Resistivity of water in pores of rock
F = Formation Factor
$\emptyset$ = Fractional pore volume
A = Constants with values ranging from 0.5 to 2.5

3.2.5.2 Survey Layout

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

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

RESISTIVITY SURVEY PROFILE



Measurements of ground Resistivity is essentially done by sending a current through two electrodes called current electrodes (C_1& $C_{2)}$ and measuring the resulting potential by two other electrodes called potential electrode (P_1& P_2). The amount of current required to be sent into the ground depends on the contact resistance at the current electrode, the ground resistivity and the depth of interest.

3.2.5.3 Data Presentation

It was inferred that the low resistance encountered at the depth between 60-65m. The maximum depth proposed out of proposed projects is 27 m to 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 March, April, May.
- Precipitation is the lowest in January, with an average of 13 mm | 0.5 inch. Most of the precipitation here falls in October, averaging 181 mm | 7.1 inch.
- At an average temperature of 28.9 °C | 84.1 °F, April is the hottest month of the year. December is the coldest month, with temperatures averaging 23.2 °C | 73.7 °F.
  https://en.climate-data.org/asia/india/tamil-nadu/coimbatore-2788/

Rainfall –

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

TABLE 3.13 – RAINFALL DATA

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	**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		Dec–2022	Jan–2023	Feb-2023
1	Temperature (^{0}C)	Max	28.4	29.55	26.55
		Min	23.16	26.01	23.87
		Avg	25.78	27.78	25.21
2	Relative Humidity (%)	Avg	63.25	60.25	84.93
3	Wind Speed (m/s)	Max	4.21	3.14	3.4
		Min	1.33	1.3	1.27
		Avg	2.77	2.22	2.33
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ENE,WSW	ESE,E	WSW,W

Source: On-site monitoring/sampling by **EHS 360 Labs Private Limited** Services Laboratories in association with GEMS

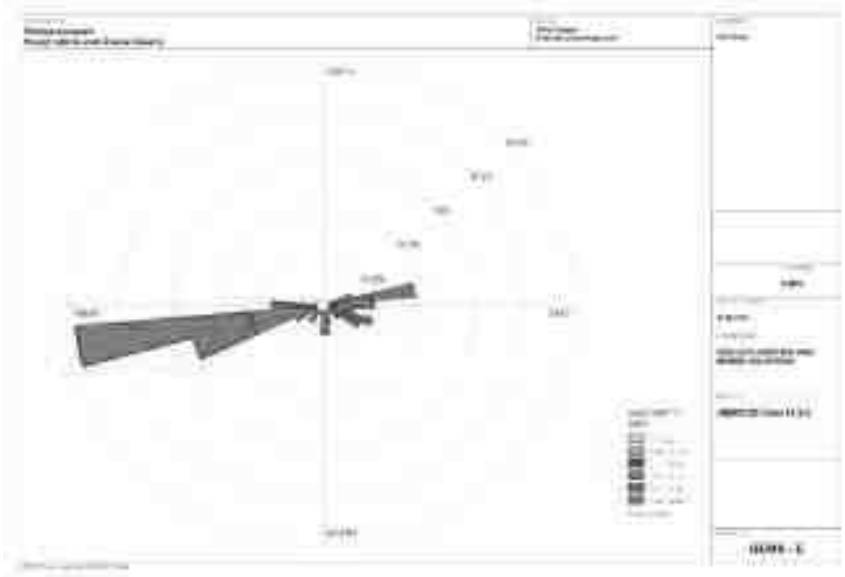
Correlation between Secondary and Primary Data

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 3.60 km / hour
3. Calm conditions prevail of about 0.00% of the monitoring period
4. Temperature readings ranging from 23.16^0 to 29.55^0C
5. Relative humidity ranging from 60.25 to 84.93%
6. The monitoring was carried out continuously for three months

3.3.2 Methodology and Objective

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

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

3.3.3 Sampling and Analytical Techniques

TABLE 3.15 – METHODOLOGY AND INSTRUMENT USED FOR AIR QUALITY ANALYSIS

Parameter	Method	Instrument
$PM_{2.5}$	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM_{10}	Gravimetric Method Beta attenuation Method	Respirable Dust Sampler Make –Thermo Environmental Instruments – TEI 108
SO_2	IS-5182 Part II (Improved West & Gaeke method)	Respirable Dust Sampler withgaseous attachment
NO_x	IS-5182 Part II (Jacob & Hochheiser modifiedmethod)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology followed by **EHS 360 Labs Private Limited** Services Laboratories & CPCB Notification.

TABLE 3.16 – NATIONAL AMBIENT AIR QUALITY STANDARDS

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

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

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

** 24 hourly / 8 hourly or 1 hourly monitored 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 March - May 2021. The baseline data of ambient air has been generated for PM_{10}, $PM_{2.5}$, Sulphur Dioxide (SO_2) & Nitrogen Dioxide (NO_2).

3.3.5 Ambient Air Quality Monitoring Stations

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

TABLE 3.17 – AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ-1	Core Zone	Project Area	10°55'1.74"N 77° 6'49.45"E
2	AAQ-2	Core Zone	Project Area	10°54'44.79"N 77° 6'52.63"E
3	AAQ-3	SN Palayam	3.8km 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	Periyakuyili	4.5km SW	10°53'57.13"N 77° 4'36.73"E
6	AAQ-6	Lakshminaickenpalayam	4.4km East	10°55'15.25"N 77° 9'15.62"E
7	AAQ-7	Panapatti	4.3km SW	10°52'43.85"N 77° 6'1.60"E
8	AAQ-8	Chinnakuyili	3.2km NW	10°55'39.11"N 77° 5'13.51"E

Source: On-site monitoring/sampling by **EHS 360 Labs Private Limited** in association with GEMS

FIGURE 3.13: SITE PHOTOGRAPHS OF AMBIENT AIR MONITORING

Source: Monitoring photographs from the FAE and Team Members

FIGURE 3.14 AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

TABLE 3.18 – AAQ1- CORE ZONE

Period: Dec – Feb 2023 *Location: AAQ1-* Sampling Time: 24-hourly

Ambient AirMonitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3	CO	Pb	Ni	As	C_6H_6	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	µg/m³	ng/m³	ng/m³	µg/m³	ng/m³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
05.12.2022	7:00-7:00	68.3	45.5	23.5	6.2	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	65.2	43.2	22.1	7.3	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	66.3	42.1	21.3	8.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	65.2	44.1	24.6	6.0	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	67.1	45.0	25.2	7.8	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	68.3	46.3	22.3	6.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	69.1	47.1	24.5	8.2	20.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	60.3	43.1	25.1	7.0	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.01.2023	7:00-7:00	68.2	44.2	22.1	8.1	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.01.2023	7:15-7:15	66.1	46.3	23.4	6.4	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.01.2023	7:00-7:00	67.0	44.2	21.4	7.5	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.01.2023	7:15-7:15	68.2	42.3	22.0	6.2	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.01.2023	7:00-7:00	69.3	42.0	21.3	7.3	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.01.2023	7:15-7:15	60.1	43.6	24.2	8.1	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.01.2023	7:00-7:00	68.0	44.5	22.3	7.6	22.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.01.2023	7:15-7:15	66.3	45.6	22.1	8.3	20.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.01.2023	7:00-7:00	67.2	47.2	23.0	6.1	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.01.2023	7:15-7:15	68.3	46.3	24.2	6.4	21.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.02.2023	7:00-7:00	69.0	44.2	25.3	7.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.02.2023	7:15-7:15	60.3	46.0	25.0	8.2	23.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.02.2023	7:00-7:00	65.2	45.3	24.3	7.1	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.02.2023	7:15-7:15	64.3	47.2	23.5	6.8	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.02.2023	7:00-7:00	66.1	46.3	22.1	8.6	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.02.2023	7:15-7:15	68.2	44.1	23.6	8.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.02.2023	7:00-7:00	69.1	47.3	24.5	7.2	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.02.2023	7:15-7:15	65.2	46.5	26.1	6.4	21.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note:BDL: Below Detection Limit ;**DL**: Detection Limit ; **NH_3**: BDL (DL:20); **O_3**: BDL (DL:20); **CO**: BDL (DL:1.0); **Pb**: BDL (DL:0.1); **Ni**: BDL (DL:1.0); **As**: BDL (DL:1.0); **C_6H_6**: BDL (DL:1.0); **BaP**: BDL (DL:0.1)

Remarks: The values observed for the pollutants given above are within the CPCB standards.

TABLE 3.19 – AAQ2 - CORE ZONE

Period: Dec – Feb 2023 *Location: AAQ2- Core Zone* Time: 24-hourly

Ambient Air Monitoring Details		**Particulate Pollutant**			**Gaseous Pollutant**					**Metals Pollutant**			**Organic Pollutant**	
Parameters		**SPM**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_2**	**NH_3**	**O_3**	**CO**	**Pb**	**Ni**	**As**	**C_6H_6**	**BaP**
NAAQ Norms		**200**	**100**	**60**	**80**	**80**	**400**	**180**	**4**	**1**	**20**	**6**	**5**	**1**
Unit		**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**mg/m³**	**µg/m³**	**ng/m³**	**ng/m³**	**µg/m³**	**ng/m³**
Date	**Period.hrs**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
05.12.2022	7:00-7:00	62.3	45.5	23.2	7.2	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	65.1	46.1	23.1	6.3	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	61.2	47.2	24.1	8.0	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	62.0	49.2	25.3	7.5	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	63.8	46.3	23.1	6.8	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	61.4	47.2	24.2	7.0	23.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	62.3	45.2	22.1	6.2	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	64.5	46.2	25.3	7.3	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.01.2023	7:00-7:00	65.3	47.0	26.1	6.4	23.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.01.2023	7:15-7:15	62.3	48.2	24.3	6.0	22.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.01.2023	7:00-7:00	64.3	49.3	25.1	7.2	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.01.2023	7:15-7:15	65.3	47.2	26.3	8.3	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.01.2023	7:00-7:00	63.1	45.1	25.1	6.5	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.01.2023	7:15-7:15	62.0	46.5	26.3	7.3	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.01.2023	7:00-7:00	64.3	47.2	27.3	6.8	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.01.2023	7:15-7:15	65.0	48.3	25.1	7.2	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.01.2023	7:00-7:00	63.5	46.2	26.3	6.5	23.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.01.2023	7:15-7:15	64.1	47.3	27.1	8.1	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.02.2023	7:00-7:00	62.2	45.3	25.2	6.4	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.02.2023	7:15-7:15	64.3	46.1	26.3	6.3	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.02.2023	7:00-7:00	65.2	47.2	27.0	7.2	21.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.02.2023	7:15-7:15	63.4	48.2	26.1	6.5	22.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.02.2023	7:00-7:00	64.2	49.2	27.3	7.6	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.02.2023	7:15-7:15	62.3	48.1	25.3	8.3	23.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.02.2023	7:00-7:00	61.1	47.2	26.3	6.5	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.02.2023	7:15-7:15	62.3	48.3	24.3	7.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;**DL**: Detection Limit ; **NH_3**: BDL (DL:20); **O_3**: BDL (DL:20); **CO**: BDL (DL:1.0); **Pb**: BDL (DL:0.1); **Ni**: BDL (DL:1.0); **As**: BDL (DL:1.0); **C_6H_6**: BDL (DL:1.0); **BaP**: BDL (DL:0.1)

Remarks: The values observed for the pollutants given above are within the CPCB standards.

TABLE 3.20 – AAQ3 – SN Palayam

Period: Dec – Feb 2023 *: AAQ3- SN Palayam* Sampling Time: 24-hourly

Ambient Air Monitoring Details		**Particulate Pollutant**			**Gaseous Pollutant**					**Metals Pollutant**			**Organic Pollutant**	
Parameters		**SPM**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_2**	**NH_3**	**O_3**	**CO**	**Pb**	**Ni**	**As**	**C_6H_6**	**BaP**
NAAQ Norms		**200**	**100**	**60**	**80**	**80**	**400**	**180**	**4**	**1**	**20**	**6**	**5**	**1**
Unit		**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**mg/m³**	**µg/m³**	**ng/m³**	**ng/m³**	**µg/m³**	**ng/m³**
Date	**Period.hrs**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
05.12.2022	7:00-7:00	62.5	45.5	23.2	6.2	19.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	63.1	43.2	21.2	7.2	20.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	64.2	42.1	21.0	6.5	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	61.3	46.3	22.5	6.3	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	63.5	47.2	23.6	7.2	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	64.2	48.2	24.2	7.5	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	61.2	46.2	25.3	6.2	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	62.3	45.2	24.5	7.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.01.2023	7:00-7:00	63.4	44.3	23.1	6.8	22.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.01.2023	7:15-7:15	64.2	42.1	24.6	6.2	21.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.01.2023	7:00-7:00	62.3	46.5	25.1	7.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.01.2023	7:15-7:15	64.1	47.2	25.0	6.2	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.01.2023	7:00-7:00	63.4	48.2	24.3	7.2	22.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.01.2023	7:15-7:15	62.3	44.2	23.6	6.5	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.01.2023	7:00-7:00	63.5	45.3	25.3	6.2	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.01.2023	7:15-7:15	64.3	46.1	23.6	7.4	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.01.2023	7:00-7:00	62.5	47.2	24.1	7.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.01.2023	7:15-7:15	61.2	48.1	25.0	6.2	20.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.02.2023	7:00-7:00	63.0	44.3	24.3	7.1	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.02.2023	7:15-7:15	62.4	45.2	23.1	7.0	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.02.2023	7:00-7:00	63.5	46.1	22.5	6.3	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.02.2023	7:15-7:15	64.0	47.0	25.2	6.4	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.02.2023	7:00-7:00	62.5	48.2	23.6	7.6	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.02.2023	7:15-7:15	63.2	46.3	22.4	6.8	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.02.2023	7:00-7:00	64.1	47.1	24.1	6.5	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.02.2023	7:15-7:15	63.0	48.2	25.3	6.2	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;**DL**: Detection Limit ; **NH_3**: BDL (DL:20); **O_3**: BDL (DL:20); **CO**: BDL (DL:1.0); **Pb**: BDL (DL:0.1); **Ni**: BDL (DL:1.0); **As**: BDL (DL:1.0); **C_6H_6**: BDL (DL:1.0); **BaP**: BDL (DL:0.1)

Remarks: The values observed for the pollutants given above are within the CPCB standards.

TABLE 3.21– AAQ4 – BOGAMPATTI

Period: Dec – Feb 2023 Location: AAQ4 - Bogampatti Sampling Time: 24-hourly

Ambient Air Monitoring Details		**Particulate Pollutant**			**Gaseous Pollutant**					**Metals Pollutant**			**Organic Pollutant**	
Parameters		**SPM**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_2**	**NH_3**	**O_3**	**CO**	**Pb**	**Ni**	**As**	**C_6H_6**	**BaP**
NAAQ Norms		**200**	**100**	**60**	**80**	**80**	**400**	**180**	**4**	**1**	**20**	**6**	**5**	**1**
Unit		**$\mu g/m^3$**	**$\mu g/m^3$**	**$\mu g/m^3$**	**$\mu g/m^3$**	**$\mu g/m^3$**	**$\mu g/m^3$**	**$\mu g/m^3$**	**mg/m^3**	**$\mu g/m^3$**	**ng/m^3**	**ng/m^3**	**$\mu g/m^3$**	**ng/m^3**
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
05.12.2022	7:00-7:00	63.5	43.5	23.5	5.2	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	64.2	44.2	22.1	6.2	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	65.1	41.3	26.3	5.8	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	66.0	42.3	25.4	6.3	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	67.1	43.5	24.1	5.0	21.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	64.5	44.5	26.1	6.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	66.3	45.3	27.3	6.3	23.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	67.2	46.1	25.4	5.1	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.01.2023	7:00-7:00	65.3	43.5	26.3	6.4	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.01.2023	7:15-7:15	66.4	44.6	24.1	5.2	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.01.2023	7:00-7:00	67.2	45.2	25.3	5.1	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.01.2023	7:15-7:15	63.2	42.3	26.1	6.3	23.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.01.2023	7:00-7:00	64.0	44.5	25.0	5.8	22.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.01.2023	7:15-7:15	65.3	46.1	24.3	6.3	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.01.2023	7:00-7:00	67.2	45.2	23.5	5.1	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.01.2023	7:15-7:15	64.1	44.3	22.1	6.0	23.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.01.2023	7:00-7:00	66.7	45.2	23.0	5.3	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.01.2023	7:15-7:15	62.3	46.1	23.5	6.2	21.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.02.2023	7:00-7:00	64.3	43.2	21.6	5.8	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.02.2023	7:15-7:15	65.3	44.1	22.0	6.3	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.02.2023	7:00-7:00	67.1	45.6	24.3	5.6	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.02.2023	7:15-7:15	66.3	46.1	26.7	5.2	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.02.2023	7:00-7:00	65.2	44.2	25.1	6.3	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.02.2023	7:15-7:15	64.3	42.3	24.3	5.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.02.2023	7:00-7:00	63.2	44.2	22.1	6.4	20.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.02.2023	7:15-7:15	67.2	45.1	23.6	5.8	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;**DL**: Detection Limit ; **NH_3**: BDL (DL:20); **O_3**: BDL (DL:20); **CO**: BDL (DL:1.0); **Pb**: BDL (DL:0.1); **Ni**: BDL (DL:1.0); **As**: BDL (DL:1.0); **C_6H_6**: BDL (DL:1.0); **BaP**: BDL (DL:0.1)

Remarks: The values observed for the pollutants given above are within the CPCB standards.

TABLE 3.22 – AAQ5 – PERIYAKUYILI

Period: Dec – Feb 2023 *: AAQ5- Periyakuyili* Sampling Time: 24-hourly

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		**SPM**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_2**	**NH_3**	**O_3**	**CO**	**Pb**	**Ni**	**As**	**C_6H_6**	**BaP**
NAAQ Norms		**200**	**100**	**60**	**80**	**80**	**400**	**180**	**4**	**1**	**20**	**6**	**5**	**1**
Unit		**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**mg/m³**	**µg/m³**	**ng/m³**	**ng/m³**	**µg/m³**	**ng/m³**
Date	**Period.hrs**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
05.12.2022	7:00-7:00	65.5	44.5	22.2	7.2	19.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	64.2	45.6	24.3	6.1	21.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	63.1	46.0	23.2	6.3	20.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	64.2	44.0	22.0	7.3	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	65.3	43.2	21.2	6.8	18.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	62.1	45.3	22.3	6.2	23.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	64.2	46.1	23.2	7.2	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	66.3	47.2	24.5	6.5	21.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.01.2023	7:00-7:00	65.2	44.2	25.5	7.1	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.01.2023	7:15-7:15	64.1	43.2	21.5	8.2	18.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.01.2023	7:00-7:00	63.2	45.6	23.6	7.8	19.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.01.2023	7:15-7:15	61.0	46.3	22.4	8.1	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.01.2023	7:00-7:00	62.3	44.2	24.2	7.5	18.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.01.2023	7:15-7:15	64.5	45.3	25.6	7.3	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.01.2023	7:00-7:00	65.3	46.1	23.2	6.2	23.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.01.2023	7:15-7:15	66.1	47.2	22.1	7.4	18.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.01.2023	7:00-7:00	62.3	45.1	23.6	6.3	19.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.01.2023	7:15-7:15	64.1	46.3	24.5	7.5	20.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.02.2023	7:00-7:00	66.3	47.2	26.3	6.0	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.02.2023	7:15-7:15	63.2	45.2	23.2	7.2	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.02.2023	7:00-7:00	62.1	44.3	22.4	7.3	20.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.02.2023	7:15-7:15	64.3	46.8	24.5	6.8	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.02.2023	7:00-7:00	65.2	45.3	25.3	6.0	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.02.2023	7:15-7:15	66.1	44.2	22.3	7.3	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.02.2023	7:00-7:00	65.3	43.1	24.5	7.1	22.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.02.2023	7:15-7:15	64.1	44.2	26.1	6.5	23.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;**DL**: Detection Limit ; **NH_3**: BDL (DL:20); **O_3**: BDL (DL:20); **CO**: BDL (DL:1.0); **Pb**: BDL (DL:0.1); **Ni**: BDL (DL:1.0); **As**: BDL (DL:1.0); **C_6H_6**: BDL (DL:1.0); **BaP**: BDL (DL:0.1)

Remarks: The values observed for the pollutants given above are within the CPCB standards.

TABLE 3.23 – AAQ6 - LAKSHMINAICKENPALAYAM

Period: Dec – Feb 2023 *Location: AAQ6* – Lakshminaickenpalayam Sampling Time: 24-hourly

Ambient Air Monitoring Details		**Particulate Pollutant**			**Gaseous Pollutant**					**Metals Pollutant**			**Organic Pollutant**	
Parameters		**SPM**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_2**	**NH_3**	**O_3**	**CO**	**Pb**	**Ni**	**As**	**C_6H_6**	**BaP**
NAAQ Norms		**200**	**100**	**60**	**80**	**80**	**400**	**180**	**4**	**1**	**20**	**6**	**5**	**1**
Unit		**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**mg/m³**	**µg/m³**	**ng/m³**	**ng/m³**	**µg/m³**	**ng/m³**
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
05.12.2022	7:00-7:00	65.5	45.5	23.1	6.5	18.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	62.0	44.3	22.3	6.8	17.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	60.3	46.3	23.1	7.0	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	62.5	45.3	22.4	6.2	22.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	63.2	46.1	24.3	7.6	18.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	64.1	45.1	22.1	6.3	17.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	65.3	44.3	22.6	7.4	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	60.1	45.2	23.6	6.2	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.01.2023	7:00-7:00	62.3	46.3	24.3	7.1	19.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.01.2023	7:15-7:15	64.5	44.1	22.1	6.5	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.01.2023	7:00-7:00	65.1	45.3	24.3	7.8	18.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.01.2023	7:15-7:15	60.3	46.3	26.5	6.8	19.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.01.2023	7:00-7:00	62.4	44.2	23.1	7.2	20.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.01.2023	7:15-7:15	64.3	46.3	24.3	6.5	17.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.01.2023	7:00-7:00	65.2	45.0	25.6	7.2	17.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.01.2023	7:15-7:15	62.5	46.2	22.1	6.3	18.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.01.2023	7:00-7:00	63.2	44.1	23.5	7.1	19.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.01.2023	7:15-7:15	64.1	46.2	24.5	6.5	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.02.2023	7:00-7:00	65.2	45.2	25.6	7.2	17.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.02.2023	7:15-7:15	63.5	46.3	26.2	6.8	18.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.02.2023	7:00-7:00	62.1	44.2	24.1	7.3	19.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.02.2023	7:15-7:15	64.3	43.2	23.5	6.9	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.02.2023	7:00-7:00	65.2	41.3	22.1	7.2	18.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.02.2023	7:15-7:15	62.1	45.3	26.3	7.0	19.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.02.2023	7:00-7:00	63.1	46.2	22.4	7.2	20.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.02.2023	7:15-7:15	62.3	44.1	21.3	6.5	19.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;**DL**: Detection Limit ; **NH_3**: BDL (DL:20); **O_3**: BDL (DL:20); **CO**: BDL (DL:1.0); **Pb**: BDL (DL:0.1); **Ni**: BDL (DL:1.0); **As**: BDL (DL:1.0); **C_6H_6**: BDL (DL:1.0); **BaP**: BDL (DL:0.1)

Remarks: The values observed for the pollutants given above are within the CPCB standards.

TABLE 3.24 – AAQ7 - PANAPATTI

Period: Dec – Feb 2023 *Location: AAQ7– Panapatti* Sampling Time: 24-hourly

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		**SPM**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_2**	**NH_3**	**O_3**	**CO**	**Pb**	**Ni**	**As**	**C_6H_6**	**BaP**
NAAQ Norms		**200**	**100**	**60**	**80**	**80**	**400**	**180**	**4**	**1**	**20**	**6**	**5**	**1**
Unit		**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**mg/m³**	**µg/m³**	**ng/m³**	**ng/m³**	**µg/m³**	**ng/m³**
Date	**Period.hrs**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
05.12.2022	7:00-7:00	78.5	44.1	22.0	6.5	17.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	79.2	43.2	21.3	7.2	18.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	70.3	45.2	22.0	6.0	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	76.3	46.3	24.3	7.3	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	78.2	47.0	22.5	6.4	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	79.4	44.2	23.6	7.2	23.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	70.3	43.5	21.5	6.8	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	72.1	42.1	22.1	7.1	23.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.01.2023	7:00-7:00	72.5	45.0	23.0	6.5	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.01.2023	7:15-7:15	73.6	46.1	25.6	6.3	18.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.01.2023	7:00-7:00	72.3	47.1	24.3	7.4	19.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.01.2023	7:15-7:15	71.4	43.0	23.0	7.0	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.01.2023	7:00-7:00	70.4	44.0	25.2	6.8	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.01.2023	7:15-7:15	72.6	45.1	24.1	7.2	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.01.2023	7:00-7:00	73.5	46.2	23.1	6.2	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.01.2023	7:15-7:15	78.2	47.3	22.1	7.4	19.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.01.2023	7:00-7:00	79.2	44.2	21.3	7.3	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.01.2023	7:15-7:15	72.3	43.2	22.1	7.2	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.02.2023	7:00-7:00	73.5	46.1	23.0	6.9	23.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.02.2023	7:15-7:15	72.4	43.0	23.1	7.0	18.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.02.2023	7:00-7:00	71.3	46.2	22.1	6.8	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.02.2023	7:15-7:15	70.4	45.2	22.4	7.2	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.02.2023	7:00-7:00	72.3	46.3	25.3	6.4	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.02.2023	7:15-7:15	74.1	43.5	26.3	7.3	21.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.02.2023	7:00-7:00	73.6	44.1	27.1	6.8	22.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.02.2023	7:15-7:15	72.3	46.3	23.1	7.2	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;**DL**: Detection Limit ; **NH_3**: BDL (DL:20); **O_3**: BDL (DL:20); **CO**: BDL (DL:1.0); **Pb**: BDL (DL:0.1); **Ni**: BDL (DL:1.0); **As**: BDL (DL:1.0); **C_6H_6**: BDL (DL:1.0); **BaP**: BDL (DL:0.1)

Remarks: The values observed for the pollutants given above are within the CPCB standards.

TABLE 3.25 – AAQ8 - CHINNAKUYILI

Period: Dec – Feb 2023 *Location: AAQ98– Chinnakuyili* Sampling Time: 24-hourly

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		**SPM**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_2**	**NH_3**	**O_3**	**CO**	**Pb**	**Ni**	**As**	**C_6H_6**	**BaP**
NAAQ Norms		**200**	**100**	**60**	**80**	**80**	**400**	**180**	**4**	**1**	**20**	**6**	**5**	**1**
Unit		**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**mg/m³**	**µg/m³**	**ng/m³**	**ng/m³**	**µg/m³**	**ng/m³**
Date	**Period.hrs**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
05.12.2022	7:00-7:00	65.3	43.5	22.5	6.2	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.12.2022	7:15-7:15	66.2	44.2	22.3	7.2	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.12.2022	7:00-7:00	67.2	45.3	21.3	6.5	24.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.12.2022	7:15-7:15	68.3	42.1	24.1	7.0	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.12.2022	7:00-7:00	64.1	46.3	26.3	6.3	23.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.12.2022	7:15-7:15	65.2	44.3	28.4	7.4	21.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.12.2022	7:00-7:00	66.3	45.2	24.0	6.8	22.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.12.2022	7:15-7:15	67.4	46.1	25.3	7.2	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.01.2023	7:00-7:00	68.2	45.3	26.5	6.5	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.01.2023	7:15-7:15	66.3	44.1	27.4	7.1	22.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.01.2023	7:00-7:00	67.4	43.2	28.3	6.4	20.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.01.2023	7:15-7:15	66.3	41.2	22.5	7.5	24.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.01.2023	7:00-7:00	65.2	45.6	24.3	6.3	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.01.2023	7:15-7:15	66.3	44.3	25.4	7.2	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.01.2023	7:00-7:00	64.1	46.1	26.3	6.0	23.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.01.2023	7:15-7:15	65.3	47.1	28.1	7.4	24.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.01.2023	7:00-7:00	67.2	44.3	25.2	6.8	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.01.2023	7:15-7:15	68.3	46.2	26.3	7.2	23.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
06.02.2023	7:00-7:00	66.4	45.2	27.4	6.3	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.02.2023	7:15-7:15	67.2	47.2	24.3	7.2	21.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
13.02.2023	7:00-7:00	65.3	46.1	25.2	7.3	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.02.2023	7:15-7:15	64.3	43.2	28.3	6.4	24.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20.02.2023	7:00-7:00	66.3	44.6	29.2	7.3	25.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.02.2023	7:15-7:15	65.2	45.2	27.4	6.4	23.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27.02.2023	7:00-7:00	66.3	46.1	28.3	7.0	25.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.02.2023	7:15-7:15	67.2	47.1	29.4	6.2	24.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;**DL**: Detection Limit ; **NH_3**: BDL (DL:20); **O_3**: BDL (DL:20); **CO**: BDL (DL:1.0); **Pb**: BDL (DL:0.1); **Ni**: BDL (DL:1.0); **As**: BDL (DL:1.0); **C_6H_6**: BDL (DL:1.0); **BaP**: BDL (DL:0.1)

Remarks: The values observed for the pollutants given above are within the CPCB standards.

TABLE 3.26 – ABSTRACT OF AMBIENT AIR QUALITY DATA

1	**Parameter**	**PM10**	**PM2.5**	**SO_2**	**NO_2**
2	No. of Observations	260	260	260	260
3	10^{th} Percentile Value	43.2	22.1	6.0	19.2
4	20^{th} Percentile Value	44.1	22.3	6.2	20.3
5	30^{th} Percentile Value	44.3	23.1	6.4	21.0
6	40^{th} Percentile Value	45.2	23.6	6.5	21.5
7	50^{th} Percentile Value	45.3	24.2	6.8	22.1
8	60^{th} Percentile Value	46.1	24.5	7.1	22.4
9	70^{th} Percentile Value	46.2	25.2	7.2	22.6
10	80^{th} Percentile Value	46.5	25.6	7.3	23.4
11	90^{th} Percentile Value	47.2	26.4	7.5	23.6
12	95^{th} Percentile Value	48.2	27.4	8.1	24.1
13	98^{th} Percentile Value	49.2	28.4	8.3	24.5
14	Arithmetic Mean	45.9	24.8	7.0	22.2
15	Geometric Mean	45.9	24.7	7.0	22.2
16	Standard Deviation	1.8	2.0	0.7	1.6
17	Minimum	43.2	22.1	6.0	19.2
18	Maximum	49.2	28.4	8.3	24.5
19	**NAAQ Norms***	**100.0**	**60.0**	**80.0**	**80.0**
	% Values exceeding Norms*	0.0	0.0	0.0	0.0

Legend: $PM_{2.5}$-Particulate Matter size less than 2.5 µm; PM_{10}-Respirable Particulate Matter size less than 10 µm; SO_2-Sulphur dioxide; NO_2-Nitrogen Dioxide; CO-Carbon monoxide; O_3-Ozone; NH_3-Ammonia; Pb-Particulate Lead; As-Particulate Arsenic; Ni-Particulate Nickel; C_6H_6-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.

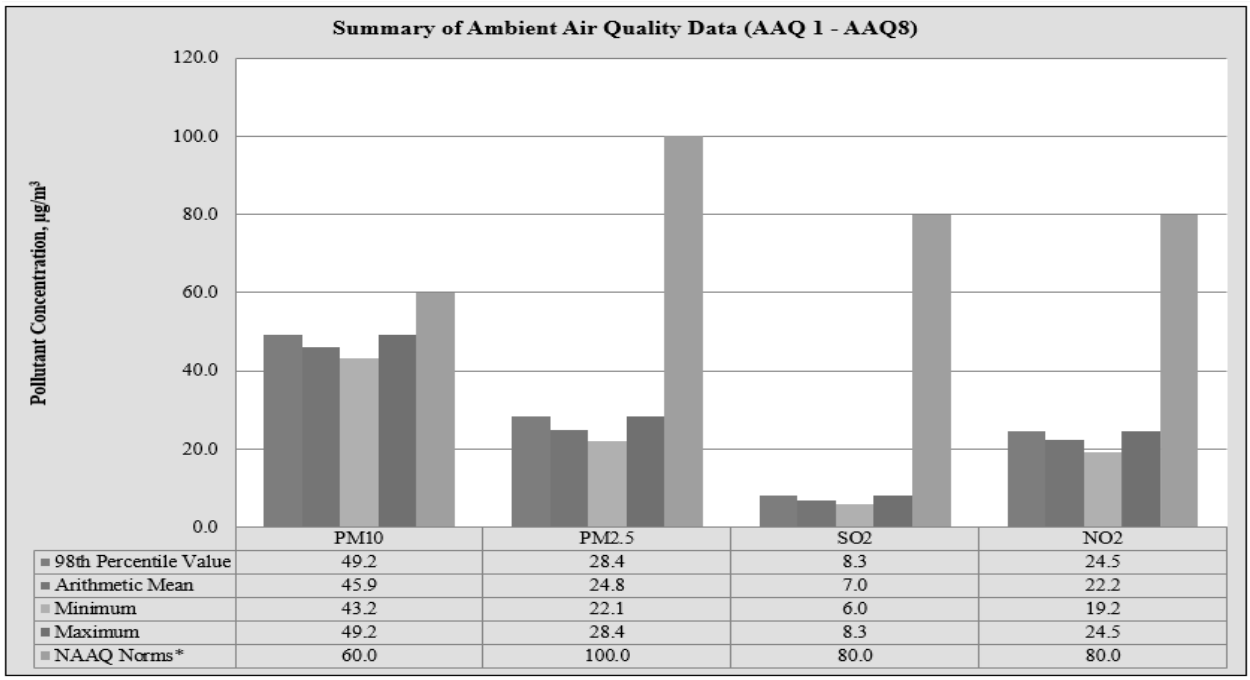
TABLE 3.27 –SUMMARY OF AMBIENT AIR QUALITY DATA

PM10	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	45.0	47.1	46.0	44.3	45.2	45.2	44.9	45.0
Minimum	42.0	45.1	42.1	41.3	43.1	41.3	42.1	41.2
Maximum	47.3	49.3	48.2	46.1	47.2	46.3	47.3	47.2
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0

PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	23.4	25.3	23.8	24.4	45.2	45.1	23.3	25.9
Minimum	21.3	22.1	21.0	21.6	21.2	21.3	21.3	21.3
Maximum	26.1	27.3	25.3	27.3	26.3	26.5	27.1	29.4
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

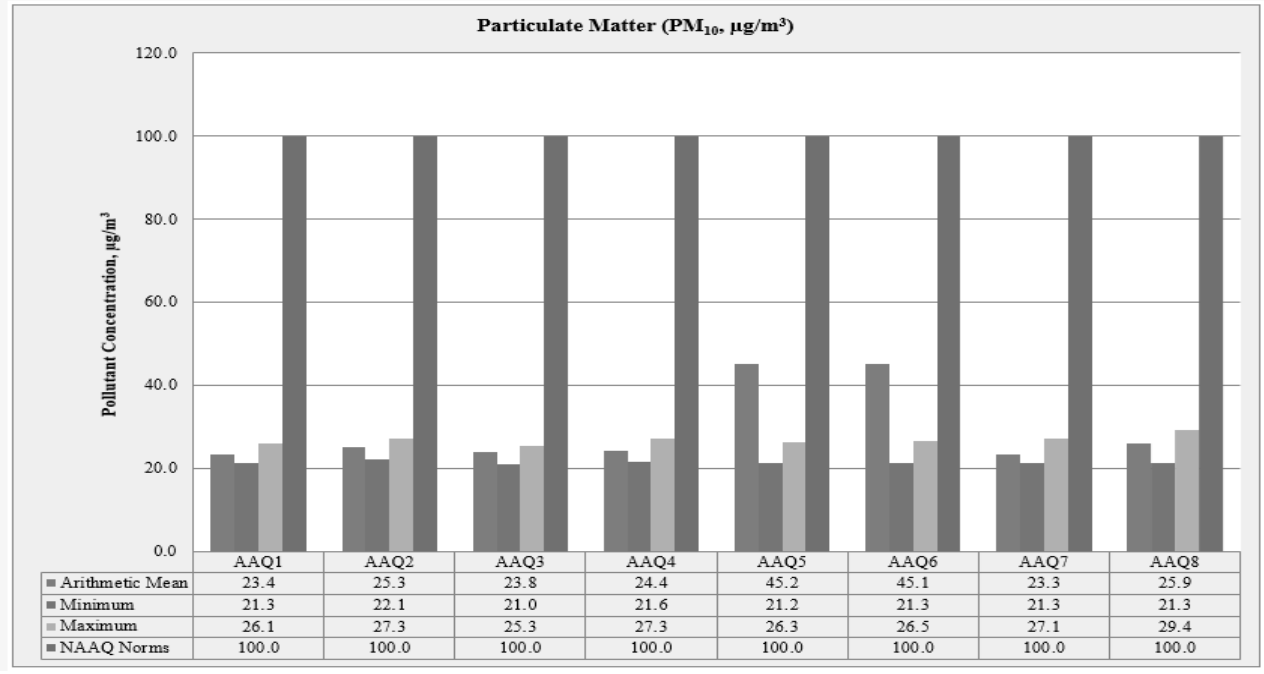
SO_2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	7.3	7.0	6.8	5.8	7.0	6.9	6.9	6.8
Minimum	6.0	6.0	6.2	5.0	6.0	6.2	6.0	6.0
Maximum	8.6	8.3	7.6	6.4	8.2	7.8	7.4	7.5
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

NO_2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	22.1	22.5	21.7	22.4	21.1	19.2	21.3	23.0
Minimum	20.3	21.0	19.0	20.3	18.0	17.2	17.2	20.1
Maximum	23.5	23.6	23.5	23.6	23.6	22.2	24.1	25.1
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0



	PM10	PM2.5	SO2	NO2
98th Percentile Value	49.2	28.4	8.3	24.5
Arithmetic Mean	45.9	24.8	7.0	22.2
Minimum	43.2	22.1	6.0	19.2
Maximum	49.2	28.4	8.3	24.5
NAAQ Norms*	60.0	100.0	80.0	80.0

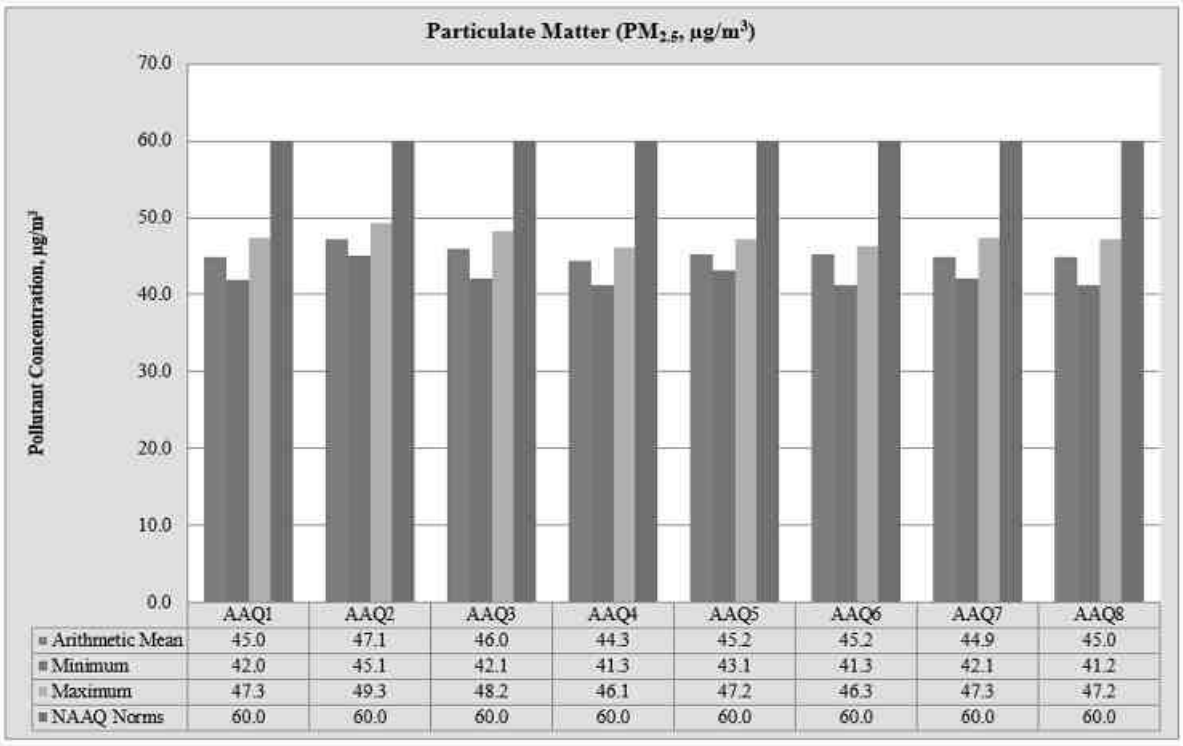
FIGURE 3.15 : BAR DIAGRAM OF SUMMARY OF AAQ



	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	23.4	25.3	23.8	24.4	45.2	45.1	23.3	25.9
Minimum	21.3	22.1	21.0	21.6	21.2	21.3	21.3	21.3
Maximum	26.1	27.3	25.3	27.3	26.3	26.5	27.1	29.4
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

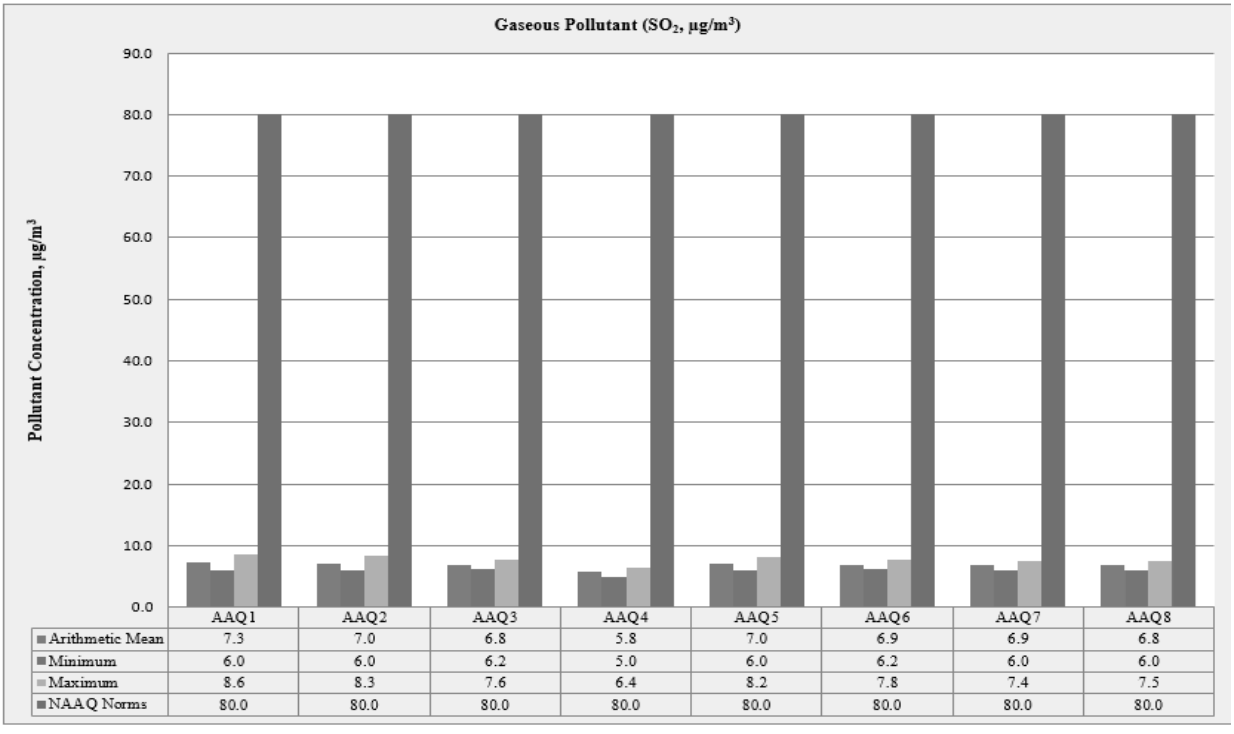
FIGURE 3.16 : BAR DIAGRAM OF PARTICULATE MATTER (PM10)

FIGURE 3.16 A : BAR DIAGRAM OF PARTICULATE MATTER ($PM_{2.5}$)



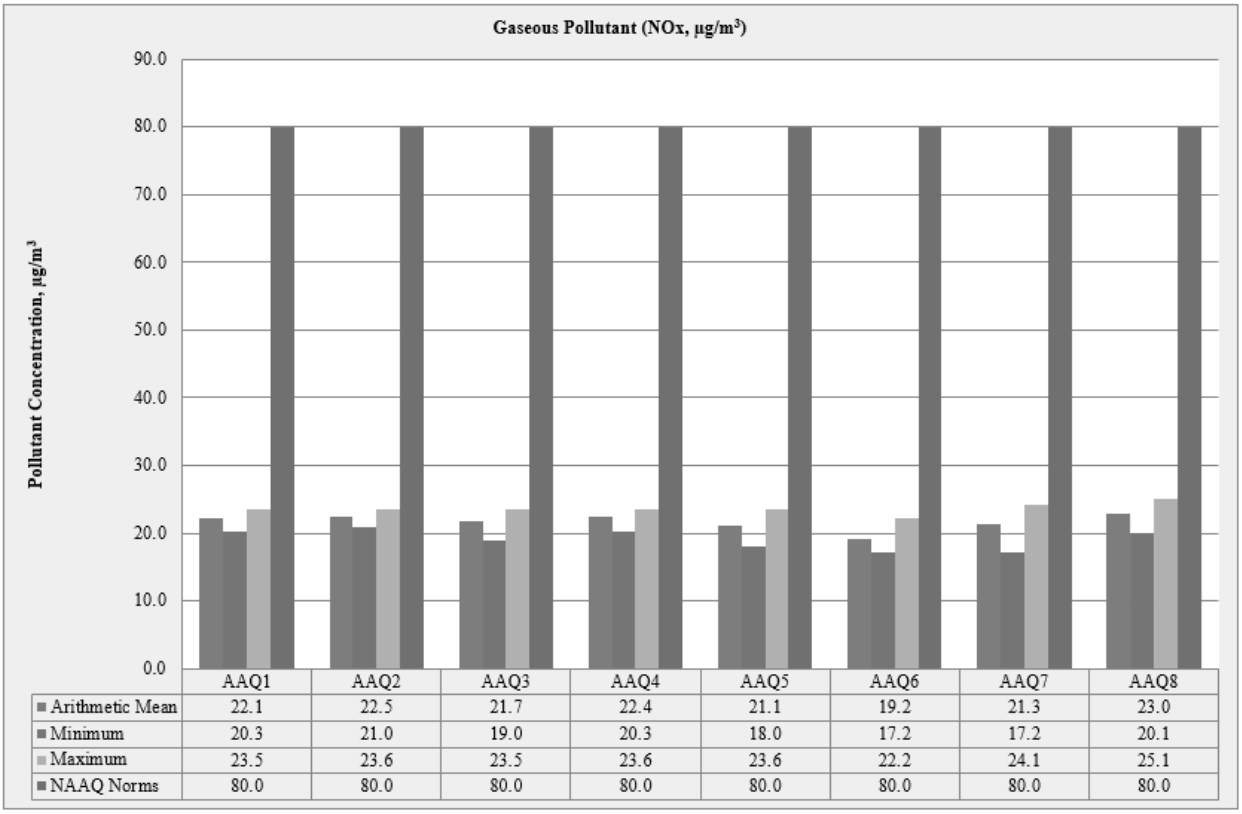
	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	45.0	47.1	46.0	44.3	45.2	45.2	44.9	45.0
Minimum	42.0	45.1	42.1	41.3	43.1	41.3	42.1	41.2
Maximum	47.3	49.3	48.2	46.1	47.2	46.3	47.3	47.2
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0

FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER (SO_2)



	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	7.3	7.0	6.8	5.8	7.0	6.9	6.9	6.8
Minimum	6.0	6.0	6.2	5.0	6.0	6.2	6.0	6.0
Maximum	8.6	8.3	7.6	6.4	8.2	7.8	7.4	7.5
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

FIGURE 3.17 A: BAR DIAGRAM OF PARTICULATE MATTER (NO2)



	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Arithmetic Mean	22.1	22.5	21.7	22.4	21.1	19.2	21.3	23.0
Minimum	20.3	21.0	19.0	20.3	18.0	17.2	17.2	20.1
Maximum	23.5	23.6	23.5	23.6	23.6	22.2	24.1	25.1
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

3.3.6 Interpretations & Conclusion

As per monitoring data, PM_{10} ranges from 41.2 µg/m^3 to 49.3µg/m^3, $PM_{2.5}$ data ranges from 21 µg/m^3 to 29.4 µg/m^3, SO_2 ranges from 5.0 µg/m^3 to 8.6 µg/m^3 and NO_2 data ranges from 17.2 µg/m^3 to 25.1 µg/m^3. 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_{10} were found to be 41.2 µg/m^3 in Chinnakuyili & 49.3 µg/m^3 in Core area respectively. The minimum & maximum concentrations of $PM_{2.5}$ were found to be 21.0 µg/m^3 in SN Palayam village & 29.4 µg/m^3 in Chinnakuyili Village area respectively. The maximum concentration in the core zone is due to the cluster of quarries situated within 500m radius.

3.3.7 FUGITIVE DUST EMISSION –

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

TABLE 3.29– AVERAGE FUGITIVE DUST SAMPLE VALUES IN µg/m^3

AAQ Locations	Avg SPM (µg/m^3)
AAQ 1	68.86
AAQ 2	69.57
AAQ 3	65.03
AAQ 4	68.02
AAQ 5	66.52
AAQ 6	69.08
AAQ 7	70.35
AAQ 8	68.63

Source: EHS 360 Labs Private Limited

Source: Line Diagram of Table 3.29

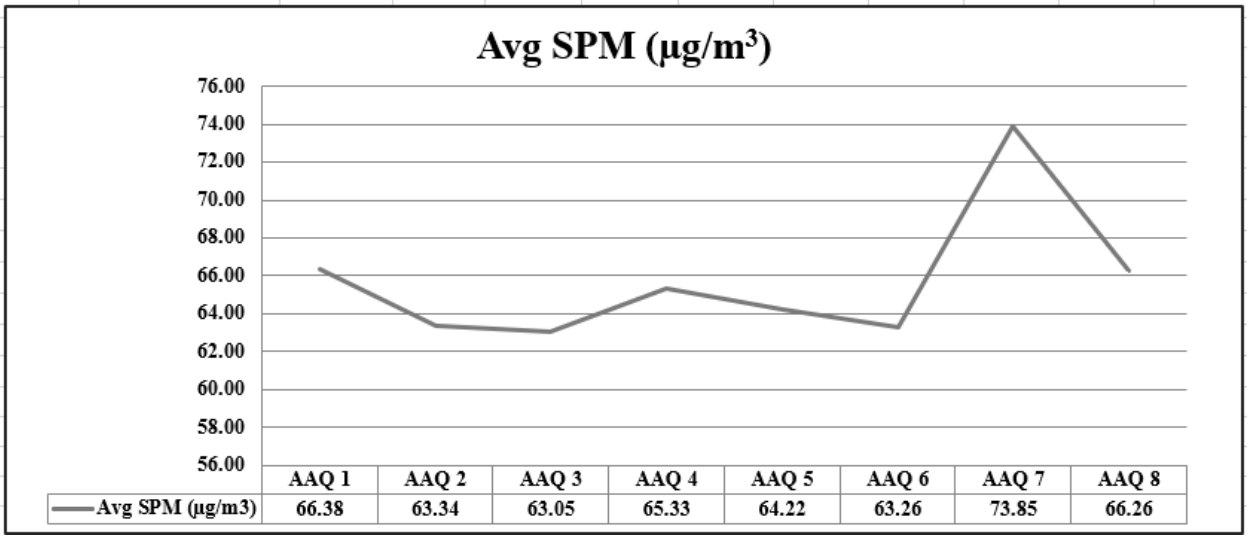
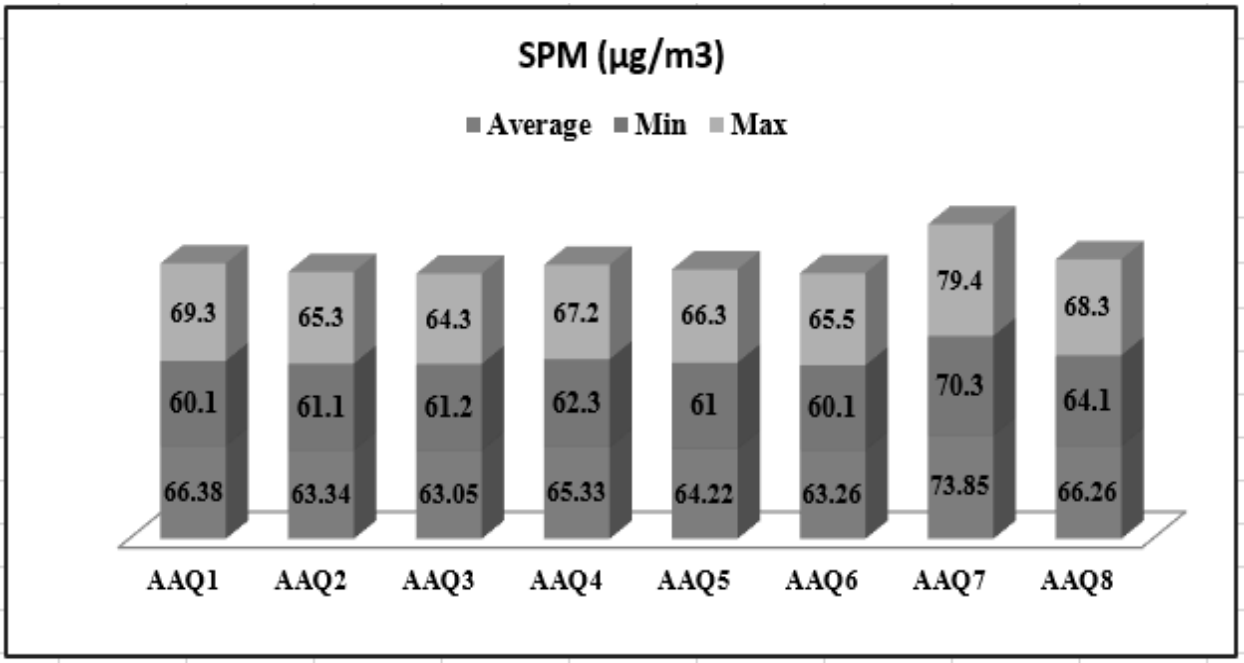


TABLE 3.30– FUGITIVE DUST SAMPLE VALUES IN µg/m^3 –

SPM (µg/m^3)	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Average	66.38	63.34	63.05	65.33	64.22	63.26	73.85	66.26
Max	60.1	61.1	61.2	62.3	61	60.1	70.3	64.1
Min	69.3	65.3	64.3	67.2	66.3	65.5	79.4	68.3

Source: Calculations from Lab Analysis Reports



Source: Bar Diagram of table 3.30

3.4 Noise Environment

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

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

3.4.1 Identification of Sampling Locations

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

TABLE 3.31 – DETAILS OF SURFACE NOISE MONITORING LOCATIONS

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	N-1	Core Zone	Project Area	10°55'1.67"N 77° 6'50.88"E
2	N-2	Core Zone	Project Area	10°54'46.62"N 77° 6'47.59"E
3	N-3	SN Palayam	3.8km 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	Periyakuyili	4.5km SW	10°53'57.54"N 77° 4'36.49"E
6	N-6	Lakshminaickenpalayam	4.4km East	10°55'15.52"N 77° 9'15.45"E
7	N-7	Panapatti	4.3km SW	10°52'43.62"N 77° 6'1.10"E
8	N-8	Chinnakuyili	3.2km NW	10°55'39.20"N 77° 5'13.11"E

Source: On-site monitoring/sampling by EHS 360 Labs Private Limited in association with GEMS

FIGURE 3.18: SITE PHOTOGRAPHS OF NOISE MONITORING IN CLUSTER

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∑ (10Ln/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	42.5	35.3	**Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)**
N-2	Core Zone	41.8	35.3	
N-3	SN Palayam	39.0	35.6	
N-4	Bogampatti	38.8	34.6	
N-5	Periyakuyili	38.0	35.5	**Residential Day Time– 55 dB (A) Night Time- 45 dB (A)**
N-6	Lakshminaickenpalayam	38.1	35.1	
N-7	Panapatti	39.7	34.0	
N-8	Chinnakuyili	37.9	35.1	

Source: On-site monitoring/sampling by EHS 360 Labs Private Limited in association with GEMS

FIGURE 3.19: NOISE MONITORING STATIONS AROUND 10 KM RADIUS

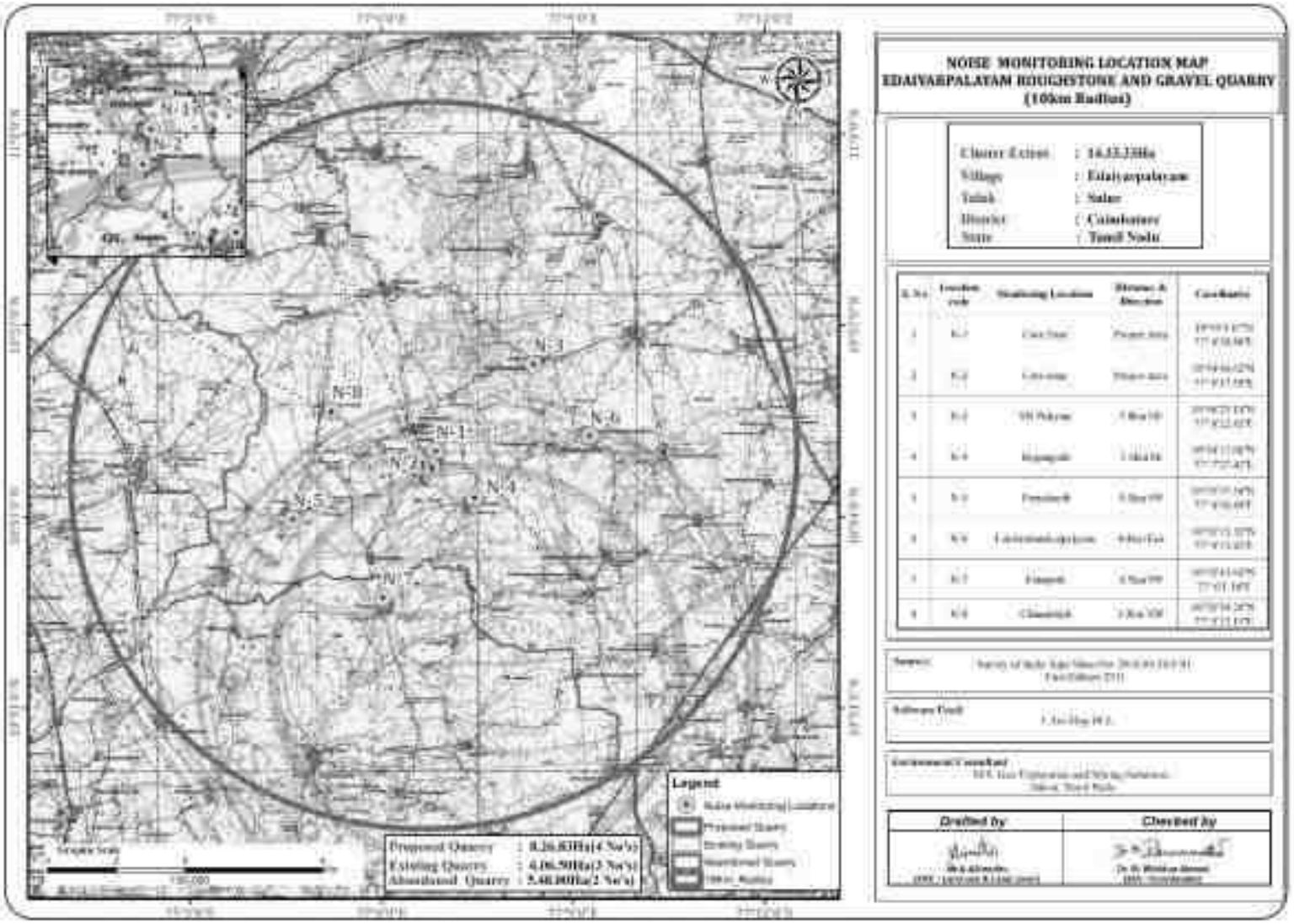
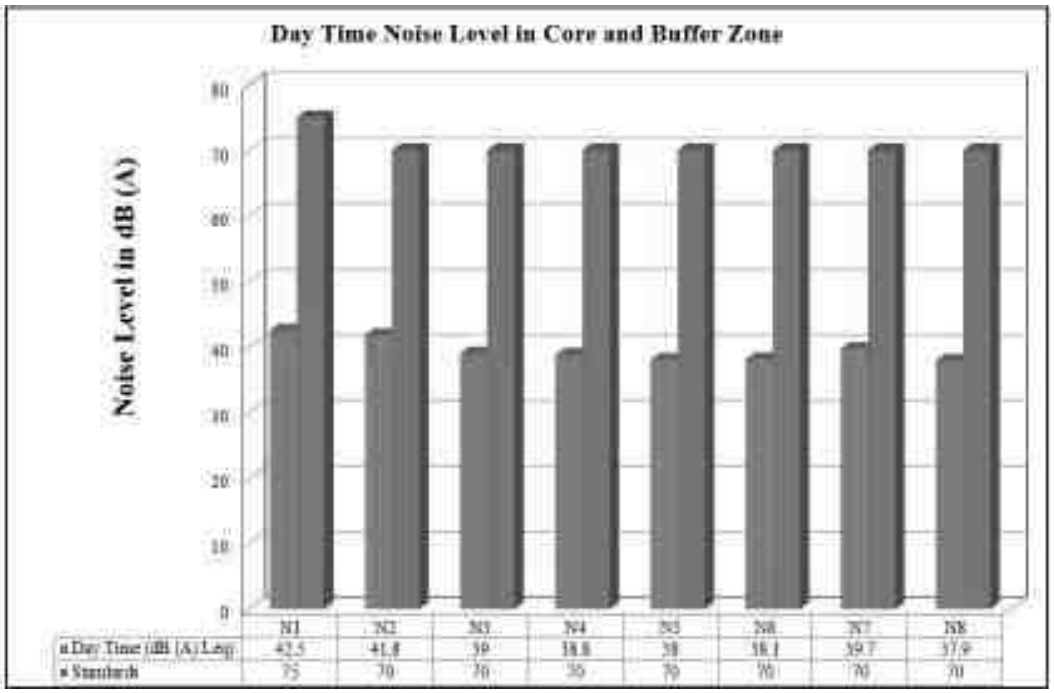
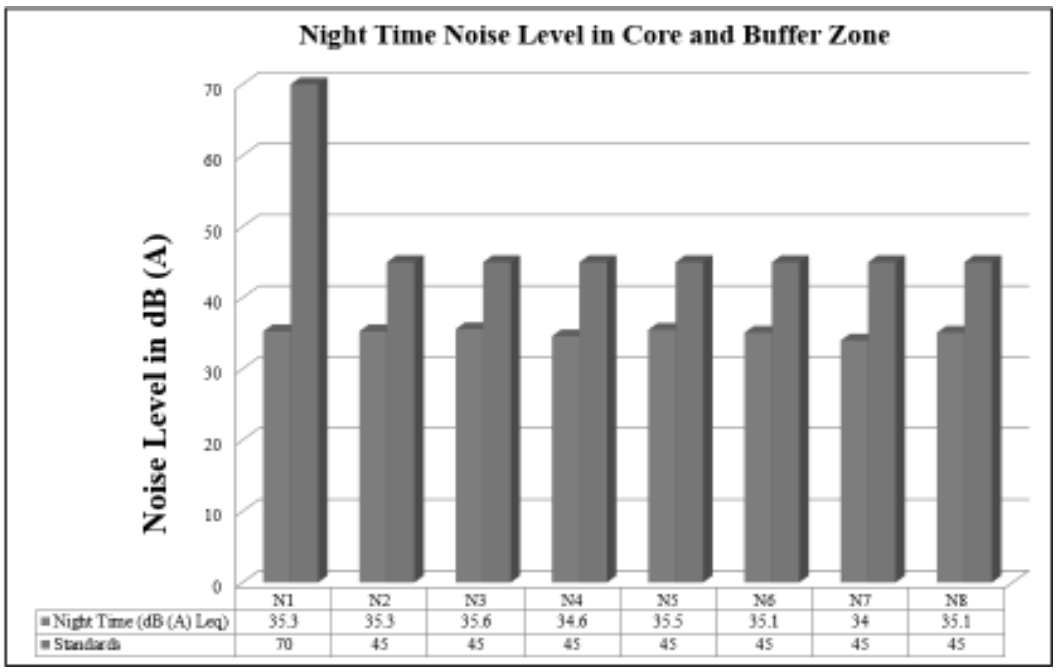


FIGURE 3.20: DAY & NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE





3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 8 (eight) locations around the project area considering cluster quarries. Noise levels recorded in core zone during day time were from 41.8 – 42.5 dB (A) Leq and during night time were from 35.3 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 37.9 – 39.7dB (A) Leq and during night time were from 34 – 35.6 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 48.6 dB(A) in Lakshminaickenpalayam village and 31.2 dB(A) in Bogampatti & chinnakuili Village respectively. 40.2 - 30.2dB (A) in SN Palayam and Periyakuili 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 cluster extent of 14.33.33 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

SI.No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Velvet mesquite	Mullu Maram	*Prosopis juliflora*	Fabaceae
2.	White Bark Acacia	Vela maram	*Vachellia leucophloea*	Fabaceae
3.	Neem or Indian lilac	Vembu maram	*Azadirachta indica*	Meliaceae
4.	Millettia Pinnata	Pongam oiltree	*Pongamia pinnata*	Fabaceae
Shrubs				
1.	Avaram	Avarai	*Senna auriculata*	Fabaceae
2.	Devil's trumpet	Umathai	*Datura metel*	Solanaceae
3.	Milk Weed	Erukku	*Calotropis gigantea*	Apocynaceae
Herbs				
1.	Common leucas	Thumbai	*Leucas aspera*	Lamiaceae
2.	Fish poison	Kolinchi	*Tephrosia purpurea*	Fabaceae
3.	Coat buttons	Thatha poo	*Tridax procumbens*	Asteraceae
4.	Devil‘s thorn	Nerunji	*Tribulus terrestris*	Zygophyllales
5.	Asthma-plant	Amman pacharisi	*Euphorbia hirta*	Euphorbiaceae
6.	Indian doab	Arugampul	*Cynodon dactylon*	Poaceae
7.	Malabar catmint	Pie Viratti	*Anisomeles malabarica*	Lamiaceae
Grasses				
1.	Eragrostis	Pullu	*Eragrostis ferruginea*	Poaceae
2.	Great brome	Thodappam	*Bromus diandrus*	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.

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

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

3.	Senna Coffee	Payaveri	*Cassia occidentalis*	Caesalpiniaceae
4.	Avaram	Avarai	*Senna auriculata*	Fabaceae
5.	Water-hyacinth	Agayathamarai	*Eichhornia crassipes*	Pontederiaceae
6.	Kangkong	Sarkaraivalli	*Ipomeae aquatica*	Convolvulaceae
7.	Castor bean	Amanakku	*Ricinus communis*	Euphorbiaceae
8.	-	Vellai indu	*Acacia pennata*	Mimosaceae
9.	Green amaranth	Kuppaikeerai	*Amaranthus vividis*	Amaranthaceae
10.	Jungle geranium	Idly Poo	*Ixora coccinea*	Rubiaceae
11.	Birch-Leaved Cat Tail	Aathaathazhai	*Acalypha fruticosa*	Euphorbiaceae
12.	Horn of Plenty	Karu Umathai	*Datura metel*	Solanaceae
13.	Devil's claw	Thael kodukkukai	*Martynia annua*	Pedaliaceae
14.	Shoe flower	Chemparuthi	*Hibiscu rosa-sinensis*	Malvaceae
15.	Asian Bushbeech	Sirukumalaan	*Gmelina asiatica*	Verbenaceae
16.	Wild jasmine	Kattumalli	*Jasminum trichotomum*	Oleaceae
17.	Milk Weed	Erukku	*Calotropis gigantea*	Apocynaceae
18.	Rough cocklebur	Marlumuttu	*Xanthium indicum*	Asteraceae
19.	Mexican prickly poppy	Bramathndu	*Argemone mexicana*	Papaveraceae
20.	Orange Jasmine	Mock Orange	*Murraya paniculata*	Rutaceae
21.	Puriging nut	Kattamanakku	*Jatropha curcas*	Euphorbiaceae
22.	Cypress vine	Mayil maanikam	*Ipomoea quamoclit*	Convolvulaceae
23.	Indian Balm of Gilead	Mulkilluvai	*Commiphora berryi*	Burseraceae
24.	Malabar catmint	Pei veratti	*Anisomeles malabarica*	Lamiaceae
25.	Dwarf Heliotrope	Theelkoduku	*Heliotropium supinum*	Boraginaceae
26.	Clustered Morning Glory	Onan kodi	*Ipomoea staphylina*	Convolvulaceae
27.	Touch-me-not	Thottalchinungi	*Mimosa pudica*	Mimosaceae
28.	Indian mallow	Thuthi	*Abutilon indicum*	Meliaceae
29.	Night shade plan	Sundaika	*Solanum torvum*	Solanaceae
30.	Rosary pea	Kundumani	*Abrus precatorius*	Fabaceae
31.	Indian Oleander	Arali	*Nerium indicum*	Apocynaceae
32.	West Indian Lantana	Unni chedi	*Lantana camara*	Verbenaceae
33.	Rough cocklebur	Marlumutt	*Xanthium indicum*	Asteraceae
Herbs				
1.	Carrot grass	Parttiniyam	*Parthenium hysterophorus*	Asteraceae

2.	Sessile Joyweed	Ponnankanni	*Alternanthera sessilis*	Amaranthaceae
3.	Billygoat weed	Pumpillu	*Ageratum conyzoides*	Asteraceae
4.	Aloe barbadensis	Katrazhai	*Aloe vera*	Asphodelaceae
5.	Madagascar Periwinkle	Nithyakalyani	*Catharanthus roseus*	Apocynaceae
6.	Indian Mercury	Kuppamani	*Acalypha indica*	Euphorbiaceae
7.	Indian nettle	Nayuruvi	*Achyranthes aspera*	Amaranthaceae
8.	Chloris barbata	Kodai pul	*Chloris barbata*	Poaceae
9.	Spreading hogweed	Mookkaratti	*Boerhavia diffusa*	Nyctaginaceae
10.	Bui	Ciru-pulai	*Aervalanata*	Amaranthaceae
11.	Indian doab	Arugampul	*Cynodon dactylon*	Poaceae
12.	Spiny amaranth	Mullu keerai	*Amaranthus spinosus*	Amaranthaceae
13.	Prickly chaff flower	Uthrani	*Achyranthes aspera*	Amaranthaceae
14.	Malabar spinach	Pasalaikeerai, Paasaangalli	*Basella alba*	Basellaceae
15.	Tropical milkweed	Blood Flower	*Asclepias curassavica*	Asclepiadaceae
16.	Mexican prickly poppy	Mullu umathai	*Argemone mexicana*	Papaveraceae
17.	Dwarf morning-glory	Vishnu kiranthi	*Evolvulus alsinoides*	Convolvulaceae
18.	Datura metel	Oomathai	*Datura metel*	Solanaceae
19.	Carry me seed	Kizhar nelli	*Phyllanthus amarus*	Phyllanthaceae
20.	Malabar catmint	Peymarutti	*Anisomeles malabarica*	Lamiaceae
21.	Black-jack	Mukkuthi Asteraceae	*Bidens pilosa*	Aizoaceae
22.	Yellow elder	Manjarali	*Tecoma stans*	Apocynaceae
23.	Green amaranth	Kuppai keerai	*Amaranthus viridis*	Amaranthaceae
24.	Obscure Morning Glory	Siruthaali	*Ipomoea obscura*	Convolvulaceae
25.	Cleome viscosa	Nai kadugu	*Celome viscosa*	Capparidaceae
26.	Common leucas	Thumbai	*Leucas aspera*	Lamiaceae
27.	Waterhyssop	Nilappachai	*Bacopa monnieri*	Scrophulariaceae
28.	Century plant	Agave	*Agave america*	Agavaceae
29.	Sand Herbage	Manal keerai	*Gisekia pharnaceoides*	
30.	Fish poison	Kollukaivelai	*Tephrosia purpureae*	Papilionaceae
31.	Elephant Climber	Vettai chedi, Kanvali poo	*Argyreia cuneata*	Convolvulaceae
32.	Asthma-plant	Amman pacharisi	*Euphorbia hirta*	Euphorbiaceae
33.	Porcupine flower	Shemmuli	*Barleria prionitis*	Acanthaceae
34.	Holy basil	Thulasi	*Ocimum tenuiflorum*	Lamiaceae

35.	Peanut	Kadalai	*Arachis hypogaea*	Fabaceae
36.	Red Hogweed	Mukurattai	*Boerhavia diffusa*	Nyctaginaceae
37.	Tridax daisy	Thatha poo	*Tridax procumbens*	Asteraceae
38.	Gale of the wind	Keelaneeli	*Phyllanthus niruri*	Phyllanthaceae
39.	Eggplant	Kathirikai	*Solanum melongena*	Solanaceae
40.	European black nightshade	Manathakkali	*Solanumnigrum*	Solanaceae
Climber/ Creeper				
1.	Ivy gourd	Kovai	*Coccinia grandis*	Cucurbitaceae
2.	Cucumis maderaspatanus	Musumusukkai	*Mukia maderaspatana*	Cucurbitaceae
3.	Indian atalantia	Kattu naarangam,	*Atalantia monophylla*	Rutaceae
4.	Butterfly pea	Sangu poo	*Clitoria ternatea*	Fabaceae
5.	Wild water lemon	Sirupoonaikaali	*Passiflora foetida*	Passifloraceae
6.	Stemmed vine	Perandai	*Cissus quadrangularis*	Vitaceae
7.	Bottle Guard	Sorakkai	*Lagenaria siceraria*	Cucurbitaceae
8.	Rosary Pea	Gundumani	*Abrus precatorius*	Fabaceae
9.	Shatavari	Thaneervittaan	*Asparagus racemosus*	Liliaceae
10.	Pointed gourd	Kovakkai	*Trichosanthes dioica*	Cucurbitaceae
11.	Wild bitter	Pavarkai	*Momordica charantia*	Cucurbitaceae
Grass				
1.	Eragrostis	Pullu	*Eragrostis ferruginea*	Poaceae
2.	Giant reed	Elephant grass	*Arundo donax*	Poaceae
3.	Windmill grass	Chevvarakupul	*Chloris barbata*	Amaranthaceae
4.	Nut grass	Korai	*Cyperus rotandus*	Poaceae
5.	Great brome	Thodappam	*Bromus diandrus*	Poaceae
Cactus				
1.	Prickly pear	Nagathali	*Opuntia dillenii*	Cactaceae
2.	Triangular spruge	Chaturakalli	*Euphorbia antiquorum*	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
Total No. of Species		**150**

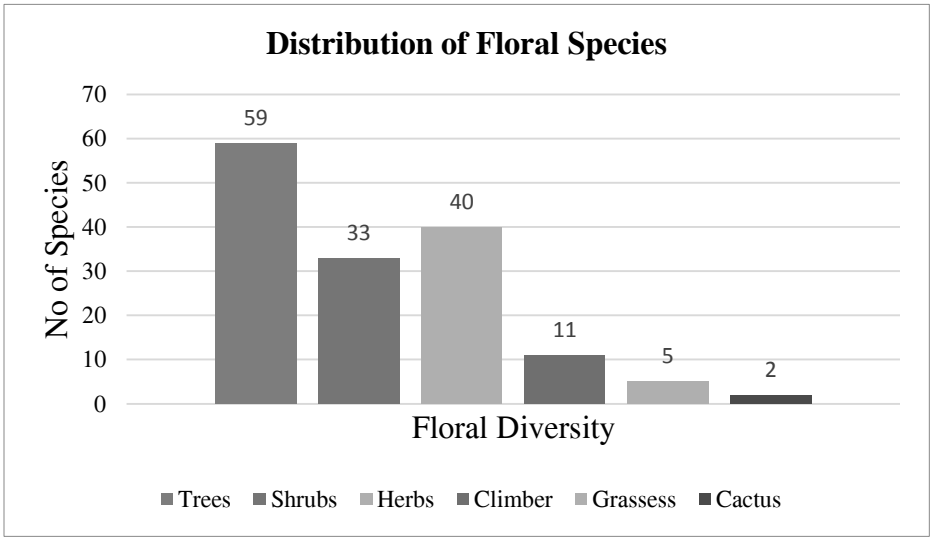
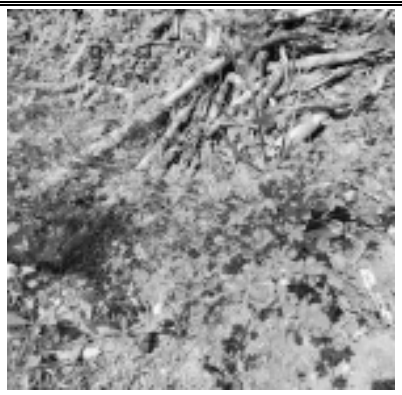


Fig No. 3.22: Graph showing % distribution of floral life forms

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

m. Tridax procumbens n.Tecoma stans o. Vitex negundo

p. Opuntia dillenii q. Boerhavia diffusa r.Lantana camara

S. Borassus flabellifer t. Abrus precatorius u. Calotropis gigantea

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
Insects			
1.	Common Tiger	*Danaus genutia*	NL
2.	Red-veined darter	*Sympetrum fonscolombii*	NL
3.	Tawny coster	*Danaus chrysippus*	Schedule IV
4.	House fly	*Musca domestica*	-
5.	Dragonfly	*Agriansp*	-
6.	Striped tiger	*Danaus plexippus*	Schedule IV
7.	Grey pansy	*Junonia atlites*	LC
8.	Common Tiger	*Danaus genutia*	LC
Reptiles			
1.	Oriental garden lizard	*Calotes versicolor*	NL
2.	Indian forest skink	*Sphenomorphus indicus*	NL
3.	House lizards	*Hemidactylus flaviviridis*	Schedule IV
Mammals			
1.	Indian Field Mouse	*Mus booduga*	Schedule IV
2.	Asian Small Mongoose	*Herpestes javanicus*	Schedule (Part II)
3.	Squirrel	*Funambulus palmarum*	Schedule IV
Aves			
1.	Rose-ringed parkeet	*Psittacula krameri*	Schedule IV
2.	Common myna	*Acridotheres tristis*	NL
3.	Blue-rock pigeon	*Colombalivia*	Schedule IV
4.	Yellow wagtail	*Motacilla flava*	Schedule IV
5.	Pond heron	*Ardeolagrayii*	Schedule IV
6.	Asian koel	*Eudynamysscolopacea*	Schedule IV
7.	Koel	*Eudynamys*	Schedule IV

8.	Black drongo	*Dicrurus macrocercus*	Schedule IV
9.	House crow	*Corvussplendens*	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, Euphlyctis 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)

SI. No	Common Name	Scientific Name	Schedule list WLPA 1972
1.	Brown rat	*Rattus norwegicus*	Schedule IV
2.	Indian palm squirrel	*Funambulus palmarum*	Schedule IV
3.	Asian Small Mongoose	*Herpestes javanicus*	Schedule (Part II)
4.	Indian hare	*Lepus nigricollis*	Schedule (Part II)
5.	Indian Field Mouse	*Mus booduga*	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

SI. No	Common Name	Scientific Name	Schedule list WLP 1972
1.	Rose-ringed Parakeet	*Psittaculakrameria*	Schedule IV
2.	Little grebe	*Tachybaptusruficollis*	Schedule IV

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

Table 3.39 List of

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

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

Reptiles either spotted or reported from the study area

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

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

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

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.	*Eichhornia crassipes*	Common water hyacinth	Free floating hydrophytes
2.	*Typha angustifolia*	Lesser Bulrush	Emergent hydrophytes
3.	*Hydrilla verticillata*	Hydrilla	Submerged hydrophytes
4.	*Pistia stratiotes*	Water lettuce	Free floating hydrophytes
5.	*Cyperus articulates*	Jointed flatsedge	Emergent Hydrophytes
6.	*Ipomea aquatica*	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 WLPC 1972
1.	Indian Burrowing frog	*Sphaerotheca breviceps*	Schedule IV
2.	Green pond frog	*Euphlyctis hexadactylus*	Schedule IV
3.	Common Indian Toad	*Bufomelanostictus*	Schedule IV
4.	Indian bull Frog	*Hoplobatrachus tigerinu*	Schedule IV
5.	Paddyfield / Cricket Frog	*Limnonectes limnocharis*	Schedule IV
6.	Ornate Narrow-mouthed Frog	*Microhyla ornata*	Schedule IV
7.	Southern Burrowing Frog	*Sphaerotheca rolandea*	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 Roughstone and Gravel quarry project region
f) To assess the impact on socio-economic environment due to Roughstone and Gravel quarry project region
g) To analysis of impact of socio economic and Environmental Infrastructure facilities and road accessibility.

3.6.2 Scope of Work

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

3.6.3 Methodology

The methodology adopted for the socio-economic impact assessment is as follows:
a) The details of the activities and population structure have been obtained from Census 2001 and 2011 and analyzed.

b) Based on the above data, impacts due to plant operation on the community have been assessed and recommendations for further improvement have been made.

3.6.4 Sources of Information and Data Base

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

3.6.5 Primary Survey

The primary data collection includes the collection of data through a structured interview schedule by direct observation method. The questionnaire survey includes both open and closed methods. The sample size is limited respondents, who were selected on the basis of simple random sampling from Edayarpalayam Village, Sulur 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 Tiruchirapally districts and dry southern plains in Madurai, Dindigul, Ramanathapuram, Sivaganga, Virudhnagar, Tirunelveli and Tuticorin districts. It extends a little beyond Western Ghats in Kanyakumari District. The Cauvery Delta presents some extremely distinctive physical and human features, its power being a main factor in the remarkable growth, the towns of Tamilnadu have witnessed.

3.8 Geography of the Area

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

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

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

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

3.9 Population Growth Rate

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

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

3.10 Coimbatore District

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

Coimbatore serves as an entry and exit point to neighboring Kerala State and the very popular hill station of Udhagamandalam (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
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.

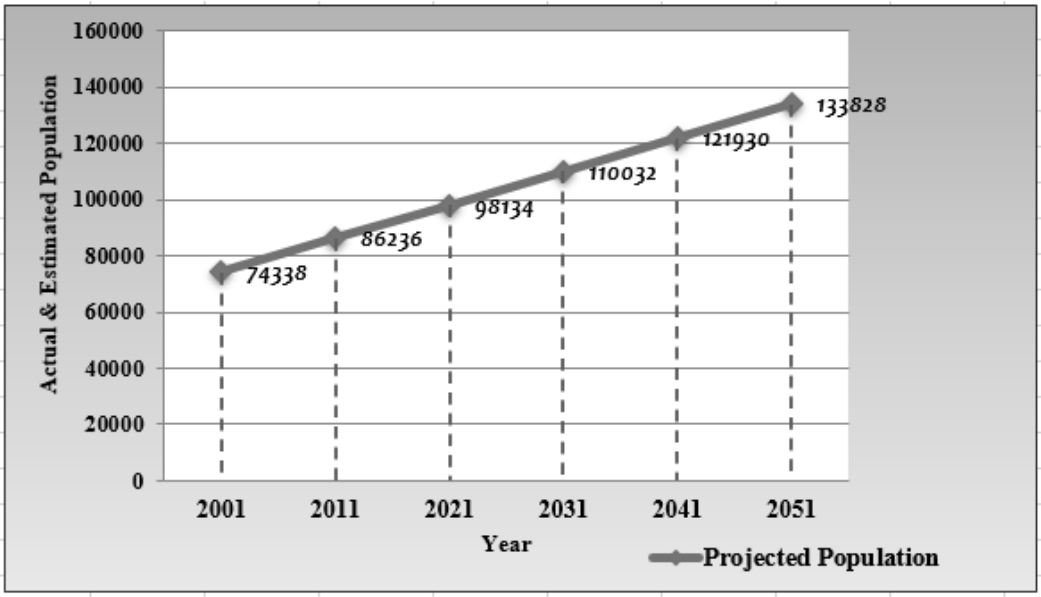


Fig 3.24 Graph Showing Population Projection

Following formula has been used for the projection of population.

$$Y=a+b_t$$

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%.

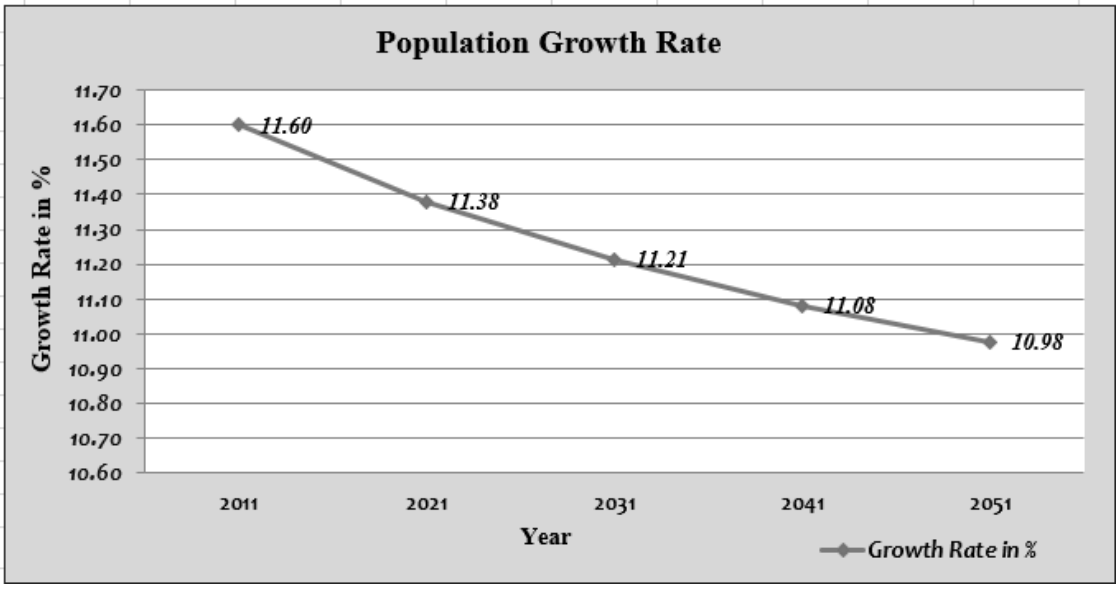


Fig.3.25 Graph Showing Population Growth Rate

Planning Analysis:

Calculating Growth Rates

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

Where:

$$PR = \frac{(V_{Present} - V_{Past})}{V_{Past}} x100$$

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

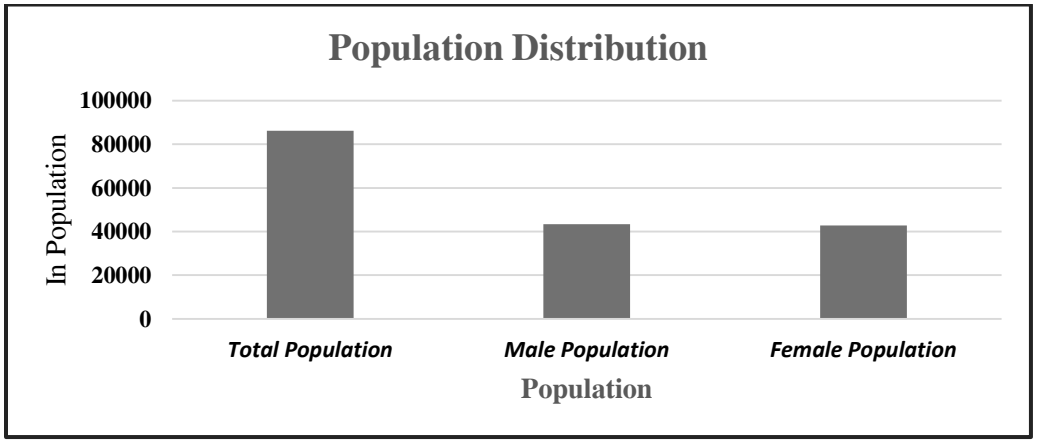


Figure 3.26 Population of study area

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 Female/ 1000 Male
Study area (0-10km)	**988**

Source: Census of India, 2011

Figure 3.16.2 Sex Ratio within 10 Km study area

3.17 Literacy Rate in Study Area

Literacy Rate is the percentage of people in a country with the ability to read and write. The analysis of the literacy levels is done in the study area. The 10 km radius of study area demonstrates a literacy rate of 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

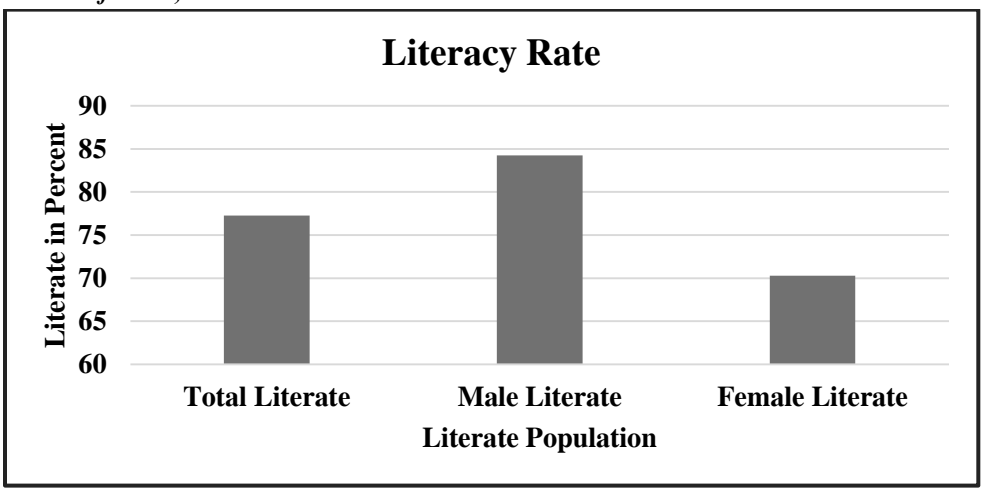


Figure 3.27 Literacy Rate in the study area

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	%
Total area (10km)	**17**	**16977**	**19.68**	**164**	**0.19**	**69095**	**80**

Source: Census of India, 2011

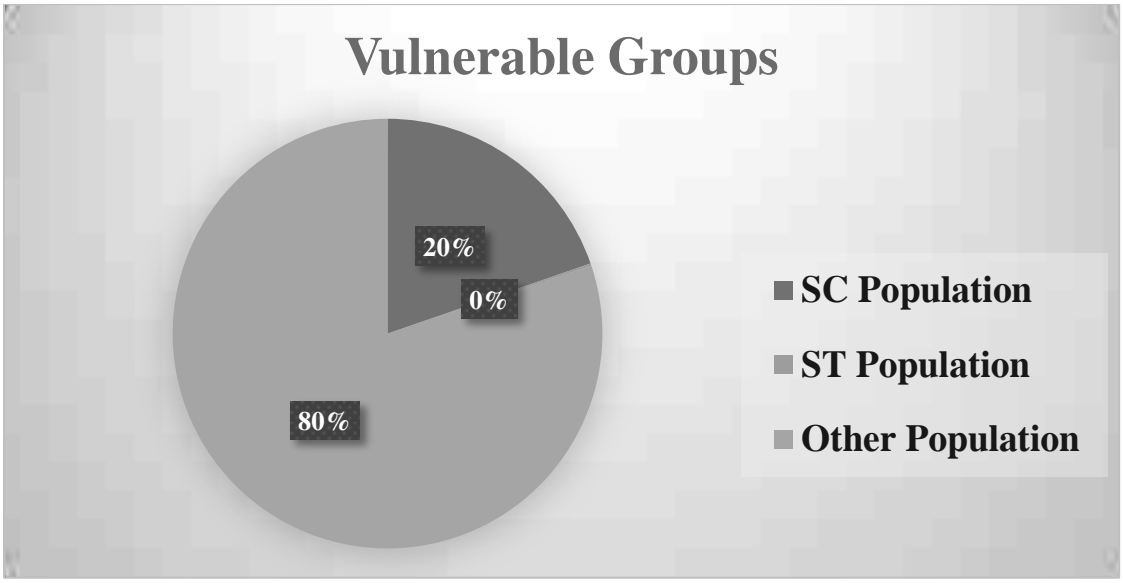


Figure 3.28 vulnerable groups

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	%
Study Area (10 Km)	**17**	**43502**	**50.42**	**39668**	**46.0**	**3834**	**4.45**	**42734**	**49.55**

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.

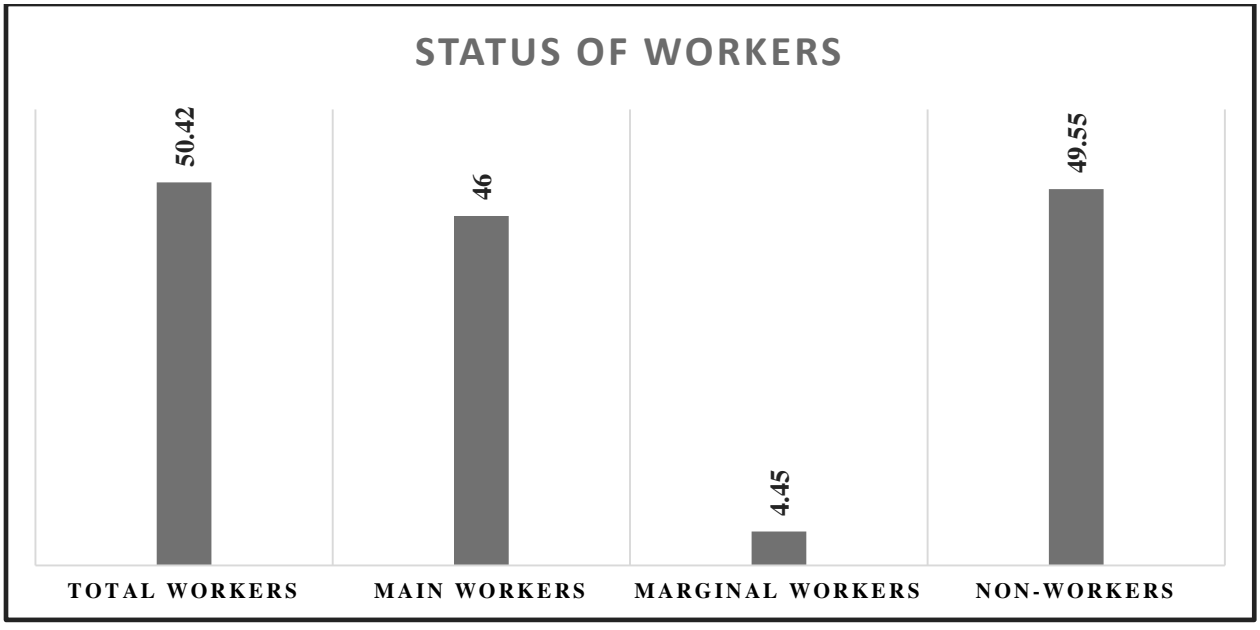


Figure 3.29 Working population in the study area

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 Sulur 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 all Proposed Projects

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

4.1.2.1 Common Mitigation Measures for Respective Individual 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 Common Mitigation Measures for Respective Individual Proposed Projects

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

4.1.6 Waste Dump Management

There are no wastages anticipated in this rough stone 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 in the cluster is 47m and water table is found at a depth of 65m BGL.

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

TABLE 4.1: WATER REQUIREMENTS

PROPOSAL – P1		
*Purpose	Quantity	Source
Dust Suppression	1.0 KLD	From Existing bore wells from nearby area
Green Belt development	1.3 KLD	From Existing bore wells from nearby area
Sanitation & Drinking purpose	0.7KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	**3.0 KLD**	
PROPOSAL – P2		
*Purpose	Quantity	Source
Dust Suppression	1.0 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.
Total	**2.0 KLD**	

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

Source: Approved Mining Plan Pre-Feasibility Report

Total water requirement in the cluster quarries is about 5.0 KLD, the water for dust suppression and greenbelt development will be sourced from the mine pit water collected during rainy seasons, the water for domestic purpose and drinking will be sourced from the approved water vendors.

4.2.2 Common Mitigation measures:

- Garland drain, settling tank will be constructed along the proposed mining lease area. The Garland drain will be connected to settling tank and sediments will be trapped in the settling traps and only clear water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judicially 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 all Proposed Projects

Wind erosion of the exposed areas and the air borne particulate matter generated by quarrying operation, and transportation are mainly PM_{10} & $PM_{2.5}$ and emissions of Sulphur dioxide (SO_2) & Oxides of Nitrogen (NOx) 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_2), Oxides of Nitrogen (NOx) 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_{10}) 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 FOR P1 to P2

EMISSION ESTIMATION FOR QUARRY "P1"- M/s.Ultra Ready Mix Concrete Pvt Ltd				
	Activity	**Source type**	**Value**	**Unit**
Estimated Emission Rate for PM_{10}	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_2	Overall Mine	Area Source	0.000927007	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000060171	g/s
EMISSION ESTIMATION FOR QUARRY "P2"- Thiru.N.Kathiresh				
	Activity	**Source type**	**Value**	**Unit**
Estimated Emission Rate for PM_{10}	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_2	Overall Mine	Area Source	0.000178199	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000005883	g/s

4.3.2 Frame work of Computation & Model details

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

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

Air Pollution Dispersion Modelling

Baseline Air Quality –

Baseline air quality has been measured at 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_{10} and $PM_{2.5}$), SO_2 and NO_x were measured following the National Ambient Air Quality Standards (NAAQS), 2009. Monitoring data of 8 sampling stations are given below –

Meteorological Data –

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

A temporary meteorological station was installed at project site and monitored continually for study period without break. The station was installed at a height of 4 m above the ground level in such a way that there are no obstructions facilitating flow of wind, wind speed, wind direction, humidity and temperature are recorded on hourly basis. A weather data was collected from IMD, Coimbatore agro for the month of Dec022 – Feb 2023 to correlate with site data and found not much of change in the parameters.

FIGURE 4.1: AERMOD TERRAIN MAP

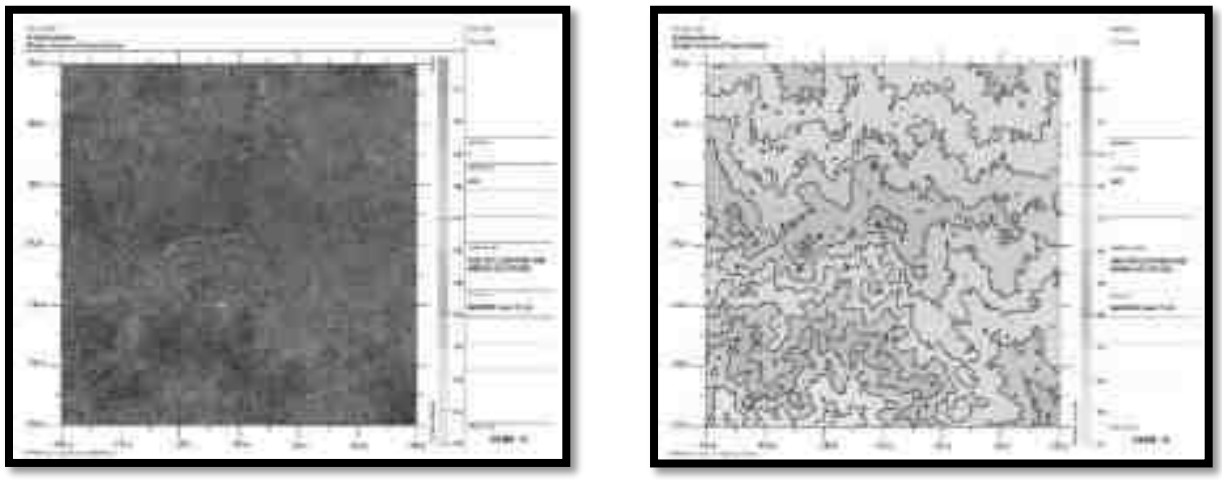


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM_{10}

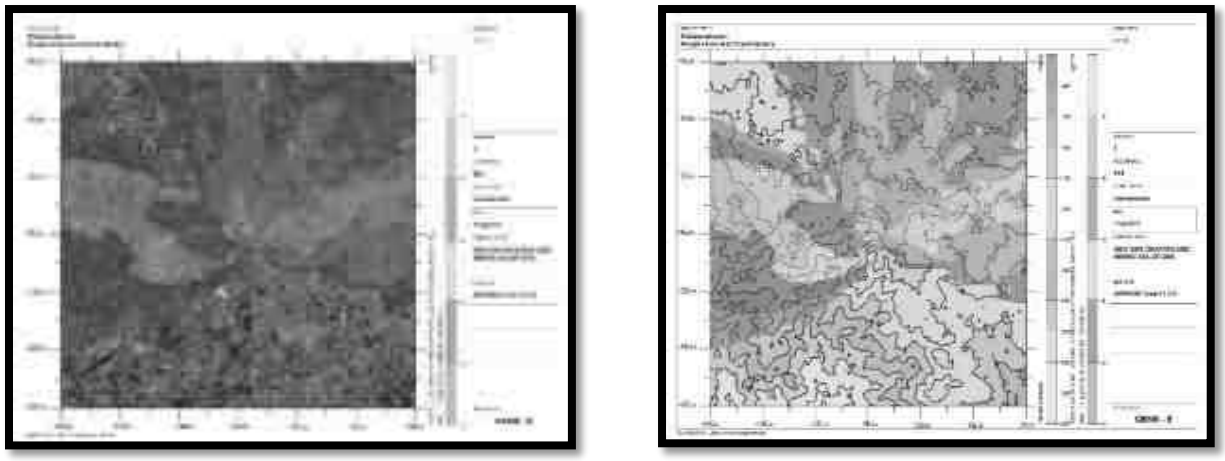


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM_{25}

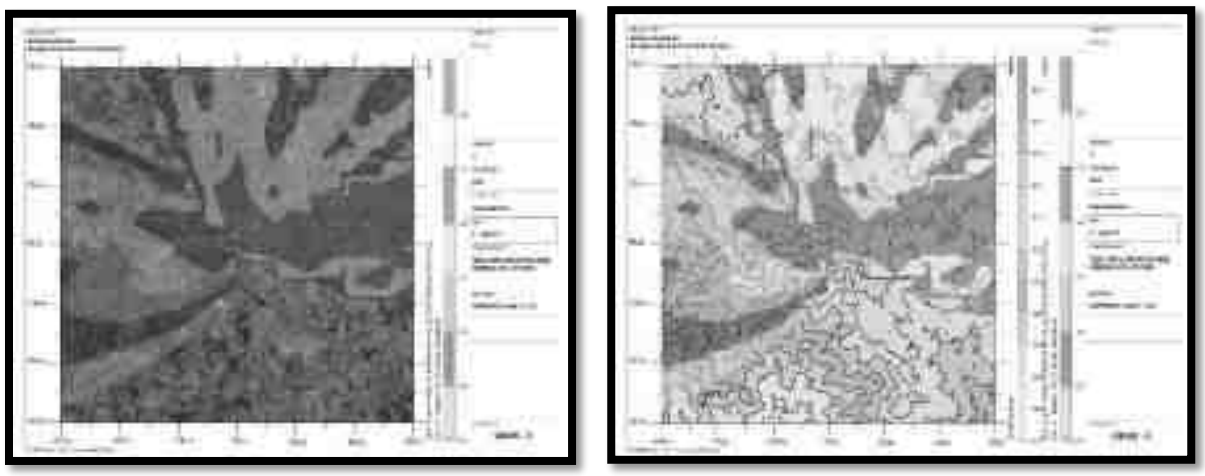


FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF SO_2

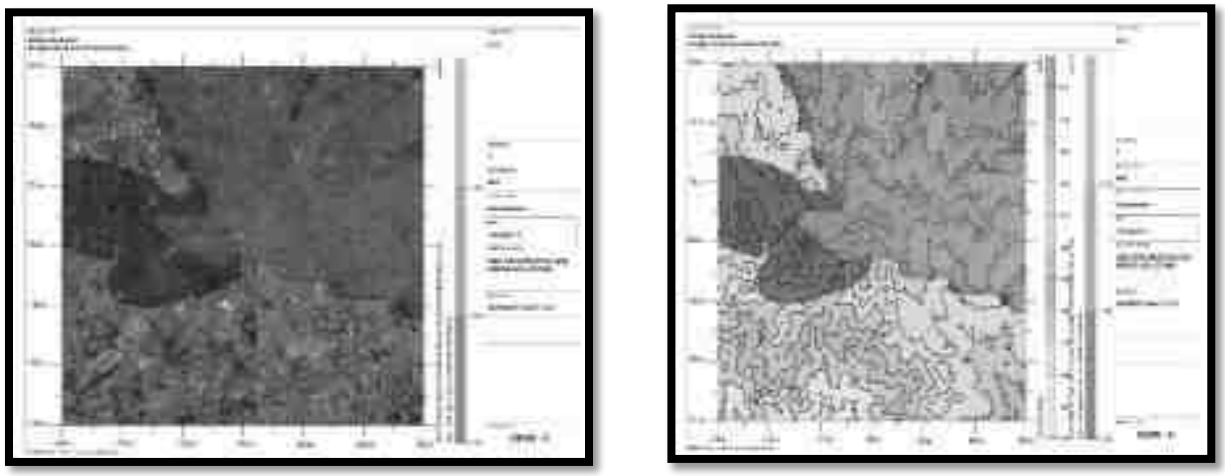


FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF NO_x

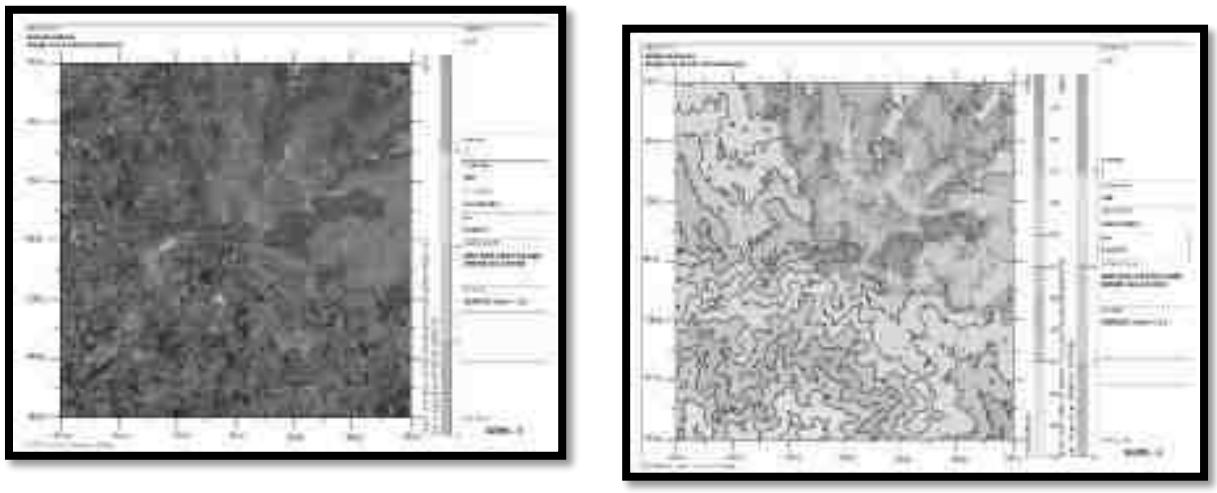
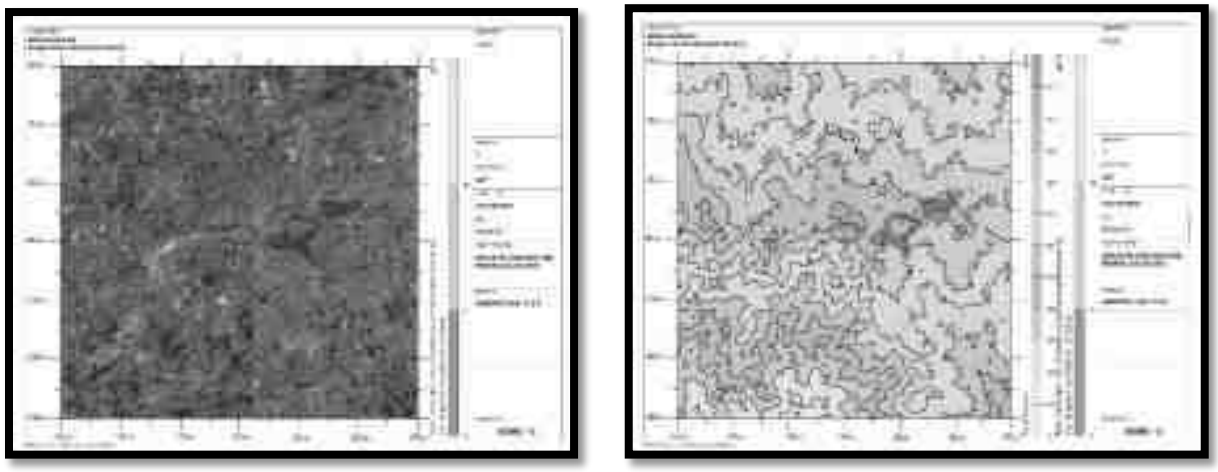


FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST



4.3.2.1 Model Results

The post project Resultant Concentrations of PM10, PM2.5, SO2& NOX (GLC) is given in Table below:

TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM_{10}

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM_{10} ($\mu g/m^3$)	Incremental value of PM_{10} due to mining ($\mu g/m^3$)	Total PM_{10} ($\mu g/m^3$) (5+6)
AAQ1	10°55'1.74"N 77° 6'49.45"E	-44	68	45.0	11.67	56.7
AAQ2	10°54'44.79"N 77° 6'52.63"E	51	-456	47.1	1.20	48.3
AAQ3	10°56'23.05"N 77° 8'23.14"E	2821	2580	46.0	10.00	56.0
AAQ4	10°54'17.60"N 77° 7'27.62"E	1357	-1074	44.3	7.30	51.6
AAQ5	10°53'57.13"N 77° 4'36.73"E	-4105	-1932	45.2	2.99	48.2
AAQ6	10°55'15.25"N 77° 9'15.62"E	4429	483	45.2	11.00	56.2
AAQ7	10°52'43.85"N 77° 6'1.60"E	-1508	-4193	44.9	0	44.9

AAQ8	10°55'39.11"N 77° 5'13.51"E	-2978	1224	45.0	5.50	50.5

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

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline $PM_{2.5}$ ($\mu g/m^3$)	Incremental value of $PM_{2.5}$ due to mining ($\mu g/m^3$)	Total $PM_{2.5}$ ($\mu g/m^3$) (5+6)
AAQ1	10°55'1.74"N 77° 6'49.45"E	-44	68	23.4	5.49	28.9
AAQ2	10°54'44.79"N 77° 6'52.63"E	51	-456	25.3	0.74	26.0
AAQ3	10°56'23.05"N 77° 8'23.14"E	2821	2580	23.8	4.61	28.4
AAQ4	10°54'17.60"N 77° 7'27.62"E	1357	-1074	24.4	3.80	28.2
AAQ5	10°53'57.13"N 77° 4'36.73"E	-4105	-1932	45.2	1.49	46.7
AAQ6	10°55'15.25"N 77° 9'15.62"E	4429	483	45.1	5.00	50.1
AAQ7	10°52'43.85"N 77° 6'1.60"E	-1508	-4193	23.3	0	23.3
AAQ8	10°55'39.11"N 77° 5'13.51"E	-2978	1224	25.9	2.81	28.7

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF SO_2

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline So_2 ($\mu g/m^3$)	Incremental value of So_2 due to mining ($\mu g/m^3$)	Total So_2 ($\mu g/m^3$) (5+6)
AAQ1	10°55'1.74"N 77° 6'49.45"E	-44	68	7.3	1.59	8.9
AAQ2	10°54'44.79"N 77° 6'52.63"E	51	-456	7.0	0	7.0
AAQ3	10°56'23.05"N 77° 8'23.14"E	2821	2580	6.8	1.37	8.1
AAQ4	10°54'17.60"N 77° 7'27.62"E	1357	-1074	5.8	1.50	7.3
AAQ5	10°53'57.13"N 77° 4'36.73"E	-4105	-1932	7.0	0.23	7.2
AAQ6	10°55'15.25"N 77° 9'15.62"E	4429	483	6.9	1.50	8.4
AAQ7	10°52'43.85"N 77° 6'1.60"E	-1508	-4193	6.9	0	6.9
AAQ8	10°55'39.11"N 77° 5'13.51"E	-2978	1224	6.8	0.51	7.3

TABLE 4.6: INCREMENTAL & RESULTANT GLC OF NO_X

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Nox ($\mu g/m^3$)	Incremental value of Nox due to mining ($\mu g/m^3$)	Total Nox ($\mu g/m^3$) (5+6)
AAQ1	10°55'1.74"N 77° 6'49.45"E	-44	68	22.1	8.46	30.6
AAQ2	10°54'44.79"N 77° 6'52.63"E	51	-456	22.5	0	22.5
AAQ3	10°56'23.05"N 77° 8'23.14"E	2821	2580	21.7	3.92	25.6
AAQ4	10°54'17.60"N 77° 7'27.62"E	1357	-1074	22.4	1.13	23.5
AAQ5	10°53'57.13"N 77° 4'36.73"E	-4105	-1932	21.1	0	21.1
AAQ6	10°55'15.25"N 77° 9'15.62"E	4429	483	19.2	7.31	26.5
AAQ7	10°52'43.85"N 77° 6'1.60"E	-1508	-4193	21.3	0	21.3
AAQ8	10°55'39.11"N 77° 5'13.51"E	-2978	1224	23.0	0	23.0

TABLE 4.7: INCREMENTAL & RESULTANT GLC OF FUGITIVE DUST

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Fugitive ($\mu g/m^3$)	Incremental value of Fugitive due to mining ($\mu g/m^3$)	Total Fugitive ($\mu g/m^3$) (5+6)
AAQ1	10°55'1.74"N 77° 6'49.45"E	-44	68	66.38	82	148.4
AAQ2	10°54'44.79"N 77° 6'52.63"E	51	-456	63.34	0	63.3
AAQ3	10°56'23.05"N 77° 8'23.14"E	2821	2580	63.05	0	63.0
AAQ4	10°54'17.60"N 77° 7'27.62"E	1357	-1074	65.33	0	65.3
AAQ5	10°53'57.13"N 77° 4'36.73"E	-4105	-1932	64.22	0	64.2
AAQ6	10°55'15.25"N 77° 9'15.62"E	4429	483	63.26	0	63.3
AAQ7	10°52'43.85"N 77° 6'1.60"E	-1508	-4193	73.85	0	73.9
AAQ8	10°55'39.11"N 77° 5'13.51"E	-2978	1224	66.26	0	66.3

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

4.3.4. Common Mitigation Measures for Respective Individual Proposed Projects

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 taurpaulin.
- 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.

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

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.

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

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 nose prediction modelling.

TABLE 4.9: PREDICTED NOISE INCREMENTAL VALUES

Location ID	**N1**	**N2**	**N3**	**N4**	**N5**	**N6**	**N7**	**N8**
Maximum Monitored Value (Day) dB(A)	47.2	48.2	47.3	45.3	43.1	48.6	48.2	46.3
Incremental Value dB(A)	47.30	52.14	28.50	36.02	27.04	27.23	27.43	30.00
Total Predicted Noise level dB(A)	46.30	53.61	47.36	45.78	43.21	48.63	48.24	46.40
NAAQ Standards	**Industrial**		**Day Time- 75 dB (A)**			**Night Time- 70 dB (A)**		
	Residential		**Day Time– 55 dB (A)**			**Night Time- 45 dB (A)**		

4.4.2 Common Mitigation Measures for Respective Individual Proposed Projects

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:

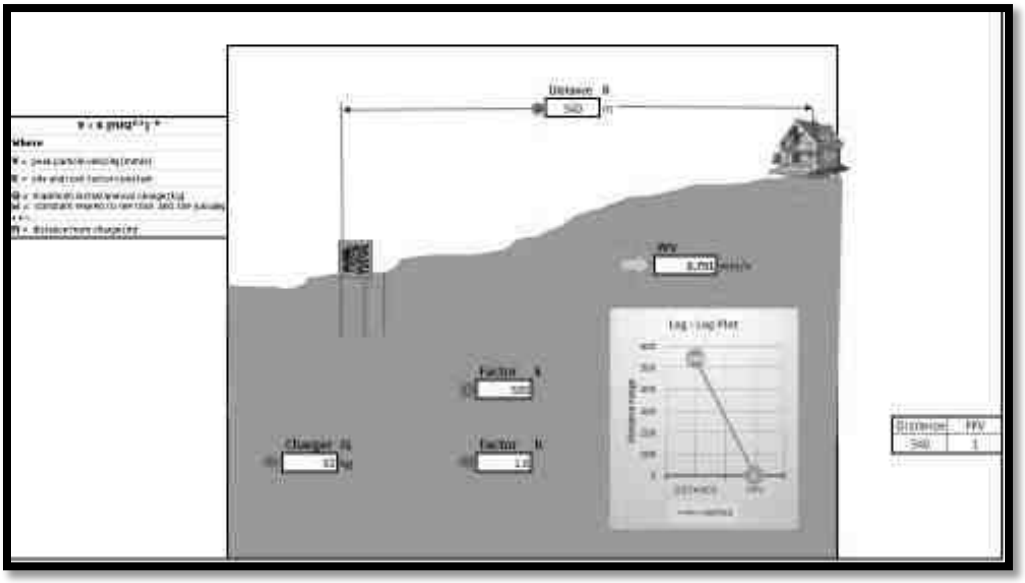
$$V = K [R/Q^{0.5}]^{-B}$$

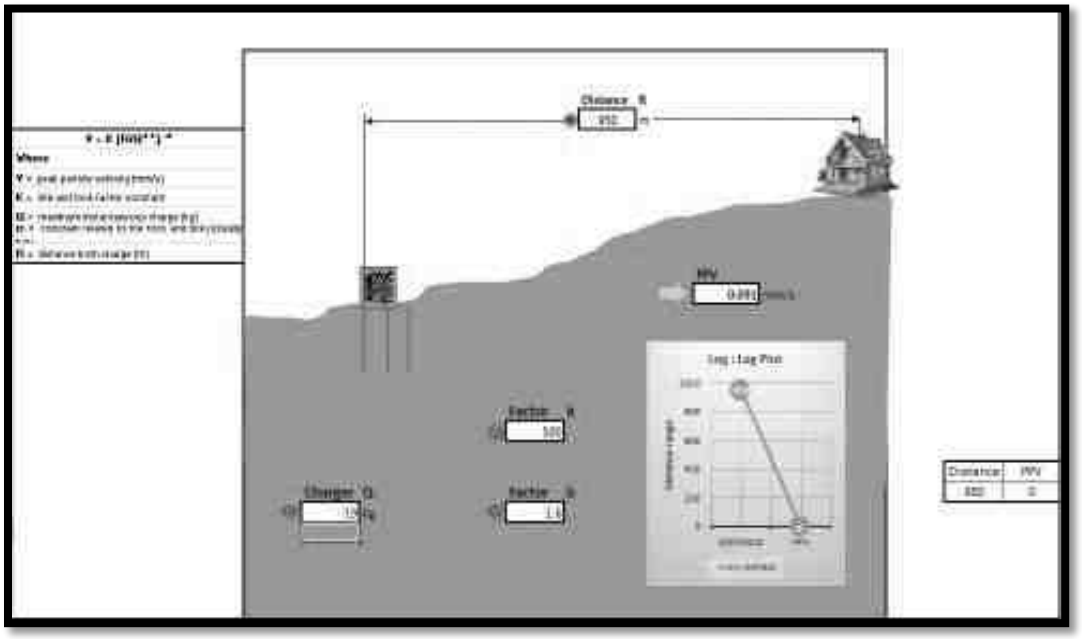
Where –
V = peak particle velocity (mm/s)
K = site and rock factor constant
Q = maximum instantaneous charge (kg)
B = constant related to the rock and site (usually 1.6)
R = distance from charge (m)

TABLE 4.10: PREDICTED PPV VALUES DUE TO BLASTING

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	92	540	0.791
P2	19	950	0.091

P1- M/s.Ultra ReadyMix Concrete Pvt Ltd





P2- Thiru.N. Kathiresh

From the above, the charge per blast of Maximum 92Kg is well below the Peak Particle Velocity of 8 mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. It should be ensured that the explosives used for blasting at one blast should not exceed more than 28 Kg at any point of time. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.4.3.1 Common Mitigation Measures for Respective Individual Proposed Projects

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

- Appropriate blasting techniques shall be adopted such that the predicted peak particle velocity shall not exceed 8 Hz.
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices

4.5 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	*Aegle marmelos*	Vilva Maram
2	*Albizia lebbeck*	Vaagai Maram
3	*Cassia fistula*	Konrai tree
4	*Lannea coromandelica*	Othiyam
5	*Limonia acidissima*	Vila maram
6	*Syzygium cumini*	Naval maram

7	*Toona ciliata*	Santhana Vembu
8	*Ficus hispida*	Aththi maram
9	*Borassus flabellifer*	Panai-maram
Species suitable for abatement of noise and dust pollution		
1	*Azadirachta indica*	Vembhu maram
2	*Ficus religiosa*	Arasan maram
3	*Ficus hispida*	Aththi maram
4	*Bombax ceiba*	Mul Elavu
5	*Syzygium cumini*	Naval maram
6	*Tamarindus indica*	Puliyamaram
7	*Mangifera indica*	Manga maram
8	*Harwickia binata*	Anjan maram

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

4.5.2. Anticipated Impact on Fauna

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

4.5.2.1. Mitigation Measures

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

TABLE 4.12: GREENBELT DEVELOPMENT PLAN

PROPOSAL – P1- P1- M/s.Ultra ReadyMix Concrete Pvt Ltd					
Year	No. of trees proposed to be planted	Survial %	Area to be covered	Name of the species	No. of trees expected to be grown
I	1470	80	Near 7.5m safety distance, panchayat road and village road	Neem, Pongamia Pinnata, Casuarina etc.,	1180
PROPOSAL – P2- Thiru.N.Kathiresh					
Year	No. of trees proposed to be planted	Survial %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	715	80%	Near 7.5m safety distance, panchayat road and village road	Neem, Pongamia Pinnata, Casuarina etc.,	570

TABLE 4.13: BUDGET FOR GREEBELT DEVELOPMENT PLAN-P1- P1- M/s.Ultra ReadyMix Concrete Pvt Ltd

ACTIVITY		YEAR					RATE	AMOUNT (INR)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	130	130	130	130	130	@100 Rs Per sapling	Rs.65,000/-
	Cost	13,000	13,000	13,000	13,000	13,000		
Plantation in around approach road and nearby village roads	Nos	110	110	110	110	110		Rs.55,000/-
	Cost	11,000	11,000	11,000	11,000	11,000		
Wire Fencing (In Mtrs) 790 Mtrs		2,37,000	-	-	-	-	@300 Rs Per Meter	Rs.2,37,000/-
Garland drain (In Mtrs) 740 Mtrs		2,22,000	-	-	-	-	@300 Rs Per Meter	Rs.2,22,000/-
TOTAL								**Rs.5,79,000/-**

TABLE 4.14: BUDGET FOR GREEBELT DEVELOPMENT PLAN-P2- Thiru.N.Kathiresh

ACTIVITY		YEAR					RATE	AMOUNT (Rs.)
		I	II	III	IV	V		
Plantation under safety zone	**Nos.**	58	58	58	58	58	@100 Rs Per sapling	29,000
	Cost	5800	5800	5800	5800	5800		
Plantation in the quarried out top benches, approach & Panchayat road	Nos.	50	50	50	50	50		25,000
	Cost	5,000	5,000	5,000	5,000	5,000		
Wire Fencing (In Mtrs) 520		1,56,000					@300 Rs Per Meter	1,56,000

Garland drain (In Mtrs) 410	1,23,000	@300 Rs Per Meter	1,23,000
TOTAL			**3,33,000**

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

4.5.3. Anticipated Impact on Fauna

- 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. 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 all Proposed Projects

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

4.6.2 Common Mitigation Measures for Respective Individual Proposed Projects

- 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 quant ity, etc., could be planned. Monitoring should demonstrate that there is no adverse effect of pollutant concentrations exceeding the statutory limits for the water, soil and air qualities in the area around the closed mine.

4.9.1.3 Biological Stability

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

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

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

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

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

5.0 Introduction:

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

- This area denotes the indicative of flow pattern of the rock mass in $N30^0E$ to $S30^0W$ with dipping $SE60^0$.
- Transportation facility for materials & manpower.
- Overall impact on environment and mitigation feasibility.
- Socio – economic background.

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

5.1 Factors Behind the Selection of Project Site

Rough Stone and Gravel Quarry Projects at 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, fire fighting, education, transportation, communication and infrastructural facilities are well connected and accessible.
- The mining operations will not intersect the ground water level. Hence, no impact on ground water environment.
- Study area falls in seismic zone – III, there is no major history of landslides, earthquake, subsidence etc., recorded in the past history.

5.2 Analysis of Alternative Site

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

5.3 Factors Behind Selection of Proposed Technology

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

- As the mineral deposition is homogeneous and batholith formation, therefore opencast method of working out deposit is preferred over underground method.
- The material will be loaded after sprinkling with water with the help of excavators into dumpers / trippers and transported to the needy customers.

- Blasting and availability of drills along with controlled blasting technology gives desired fragmentation so that the mineral is handled safely and used without secondary blasting.

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

5.4 Analysis of Alternative Technology

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

CHAPTER – 6: ENVIRONMENTAL MONITORING PROGRAMME

6.0 General

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

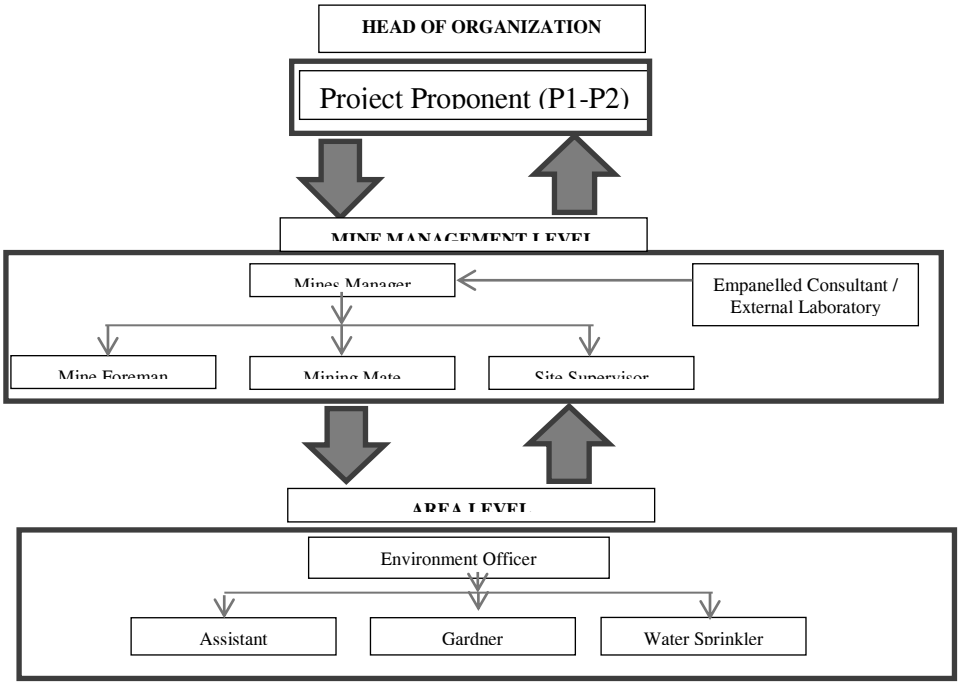
The monitoring and evaluation of environmental parameters indicates potential changes occurring in the environment, which paves way for implementation of rectifying measures wherever required to maintain the status of the natural environment. Evaluation is also a very effective tool to judge the effectiveness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

6.1 Methodology of Monitoring Mechanism

Implementation of EMP and periodic monitoring will be carried out by the proponents and respective quarry owners in the cluster 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 FOR P1 TO P2

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

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

6.4 Environmental Policy of the Proponents

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

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

6.5 Budgetary Provision for Environmental Monitoring Programme

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

The proposed total cost for Environmental Monitoring Programme for Five proposed quarries in cluster for the mining plan period is Rs 19,00,000/-.

TABLE 6.3 ENVIRONMENT MONITORING BUDGET P1-P2

Parameter	Sl. Nos	Capital Cost
Air Quality, Meteorology, Water Quality, Hydrology, Soil Quality Noise Quality, Vibration Study Greenbelt	P1	Rs.3,80,000/-
	P2	Rs.3,80,000/-
	Total	**Rs. 7,60,000/-**

Source: Approved Mining Plan

6.6 Reporting Schedules of Monitored Data

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

Periodical reports to be submitted to: -

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

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

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

CHAPTER – 7: ADDITIONAL STUDIES

7.0 General

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

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

7.1. Public Consultation:

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

7.2 Risk Assessment

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

The cluster quarry operation will be carried out under the direction of a Qualified Competent Mine manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening. Factors of risks involved due to human induced activities in connection with mining & allied activities with detailed analysis of causes and control measures for the mine is given in below Table 7.1.

TABLE 7.1 RISK ASSESSMENT & CONTROL MEASURES

S. No	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries	Improper handling and unsafe working practice	▪ All safety precautions and provisions of Mine Act, 1952, Metalliferrous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations; ▪ Entry of unauthorized persons will be prohibited; ▪ Fire fighting and first-aid provisions in the mine office complex and mining area; ▪ Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use. ▪ Working of quarry, as per approved plans and regularly updating the mine plans; ▪ Cleaning of mine faces shall be daily done in order to avoid any overhang or

			undercut; ▪ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager; ▪ Maintenance and testing of all mining equipment as per manufacturer 's guidelines.
2	Drilling& Blasting	Due to improper and unsafe practices Due to high pressure of compressed air, hoses may burst Drill Rod may break	▪ Safe operating procedure established for drilling (SOP) will be strictly followed. ▪ Only trained operators will be deployed. ▪ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places. ▪ Drilling shall not be carried on simultaneously on the benches at places directly one above the other. ▪ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual. ▪ All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition. ▪ Operator shall regularly use all the personal protective equipment.
3	Blasting	Fly rock, ground vibration, Noise and dust. Improper charging, stemming & Blasting/ fining of blast holes Vibration due to movement of vehicles	▪ The maximum charge per delay and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blast can be conducted safely. ▪ SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation ▪ Shots are fired during daytime only. ▪ All holes charged on any one day shall be fired on the same day. ▪ The danger zone is and will be distinctly demarcated (by means of red flags)
4	Transportation	Potential hazards and unsafe workings contributing to accident and injuries Overloading of material While reversal & overtaking of vehicle Operator of truck leaving	▪ 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. ▪ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. ▪ Concave mirrors should be kept at all

		his cabin when it is loaded.	corners ▪ All vehicles should be fitted with reverse horn with one spotter at every tipping point ▪ Loading according to the vehicle capacity ▪ Periodical maintenance of vehicles as per operator manual
5	Natural calamities	Unexpected happenings	▪ Escape Routes will be provided to prevent inundation of storm water ▪ Fire Extinguishers & Sand Buckets
6	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	▪ Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

7.3 Disaster Management Plan

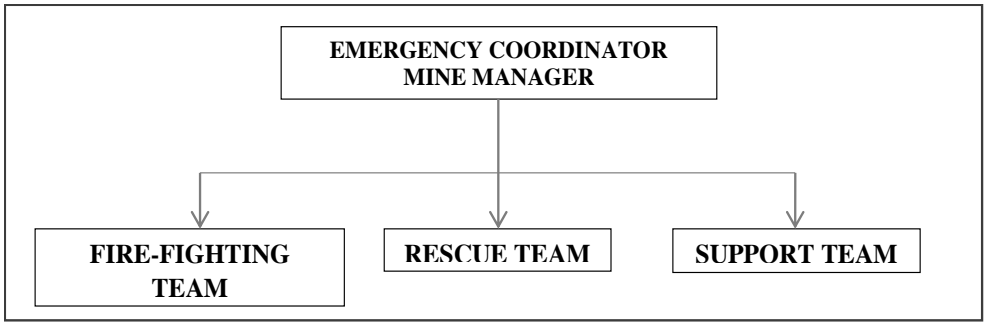
Natural disasters like Earthquake, Land slides has not been recorded in the past history as the terrain is categorized under seismic zone III. The area is far away from the sea hence the disaster due to heavy floods and tsunamis are not anticipated. The Disaster Management Plan is aimed to ensure safety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

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

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

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

FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT FOR P1 TO P2



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

TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION

DESIGNATION	QUALIFICATION

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

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

Roles and responsibilities of emergency team –

(a) Emergency coordinator (EC)

The emergency coordinator shall assume absolute control of site

(b) Incident controller (IC)

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

(c) Communication and advisory team

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

(d) Roll call coordinator

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

(e) Search and rescue team

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

(f) Emergency security controller

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

Emergency control procedure –

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

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

Proposed fire extinguishers at different locations

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

Location	Type of Fire Extinguishers
Electrical Equipment's	CO_2 type, foam type, dry chemical powder type
Fuel Storage Area	CO_2 type, foam type, dry chemical powder type, Sand bucket
Office Area	Dry chemical type, foam type

Alarm system to be followed during disaster –

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

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

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

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

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

7.4 CUMULATIVE IMPACT STUDY

There are 4 proposed and 3 existing quarries, 2 abandoned quarry Nil 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	**M/s.Ultra Ready Mix Concrete Pvt Ltd**	168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P) Edayarpalayam Village, Sulur Taluk	2.94.01	Obtained ToR vide, Lr.No. SEIAA-TN/F.No.9572/SEAC/ToR-1332/2022 Dated:10.02.2023
P2	**Thiru.N. Kathiresh**	172/1B, 172/2 & 173/2A2 Edayarpalayam Village, Sulur Taluk	1.42.82	Obtained ToR vide, Lr.No. SEIAA-TN/F.No.9034/ToR-1165/2022 Dated:06.06.2022
P3	**Thiru. N. Vivek Prithviraj**	180/3 (P), Edayarpalayam Village, Sulur Taluk	1.62.0	EC Under Process
P4	**Thiru.K. Ranganathan**	174/4 & 176/1 of Edayarpalayam Village, Sulur Taluk	2.28.0	EC Under Process
	Total		**8.26.83**	
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, Sulur Taluk	3.64.5	14.07.2021 to 13.07.2026
E2	Thiru.B.Sakthivel	164/6A (P) & 164/7, Edayarpalayam Village, Sulur Taluk	1.19.5	07.10.2017 to 06.10.2022
E3	Thiru.V.Saravanan	171/2(P) & 176/2 (P), Edayarpalayam Village, Sulur Taluk	1.22.5	15.09.2017 to 14.09.2022
	Total		**6.06.5**	
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, Sulur Taluk	2.34.5	-
A-2	Government Quarry	164/1, Edayarpalayam Village, Sulur 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**
NIL				
TOTAL CLUSTER EXTENT			**14.33.33**	

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	**M/s.Ultra ReadyMix Concrete Pvt Ltd,** Rough Stone & Gravel Quarry Project		
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^3	24,300	48,600 m^3
Mineable Reserves	Rough Stone	Weathered Rock	Gravel
	3,18,706 m^3	13,884 m^3	32,304 m^3
Proposed Quantity of Reserves/Production for mining Period	3,18,706 m^3	13,884 m^3	32,304 m^3
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 PROPOSAL "P2"			
Name of the Mine	**Thiru.N. Kathiresh,** Roughstone 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	Operated by ꕥ 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 ꕥ 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 ꕥ Now the same applicant has again applied the Rough stone and Gravel quarry lease on 07.10.2021.		
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	**Rough Stone**	**Gravel**	
	2,86,860m^3	11,230 m^3	
Mineable Reserves	**Rough Stone**	**Gravel**	
	65,140 m^3	5,712	
Proposed production for five years	65,140 m^3	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	**Thiru.N. Vivek Prithiviraj,** Roughstone and gravel quarry		
Land Type	Patta Land (No.965)		
S.F. No.	180/3		
Extent	1.62.0 Ha		
Previous quarry operation details	Operated by ꕥ It is a fresh area		
Present quarry pit dimension	78m (L) x 49m (W) x 17m(D)		
Depth restricted as per ToR	38m bgl (3m Gravel + 35m Roughstone)		
Geological Resources	**Rough Stone**	**Gravel**	
	5,67,000m^3	48,600 m^3	
Mineable Reserves	**Rough Stone**	**Gravel**	
	2,08,950 m^3	37,770 m^3	
Proposed production for five years	2,08,950 m^3	37,770 m^3	
Mining Plan Period / Lease Period	5 Years		
Ultimate Pit Dimension	148m(L)	96m (W)	38m bgl (D)
Toposheet No	58 - F/01		
Latitude	10°54'31.71"N to 10°54'37.47"N		
Longitude	77°06'36.92"E to 77°06'41.61"E		
Highest Elevation	418m AMSL		
Machinery	Jack Hammer	4	
	Compressor	1	
	Excavator with Bucket and Rock Breaker	1	
	Tippers	2	
Blasting	Usage of Slurry Explosive with MSD detonators		

Manpower Deployment		21Nos	
Total Cost		Project Cost	Rs.52,71,000/-
		EMP Cost	Rs. 3,80,000/-
		Total	Rs. 56,51,000/-
CER cost		Rs.5,00,000/-	
Water Requirements		2.0 KLD	
Nearest Habitation		1km-SE	
SALIENT FEATURES OF "EXISTING 1" Tmt.N.Chitradevi,			
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, Sulur 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 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	***Description***	***Rough stone in m^3***	***Gravel in m^3***
	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.		
	Type	**Nos**	
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/-	
CER cost (2.0%)	Rs. 5,00,000		
Habitation	Bogampatti 1.2km-SE		
SALIENT FEATURES OF "EXISTING 2" Thiru.B. Sakthivel			
Name of the Mine	**Thiru.B. Sakthivel**, for Rough Stone and Gravel Quarry		
Land Type	It is a Patta land. Patta no 787		
S.F. No.	164/6A &7 Edayarpalayam Village, Sulur Taluk		
Extent	1.19.5 ha		
Previous quarry details	EC granted EC No 3863/2016 date:31.05.2017		
Proposed depth	32m		

Mining Plan Period / Lease Period	Five years	
Approved quantity	76650m^3 for Roughstone 6328 m^3 of gravel	
Toposheet No	58 – F/01	
Latitude	10°54'56.69"N to 10°55'01.20"N	
Longitude	77°06'52.82"E to 77°06'57.82"E	
Elevation	418m Amsl.	
Water Level	60m in summer and at 55m in rainy seasons below general ground profile.	
Blasting	Jack hammer drilling and slurry blasting	
Manpower Deployment	11	
Total Project Cost	Project Cost	Rs. 49,089,000/-
	EMP Cost	Rs. 7,10,000/-
	Total	Rs. 4,97,99,000/-
CER cost (2.0%)	Rs. 5,00,000	
Habitation	Bogampatti 1.2km-SE	
SALIENT FEATURES OF "EXISTING 3" Thiru.V.Saravanan		
Name of the Mine	**Thiru.V.Saravanan** for Rough Stone and Gravel Quarry	
Land Type	It is a Patta land. Patta no 787	
S.F. No.	171/2 (P), Edayarpalayam Village, Sulur Taluk	
Extent	1.22.5 ha	
Previous quarry details	EC granted EC No 3906/2016 date:13.06.2017	
Depth of mining	22m	
Mining Plan Period / Lease Period	Five years	
Approved quantity	58940m^3 for Roughstone 2800 m^3 of gravel	
Toposheet No	58 – F/01	
Latitude	10°54'53"N to 10°54'56"N	
Longitude	77°06'43"E to 77°06'49"E	
Elevation	418m Amsl.	
Water Level	60m in summer and at 55m in rainy seasons below general ground profile.	
Blasting	Jack hammer drilling and slurry blasting	
Manpower Deployment	14	
Total Project Cost	Project Cost	Rs. 29,015,000/-
	EMP Cost	Rs. 4,25,000/-
	Total	Rs. 2,94,40,000/-
CER cost (2.0%)	Rs. 5,00,000	
Habitation	Bogampatti 680m-NW	

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^3	Per Day Production in m^3	Number of Lorry Load Per Day @ 6m^3 per load
P1	3,18,706	63,741	212	35Trips /Day
P2	65,140	13,028	43	7Trips /Day
P3	2,08,950	41790	139	23Trips /Day
P4	-	-	-	-
Total	**5,92,796**	**1,18,559**	**395**	**65 Trips /Day**

E1	2,63,226	52,645	175	29Trips /Day
E2	76,650	15,330	51	9Trips /Day
E3	58,940	11,788	39	7Trips /Day
Total	**3,98,816**	**79,763**	**265**	**45 Trips /Day**
Gran Total	**9,91,612**	**1,98,322**	**660**	**110 Trips /Day**

TABLE 7.6: CUMULATIVE PRODUCTION OF GRAVEL IN CLUSTER

Quarry	Mineable Reserves in m^3	Per Year Production in m^3	Per Day in m^3	Number of Lorry Load @ $6m^3$ per load
P1	32304	10768	36	6Trips /Day
P2	5712	1904	6	1 Trips\ day
P3	37770	12,590	42	7Trips\ day
P4	-	-	-	-
TOTAL	**75,786**	**25,262**	**84**	**14Trips/ week**
E1	27000	9000	30	5 Trips\ day
E2	6328	2109	7	1 Trips\ day
E3	2800	2800	9	2 Trips\ day
Total	**36,128**	**13,909**	**46**	**8 Trips\ day**
Grand total	**1,11,914**	**40,171**	**130**	**22Trips\ day**

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

TABLE 7.7: EMISSION ESTIMATION FROM CLUSTER

EMISSION ESTIMATION FOR QUARRY "P1"- M/s.Ultra Ready Mix Concrete Pvt Ltd				
	Activity	**Source type**	**Value**	**Unit**
Estimated Emission Rate for PM_{10}	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_2	Overall Mine	Area Source	0.000927007	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000060171	g/s
EMISSION ESTIMATION FOR QUARRY "P2"- Thiru.N.Kathiresh				
	Activity	**Source type**	**Value**	**Unit**
Estimated Emission Rate for PM_{10}	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_2	Overall Mine	Area Source	0.000178199	g/s
Estimated Emission Rate for NOx	Overall Mine	Area Source	0.000005883	g/s

Source: Emission Formula

TABLE 7.8: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM_{10} in $\mu g/m^3$	
Location	AAQ1 – CORE
Background (average)	45.0
Highest Incremental	11.67
Resultant	56.7
NAAQ Norms	100 $\mu g/m^3$

PM2.5 in µg/m^3	
Background (average)	23.4
Highest Incremental	5.49
Resultant	28.9
NAAQ Norms	80 µg/m^3
SO_2 in µg/m^3	
Location	AAQ1 – CORE
Background (average)	7.3
Highest Incremental	1.59
Resultant	8.9
NAAQ Norms	80 µg/m^3
NO_x in µg/m^3	
Location	AAQ1 – CORE
Background (average)	22.1
Incremental	8.46
Resultant	30.6
NAAQ Norms	80 µg/m^3

Noise Environment –

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

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

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

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.

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

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**	**N8**
Maximum Monitored Value (Day) dB(A)	47.2	48.2	47.3	45.3	43.1	48.6	48.2	46.3
Incremental Value dB(A)	47.30	52.14	28.50	36.02	27.04	27.23	27.43	30.00
Total Predicted Noise level dB(A)	46.30	53.61	47.36	45.78	43.21	48.63	48.24	46.40
NAAQ Standards	**Industrial**		**Day Time- 75 dB (A)**			**Night Time- 70 dB (A)**		
	Residential		**Day Time– 55 dB (A)**			**Night Time- 45 dB (A)**		

Source: Lab Monitoring Data

The incremental noise level is found within the range of 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	540
Habitation Near P2	950
Habitation Near P3	1000
Habitation Near P4	-

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 4 MINES

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	92	540	0.791
P2	19	950	0.091
P3	60	1000	0.210
P4	-	-	-

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 7 MINES

Location Code	Employment	Project Cost	CER
P1	40	Rs. 85,44,000/-	Rs.5,00,000/-
P2	15	Rs. 62,32,000/-	Rs.5,00,000/-
P3	21	Rs. 56,51,000/-	Rs.5,00,000/-
P4	-	-	-
Total	**76**	**Rs. 2,04,27,000/-**	**Rs. 15,00,000/-**
E1	31	Rs. 1,46,40,700/-	Rs. 5,00,000/-
E2	11	Rs. 4,97,99,000/-	Rs. 5,00,000/-

E3	14	Rs. 2,94,40,000/-	Rs. 5,00,000/-
Total	**56**	**Rs. 9,38,79,700/-**	**Rs. 15,00,000/-**
Grand Total	**132**	**Rs.11,43,06,700/-**	**Rs.30,00,000/-**

A total of 76 people will get employment due to 4 mines in cluster and already employed at existing mines are 56 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 15,00,000/-**
- Projects in Cluster shall fund towards CER – **Rs.30,00,000/-**

TABLE 7.13: GREENBELT DEVELOPMENT BENEFITS FROM 4 MINES

CODE	No of Trees proposed to be planted	Survival %	Area Covered Sq.m	Name of the Species	No. of Trees expected to be grown
P1	1470	80%	Near 7.5m safety distance, panchayat road and village road	Neem, Pongania, Pinnata,Causarina etc..	1180
P2	715	80%			570
P3	810	80%			648
P4	-	80%			-
Total	**2995**	80%			**2398**

Based on the Proposed Mining Plans it's anticipated that there shall growth of native species of Neem, Casuarina, etc in the Cluster at a rate of 2995 Trees Planted over a period of 5 Years with Survival Rate of 80% and expected growth is around 2398 Trees over an area.

7.5 PLASTIC WASTE MANAGEMENT PLAN FOR P1 TO P2

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

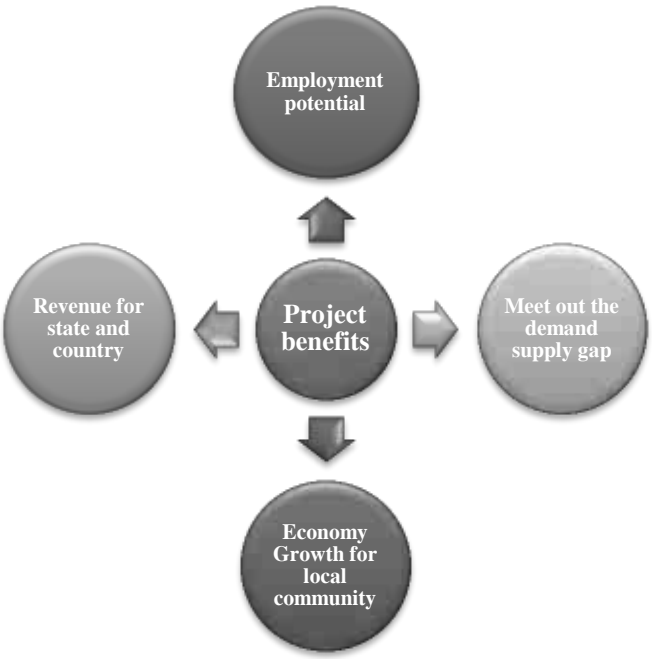
Source: Proposed by FAE's and EC

CHAPTER – 8: PROJECT BENEFITS

8.0 General

The four Proposed Projects for Quarrying Rough Stone and Gravel at Edayarpalayam Village aims to produce cumulatively 5,92,796m^3 Rough Stone over a period of 5 Years & 75,786m^3 of Gravel over a period of 3 Years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits

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



8.1 Employment Potential

It is proposed to provide employment to about 76persons 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

Code	CER
P1	Rs 5,00,000/-
P2	Rs 5,00,000/-
Total	**Rs.10,00,000/-**

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

CHAPTER – 9: ENVIRONMENTAL COST BENEFIT ANALYSIS

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

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN – P1

10.0 General

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

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

10.1 Environmental Policy

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

The Proponent **M/s.Ultra Ready Mix Concrete Pvt Ltd** will –

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

Description of the Administration and Technical Setup –

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

The said team will be responsible for:

- Monitoring of the water/ waste water quality, air quality and solid waste generated
- Analysis of the water and air samples collected through external laboratory
- Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc.
- Co-ordination of the environment related activities within the project as well as with outside agencies
- Collection of health statistics of the workers and population of the surrounding villages
- Green belt development
- Monitoring the progress of implementation of the environmental monitoring programme

- Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

10.2 Land Environment Management –

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

Soil contamination then has a number of flow-on effects like, 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 spices will be carried out on the top benches.	Mines Manager
There will be formation of a small surface water body in the mined-out area, which can be used for watering the greenbelt at the conceptual stages.	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.3 Soil Management

Top Soil Management –

- There is no 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 Maintain, repair or upgrade garland drain system	Environment Officer

Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.4 Water Management

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

The quarrying operation is proposed upto a depth of 38 m BGL, the water table in the area is 65m – 60m below ground level, hence the proposed projects will not intersect the Ground water table during entire quarry period.

TABLE 10.3: PROPOSED CONTROLS FOR WATER ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.5 Air Quality Management

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

TABLE 10.4: PROPOSED CONTROLS FOR AIR ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.6 Noise Management

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

TABLE 10.5: PROPOSED CONTROLS FOR NOISE ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.7 Ground Vibration and Fly Rock Control

TABLE 10.6: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK

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

Source: Proposed by FAE's & EIA Coordinator

10.8 Biological Environment Management

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

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

- Greenbelt development all along the safety barrier of the project area

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

10.8.1 Green Belt Development Plan

About 1470nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

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

PROPOSAL – P1- M/s.Ultra ReadyMix Concrete Pvt Ltd					
Year	No. of trees proposed to be planted	Survial %	Area to be covered	Name of the species	No. of trees expected to be grown
I	1470	80	Near 7.5m safety distance, panchayat road and village road	Neem, Pongamia Pinnata, Casuarina etc.,	1180

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

The objectives of the greenbelt development plan are –

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

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

10.8.2 Species Recommended for Plantation

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

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

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

S. No	Botanical Name	Local Name	Importance
1.	Azadirachta indica	Neem, Vembu	Neem oil & neem products

2.	Tamarindus indica	Tamarind	Edible & Medicinal and other Uses
3.	Polyalthia longifolia	Nettilinkam	Tall and evergreen tree
4.	Borassus Flabellifer	Palmyra Palm	Tall Wind breaker tree and its fruits are edible

Source: Proposed by FAE's & EIA Coordinator

10.9 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 – P1

Sl.No	Activities	1st Year	2nd Year	3rd Year	4th Year	5th 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 – P1

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 – P1

Course	Personnel	Frequency	Duration	Instruction

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

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

10.9.4 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 – P1

Activities	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	29400	29400
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 8 Units	200000	20000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governers @ Rs. 5000/- per Tipper/Dumper deployed - 4 Units	20000	1000
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	58800
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0

	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Compentent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	828636
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff managent	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	29400	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	588000	10000

	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 1470 Trees - (470 Inside Lease Area & 1000 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)	94000	14100
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	300000	30000
	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. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	86850	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	1880365	0
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure 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) - 40 Employees	160000	40000

	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	40000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	5880
	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	147000	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1^{st} Class / 2^{nd} Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
CER	As per MoEF &CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	0
TOTAL			**3027800**	**2049816**

In order to implement the environmental protection measures, an amount of Rs.30.27 lakhs as capital cost and recurring cost as Rs. 20.49 lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project.

Year Wise Break Up	
1st Year	₹ 50,77,616
2nd Year	₹ 21,52,306
3rd Year	₹ 22,59,922
4th Year	₹ 23,72,918
5th Year	₹ 25,78,414
Total	₹144 lakhs

10.10 CONCLUSION

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

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN – P2

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.N.Kathiresh** 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 spices 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 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 27 BGL as per the ToR, the water table in the area is 70 m – 65 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 access the impact due to the mining activities and the efficacy of the adopted air pollution control measures	Mines Manager

Provision of Dust Mask to all workers	Mines Manager
Greenbelt development all along the periphery of the project area	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.7 Noise Management

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

TABLE 10.5: PROPOSED CONTROLS FOR NOISE ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.8 Ground Vibration and Fly Rock Control

TABLE 10.6: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK

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

ensure blast holes are adequately stemmed for the depth of the hole and stemmed with suitable angular material	Mines Foreman

Source: Proposed by FAE's & EIA Coordinator

10.8 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 715nos. 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 – P2

PROPOSAL – P2- Thiru.N.Kathiresh					
Year	No. of trees proposed to be planted	Survial %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	715	80%	Near 7.5m safety distance, panchayat road and village road	Neem, Pongamia Pinnata, Casuarina etc.,	570

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

The objectives of the greenbelt development plan are –

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

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

10.8.2 Species Recommended for Plantation

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

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

TABLE 10.8: RECOMMENDED SPECIES TO PLANT IN THE GREENBELT – P2

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	1st Year	2nd Year	3rd Year	4th Year	5th 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 – P2

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.

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Task Training Like Drilling, Blasting, Stemming, safety, Slope stability, Dewatering, Haul Road maintenance,	Employees assigned to new work tasks	Before new Assignments	Variable	Task-specific health &safety procedures and SOP for various mining activity. Supervised practice in assigned work tasks.
Refresher Training	All employees who received new-hire training	Yearly	One week	Required health and safety standards Transportation controls Communication systems Escape ways, emergency evacuations Fire warning Ground control hazards First aid Electrical hazards Accident prevention Explosives Respirator devices
Hazard Training	All employees exposed to mine hazards	Once	Variable	Hazard recognition and avoidance Emergency evacuation procedures Health standards Safety rules Respiratory devices

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

10.9.4 Budgetary Provision for Environmental Management –

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

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	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 - 2 Units	50000	5000
	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 Governers @ 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	28564
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000

Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Compentent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	169364
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0

Mine Closure	1. Progressive Closure Activity - Surface Runoff managent	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	14282	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	285640	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 716 Trees - (216 Inside Lease Area & 500 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)	43200	6480
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	150000	15000
	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. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	49950	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	384326	0
Implementation of EC, Mining Plan & DGMS	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

Condition	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) - 15 Employees	60000	15000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	15000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	2856.4
	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	71410	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1^{st} Class / 2^{nd} Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000

CER	As per MoEF &CC OM 22-65/2017-IA.III Dated 25.02.2021	Detailed Description in following slides and Budget allocation is included as per MoeEF & CC OM	500000	0
TOTAL			**2153814**	**1253796**

In order to implement the environmental protection measures, an amount of Rs.21.53 lakhs as capital cost and recurring cost as Rs. 12.53 lakhs as recurring cost is proposed considering present market price considering present market scenario for the proposed project.

Year Wise Break Up	
1st Year	□ 34,07,610
2nd Year	□ 13,16,486
3rd Year	□ 13,82,311
4th Year	□ 14,51,426
5th Year	□ 15,73,947
Total	□ 91 lakhs

10.10 CONCLUSION –

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

CHAPTER – 11: SUMMARY AND CONCLUSIONS

Edayarpalayam Rough Stone and Gravel Cluster Quarries (Extent: **14.33.33** 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 December 2022 to Feb 2023 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

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

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

Mining operations has positive impact on environment and socio economy such as landscape improvement, water as by-product, economy development and better public services, providing and supply of 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 55 people directly in the cluster and indirectly around 150 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 Edayarpalayam Rough Stone & Gravel Quarry (Extent: **14.33.33** ha) .

CHAPTER 12.0: DISCLOSURE OF CONSULTANTS

The Project Proponent's –

1. **M/s.Ultra Ready Mix Concrete Pvt Ltd**
2. **Thiru.N. Kathiresh**

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, Advaitha Ashram Road,
Alagapuram, Salem – 636 004
Tamil Nadu, India
Email: infogeoexploration@gmail.com
Web: **www.gemssalem.com**
Phone: 0427 2431989.

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

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

Abbreviations

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

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

Declaration by experts contributing to the EIA/EMP for Edayarpalayam Rough Stone & Gravel Cluster Quarries over an Extent of 14.33.33 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**

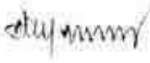
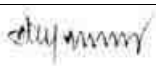
Date & Signature:

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

Associated Team Member with EIA Coordinator:

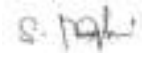
1. **Mr. S. Nagamani**
2. **Mr. Viswanathan**
3. **Mr. Santhoshkumar**
4. **Mr. S. Ilavarasan**

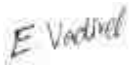
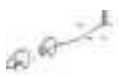
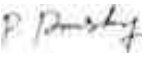
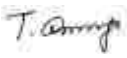
FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

Sl. No.	Functional Area	Involvement	Name of the Expert/s	Signature
1	AP	▪ Identification of different sources of air pollution due to the proposed mine activity ▪ Prediction of air pollution and propose mitigation measures / control measures	Mr. A. Jagannathan	
2	WP	▪ Suggesting water treatment systems, drainage facilities ▪ Evaluating probable impacts of effluent/waste water discharges into the receiving environment/water bodies and suggesting control measures.	Dr. M. Ifthikhar Ahmed	
			Mr. N. Senthilkumar	
3	HG	▪ Interpretation of ground water table and predict impact and propose mitigation measures. ▪ Analysis and description of aquifer Characteristics	Dr. P. Thangaraju	
4	GEO	▪ Field Survey for assessing the regional and local geology of the area. ▪ Preparation of mineral and geological maps. ▪ Geology and Geo morphological analysis/description and Stratigraphy/Lithology.	Dr. M. Ifthikhar Ahmed	
			Dr. P. Thangaraju	
5	SE	▪ Revision in secondary data as per Census of India, 2011. ▪ Impact Assessment & Preventive Management Plan ▪ Corporate Environment Responsibility.	Mrs. K. Anitha	
6	EB	▪ Collection of Baseline data of Flora and Fauna. ▪ Identification of species labelled as Rare, Endangered and threatened as per IUCN list.	Mrs. Amirtham	

		▪ Impact of the project on flora and fauna. ▪ Suggesting species for greenbelt development.	Mr. Alagappa Moses	
7	RH	▪ Identification of hazards and hazardous substances ▪ Risks and consequences analysis ▪ Vulnerability assessment ▪ Preparation of Emergency Preparedness Plan ▪ Management plan for safety.	Mr. N. Senthilkumar	
			Mr. S. Pavel	
			Mr. J. R. Vikram Krishna	
8	LU	▪ Construction of Land use Map ▪ Impact of project on surrounding land use ▪ Suggesting post closure sustainable land use and mitigative measures.	Mr. A. Allimuthu	
9	NV	▪ Identify impacts due to noise and vibrations ▪ Suggesting appropriate mitigation measures for EMP.	Mr. A. Jagannathan	
10	AQ	▪ Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. ▪ Recommending mitigations measures for EMP	Mr. N. Senthilkumar	
11	SC	▪ Assessing the impact on soil environment and proposed mitigation measures for soil conservation	Dr. M. Ifthikhar Ahmed	
12	SHW	▪ Identify source of generation of non-hazardous solid waste and hazardous waste. ▪ Suggesting measures for minimization of generation of waste and how it can be reused or recycled.	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	▪ Site Visit with FAE ▪ Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures ▪ Provide inputs on Geological Aspects ▪ Analyse & provide inputs and assist FAE with meteorological data, emission estimation, AERMOD modelling and suggesting control measures	
2	Mr. Viswanathan	AP; WP; LU	▪ Site Visit with FAE ▪ Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures ▪ Assisting FAE on sources of water pollution, its impacts and suggest control measures ▪ Assisting FAE in preparation of land use maps	
3	Mr. Santhoshkumar	GEO; SC	▪ Site Visit with FAE ▪ Provide inputs on Geological Aspects ▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan ▪ Provide inputs & Assisting FAE with soil conservation methods and identifying impacts	
4	Mr. Umamahesvaran	GEO	▪ Site Visit with FAE ▪ Provide inputs on Geological Aspects ▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan	

5	Mr. A. Allimuthu	SE	▪ Site Visit with FAE ▪ Assist FAE with collection of data's ▪ Provide inputs by analysing primary and secondary data	
6	Mr. S. Ilavarasan	LU; SC	▪ Site Visit with FAE ▪ Assisting FAE in preparation of land use maps ▪ Provide inputs & Assisting FAE with soil conservation methods and identifying impacts	
7	Mr. E. Vadivel	HG	▪ Site Visit with FAE ▪ Assist FAE & provide inputs on aquifer characteristics, ground water level/table ▪ Assist with methods of ground water recharge and conduct pump test, flow rate	
8	Mr. D. Dinesh	NV	▪ Site Visit with FAE ▪ Assist FAE and provide inputs on impacts due to proposed mine activity and suggest mitigation measures ▪ Assist FAE with prediction modelling	
9	Mr. Panneer Selvam	EB	▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna	
10	Mrs. Nathiya	EB	▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna	

DECLARATION BY THE HEAD OF THE ACCREDITED CONSULTANT ORGANIZATION

I, Dr. M. Ifthikhar Ahmed, Managing Partner, Geo Exploration and Mining Solutions, hereby, confirm that the above-mentioned Functional Area Experts and Team Members prepared the EIA/EMP for Rough Stone & Gravel Cluster Quarries over an Extent of 14.33.33 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

EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES

Edayarpalayam Village, Sulur Taluk, Coimbatore District,Tamil NaduState

ToR obtained vide

1.Lr.No. SEIAA-TN/F.No.9572/SEAC/ToR-1332/2022 Dated:10.02.2023
-M/s.Ultraready Mix Concrete Pvt Ltd- P1
2.Lr.No. SEIAA-TN/F.No.9034/ToR-1165/2022 Dated:06.06.2022 –
Thiru.N.Kathiresh -P2

CLUSTER EXTENT = 14.33.33 Ha

PROPOSED QUARRIES

Proponent 1	Proponent 2
M/s.Ultra Ready Mix Concrete Pvt Ltd	Thiru.N.Kathiresh
2.94.01	1.42.82

LIST OF ANNEXURES

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

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY-TAMILNADU
3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.9572/SEAC/ToR-1332/2022 Dated:10.02.2023

To

TVI.Ultra Readymix Concrete Private Limited,
No.25, Trichy Road,
Kannampalayam,
Coimbatore District,
Tamil Nadu State - 641402.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference (ToR) with Public Hearing for the Proposed Rough Stone and Gravel Quarry lease over an extent of 2.94.0Ha S.F.No.168/2A(P), 2B(P), 169/1C(P) & 2A(P), Idayarpalayam Village, Sulur Taluk, Coimbatore District by TVI.Ultra Readymix Concrete Private Limited - under project category – "B1" and Schedule S.No.1(a) – ToR issued along with Public Hearing - preparation of EIA report – Regarding.

Ref: 1. Online proposal No. SIA/TN/MIN/401183/2022 dated: 08.11.2022.
2. Your application submitted for Terms of Reference dated: 18.11.2022.
3. Minutes of the 346th meeting of SEAC held on 12.01.2023.
4. Minutes of the 591st Authority meeting held on 10.02.2023.

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

The proponent, TVI.Ultra Readymix Concrete Private Limited has submitted application for Terms of Reference (ToR) on 18.11.2022, in Form-I, Pre- Feasibility report for the Proposed Rough

MEMBER SECRETARY
SEIAA-TN

1 A

Stone and Gravel Quarry lease over an extent of 2.94.0Ha S.F.No.168/2A(P), 2B(P), 169/1C(P) & 2A(P), Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Proposed Rough Stone and Gravel Quarry lease over an extent 2.94.01ha at S.F.Nos.168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P) Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu by Tvl. Ultra Readymix Concrete Private Limited - For Terms of Reference. (SIA/TN/MIN/401183/2022dated 08.11.2022)

The proposal was placed in the 346th SEAC Meeting held on 12.01.2023. The details of the minutes are available in the website (parivesh. nic. in).

The SEAC noted the following:

1. The project proponent, Tvl. Ultra Readymix Concrete Private Limited has applied for Terms of Reference for the proposed Rough Stone and Gravel Quarry lease over an extent 2.94.01ha at S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P) Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006.
3. As per the precise area communication the lease period is for 5 years. The mining plan is for 5years. The production for 5 years not to exceed 318706 cu.m of rough stone, 13884 cu.m of Weathered Rock & 32304 cu.m of Gravel with an ultimate depth of 38m below ground level (2m Gravel + 1m Weathered Rock + 35m Rough stone). Existing pit 18m.

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

1. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.
2. The study on impact of the dust & other environmental impacts due to proposed quarrying operations on the Rose flowers being cultivated through greenhouse nearby.
3. The Proponent shall furnish photographs of greenbelt, fencing and garland drain around the boundary of the proposed quarry.
4. The proponent shall furnish a revised EMP budget for entire life of proposed mining.

MEMBER SECRETARY
SEIAA-TN

2A

5. The revised and corrected version of the Production & Development Plan shall be produced with showing the safety berm width of 2m is maintained for the bench height of 2m distinctly in the gravel formation and it shall be duly signed by the concerned QP & approved by the concerned AD (Geology & Mining).
6. 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 prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease during the time of appraisal for obtaining the EC.
7. The Proponent shall submit a conceptual 'Slope Stability Plan' indicating the mitigating measures for the proposed quarry during the appraisal while obtaining the EC, as the depth of the proposed quarry working is extended beyond 30 m below ground level.
8. 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.
9. 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.
10. 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.
11. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
    a. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
    b. Quantity of minerals mined out.
    c. Highest production achieved in any one year
    d. Detail of approved depth of mining.
    e. Actual depth of the mining achieved earlier.
    f. Name of the person already mined in that leases area.
    g. If EC and CTO already obtained, the copy of the same shall be submitted.
    h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.

MEMBER SECRETARY
SEIAA-TN

3 A

12. 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).
13. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
14. The PP shall furnish the revised manpower including the statutory & competent persons as required under the provisions of the MMR 1961 for the prosed quarry based on the volume of rock handled & area of excavation.
15. 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.
16. 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.
17. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
18. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
19. 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.
20. 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.

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

21. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
22. 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.
23. 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.
24. 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.
25. 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.
26. Impact on local transport infrastructure due to the Project should be indicated.
27. 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.
28. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
29. Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
30. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
31. The PP shall produce/display the EIA report, Executive summary and other related information

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with respect to public hearing in Tamil Language also.

32. 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.
33. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the **appendix-I** in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
34. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site-specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
35. 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.
36. 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.
37. 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.
38. 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.
39. 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.
40. Details of litigation pending against the project, if any, with direction /order passed by any

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Court of Law against the Project should be given.

41. 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.
42. 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.
43. 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.
44. 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.

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 591st Authority meeting held on 10.02.2023. The authority noted that this proposal was placed for appraisal in the 346th meeting of SEAC held on 12.01.2023. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the conditions in '**Annexure B**' of this minute.

1. The EMP should include mine closure plan using weathered rock. It should be used for site restoration.
2. Details of fencing & plantation for the proposed project site.
3. Details of approved layout/Structures/buildings, reservoir, Canal, High ways, Railway lines, Water Bodies, Reserve Forest, Village Road, Cart track, Stream Courses within /outside the radius of 50m, 100m, 150m,200m, 250m, & 300m of the proposed mining area.

Annexure 'B'

Cluster Management Committee

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

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

Impact study of mining

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following

a) Soil health & soil biological, physical land chemical features .

b) Climate change leading to Droughts, Floods etc.

c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.

d) Possibilities of water contamination and impact on aquatic ecosystem health.

e) Agriculture, Forestry & Traditional practices.

f) Hydrothermal/Geothermal effect due to destruction in the Environment.

g) Bio-geochemical processes and its foot prints including environmental stress.

h) Sediment geochemistry in the surface streams.

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Agriculture & Agro-Biodiversity

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

Forests

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

Water Environment

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

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

Energy

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

Climate Change

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

Mine Closure Plan

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

EMP

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

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36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

Risk Assessment

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

Disaster Management Plan

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

Others

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

A. STANDARD TERMS OF REFERENCE

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

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with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.

4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).

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

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

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

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

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

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

11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land

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area, distance from mine lease, its land use, R&R issues, if any, should be given.

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

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

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

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

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

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

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

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19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.

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

21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

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

23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating

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the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

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

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

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

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

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

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

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

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

32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the

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Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

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

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

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

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

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

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

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

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

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

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

43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

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44) Besides the above, the below mentioned general points are also to be followed:-

a) Executive Summary of the EIA/EMP Report

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

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

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

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

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

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

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

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

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

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

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

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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 shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.

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

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

a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
b. All documents may be properly referenced with index, page numbers and continuous page numbering.
c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.

e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website http://www.moef.nic.in/ may be referred.

- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
- The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
- The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai - 600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi - 110 003.
6. The District Collector, Coimbatore District.
7. Stock File.

From

Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To

M/s.Ultra Ready mix
Concrete Pvt Ltd,
25, Trichy Road,
Kannampalayam,
Coimbatore.

Rc.No.931/Mines/2021Dated: 11.07.2022

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Edayarpalayam Village – Survey Nos. 168/2A (P) (0.19.42 Hec), 168/2B (P) (0.78.51 Hec), 169/1C (P) (0.70.01 Hec) and 169/2A (P) (1.26.07 Hec) - over an extent of 2.94.01 hectares of patta land - Application preferred by M/s.Ultra Ready mix Concrete Pvt Ltd for quarrying Roughstone and Gravel – Precise area communicated – Details of quarries situated within 500 meter radial distance – Requested – furnished - reg.

Ref 1. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.931/Mines/2021, Dated: 04.07.2022.

2. M/s.Ultra Readymix Concrete Pvt Ltd, Coimbatore letter dated: 08.07.2022.

****

I invite kind attention to the reference cited wherein M/s.Ultra Readymix Concrete Pvt Ltd has been issued precise area for the grant of Rough Stone and Gravel quarry lease over an extent of 2.94.01hectares of patta land in Survey Nos. 168/2A (P) (0.19.42 Hec), 168/2B (P) (0.78.51 Hec), 169/1C (P) (0.70.01 Hec) and 169/2A (P) (1.26.07 Hec) of Edayarpalayam Village, Sulur Taluk, Coimbatore District.

In the reference 2nd cited of M/s.Ultra Readymix Concrete Pvt Ltd 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.Chitradevi	Edayarpalayam 179/2(P)	3.64.5	14.07.2021 to 13.07.2026	

2	B.Sakthivel	Edayarpalayam 164/6A(P) & 164/7	1.19.5	07.10.2017 to 06.10.2022	
3	V.Saravanan	Edayarpalayam 171/2(P) & 176/2 (P)	1.22.5	15.09.2017 to 14.09.2022	

ii) Expired Quarries

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

iii) Abandoned quarries

Sl. No.	Name of the Owner	Village &S.F.Nos	Extent in Hect.	Lease period	Remarks
1	Government Poramboke lease	Edayarpalayam 164/1	-	-	

iv) Proposed quarries

Sl. No.	Name of the Owner	Village & S.F.Nos	Extent in Hect	Remarks
1	M/s.UltraReady mix Concrete Pvt Ltd	Edayarpalayam 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P)	2.94.01	Subject area Precise area communicated
2	N.Kathumsh	Edayarpalayam 172/1B, 172/2 & 173/2A2	1.42.82	Precise area communicated
3	N.Vivek Prithviraj	Edayarpalayam 180/3 (P)	1.62.0	Precise area communicated
4	K.Ranganathan	Edayarpalayam 174/4 & 176/1	2.28.0	-

vj Future Proposed quarries

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

Assistant Director,
Dept. of Geology and Mining,
Coimbatore

From

Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To

M/s.Ultra Ready mix
Concrete Pvt Ltd,
25, Trichy Road,
Kannampalayam,
Coimbatore.

Rc.No.931/Mines/2021Dated: 11.07.2022

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Edayarpalayam Village - Survey Nos.168/2A (P) (0.19.42 Hec), 168/2B (P) (0.78.51 Hec), 169/1C (P) (0.70.01 Hec) and 169/2A (P) (1.26.07 Hec) - over an extent of 2.94.01hectares of patta land -Application preferred by M/s.Ultra Readymix Concrete Pvt Ltd for quarrying Rough stone and Gravel – Submission of mining plan for approval – approved – regarding.

Ref: 1. Quarry lease application dated 02.08.2021 & 15.06.2022 preferred byM/s.Ultra Readymix Concrete Pvt Ltd, Coimbatore.
2. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.931/Mines/2021, Dated: 04.07.2022.
3. Mining Plan submitted by M/s.Ultra Readymix Concrete Pvt Ltd dated: 08.07.2022.

****

In response to the precise area communicated by the Assistant Director of Geology and Mining, Coimbatore, the applicant M/s.Ultra Readymix Concrete Pvt Ltd vide reference 3rd cited has submitted three copies of mining plan for the grant of Roughstone and Gravel quarry lease over an extent of 2.94.01 hectares of patta land in Survey Nos. 168/2A (P) (0.19.42 Hec), 168/2B (P) (0.78.51 Hec), 169/1C (P) (0.70.01 Hec) and 169/2A (P) (1.26.07 Hec) of Edayarpalayam Village, Sulur Taluk, Coimbatore District.

2. The mining plan submitted for the grant of Roughstone and Gravel quarry lease over an extent of 2.94.01 hectares of patta land in Survey Nos. 168/2A (P) (0.19.42 Hec), 168/2B (P) (0.78.51 Hec), 169/1C (P) (0.70.01 Hec) and 169/2A (P) (1.26.07 Hec) 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:

(ii) 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

(iii) 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, Coimbatoreletter Re.No.931/Mines/2021, Dated: 04.07.2022 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 10 meters should be provided to the cart track passing on the southern and eastern side of the applied area.

d) No hindrance should be caused to the Scholl building situated on the south eastern 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.

Assistant Director,
Dept. of Geology and Mining,
Coimbatore

Copy submitted to:
The Director of Geology and Mining, Chennai-32

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 Lands / Lease Period = Five Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT	:	2.94.01ha
S.F.NOS	:	168/2A (P), 2B (P), 169/1C (P) & 2A (P)
VILLAGE	:	IDAYARPALAYAM
TALUK	:	SULUR
DISTRICT	:	COIMBATORE
STATE	:	TAMIL NADU

FOR

APPLICANT

Tvl. Ultra Readymix Concrete Private Limited,

No. 25, Trichy Road,

Kannampalayam,

Coimbatore District,

Tamil Nadu State – 641 402.

PREPARED BY

S. Ilavarasan, M.Sc.,

RQP/MAS/253/2013/A

Recognized Qualified Person

Regd. Off. No.17, Advaitha Ashram Road,

Alagapuram, Salem District – 636 004.

Cell: +91 94422 78601 & 94433 56539.

E-mail: infogeoexploration@gmail.com

Tvl. Ultra Readymix Concrete Private Limited,
No. 25, Trichy Road,
Kannampalayam,
Coimbatore District,
Tamil Nadu State – 641 402.

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.168/2A (P), 2B (P), 169/1C (P) & 2A (P) over an extent of 2.94.01ha of Patta lands in Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared by

S. Ilavarasan, M.Sc.,
RQP/MAS/253/2013/A
Recognized Qualified Person

We 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 Recognized Qualified Person at his following address.

S. Ilavarasan, M.Sc.,
Regd. Off. No. 17,
Advaitha Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.

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

Signature of the Applicant
For Tvl. Ultra Readymix Concrete Private Limited

K.R.Ananth Kumar
(Authorized Chief Executive Officer)

Place: Coimbatore
Date: 05.07.2022

Tvl. Ultra Readymix Concrete Private Limited,
No. 25, Trichy Road,
Kannampalayam,
Coimbatore District,
Tamil Nadu State – 641 402.

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.168/2A (P), 2B (P), 169/1C (P) & 2A (P) over an extent of 2.94.01ha of Patta lands in Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared in full consultation with us.

We have understood its contents and agree to implement the same in accordance with Laws, Rules and Act applicable to Quarry.

Signature of the Applicant
For Tvl. Ultra Readymix Concrete Private Limited

K.R.Ananth Kumar
(Authorized Chief Executive Officer)

Place: Coimbatore
Date: 05.07.2022

S. Ilavarasan, M.Sc.,
Regd. Off. No. 17,
Advaitha Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.

CERTIFICATE FROM THE RECOGNIZED 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.168/2A (P), 2B (P), 169/1C (P) & 2A (P) over an extent of 2.94.01ha of Patta lands in Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Tvl. Ultra Readymix Concrete Private Limited,
No. 25, Trichy Road,
Kannampalayam,
Coimbatore District,
Tamil Nadu State – 641 402.

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 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 Recognized Qualified Person

S. Ilavarasan, M.Sc.,
RQP/MAS/253/2013/A

Place: Salem
Date: 08.07.2022

S. Ilavarasan, M.Sc.,
Regd. Off. No. 17,
Advaitha Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539.

CERTIFICATE FROM THE RECOGNIZED 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.168/2A (P), 2B (P), 169/1C (P) & 2A (P) over an extent of 2.94.01ha of Patta lands in Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Tvl. Ultra Readymix Concrete Private Limited,
No. 25, Trichy Road,
Kannampalayam,
Coimbatore District,
Tamil Nadu State – 641 402.

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 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 Recognized Qualified Person

S. Ilavarasan, M.Sc.,
RQP/MAS/253/2013/A

Place: Salem
Date: 8.07.2022

LIST OF CONTENTS

LIST OF ANNEXURES

S. No.	Description	Annex. No.
1.	Copy of Precise Area Communication	I
2.	Copy of FMB	II
3.	Copy of Combined Map	III
4.	Copy of Patta	IV
5.	Copy of Adangal	V
6.	Copy of A-Register	VI
7.	Copy of Certificate of Incorporation	VII
8.	Copy of Memorandum of Association & Articles of Association	VIII
9.	Copy of Authorization of CEO	IX
10.	Copy of NOC from Shaswi International School of Excellence	X
11.	Copy of ID Proof	XI
12.	Copy of Recognized Qualified Person Certificate	XII

LIST OF PLATES

S. No.	Description	Plate No.
1.	Location Plan	I
2.	Topo sketch of Quarry Lease Applied Area for 10km Radius	IA
3.	Environmental & Landuse Plan for 1km Radius	IB
4.	Route Plan	IC
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6.	Topography, Geological, Yearwise Development & Production Plan & Sections	III
7.	Progressive Quarry Closure Plan & Sections	IV
8.	Conceptual Plan & Sections	V

MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR IDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRY OVER AN EXTENT OF 2.94.01ha IN IDAYARPALAYAM VILLAGE, SULUR TALUK, COIMBATORE DISTRICT, TAMIL NADU STATE.

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

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

This Mining Plan and Environment Management Plan are prepared for **Tvl. Ultra Readymix Concrete Private Limited,** No. 25, Trichy Road, Kannampalayam, Coimbatore District, Tamil Nadu State – 641 402.

The applicant applied for Rough stone and Gravel quarry over an extent of 2.94.01ha of Patta lands in S.F.Nos.168/2A (P), 2B (P), 169/1C (P) & 2A (P) of Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State under Rules 19 (1) & 20 as per the amended Under 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.931/Mines/2021, Dated: 04.07.2022** to submit Mining Plan for the approval in Department of Geology and Mining, Coimbatore District and obtain Environmental Clearance from the SEIAA, Chennai, Tamil Nadu State, with the conditions to provide:

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 10m to the Cart Track passing on the South & East side of applied area.
4. While quarrying, no hindrance shall be caused to the School Building on the Southeastern side of the applied area.
5. 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.

6. Quarrying should be done only in the applied area leaving the safety distance for the survey field numbers surrounding areas.
7. Quarrying should not be employed Child labor.

(Please refer Annexure No – I).

In order to ensure compliance of the order of the Honourable Supreme Court Dated: 27.02.2012 in I.A.No.12.13.2011 in Special Leave Petition SLP (C) No 19628-19629/2009, it has been now decided that all mining projects of minor minerals including their renewal irrespective of sizes of the lease would hence forth require prior environmental clearance mining project within the lease applied area up to less than 100ha including projects or minor mineral with lease applied area less 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 24.01.2019.

Short Notes of Mining Plan:

a. Village Panchayat - Idayarpalayam
b. Panchayat Union - Sulthanpet
c. The Geological Resources are **10,07,006m^3** of Rough stone, **24,300m^3** of Weathered Rock and **48,600m^3** of Gravel formation in the entire area.
d. The Total Mineable Reserves are **3,18,706m^3** of Rough stone, **13,884m^3** of Weathered Rock and **32,304m^3** of Gravel in the entire area.
e. The proposed quantity of reserves/ (level of production) to be mined are **3,18,706m^3** of Rough stone for five years, stone, **13,884m^3** of Weathered Rock and **32,304m^3** of Gravel for three years in the entire area.
f. Total extent of the lease applied area = 2.94.01ha
g. Topography of the area = The area exhibits plain topography
h. Proposed Depth of mining = 38m (2m Gravel + 1m Weathered Rock + 35m 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.R.P.Nachammal, & Thiru.R.P.Subramaniam, Coimbatore District,** over an extent of 4.10.5hectares of Patta lands in S.F.Nos.168/2, 169/1C & 2A of Idayarpalayam Village, Sulur Taluk, Coimbatore District vide **Rc.No.613/2011/MM-2,** for the period of five years from 10.07.2012 to 09.07.2016 for quarrying of Rough stone and Gravel. As the lease granted vide **Rc.No.613/2011/MM-2** was expired, the applicant has applied a quarry lease on 15.06.2022 for over an extent of 2.94.01ha of Patta lands in S.F.Nos.168/2A (P), 2B (P), 169/1C (P) & 2A (P) of Idayarpalayam Village, Sulur 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)
98	70	18

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 2.94.01ha bounded by thirteen corners; the corners are designated as 1-13 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. There is no waste anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.

u. Around 40 employees are deploying in the quarrying operation.

v. Total Cost of the project is about **Rs.91,03,000/-.**

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 – Northwest
Nearest School	Idayarpalayam	1km – Northwest
Nearest Dispensary	Sulur	12km – Northeast
Nearest Town	Sulur	12km – Northeast
Nearest Police Station	Chettipalayam	9km – West
Nearest Hospital	Sulur	12km – Northeast
Nearest D.S.P. Office	Coimbatore	21km – Northwest
Nearest Railway Station	Chettipalayam	9km – West
Nearest Airport	Coimbatore	21km – Northwest
Nearest Seaport	Kochi	143km – Southwest
District Head quarters	Coimbatore	21km – Northwest

2.0 GENERAL INFORMATION

2.1 a) Name of the Applicant : Tvl. Ultra Readymix Concrete Private Limited,

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

Address	:	No. 25, Trichy Road, Kannampalayam, Coimbatore District.
Pin Code	:	641 402
Mobile No	:	+91 94431 49816
Aadhaar No	:	2449 9491 4584
Email ID	:	pls@ultrarmc.com

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

The applicant is a Private Company. Thiru.K.R.Ananth Kumar is the Authorized Chief Executive Officer for this company. Please refer copy of this company documents enclosed as Annexure Nos. VII, VIII & IX.

2.2 a) Mineral which the Applicant intends to mine:

The Applicant intends to quarry Rough stone and Gravel only.

b) Precise area communication letter details received from the Competent Authority of the Government:

The precise area communication letter was received from the Assistant Director, Department of Geology and Mining, Coimbatore District vide **Rc.No.931/Mines/2021, Dated: 04.07.2022** to submit approved mining plan and to obtain Environmental Clearance from the SEIAA, Chennai, Tamil Nadu State.

c) Period of permission / lease to be granted:

The applicant has applied for five years, the Assistant Director, Department of Geology and Mining, Coimbatore District has recommended for five years for Rough stone and Gravel.

d) Name, address and register number of the Recognised Qualified Person who preparing the Mining Plan:

Name	:	**S. Ilavarasan, M.Sc.,** Recognised Qualified Person
Address	:	Regd. Off. No. 17, Advaitha Ashram Road, Alagapuram, Salem District – 636 004.
Telephone	:	0427- 2431989 (Office)
Cell No	:	+91 94422 78601 & 94433 56539
Register No.	:	RQP/MAS/253/2013/A
Email	:	infogeoexploration@gmail.com

(Refer Annexure No. XII).

3.0 LOCATION

a) Details of the area with location map:

The lease applied area is about 21km Southeastern side of Coimbatore town and 12km Southwestern side of Sulur town, the lease applied area located along Idayarpalayam Village at a distance of 1km Southeastern side.

	19km		11km		1km	
Coimbatore	→	Sulur	→	Idayarpalayam	→	Lease Applied area
	Southeast		Southwest		Southeast	

Location Map of the Lease Applied Area

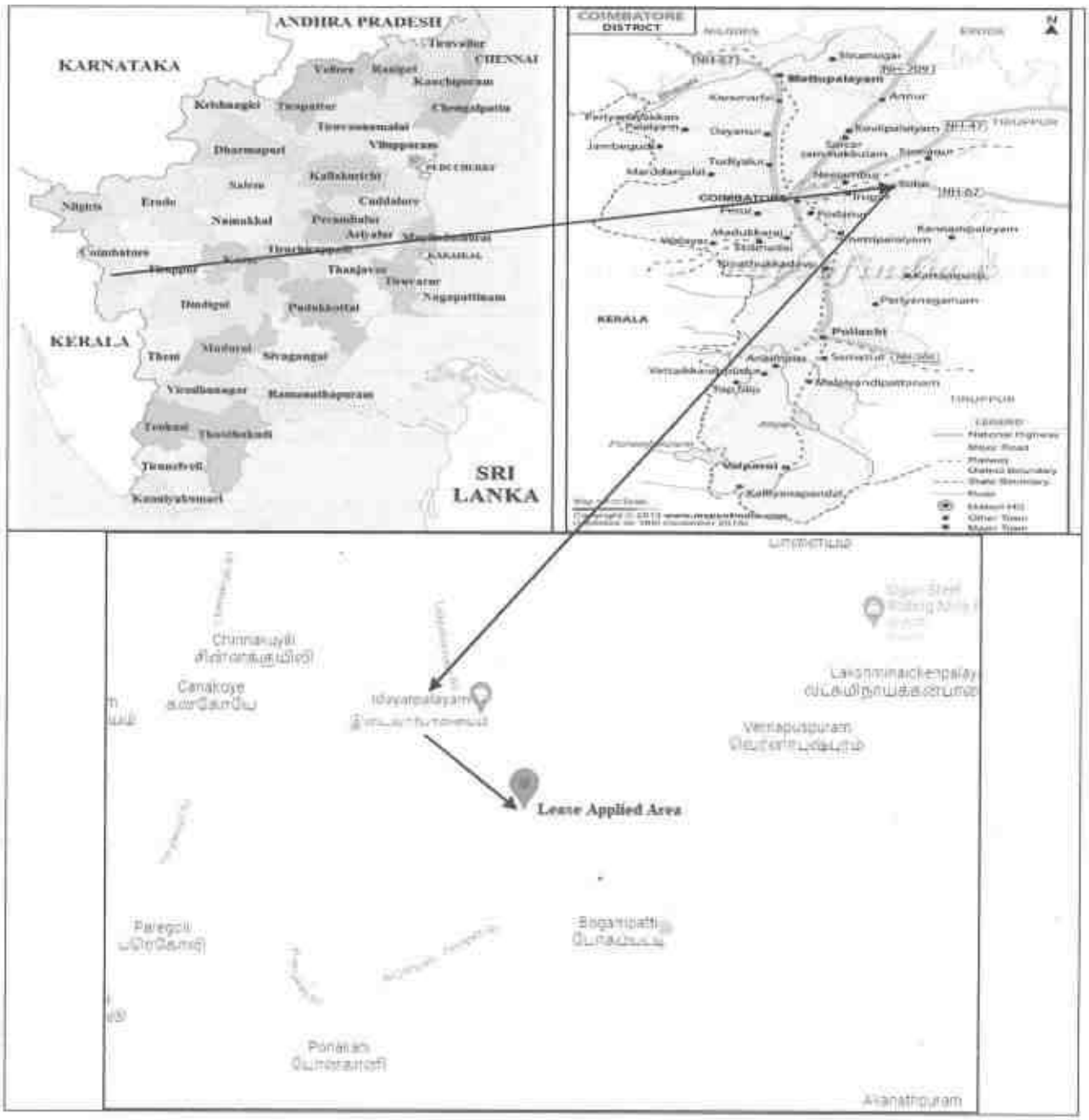


TABLE-2

District	Taluk	Village	S.F. Nos.	Lease Applied Area in ha.	Patta No.
Coimbatore	Sulur	Idayarpalayam	168/2A (P)	0.19.42	1030
			168/2B (P)	0.78.51	1028
			169/1C (P)	0.70.01	1027
			169/2A (P)	1.26.07	1029
Total Extent				**2.94.01ha**	

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

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

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

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.

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' 43.0036"N to 10° 54' 49.7345"N** and Longitude between: **77° 06' 46.9047"E to 77° 06' 56.1903"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 Cart Track at a distance 10m from the applied area.

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

The approach road from the quarry is 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 9m 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 415m (max) above Mean Sea level. The area is covered by 2m thickness of Gravel formation and 1m of Weathered Rock. Massive Charnockite is found after 3m (2m Gravel + 1m Weathered Rock) which is clearly inferred from the existing quarry pit.

The Water table is found at a depth of 65m in summer and at 60m in rainy seasons. Average annual rainfall is about 689mm.

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:

AGE		FORMATION
Recent	-	Quaternary
		Formation (Gravel + Weathered Rock)
----------Unconformity----------		
Archaean	-	Charnockite
		Peninsular Gneiss complex

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 Recognized 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 six sections have been drawn, two sections are drawn Length wise as (X-Y) & (X1-Y1), and other four cross sections are drawn Width wise as (A-B), (C-D) (E-F) & (G-H) 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 38m (2m Gravel + 1m Weathered Rock + 35m Rough stone) below ground level. **The total Geological resources are calculated by sectional method and the resources are estimated after depletion of existing quarry pit**. The total available geological resources are given below:

TABLE-3

GEOLOGICAL RESOURCES							
Section	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Geological Resources in Rough stone (m^3)**	**Weathered Rock (m^3)**	**Gravel Formation (m^3)**
XY-AB	I	43	129	2	-	-	11094
	I	43	129	1	-	5547	-
	II	43	129	5	27735	-	-
	III	43	129	5	27735	-	-
	IV	43	129	5	27735	-	-
	V	43	129	5	27735	-	-
	VI	43	129	5	27735	-	-
	VII	43	129	5	27735	-	-
	VIII	43	129	5	27735	-	-
	Total				**194145**	**5547**	**11094**
XY-CD	I	98	60	2	-	-	11760
	I	98	60	1	-	5880	-
	II	98	60	5	29400	-	-
	III	98	60	2	11760	-	-
	III	98	72	3	21168	-	-
	IV	98	72	2	14112	-	-
	IV	98	99	3	29106	-	-
	V	98	131	5	64190	-	-
	VI	98	131	5	64190	-	-
	VII	98	131	5	64190	-	-
	VIII	98	131	5	64190	-	-
	Total				**362306**	**5880**	**11760**
XY-EF	I	57	133	2	-	-	15162
	I	57	133	1	-	7581	-
	II	57	133	5	37905	-	-
	III	57	133	5	37905	-	-
	IV	57	133	5	37905	-	-
	V	57	133	5	37905	-	-
	VI	57	133	5	37905	-	-
	VII	57	133	5	37905	-	-
	VIII	57	133	5	37905	-	-
	Total				**265335**	**7581**	**15162**
X1Y1-GH	I	84	63	2	-	-	10584
	I	84	63	1	-	5292	-
	II	84	63	5	26460	-	-
	III	84	63	5	26460	-	-
	IV	84	63	5	26460	-	-
	V	84	63	5	26460	-	-
	VI	84	63	5	26460	-	-
	VII	84	63	5	26460	-	-
	VIII	84	63	5	26460	-	-
	Total				**185220**	**5292**	**10584**
Grand Total					**1007006**	**24300**	**48600**

Total Geological Resources of Gravel formation	:	**48,600m^3**
Total Geological Resources of Weathered Rock	:	**24,300m^3**
Total Geological Resources of Rough stone	:	**10,07,006m^3**

Existing Pit Dimension:

The lease applied area has been quarried in earlier the existing pits dimensions are follows:

TABLE-4

Length (m) (max)	Width (m) (max)	Depth (m) (max)
98	70	18m below ground level

Available Mineable Reserves:

The available Mineable reserves are calculated after leaving the safety distance and bench loss to a maximum depth of 38m below ground level.

TABLE-5

MINEABLE RESERVES							
Section	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Mineable Reserves in Rough stone (m^3)**	**Weathered Rock (m^3)**	**Gravel (m^3)**
XY-AB	I	34	110	2	-	-	7480
	I	31	104	1	-	3224	-
	II	30	102	5	15300	-	-
	III	25	92	5	11500	-	-
	IV	20	82	5	8200	-	-
	V	15	72	5	5400	-	-
	VI	10	62	5	3100	-	-
	VII	5	52	5	1300	-	-
	Total				**44800**	**3224**	**7480**
XY-CD	I	98	41	2	-	-	8036
	I	98	38	1	-	3724	-
	II	98	37	5	18130	-	-
	III	98	32	2	6272	-	-
	III	98	39	3	11466	-	-
	IV	98	29	2	5684	-	-
	IV	98	56	3	16464	-	-
	V	98	77	5	37730	-	-
	VI	98	67	5	32830	-	-
	VII	98	57	5	27930	-	-
	VIII	98	47	5	23030	-	-
	Total				**179536**	**3724**	**8036**

The applicant ensures the total quantity proposed in the benches will not exceed during the quarrying operation. Besides the Rough stone locked up in benches will be exploited after obtaining necessary permission from the office of **Director General of Mine Safety, Chennai** region by submitting relevant documents, appropriate safety plans and its Mitigation measures.

One lorry load	=	$6m^3$ (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed in this five years plan period	=	$3,18,706m^3$
Hence total lorry loads per day	=	$3,18,706m^3/6m^3$
	=	53118 lorry loads
	=	53118/5 years
	=	10624/300 Days
Rough stone	=	**35** lorry loads per day
Total quantity to be removed in this three years plan period	=	$46,188m^3$
Hence total lorry loads per day	=	$46,188m^3/6m^3$
	=	7698 lorry loads
	=	7698/3 years
	=	2566/300 Days
Gravel & Weathered Rock	=	**8-9** lorry loads per day

Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 pm lunch break)

5.5 Machineries to be used:

For Mining:

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

TABLE-7

I. DRILLING MACHINE:

S. No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack hammer	8	30-35	1.2m to 2.0m	Compressed air
2	Compressor	2	-	400 psi	Diesel Drive

II. EXCAVATION & LOADING EQUIPMENT:

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

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT:

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

5.6 Disposal of Overburden/Waste:

The overburden in the form of Gravel, the Gravel already removed during previous quarry lease period. The excavated Rough stone (100%) will be directly loaded into Tipper 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 in m (Max)	Width in m (Max)	Depth in m (Max)
247	113	38m 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 propose 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

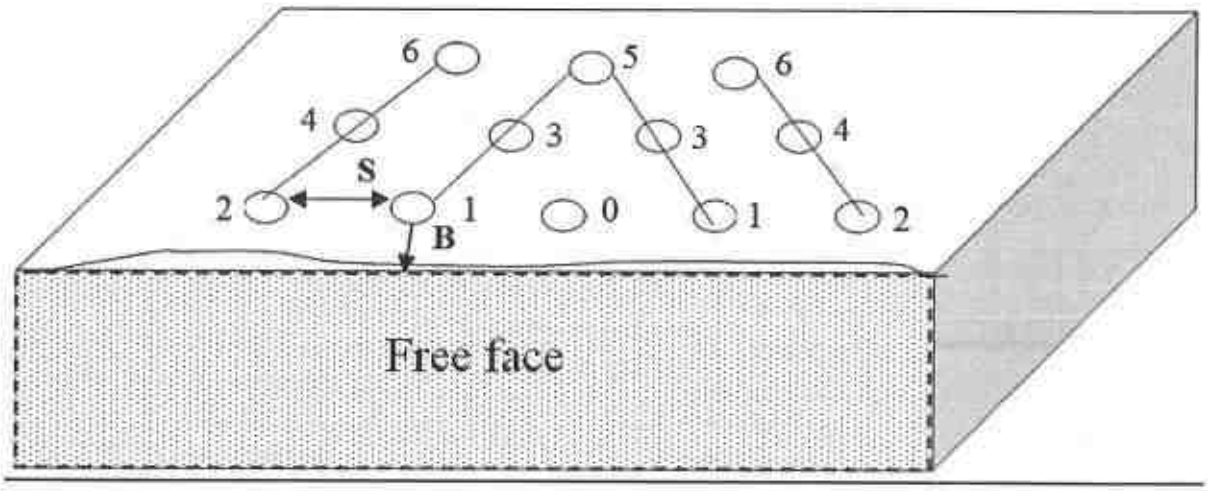
6.1 Blasting pattern:

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

Drilling and blasting parameters are as follows:

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

BLASTING PATTERN DRAWING



Staggered "V" Pattern of Blasting Design

Spacing	=	**1.2m**
Burden	=	**1.0m**
Depth of the hole	=	**1.5m**
No of holes proposed per day	=	**184 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	= 184 Holes
Yield	= 552 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 92 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.00 – 12.30p.m (whenever required)

6.4 Storage and safety measures to be taken while blasting:

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

7.0 MINE DRAINAGE

7.1 Depth of water table (based on nearby wells and water bodies):

The Water Table in the area is 65m in summer season and 60m 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	540m Northeastern side	10°55'06.20"N 77°07'01.74"E

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

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

8.0 OTHER PERMANENT STRUCTURES (also shown in the map)

8.1 Habitations/ Villages natham:

There is a Shaswi International School Compound Wall is situated at 89m but this school infrastructures are located at 470m on the Southeastern side of the lease applied area. The applicant obtained no objection certificate from the school. Please refer Annexure No. X. There is a Farm house is owned by adjacent quarry lease holder situated at 25m on the Northern side of the lease applied area. There is no other approved habitation within 300m radius from the lease applied area.

8.2 Power Lines (HT/LT):

There is no Housing area, EB line (HT & LT Line) within the radius of 50m from the lease applied area.

8.3 Water bodies (river, ponds, lake, odai, canal, etc.,):

There is no River, Pond, Lake, Odai, Canal located within 50m radius of the lease applied area.

8.4 Archaeological / historical monuments:

There is no Archaeological / historical monuments within 500m radius from the lease applied area.

8.5 Road (NH, SH, others):

The Nearest National Highway (NH-544) Salem – Palakkad is situated about 11km on the Northwestern side of the lease applied area.

The State Highway (SH-163) Palladam – Cochin Frontier Road is situated about 4km on the Northeastern side of the lease applied area.

The Major District (MD-417) Selekarachal – Sulthanpet Road is situated about 4km on the Northeastern side of the lease applied area.

8.6 Places of worships:

There is no place of worships within the radius of 300m from the lease applied area.

8.7 Reserved forest / forest / social forest / wild life sanctuary etc.,:

There is no reserved forest / forest / social forest / wild life sanctuary etc., within radius of 1km of the lease applied area.

SALIENT FEATURES

S. No.	Salient Features Present around site	Prescribed safety distance	If any present within Prescribed distance it's actual distance and direction from the area
1.	Railways, Highways, Reservoirs or Canal	50m	None of the above situated within 50m radius.
2.	Village Road	10m	Cart Track is passing on South and Eastern side, a safety distance of 10m has been provided to the Cart Track. There is no village road situated within 10m radius of the lease applied area.
3.	Habitation / Village	300m	There is a Shaswi International School Compound Wall is situated at 89m but this school infrastructures are located at 470m on the Southeastern side of the lease applied area. The applicant obtained no objection certificate from the school. Please refer Annexure No. X. There is a Farm house is owned by adjacent quarry lease holder situated at 25m on the Northern side of the lease applied area. There is no other approved habitation within 300m radius from the lease applied area (Refer Plate No I-B).
4.	Adjacent Patta lands / Govt. Land	7.5m/10m	<table><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</td><td>7.5m</td></tr><tr><td>South</td><td>Govt. land / Cart Track</td><td>10m</td></tr><tr><td>West</td><td>Patta land</td><td>7.5m</td></tr></table> (Refer Plate No. II).
5.	Housing area, EB line (HT & LT Line)	50m	There is no Housing area, EB line (HT & LT Line) within the radius of 50m from the lease applied area.
6.	Boundaries of the permitted area	7.5m/10m	The boundaries of the permitted areas is as follows: North – S.F.Nos.169/1C (P), 2A (P) & 168/2A (P) East – S.F.Nos.167 & 168/2B (P) South – S.F.Nos.168/3, 244/2 & 169/1D West – S.F.Nos.169/1B & 169/1A (Refer Plate No. II).
7.	Reserve forest	1km	There is no reserved forest located within the radius of 1km from the lease applied area. (Refer Plate No. IA and IB).
8.	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 & Driver	:	6
	Jack hammer operator	:	16
b.	Semi-skilled:		
	Security	:	2
c.	Unskilled:		
	Labour & Helper	:	6
	Co-operator and Cleaner	:	8
	Total	:	**40**

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.

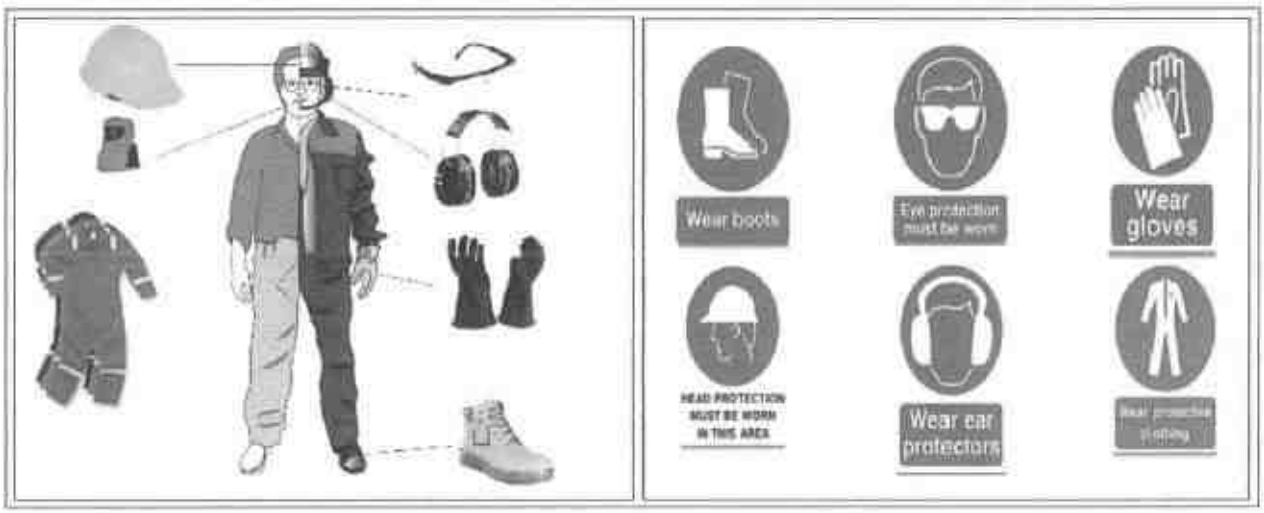
c. First aid facility:

First aid kits are kept in Mines office room, in case of such eventuality is the victim will be given first aid immediately at the site by the competent and statutory foreman/permit manager/mate will be in-charge of first aid and injured person will be taken to the hospital by the applicant vehicle. Hospital is available in Sulur located at a distance of 12km on the Northeastern 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

Description	Present area in (ha)	Area at the end of this quarrying period (ha)
Area under Quarrying	0.67.30	2.30.00
Infrastructure	Nil	0.01.00
Roads	0.01.00	0.03.00
Green Belt	Nil	0.60.01
Unutilized Area	2.25.71	Nil
Grand Total	**2.94.01**	**2.94.01**

10.2 Water Regime:

It is a simple opencast quarry operation. The quality of water will not be affected due to this quarrying operation. However, mitigation measures will be carried out like Garland drains constructed on all sides of quarry pit to avoid surface run-off rain water entering into the pit.

The waste water discharged to water bodies will be met the standard prescribed under the Environment (Protection) Act – 1986 by The Ministry of Environment, Forest and Climate change.

10.3 Flora and Fauna:

TABLE–11

S.No.	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	*Cocos nucifera*	*Arecaceae*	Coconut, Thennai	Tree	
2.	*Curcuma longa*	*Zingiberaceae*	Turmeric	Herb	
3.	*Sorghum bicolour*	*Poaceae*	Solam	Grass	
4.	*Borassus flabellifera*	*Arecaceae*	Palmyra Palm	Tree	
5.	*Calotropis gigantea*	*Asclepiadaceae*	Crown Flower, Erukku	Shrub	

List of Fauna			
S.No.	Scientific Name	Common Name	Picture
1.	*Egrettagarzetta*	Little egret	
2.	*Boigaspp*	Cat snake	
3.	*Dicrurusmacrocercus*	Black drongo	
4.	*Calotes versicolor*	Garden Lizard	
5.	*Funambuluspalmarum*	Indian palm squirrel	
6.	*Hieroglyphus sp*	Grasshopper	

10.4 Climatic Conditions:

The area receives rainfall of about 689mm/annum and the rainy season is mainly from Oct - Dec during monsoon. The summer is hot with maximum temperature of 29°C and winter encounters a minimum temperature of 20°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.	S.N.Palayam	4km – Northeast	6,100
2.	Bogampatti	2km – Southeast	2,500
3.	Idayarpalayam	1km – Northwest	2,300

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Sulur 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 and at the end of mining (refilling / fencing etc.):

In the mining plan proposed only to a maximum depth of 38m 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.2,37,000/-.**

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

The safety zone all along the boundary barrier has been identified to be utilized for Greenbelt development. Appropriate native species of Neem, Pongamia Pinnata, Casuarina, etc., trees will be planted in a phased manner as described below.

TABLE–13

Year	No. of tress proposed to be planted	Survival %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	130	80	1200.2	Neem, Pongamia Pinnata, Casuarina, etc.,	104
II	130	80	1200.2		104
III	130	80	1200.2		104
IV	130	80	1200.2		104
V	130	80	1200.2		104

Nearly 6,001sq.m area is proposed to use under Greenbelt by planting 130 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.65,000/-** for the period of five years.

The Greenbelt Development will be formed in the quarried out top benches and approach road of the lease applied area. The cost would be around **Rs.55,000/-.**

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

Budget Provision for the entire quarrying period:

TABLE-14

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

The EMP cost would be around **Rs.3,80,000/-** for the period of five years.

A. Project / investment / Operational cost		
i) Land cost	The Land value as per the Government Guideline land cost is about, **S.F.Nos. / Extent / Cost/Ha / Total** 168/2A (P) / 0.19.42 / 1159500 / 225174.9 168/2B (P) / 0.78.51 / 1159500 / 910323.45 169/1C (P) / 0.70.01 / 1159500 / 811765.95 169/2A (P) / 1.26.07 / 1325000 / 1670427.5 **Total / 2.94.01 / / 3617691.8** i.e., Rs.36,18,000/- (source : https://tnreginet.gov.in/portal/)	= Rs.36,18,000/-
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.35,00,000/-
iii) Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattles cost would be around	= Rs.2,37,000/-
iv) Labourers shed	Labour sheds will be constructed as semi permanent structure. The cost would be around	= Rs.1,77,000/-

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.70,000/-
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around	= Rs.1,80,000/-
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	= Rs.70,000/-
ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around	= Rs.70,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	= Rs.2,00,000/-
xi) Garland drains Construction	Construction of garland drains to divert surface run-off from virgin area away from mining area	= Rs.2,22,000/-
xii) Greenbelt etc.	Greenbelt program will be carried out in the boundary barriers the cost would be around	= Rs.65,000/-
	Greenbelt program will be carried out in around approach road and nearby village roads	= Rs.55,000/-
	Total Operational Cost	**= Rs.85,44,000/-**

B. EMP Cost:- (Per year)	
Air Quality monitoring	Rs.52,000/-
Water Quality Sampling	Rs.18,000/-
Noise Monitoring	Rs. 2,000/-
Ground Vibration test	Rs. 4,000/-
Total Cost	**Rs.76,000/-**
Total EMP Cost for the five years period is **Rs.3,80,000/-**	
Description	**Amount (Rs.)**
A. Operational Cost	**85,44,000**
B. EMP Cost	**3,80,000**
Total Project Cost (A+ B)	**89,24,000**
The applicant indents to involve corporate environment responsibilities (CER) activity like Solar Lamp, Water Purifier and Medicine Storage rack facilities to the Dispensary and Water Purifier to the nearby Govt. School at 2.0% from the total project cost. The Cost would be around **Rs.1,79,000/-**.	**1,79,000**
Total Cost	**91,03,000**
The Total cost would be around ninety one lakhs and three thousands 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 2.94.01ha of Patta lands in S.F.Nos.168/2A (P), 2B (P), 169/1C (P) & 2A (P) of Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for **Tvl. Ultra Readymix Concrete Private Limited,** No. 25, Trichy Road, Kannampalayam, Coimbatore District, Tamil Nadu State – 641 402.

11.2 Present Land use pattern:

LAND USE TABLE-15

Description	Present area in (ha)
Area under Quarrying	0.67.30
Infrastructure	Nil
Roads	0.01.00
Green Belt	Nil
Unutilized Area	2.25.71
Grand Total	**2.94.01**

11.3 Method of Mining:

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

However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act – 1952.

11.4 Mineral Processing Operations:

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

11.5 Reasons for closure:

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

11.6 Statutory obligations:

The applicant ensures to comply all the conditions were imposed while granting the precise area communication letter before the execution of lease deed and during the course of quarry operations.

11.7 Progressive quarry closure plan preparation:

Name, address and register no. of the Recognized Qualified Person who prepared the progressive closure plan and name, address and register no. of the executing agency who is involved in the preparation of progressive quarry closure plan.

Name	:	**S. Ilavarasan, M.Sc.,** Recognized Qualified Person
Address	:	Regd. Off. No. 17, Advaitha Ashram Road, Alagapuram, Salem District – 636 004.
Telephone	:	0427- 2431989 (Office)
Cell No	:	+91 94422 78601 & 94433 56539
Registration No	:	RQP/MAS/253/2013/A
Valid Date	:	27.08.2023

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 2.30.00ha 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	0.67.30	2.30.00
Infrastructure	Nil	0.01.00
Roads	0.01.00	0.03.00
Green Belt	Nil	0.60.01
Unutilized Area	2.25.71	Nil
Grand Total	**2.94.01**	**2.94.01**

The Greenbelt Development will be formed in the quarried out top benches and approach road of the lease applied area.

(ii) Water quality management:

Following control measures will be adopted for controlling water pollution:

- Construction of garland drains to divert surface run-off from virgin area away from mining area.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- The quarried out pit will be allowed to collect rain and seepage water which will act as a reservoir for storage. This water storage will enhance the static level and ground water recharge of nearby wells and it will be used for agriculture purpose to the nearby agriculture lands.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

(iii) Air Quality Management:

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. Workers will be provided with personnel protective equipment like face-mask, earplug/ muffs.

For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

(iv) Top Soil and Waste Management:

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 engage 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 un-authorized 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 the quarried out top benches and approach road of the lease applied area.

(viii) Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.

- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:

  Quarry roads and approach roads,

  Fencing on approach roads,

  Checking and maintenance of machines and equipment,

  Drinking water arrangements,

  Quarry office, first aid stations etc.
- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, quarrying operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:

The Quarry Lease is granted for a period of maximum five years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

(x) Time Scheduling For Abandonment:

The lease applied area has enormous potential for continuance of operations even after the expiry of the lease period. The details of time schedule of all abandonment will be given at the time of final closure plan.

(xi) Abandonment Cost:

As at present mining is not going to be closed so abandonment cost could not be assessed. However based on the progressive quarry closure activities during the plan period, cost is assessed as given below:

LAND USE TABLE-17

ACTIVITY		YEAR					RATE	AMOUNT (INR)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	130	130	130	130	130	@100 Rs Per sapling	Rs.65,000/-
	Cost	13,000	13,000	13,000	13,000	13,000		
Plantation in around approach road and nearby village roads	Nos	110	110	110	110	110		Rs.55,000/-
	Cost	11,000	11,000	11,000	11,000	11,000		
Wire Fencing (In Mtrs) 790 Mtrs		2,37,000	-	-	-	-	@300 Rs Per Meter	Rs.2,37,000/-
Garland drain (In Mtrs) 740 Mtrs		2,22,000	-	-	-	-	@300 Rs Per Meter	Rs.2,22,000/-
TOTAL								**Rs.5,79,000/-**

12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

This Mining Plan for Rough stone (Charnockite) and Gravel is under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied within the quarrying operation, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Concerned Department.

Prepared by

S. Ilavarasan, M.Sc.,
RQP/MAS/253/2013/A
Recognized Qualified Person

Place: Salem
Date: 8.07.2022

DONATE RED
SPREAD GREEN
SAVE BLUE

This Mining Plan is Approved subject to the conditions / stipulation & indicated in the Mining Plan Approval Letter No: 931/Mines/2022 dt 30/9/2022 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: 3963/LC/2012 Dated 19.11.2012 and subjected to further fulfillment of the condition laid down under Tamilnadu Minor Mineral Concession Rules 18

ASSISTANT DIRECTOR
DEPARTMENT OF GEOLOGY & MINING
COIMBATORE DISTRICT

ANNEXURE

உதவி இயக்குநர் அலுவலகம்
புவியியல் மற்றும் சுரங்கத்துறை
மாவட்ட ஆட்சியர் அலுவலக வளாகம்,
கோயம்புத்தூர் - 18.

14 JUL 2022

ந.க.எண்.931/கனிமம்/2021

நாள்: 04.07.2022

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - கோயம்புத்தூர் மாவட்டம் - சூலூர் வட்டம் - இடையர்பாளையம் கிராமம் - புல எண்கள்.168/2A (பகுதி)-ல் 0.19.42 ஹெக்டேர், 168/2B(பகுதி)-ல் 0.78.51 ஹெக்டேர், 169/1C(பகுதி)-ல் 0.70.01 ஹெக்டேர் மற்றும் 169/2A (பகுதி)-ல் 1.26.07 ஹெக்டேர் ஆக மொத்தம் 2.94.01 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க தி/வா.அல்ட்ரா ரெடிமிக்ஸ் கான்கிரீட் பிரைவேட் லிமிடெட் என்ற நிறுவனத்திற்கு - குவாரி குத்தகை அனுமதி வழங்குவது - தொடர்பாக.

பார்வை:
1. தி/வா.அல்ட்ரா ரெடிமிக்ஸ் கான்கிரீட் பிரைவேட் லிமிடெட், 25, திருச்சி சாலை, கண்ணம்பாளையம், கோயம்புத்தூர் மாவட்டம் என்ற நிறுவனத்தின் விண்ணப்பம் நாள் 02.08.2021 மற்றும் 15.06.2022.
2. இவ்வலுவலக கடிதம் இதே எண். நாள்: 03.08.2021.
3. வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு அவர்களின் கடித ந.க.எண். 2974/2021/அ2 நாள்: 29.01.2022
4. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் அவர்களின் தணிக்கை அறிக்கை நாள்: 17.06.2022.
5. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை கடிதம் எண். 1870/எம்.எம்-1/2020 நாள்: 12.08.2020.

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பார்வை 1-ல் கோயம்புத்தூர் மாவட்டம், கண்ணம்பாளையம் அஞ்சல், 25, திருச்சி சாலையில் இயங்கி வரும் தி/வா.அல்ட்ரா ரெடிமிக்ஸ் கான்கிரீட் பிரைவேட் லிமிடெட் என்ற நிறுவனம் கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், இடையர்பாளையம் கிராமம், புல எண்கள்.168/2A (பகுதி)-ல் 0.19.42 ஹெக்டேர், 168/2B(பகுதி)-ல் 0.78.51 ஹெக்டேர், 169/1C(பகுதி)-ல் 0.70.01 ஹெக்டேர் மற்றும் 169/2A (பகுதி)-ல் 1.26.07 ஹெக்டேர் ஆக மொத்தம் 2.94.01 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரி உரிய ஆவணங்களுடன் விண்ணப்பித்துள்ளார்.

மேற்படி மனு தொடர்பாக, கோயம்புத்தூர் தெற்கு வருவாய் கோட்டாட்சியர் மற்றும் கோயம்புத்தூர் புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு கோயம்புத்தூர் மாவட்டம், கண்ணம்பாளையம் அஞ்சல், 25, திருச்சி சாலையில் இயங்கி வரும்

தி/வா.அல்ட்ரா ரெடிமிக்ஸ் கான்கிரீட் பிரைவேட் லிமிடெட் என்ற நிறுவனத்திற்கு கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், இடையர்பாளையம் கிராமம், புல எண்கள்.168/2A (பகுதி)-ல் 0.19.42 ஹெக்டேர், 168/2B(பகுதி)-ல் 0.78.51 ஹெக்டேர், 169/1C(பகுதி)-ல் 0.70.01 ஹெக்டேர் மற்றும் 169/2A (பகுதி)-ல் 1.26.07 ஹெக்டேர் ஆக மொத்தம் 2.94.01 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க சில நிபந்தனைகளுடன் பரிந்துரை செய்துள்ளார்கள்.

அனுமதி கோரும் புல எண்கள்.168/2A, 168/2B, 169/1C மற்றும் 169/2A ஆனது பட்டா எண்கள் முறையே 1030, 1028, 1027, மற்றும் 1029-ன் படி தி/வா.அல்ட்ரா ரெடிமிக்ஸ் என்ற நிறுவனத்திற்காக தலைமை நிர்வாக அதிகாரி ஆனந்தகுமார் என்ற பெயரில் தனிப்பட்டாவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. எனவே மேற்படி பூமியில் தி/வா.அல்ட்ரா ரெடி மிக்ஸ் கான்கிரீட் பிரைவேட் லிமிடெட் என்ற நிறுவனம் குவாரி குத்தகை உரிமம் பெற தகுதியுடையது ஆகும்.

எனவே, வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு மற்றும் உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் ஆகியோரின் பரிந்துரைகளின் அடிப்படையில் கோயம்புத்தூர் மாவட்டம், கண்ணம்மாபேட்டை அஞ்சல், 25, திருச்சி சாலையில் இயங்கி வரும் தி/வா.அல்ட்ரா ரெடிமிக்ஸ் கான்கிரீட் பிரைவேட் லிமிடெட் என்ற நிறுவனத்திற்கு கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், இடையர்பாளையம் கிராமம், புல எண்கள்.168/2A (பகுதி)-ல் 0.19.42 ஹெக்டேர், 168/2B(பகுதி)-ல் 0.78.51 ஹெக்டேர், 169/1C(பகுதி)-ல் 0.70.01 ஹெக்டேர் மற்றும் 169/2A (பகுதி)-ல் 1.26.07 ஹெக்டேர் ஆக மொத்தம் 2.94.01 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 1959-ஆம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் விதி 19(1) மற்றும் 20-ன் படி குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றும் நாளிலிருந்து 5 (ஐந்து) ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க கீழ்கண்ட நிபந்தனைகளுக்குட்பட்டு குவாரி குத்தகை வழங்குவதற்குரிய நிலப்பரப்பாக (Precise Area Communication) கருதப்படுகிறது.

நிபந்தனைகள்

1. அருகிலுள்ள பட்டா நிலங்களுக்கும் மற்றும் பொது மக்களுக்கும், எவ்வித இடையூரும் இன்றி சாதாரண கல் மற்றும் கிராவல் குவாரி மேற்கொள்ள வேண்டும்.
2. அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.

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3. அனுமதி கோரும் புலத்தின் தெற்கு மற்றும் கிழக்கு பகுதிகளில் செல்லும் வண்டிப்பாதைகளுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.
4. அனுமதி கோரும் புலத்தின் தென்கிழக்கு பகுதியில் அமைந்துள்ள பள்ளிக்கட்டிடங்களுக்கு எவ்வித இடையூரும் ஏற்படுத்தாமல் குவாரி பணி மேற்கொள்ள வேண்டும்.
5. அனுமதி கோரும் புல எண்களுக்குரிய விஸ்தீரணத்தில் பாதுகாப்பு இடைவெளி விட்டு மீதமுள்ள பகுதிகளில் மட்டுமே குவாரிப்பணி மேற்கொள்ள வேண்டும்.
6. அனுமதி கோரும் புலத்தினை அரசு அங்கீகாரம் பெற்ற நிறுவனத்தினரால் DGPS (Differential Global Positioning System)-ன் படி ஆய்வு செய்யப்பட்டு ஒவ்வொரு எல்லைத் தூண்களும் நடப்படவேண்டும்.
7. குழந்தை தொழிலாளர்களை வேலைக்கு அமர்த்தல் கூடாது.

மேலும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள்-1959 விதி எண். 41 மற்றும் 42-ன் படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறும், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு அதிகார அமைப்பின் அனுமதியினை பெற்று சமர்ப்பிக்கவும் மனுதாரரை கேட்டுக் கொள்ளப்படுகிறது.

உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை
கோயம்புத்தூர்.

பெறுநர்:
தி/வா.அல்ட்ரா ரெடிமிக்ஸ் கான்கிரீட் பிரைவேட் லிமிடெட்,
25, திருச்சி சாலை,
கண்ணப்பாளையம்,
கோயம்புத்தூர்.

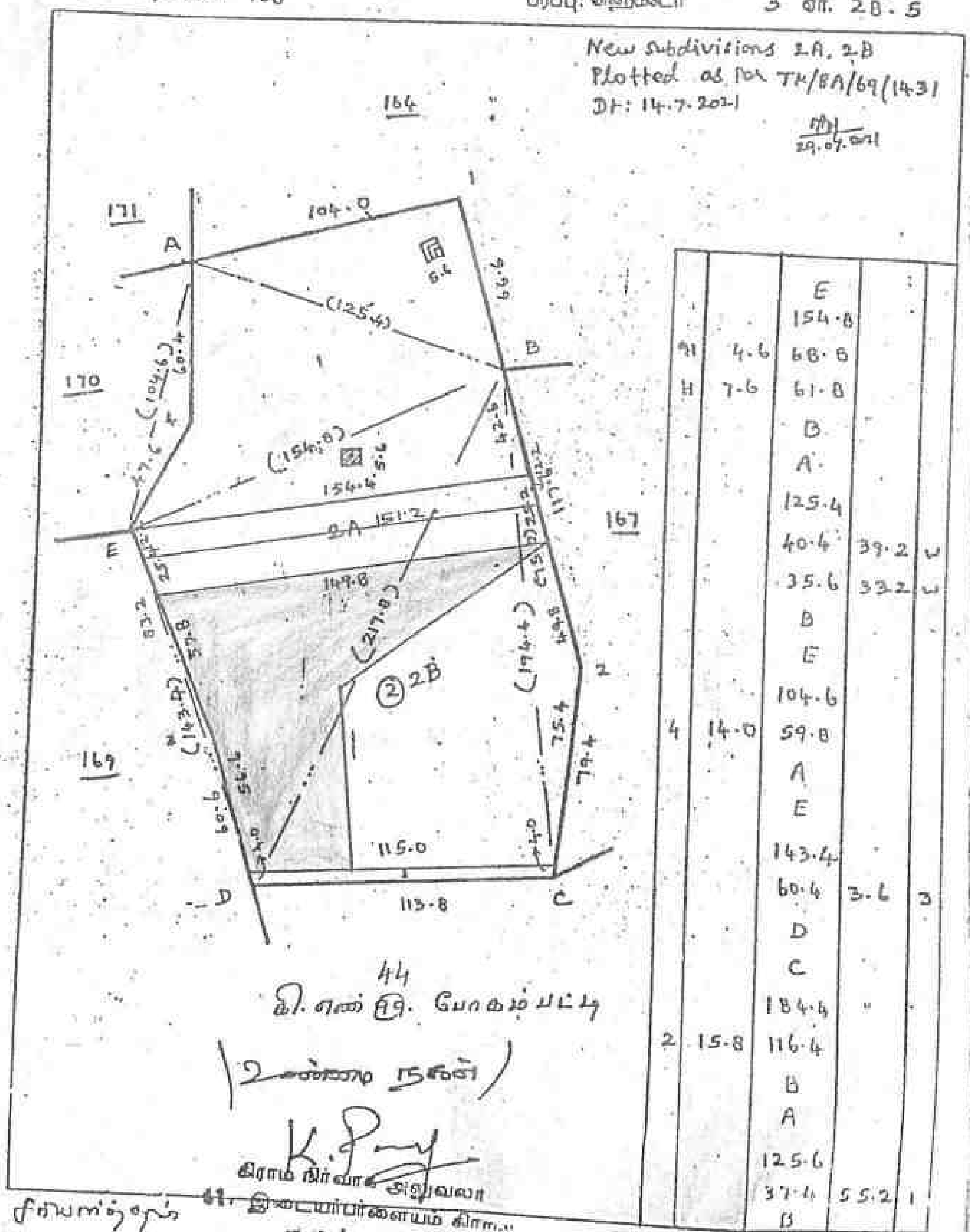
ANNEXURE

மாவட்டம். கோயமுத்தூர்

வட்டம். பல்லடம்

கிராமம் { எண் ... பெயர். ...

புல எண். 168 பரப்பு: ஹெக்டேர் 3 ஏ. 28.5



K. ...

கிராம நிர்வாக அலுவலர்

41. இடையர்பாளையம் கிராமம்

சரிபார்த்தவர்

அளவை 1:2000

வரைந்தவர் K. ...

LEASE APPLIED AREA

மாவட்டம். கோயம்புத்தூர்

வட்டம். பல்லடம்

புல எண். 169 பரப்பு: ஹெக்டேர் 2 ஏர். 95.5

கிராமம் பெயர். இடையர்பாளையம்

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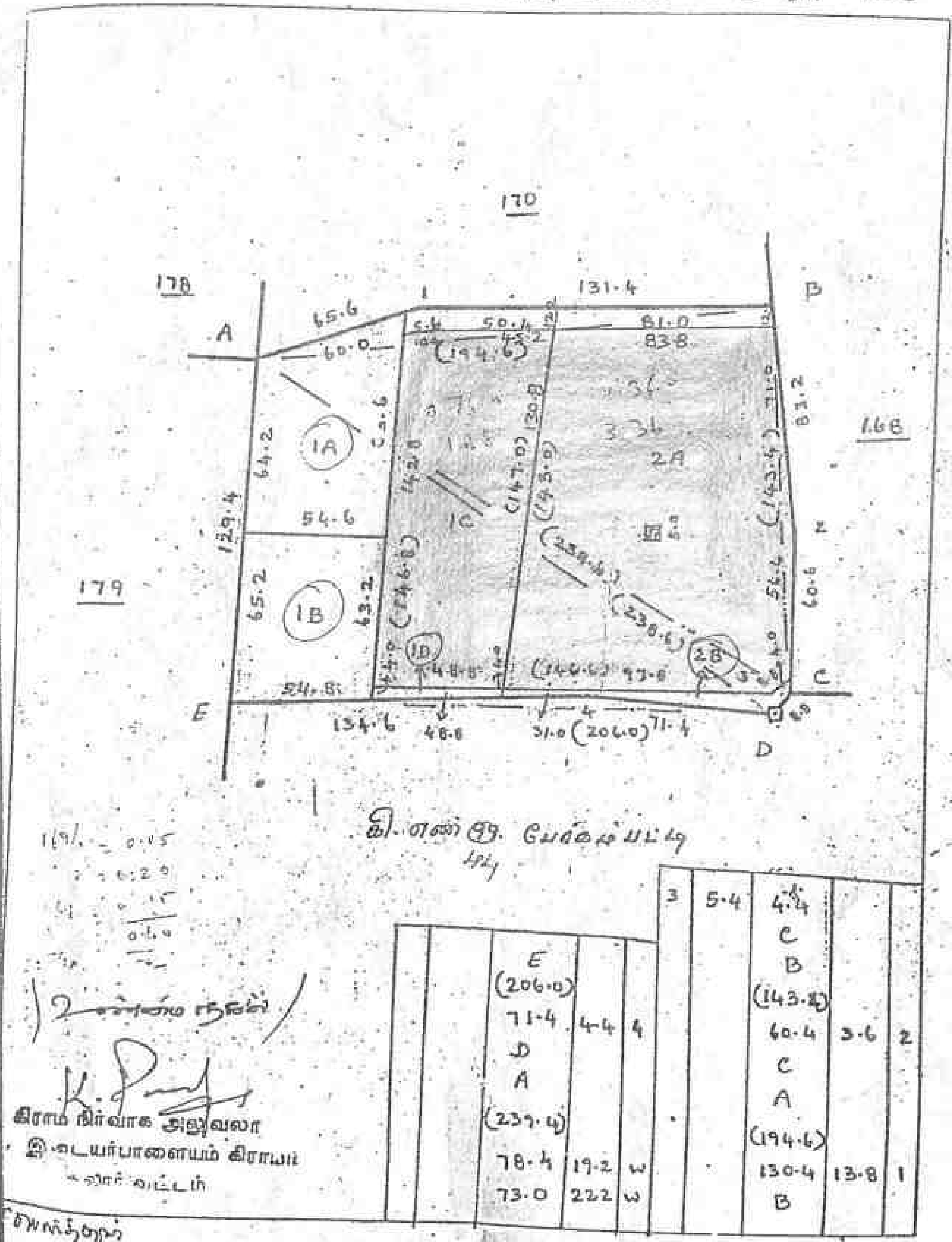


கிராம நிர்வாக அலுவலர்

இடையர்பாளையம் கிராமம்

அளவு. 1:2000

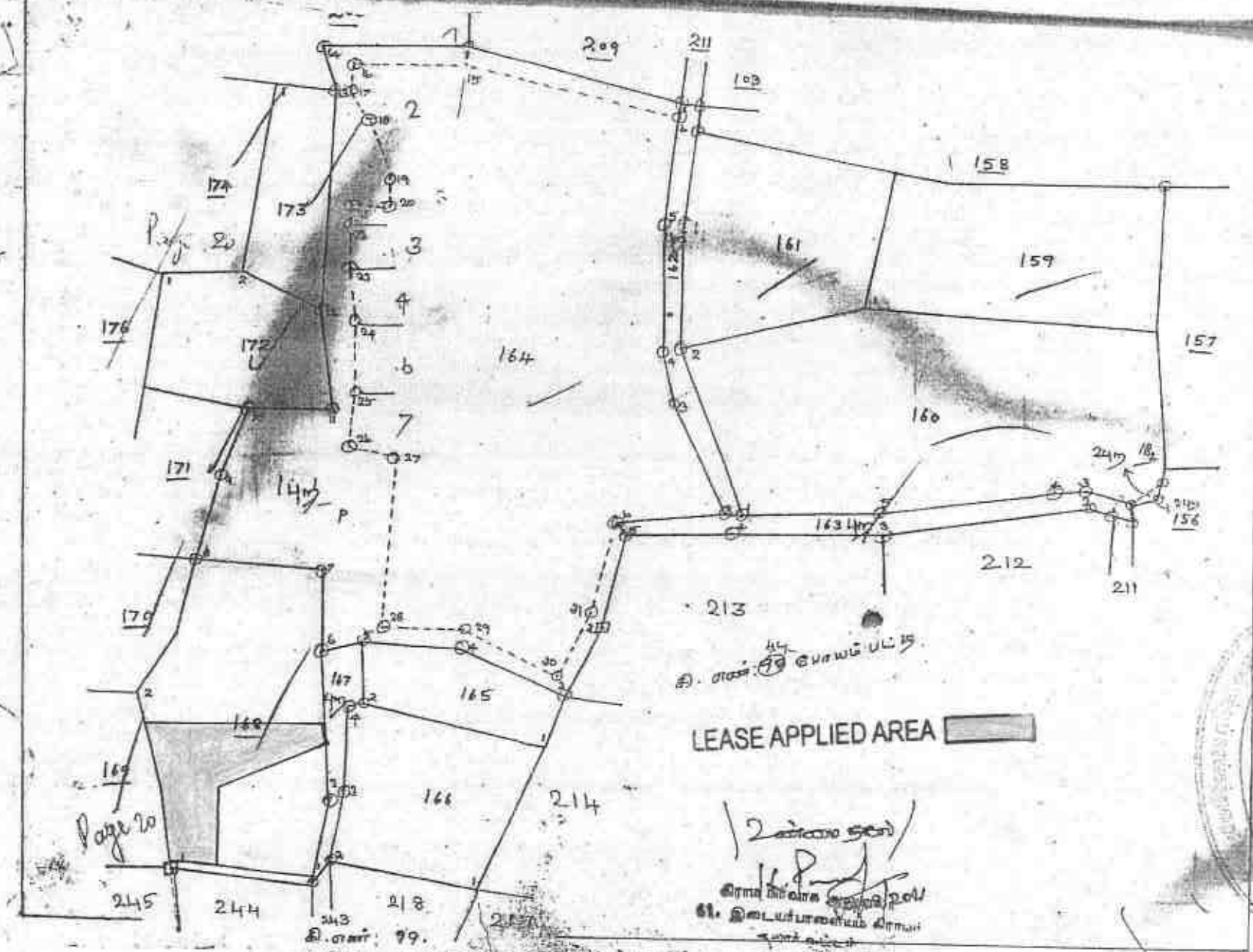
வரைந்தவர்

K. செல்வம்

23.5.84

LEASE APPLIED AREA

கிராமம்: இடையன்பாலமனம்

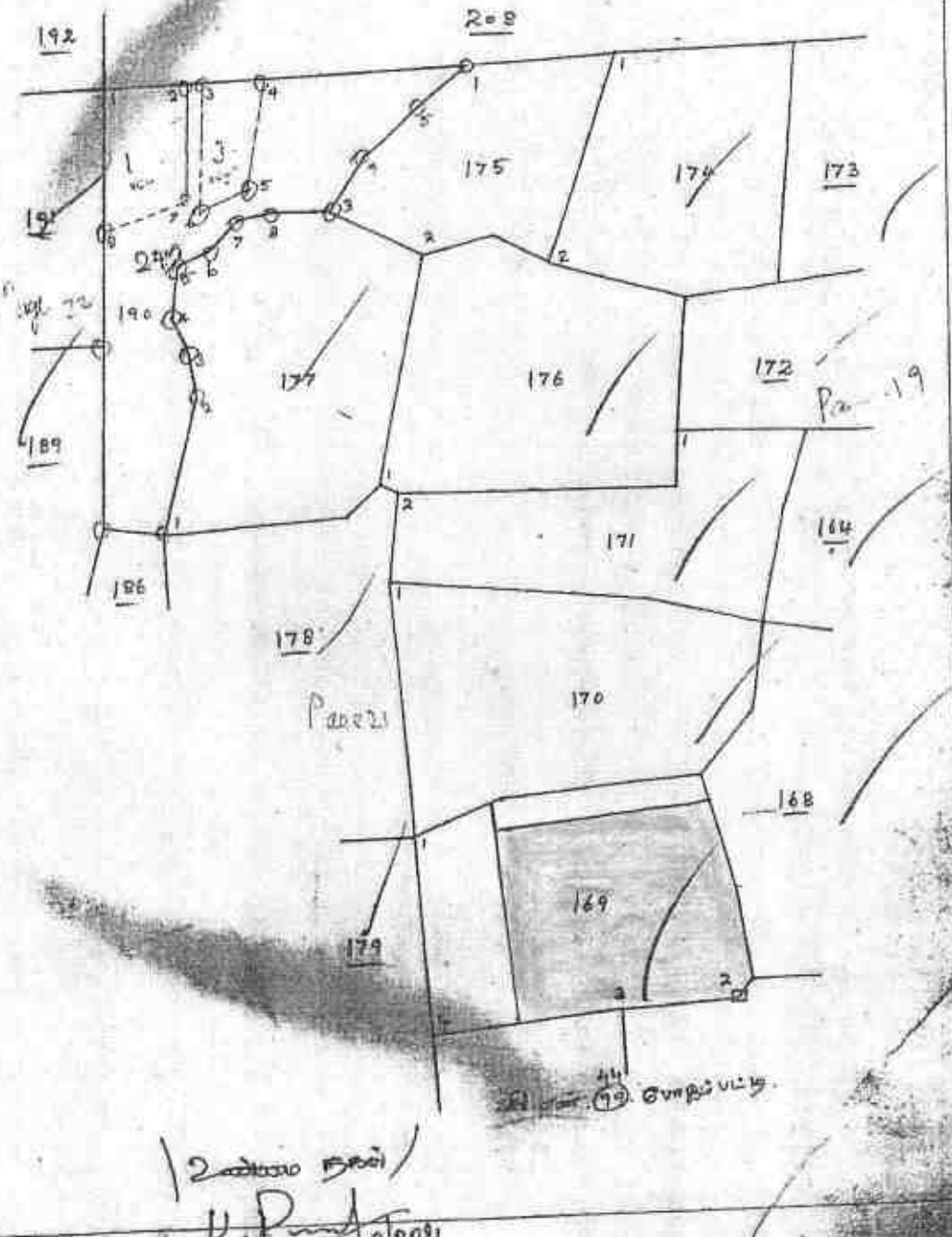


73 A

11 JUL 2022

20

விளக்கம் : இடையன்பாளையம்



12 ஆவது நகல்

61. இடையன்பாளையம் கிராமம்

74 A

ANNEXURE 15

தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கோயம்புத்தூர் வட்டம் : தூலூர்

வருவாய் கிராமம் : இடையபாளையம் பட்டா எண் : **1030**

உரிமையாளர்கள் பெயர்

1. அல்ட்ரா ரெடிமிக்ஸ் காங்கிரிட் பிரைவேட் லிமிடெட் நிறுவனத்திற்காக தலைமை நிர்வாக அதிகாரி ஆனந்தகுமார்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
168	2A	0 - 37.66	0.75	--	--	--	--	2021/0103 /12/302998--2021 /12/10/000059SD -- 15-07-2021
		0 - 37.66	0.75					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **12/10/027/01030/30704** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 23-07-2021 அன்று 05:26:54 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கோயம்புத்தூர் வட்டம் : சூலூர்

வருவாய் கிராமம் : இடையபாளையம் பட்டா எண் : 1028

உரிமையாளர்கள் பெயர்

1. அல்ட்ரா ரெடிமிக்ஸ் காங்கிரிட் பிரைவேட் லிமிடெட் நிறுவனத்திற்காக தலைமை நிர்வாக அதிகாரி ஆனந்தகுமார்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
168	28	1 - 60.34	3.21	--	--	--	--	2021/0103 /12/302998--2021 /12/10/000059SD -- 15-07-2021
		1 - 60.34	3.21					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **12/10/027/01028/30781** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 23-07-2021 அன்று 05:28:26 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கோயம்புத்தூர் வட்டம் : சூலூர்

வருவாய் கிராமம் : இடையபாளையம் பட்டா எண் : 1029

உரிமையாளர்கள் பெயர்

1. அல்ட்ரா ரெடிமிக்ஸ் காங்கிரிட் பிரைவேட் லிமிடெட் நிறுவனத்திற்காக தலைமை நிர்வாக அதிகாரி ஆனந்தகுமார்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
169	2A	1 - 36.00	2.70	--	--	--	--	2021/0103/12/302998---- 15-07-2021
		1 - 36.00	2.70					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **12/10/027/01029/30792** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 23-07-2021 அன்று 05:31:25 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கோயம்புத்தூர் வட்டம் : தூலூர்

வருவாய் கிராமம் : இடையபாளையம் பட்டா எண் : 1027

உரிமையாளர்கள் பெயர்

1. அல்ட்ரா ரெடிமிக்ஸ் காங்கிரிட் பிரைவேட் லிமிடெட் நிறுவனத்திற்காக தலைமை நிர்வாக அதிகாரி ஆனந்தகுமார்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
169	1C	0 - 76.50	1.55	--	--	--	--	2021/0103/12/302998---- -- 15-07-2021
		0 - 76.50	1.55					

குறிப்பு2 :

	1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **12/10/027/01027/30770** என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
	2. இத் தகவல்கள் 23-07-2021 அன்று 05:30:21 PM நேரத்தில் அச்சடிக்கப்பட்டது.
	3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

1430 - ஆம் பசலியில் கோவை மாவட்டம் திருப்பூர் வட்டம் இடையர்பாளையம் கிராமக் கணக்கு

எண் 2

கிராமத்தில் வருடவாரி புலவாரி கைப்பற்று சாகுபடி அடங்கல் கணக்கு

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(18அ)	(19)
168	2	1.98.0	3.99	204	நாச்சம்மாள்(ம)												கல்கிவாரி		
169	10	0.76.5	1.55	29	-do-												கல்கிவாரி		
	22	1.36.0	2.70	204	-do-												பழைய கல்கிவாரி		

உண்மை நகல்

கிராம நிர்வாக அலுவலர்
51. இடையர்பாளையம் கிராமம்
திருப்பூர் வட்டம்

ANNEXURE V

380/30-R.F. III-A-10-10,00,000 Cps.-GSP.-Mou.-7-2020.

ANNEXURE

1	2	3	4	5	6	7	8	9	10		
							ரூ. பை.	ஹெ.ஏ.ச்.ஸ்.	ரூ. பை.		
164	7	164/7	ச	பு	...	8-3	5	2 00	0 51·5	1 06	293 பெ. நாராயண சர்மா கோவாசி.
	8	-8	ச	பு	...	8-3	5	2 00	0 60·0	1 19	27 ச. ஆவிக் கவுண்டர்.
	9	-9	ச	பு	...	8-3	5	2 00	3 17·5	6 38	370 ஸ்ரீ. பால தண்டாயுத பாணி சுவாமி (1), ஸ்ரீ. வேணு கோபால் சுவாமி (2).
									14 39·5	22 56	
165	1	165-1	ச	பு	...	8-3	5	2 00	0 92·0	1 88	181 ச. மாரியத்தாள்.
	2	-2	ச	பு	...	8-3	5	2 00	0 02·0	0 06	257 ச. ரமணத்தாள்.
									0 94·0	1 94	
166	1	166-1	ச	பு	...	8-3	5	2 00	1 80·5	3 63	257 ச. ரமணத்தாள்.
	2	-2	ச	பு	...	8-3	5	2 00	0 05·0	0 12	181 ச. மாரியத்தாள்.
									1 85·5	3 75	
167	...	167	ச	புற	...	...	...	...	0 35·0	...	...
168	1	168-பக	ச	பு	...	8-3	5	2 00	1 26·0	2 54	263 ம. வேலுசாமி.
	2	-பக	ச	பு	...	8-3	5	2 00	1 98·0	3 99	204 ச.ர. முக்கசாமிக் கவுண்டர்.
		-பக	ச	பு	...	8-3	5	2 00	0 04·5	0 09	29 ஆ. ஆறுமுகக் கவுண்டர்.
									3 28·5	6 62	
	1BIC	...	ச								
				பு	...	8-3	5	2 00	0 40·5	0 82	149 ச.ர. பொன்னுசாமி கவுண்டர்.
	1BID	-1BIபக	ச	பு	...	8-3	5	2 00	0 35·5	0 72	29 ஆ. ஆறுமுகக் கவுண்டர்.
	1BIE	-1BIபக	ச	பு	...	8-3	5	2 00	0 76·5	1 55	204 ச.ர. முக்கசாமிக் கவுண்டர்.

1	2	3	4	5	6	7	8	9	10	11	12
							ரூ. அப.	தொ.ஏக்கர்.	ரூ. அப.		
1D	169-1பக	ச	பு	—	8-3	5	2 00	0 02·0	0 06	29 ஆ. ஆறுமுகக் கவுண்டர்.	
2A	-2பக	ச	பு	—	8-3	5	2 00	1 36·0	2 70	204 ஏ. ரங்கசாமிக் கவுண்டர்.	மனை-1.
2B	-2பக	ச	பு	—	8-3	5	2 00	0 05·0	0 10	29 ஆ. ஆறுமுகக் கவுண்டர்.	
								2 95·5	5 94		
—	170	ச	பு	—	8-3	5	2 00	2 89·0	5 81	263 ம. வேதாசலம்.	
—	171	ச	பு	—	8-3	5	2 00	2 16·5	4 37	357 ம. வேதாசலம் (1), ஏ. ரங்கசாமி கவுண்டர் (2).	Chang
—	172	ச	பு	—	8-3	5	2 00	1 37·0	2 75	453 ர. ரத்தி தோதன் (1), ஏ.ஜ.மணி (2), ஏ. பழனியப்பன் (3).	
1	173-பக	ச	பு	—	8-3	5	2 00	0 45·5	0 92	264 பூ. வேலாயுத கோபால்.	
2	-பக	ச	பு	—	8-3	5	2 00	0 53·5	1 08	176 க. மத்திரி உடையார்.	
								0 99·0	2 00		
1	174-பக	ச	பு	—	8-3	5	2 00	0 17·0	0 34	294 ர. துரச்சி வலையன்.	மனை-1.
2	-பக	ச	பு	—	8-3	5	2 00	0 84·0	1 70	176 க. மத்திரி உடையார்.	மனை-1. கிணறு.
3	-பக	ச	பு	—	8-3	5	2 00	0 19·5	0 39	158 சு. பெருமாள் உடையார்.	
4	-பக	ச	பு	—	8-3	5	2 00	0 90·0	1 82	264 பூ. வேலாயுத கோபால்.	
								2 10·5	4 25		
1	175-பக	ச	பு	—	8-3	5	2 00	0 62·0	1 25	[illegible] கவுண்டர் (1), [illegible] கவுண்டர் (2), திருவேங்கட [illegible]	மனை
2	-பக	ச	பு	—	8-3	5	2 00	0 20·5	0 [illegible]		
3	-பக	ச	பு	—	8-3	5	2 00	0 64·0	1 94		

ANNEXURE VII

11 JUL 2022

CERTIFICATE OF INCORPORATION

COMPANY REGISTRATION NUMBER

U45201TZ2005PTC012060

I hereby certify that **"ULTRA READYMIX CONCRETE PRIVATE LIMITED"**

is this day incorporated under the Companies Act, 1956, (No.1 of 1956) and that the Company is Limited

Given under my hand at **COIMBATORE**

this **NINETEENTH** day of **AUGUST**

TWENTY EIGHTH **SRAVANA**

Two thousand and **FIVE**

One Thousand Nine Hundred and Twenty **SEVAN** (SAKA)

SEAL OF THE REGISTRAR OF COMPANIES COIMBATORE

Registrar of Companies
TAMIL NADU
COIMBATORE

ANNEXURE VIII

M1

THE COMPANIES ACT, 1956

COMPANY LIMITED BY SHARES

MEMORANDUM OF ASSOCIATION

OF

ULTRA READYMIX CONCRETE PRIVATE LIMITED

I. The name of the Company is ULTRA READYMIX CONCRETE PRIVATE LIMITED.

II. The Registered office of the company will be situated in the state of Tamilnadu,within the jurisdiction of the Registrar of Companies, Coimbatore.

III. The objects for which the Company is established:

A) **THE MAIN OBJECTS TO BE PURSUED BY THE COMPANY ON ITS INCORPORATION ARE:**

1. To carry on the business of Manufacture of readymix concrete.
2. To carry on the business of Manufacture of cement articles, cement substitutes, cement flooring stones, slabs and tiles.
3. To carry on the business of Manufacture of cement interlock bricks, cement fly ash interlock bricks, Fly ash bricks and sand bricks.
4. To carry on the business of civil construction contract works of all nature and kinds.

B) **THE OBJECTS OF THE COMPANY INCIDENTAL OR ANCILLARY TO THE ATTAINMENT OF THE MAIN OBJECTS ARE :**

1. To establish, maintain, conduct, provide, procure or make available services of all kinds in relation to the attainment of its main objects.
2. To seek for and secure opening for employment of capital, men and materials.
3. To enter into any arrangement with any Government or Authorities, Municipal, Local or otherwise any persons or of Company in India or abroad that may deem conducive to the Company or any of them and to obtain from any such Government, Authority, Persons or Company any rights, privileges, charters, contracts, licences and concessions which the company may think it desirable and to carry out, exercise and comply therewith.
4. To acquire the whole of the undertaking, Ultra Readymix Concrete, a partnership concern on a going concern basis.
5. To acquire the whole or any part of the undertaking and assets or any business within the objects of the company and any lands, privileges, rights, contracts, property or effects held or used in connection therewith and upon any such purchase to undertake the liabilities of any such company, association, partnership or person.

6. To Amalgamate, enter into partnership, or enter into collaboration agreement or understanding or associate with any Indian or Foreign company or body corporate or firm or individuals or enter into any arrangement with any Indian or Foreign company or body corporate or firm or individuals for sharing profits, union of interests, corporation, joint ventures, reciprocal concessions or for limiting competition with any person or company carrying on or engaged in, or about to carry on or which can be carried on in conjunction where with or which is capable of being conducted so as to directly or indirectly benefit the company.

7. To apply for purchase, or otherwise acquire and protect and renew any patents, patent rights, brevets "D"invention, licences, concessions and the like conferring any exclusive or non-exclusive of limited right to their use, or any secret or other information as to any invention which may seem capable of being used for any of the purpose of the company, or the acquisition of which may seem calculated directly or indirectly to benefit the company, and to use property, right or information so acquired and to expend money toexperimenting upon testing or improving any such patents, inventions or rights.

8. To establish or promote or concur in establishing or promoting any company or companies for the purpose of acquiring all or any of the property, rights and liabilities of the company or for any other purpose which may seem directly or indirectly calculated to benefit the company and to place or guarantee the placing of underwriting, subscribe for or otherwise acquire all or any part of the shares, debentures or other securities of any such other company.

9. Generally to purchase, take on lease or in exchange, hire or otherwise acquire any real and personal property and any rights or privileges which the company may think necessary or convenient for the purpose of its business, or which may enhance the value or any other property of the company and in particular any land, buildings, easements, machinery, plant, vehicles and stock in trade.

10. To obtain sanction, permission, licences and quotas of the Government for export and to do all things that may be necessary to obtain recognition as an "Export House".

11. To invest and deal with the moneys of the company not immediately required in any manner and in particular, accumulate funds or to acquire or take any subscription purchase or otherwise howsoever or to hold shares or stock in or the security of the company, association or undertaking in India or abroad.

12. Subject to the provisions of the Companies Act 1956, to receive money as deposit or loan within the permissible limits and borrow or raise money in such manner as the company shall think fit and in particular by the issue of debenture stock (Perpetual or otherwise) and to secure the repayment of any money borrowed, raised or owning by mortgage, charge or lien upon all or any other property or assets of the company (both present and future) including its uncalled capital and also by a similar mortgage, charge or lien to secure and guarantee the performance of the company or any other person or company of any obligation undertaken by the company or any other person or company as the case may be, provided that the company shall not carry on the business of banking within the meaning of the Banking Regulations Act, 1949.

13. To pay for any business, property or rights acquired or agreed to be acquired by the company and generally to specify any obligation of the company by the issue or transfer of shares of this or any other company credited as fully or partly paid-up or of debentures or other securities of this or any other company.

14. To negotiate loans, to draw, make, accept, endorse, discount, execute and issue promissory notes, bills of exchange, bills of lading, warrants, debentures and other negotiable or transferable instruments.

15. To pay for any rights or property acquired by the company and to remunerate any person or company whether by cash payments or by allotment of shares, debentures or other securities of the company credited as paid-up in full or in part or otherwise.

16. To pay out of the funds of the company all expenses which the company may lawfully pay with respect to the formation and registration of the company or issue of its capital, including brokerage and commissions for obtaining applications or for taking, placing or underwriting or procuring the underwriting of shares, debentures or other securities of the company.

17. To sell lease, mortgage or otherwise dispose of the property, assets or undertaking of the company or any part thereof for such consideration as the company may think fit and in particular for shares, stock, debentures or other securities of any other company whether or not having objects all together or in part similar to those of the company.

18. To distribute among the members any property of the company or any proceeds on the sale or disposal of any property of the company in the event of its being wound up, but so that no distribution amounting to a reduction of capital be made except in accordance with the provisions of the Companies Act, 1956.

19. To improve, manage, develope and grant rights or privileges in respect of or otherwise deal with, all or any part of the property and rights of the company.

20. To provide for the welfare of the directors, trustees, and employees or ex-directors, ex-employees of the company and the wives and widows and families or the dependents or connections of such persons, by building or contributing to the building of houses, dwelling or chawls, by grants of money, pensions, allowances, bonuses, or other payments, or by creating and from time to time subscribing or contribution to provident fund, superannuation fund and other associations, institutions, funds or trusts and providing or subscribing or contributing towards place of instructions and recreation, hospitals and dispensaries, medical and other attendance and other assistance as the company shall think fit, and to subscribe or contribute or otherwise to assist or to guarantee money to charitable, benevolent, religious, scientific, national or other institutions, bodies and objects which shall have any moral or other claim to the support or to aid by the company either by reason of locality of operation or public and general utility or otherwise.

21. To create any depreciation fund, reserve fund, sinking fund, or any other special fund whether for depreciation or for repairing, improving, extending or maintaining anyof the properties of the company or for any other purpose conducive to the interest of the company.

22. Subject to section 78 of the Companies Act, 1956 to place, to reserve or to distribute as dividend or bonus, among the members or otherwise to apply, as the company from time to time think fit, any moneys received by way of premium on shares or debentures issued at premium by the company, and any moneys received in respect of dividend accrued in forfeited shares.

23. Subject to the provision of the Companies Act, 1956 or any other enactment in force to indemnify and keep indemnified members, officers, directors, agents, and servants of the company against proceedings, costs, damages, claims and demands in respect of anything done or ordered to be done by them for and in the interest of the company and for any loss, damage or misfortune whatever and which shall in execution of the duties of their office or in relation thereto.

24. To establish, provide and conduct or otherwise subsidise research laboratories and experimental workshops for scientific and technical research and experiments, to undertake and carry on scientific and technical researches, experiments and tests of all kinds to promote studies and researches both scientific and technical, investigations and inventions by providing, subsidising, endowing or assisting laboratories, workshops, libraries, lectures, meeting and conference and by providing or contributing in the remuneration of scientific or technical professors or teachers and by providing or to the award of scholarships, prizes, grants, to students and generally to encourage, promote and reward studies, researches, investigations, experiments, tests and inventions of any kind that may be considered likely to assist the business which the company is authorised to carry on.

25. To open one or more account(s) of any kind with any bank or bankers.

26. To engage, employ, remunerate, discharge, suspend and dismiss workers, supervisors, managers, clerks, accountants, typists, stenographers, advocates, chartered accountants, engineers and such other technical and non-technical employees as may be necessary for the efficient conduct of the business of the company.

27. To institute, conduct, defend, compromise, compound or abandon any legal proceedings by or against the company or its officers or otherwise concerning the affairs of the company, to pay, satisfy or compromise any legal claims made against the company which it may seem expedient to pay, satisfy or compromise notwithstanding that the claims may not be valid in law.

28. The company shall have the power to undertake, establish, run and maintain any trust, the undertaking whereof may seem desirable and either gratuitously or otherwise.

29. To deposit funds with any individual, firm or company and to pay into and to withdraw money from such account or accounts.

30. To pay all the costs, charges and expenses incidental to the promotion, formation, registration and establishments of the company and to reimburse the promoters, the preliminary expenses incurred by the promoters.

31. To send any personnel or Director, or officer, or any other employee of the company at the company,s expenses abroad for special training in arts, science, technology or other areas related to the business and for the purpose of for expansion or otherwise, on such terms and conditions as the company may deems fit.

32. To procure the registration or other recognition of the company in any country, state or place outside India, and to establish and maintain local registers and branches or places of business in any part of the world.

C) **THE OTHER OBJECTS OF THE COMPANY (NOT COVERED UNDER CLAUSES A AND B ABOVE) ARE:**

1. Manufacture of all grades of cement, refractory cement and white cement.

2. Manufacture of refractory bricks, brick-bats, brick ballast, hollow block bricks, cement hollow block bricks, table moulded bricks, country bricks, and country tiles made of backed clay.

3. Manufacture of ceramic bricks, tiles, siliceous earths,retors, crucibles, muffles, nozzles, plugs, supports, cupels, tubes, pipes, sheaths, rods, roofing tiles, chimney-pots, cowls, chimney liners, ceramic pipes,conduits, glazed / unglazed ceramic flags and paving, hearth or wall tiles, glazed / unglazed ceramic mosaic cubes, and other ceramic articles.

4. Manufacture / processing / dealing in blue metal, from quary Land owned and / or leased.

5. Manufacturing / processing / polishing of granite blocks, granite slabs, tomb stones, monument slab, head stone, grog, cuddapah stone, and articles made out of granites.

6. Manufacturing / processing polishing of marbles, marble boulders or lumps, marble slabs, marble chips, marble dusts, marble floor tiles, wall tiles and artiles made out of marbles.

7. Manufacturing / processing / dealing in blue metal , sand , red earch, red gravel, construction materials of all varieties.

8. Manufacturing of light roofing sheets obtained by immersing paper mat in bitumen.

9. To carry on the business of property developers, promoters and builders of flats, offices, houses, bungalows, service flats, chawls, factories, godowns, warehouses, shops, cinema theatres, Road, Railway track, Irport runway, Road bridge, Railway bridge, canel construction, Petrol / Diesel / Gas Bunk construction and other

conveniences of all kinds and properties of all kinds and description and to acquire by purchase, lease, exchange, development, construction,building, erection or to demolish, re-erect, alter, repair, re-model or otherwise deal in land, building, estates, hereditaments, highways, docks, dams, reservoirs or any other structural or architectural work of any kind whatsoever. And to carry on the business of providing and offering consultancy services and expert services in the civil construction industry both in India and Abroad.

10. To purchase, sell or deal in lands (freehold or lease hold) or in exchange, buildings, flats, garages, offices, shops, show rooms, and to construct, develop, maintain, improve alters, pull down, decorate, control and manage all such properties and buildings and to contribute or otherwise take part in the construction of buildings, residential, commercial or industrial and to act as builders and contractors in india or elsewhere.

11. To contract, maintain, improve, develop, work control and manage any water works, roads, places of worship, place of amusement, pleasure-grounds, parks, gardens, reading rooms, stores, shops and other works and other conveniences and services which the company may think directly or indirectly conducive to these objects and to contribute or otherwise assist or take part in the constrution, maintenance, developement, working control and management thereof.

12. To develop any land acquired by the company or in which the company is interested in particular by laying out and preparing the same for building or for the purpose of constructing, altering, pulling down, decorating, maintaining, furnishing, fittings up and improving buildings or industrial Estate or units and by planning, paving, draining, letting on building lease or building agreement and by consolidating, connecting and sub-dividing properties by leasing and disposing of the same and by advancing money to and entering into contracts and arrangements of all kinds with builders tenants and others and also by promoting and establishing towns villages and settlements.

13. To sell, exchage, let out, grant leave, and licence or otherwise dispose of all flats, tenements, garages, godown, factory,premises, warehouses and all other premises constructed by the company at such price, rent or compensation and on such terms and conditions as the company may think fit.

14. To carry on the business of Telephone / Cellular phone transmission tower installation, Electricity Tower installation, Wind Mill tower installation, Water pipe line laying, oil / fuel pipe line laying on contract basis with Government or others.

15. To lend money either with or without security and generally to such persons and upon such terms and conditions as the company may think fit and in particular to persons undertaking to build on or improve the property in which the company is interested and to tenants, builders and contractors.

16. To improve and elevate the technical and general knowledge of persons engaged in or about to engage in the building, trade or in any employment, manual or otherwise in conection therewith and with the view thereto provide for the delivery of lectures and the holding of classes and to test by examination or otherwise the competence of such persons and to award certificates and distinctions and to institute and establish scholarship, grants, rewards and other benedictions.

17. To sell, re-sell, exchange and repurchase, mortgage or let out on lease for any term of years or hire any land, building, plant, machinery, equipments, factories or premises belonging to the company or which may be deemed necessary or convenient for the purpose of the company's business in parts or in whole as may be thought desirable and generally to do and perform all such other acts and things as may be incidental or conducive to the attainment of all or any of the above objects or as may be considered to be for the interest of the company.

18. To remunerate any person or company for services rendered or to be rendered in placing or assisting to place or guaranteeing the planning of shares in the company's capital or any debentures, debenture stocks or other securities of the company in or about the formation or promotion of the company or acquisition of property by the company of the conduct of the business.

19. To apply for tender purchase or otherwise acquire a contracts, sub-contractor,licence and concessions for or in relation to the objects or business herein mentioned or any of them and to undertake, execute, carry out, dispose of or otherwise turn to account the same.

20. To enter into any contracts, agreements and arrangements with any other persons,firm, company or body corporate for the carrying out the objects for which the company is formed.

21. To sell or sub-let all or any contracts from time to time and upon such terms and conditions as may be considered expedient.

22. To establish and maintain agencies and branches and appoint representatives in any part of the world for the conduct of the business of the company.

23. To invest and deal with the moneys and funds of or entrusted to the Company in the purchase of immovable and securities in any part of the world and to vary such investments and transactions and to lend and advance moneys in any part of the world on real personal and mixed securities,on cash or other accounts on policies, bonds, debentures, bills of exechage, promissory notes and letter of credit on deposit of title deeds, goodswares and merchandise on bill of sales, bill of lading, railway receipts, delivery orders, warehouseman's and wharfingars certificates, notes, dock warrants and on bullion stocks and shares or without any security whatsoever and guarantee the performance of contracts by any person, firm or company.

24. To purchase, take on lease or under-lease or otherwise acquire in any part of the world, land, building, mills, works, factories, machinery and plant required for the business of the company and to erect and build works, factories and plants in any part of the world.

25. To apply for purchase or otherwise acquire, protect prolong or renew in any part of the world , sell, let or grant patents, patent rights, brevets, invention, licences protections, concessions and the like confering any exclusive or limited rights to any invention, secrets or other information which may seem capable of being used for any of the purposes of the company of which may seem directly or indirectly to benefit the company and to use,exercise, develop and manufacture or grant licences or privileges in respect of or otherwise turn to account any patents, property rights, inventions, secrets or informations so acquired and to spent moneys in experimenting upon, testing, improving or seeking to improve the patents, property rights, inventions, secrets or information so acquired or proposed to be acquired.

26. Manufacture and dealing in agriculture, horticulture, forestry, dairy, poultry keeping, bee keeping machinery and spares.

27. Manufacture and dealing in extracting or boring machinery for earth, minerals or ores, and pile drivers, pile extractors, snow ploughs, snow blowers and spares thereof.

28. Manufacture and dealing in dumpers, loaders, scrapers, crawler tractors, excavators, bull dozers and wheel dozers, angle dozers, graders, levellers, machanical shovels, shovel loaders, tamping machines, road rollers and the spares thereof.

29. Manufacture of crane lorries, including floating cranes, break down lorries, road sweeper lorries, spraying lorries, concrete mixer lorries, fork lift trucks, bulk mix delivery system, earthmoving machinery, construction machinery and equipments, hydraulic machinery and equipment of all kinds and the spares thereof.

30. Manufacture of Tankers, containers made of any material or metal and for any use.

31. To carry on the business of exporters of all kinds of fabrics cloth, textiles, yarn, made of all materials and types, cotton, jute, silk, wool, rayon and other fibres and fibrous substances.

32. To carry on the business of manufacture, buyers and sellers, dealers, importers of all kinds of fabrics, cloth, textiles, made of all materials and types, cotton, jute, silk, wool, rayon and other fibres and fibrous substances.

33. To carry on the business of spinning, twisting, sizing, weaving and / or knitting mills in cotton, waste cotton, staple fibre, silk, artificial silk, rayon, nylon, polyester, linen, flax, hemp, jute, worsted, wool, and other natural and / or synthetic fibrous substances, either on own account or on commission.

34. To carry on the business of cotton, waste cotton, staple fibre, silk, artificial silk, rayon, nylon, polyester, linen, flax, hemp, jute, worsted and woollen merchants, of yarn merchants and of buyers, sellers, dealers, importers and exporters, whether in wholesale or retail, of cotton, waste cotton, staple fibre, silk, artificial silk, rayon, nylon, polyester, linen, flax, hemp, jute, worsted, wool and other natural and/or synthetic fibrous substances.

35. To carry on the business of generation of electricity powerthrough Wind operated Generator and solar system.

36. To carry on the business of manufacture of all types of readymade garments including knitted garments, woven and non-woven garments and all other textile garments and to trade the said garments by establishing retail outlets, and marketing the garments on the basis of franchise / dealership or any other basis convenient for marketing.

37. To improve, manage, cultivate, develope, exchange, let on lease or otherwise mortgage charge, sell, dispose off, turn to account, grant rights and privileges in respect of or otherwise, deal with all or any part of the property and rights of the company.

38. To carry on the business of manufacturers, distributors, agents and traders of textile machinery , engineering machinery and their parts and spares.

39. To carry on business of mechanical engineers and manufacturers of all types of machinery, tool makers, brass founders, metal workers, boiler workers, mills wrights mechinists, iron and stell makers, and converters, smiths, metallurigists, carriers, and merchants, and to buy, sell manufacture, repair, convert, alter, let on hire and deal in machinery, implements and hardware of all kinds.

40. To establish, run and maintain scientific research establishments, do to research work in general engineering and to do all such things and acts which are auxillary to or connected with this research.

41. To buy, sell, import, export, manipulate, treat, descriptions of machinery, tools, spare parts, fixed or loose accessories, stores, plants, implements and property and chemicals and other articles and things in connection with the business as aforesaid or required by the company or by its customers for any wholesale and / or retail purchase and / or sale.

42. To purchase, stock, import, export, sell and otherwise deal in all the rawmaterials required for the various products and business of the company and stores spares, maintenance materials and tools required to conduct the business of the company and to purchase, stock, import, export, sell and generally deal in any product or material required for the business of the company.

43. To carry on the business of dealers, importers, exporters,assemblers, factors, builders, letters on hire, repairers, storers, cleaners and warehousers of all kinds of articles and things which may be required for the purpose of any of the company which it is expressly or by implication authorised to carry on or which may seen capable of being profitably delt with in connection with any of the set business.

44. To carry on all or any of the business of manufacture's representatives, manufacture's agents, factory representatives, factory agents, distributors, indentors, commission agents, stockists, mercantile agents, trade agents, manufacturers in and agents for the sale and purchase of all kinds of wares, goods, processes and merchandise, manufactured, produced or marketable or in India or any other country of the world.

45. To issue warrants to persons, warehousing goods with the company and to lend money upon the security of such goods.

46. To undertake and transact all kinds of agency or business which an ordinary person may legally undertake.

47. To carry on the business of seeds and seed farms.

48. To carry on the business of acqua-culture.

49. To undertake, carryout, promote and sponsor rural development including any programe for promoting the social and economic welfare of or the uplift of the public in any rural area and to incure any expenditure on any programme of rural development and to assist execution and promotion thereof either directly or through any independent agency or in any other manner.

50. To carry on the business of manufacturers of leather garments.

51. To manufacture, sale and dealing with pumps, motors and starters of all kinds.

52. To enter into the business of flour rolling mills.

53. To plant, row, cultivate, produce and rise, purchase, sell repurchase and resell, deal in or to turn into account or otherwise dispose off sugarcane, sugar sweets and other plants, used in the cultivation or manufacture of sugar and to deal in every way possible in sugar and all produce made of or with sugar and all by-producs thereof.

54. To carry on the business of manufacturers of and dealers in all kinds and classes of paper, board and pulp.

55. To carry on the business of manufacture of glass, or plastic goods, including glass bulbs, lamps and tubes, lighting, fixtures and accessories, glass containers, mirrors, plastic insulants, appliances and goods of all types.

56. To carry on the business of transportation of goods and / or passengers.

IV) **The liability of the members is limited.**

V) The authorised share capital of the company is Rs.10,00,00,000/- (Rupees Ten Crores Only) divided into 10,00,000 (Ten Lakhs Only) Equity shares of Rs.100/- (Rupees One Hundred Only) each with power to increase, divide, sub- divide into various classes of shares and attach thereto such preferential / deferred, special rights / privileges / conditions as may be determined by the company inaccordance with its regulations and the legislative provisions for the time being in force in that behalf.

A1

THE COMPANIES ACT, 1956

COMPANY LIMITED BY SHARES

ARTICLES OF ASSOCIATION

OF

ULTRA READYMIX CONCRETE PRIVATE LIMITED

1. (i) In these regulations " The Act" means the Companies Act, 1956 as amended from time to time.

   (ii) Unless the context otherwise reqires, words or expressions contained in these regulations shall bear the same meaning as in the Act any statutory modification thereof in force at the date on which these regulations become binding onthe company.

2. The regulations contained in Table "A" of the First Schedule to the Companies Act,1956, and shall apply to the company, subject to the modifications or exceptions as are herein provided.

CONSTITUTION

3. The Company is a " Private Company" within the meaning of section 3(1) (111) of the Companies Act 1956, and shall have aminimun paid up share capital of 1,00,000 (Rupees One Lakh) and,

   a) restrics the right to transfer its shares, if any,
   b) limits the number of its members to fifty not including
      i) persons who are in the employment of the company; and
      ii) persons who having been formerly in the employment of the company, were members of the company while in that employment and have continued to be members after the employment ceased; and

   Provided that where two or more persons hold one or more shares in a company jointly, they shall, for the purpose of this definition, be treated as a single member.

   c) prohibits any invitation to the public to subscribe for any shares in, or debentures of, the company;

   d) prohibits any invitation or acceptance of deposits from persons other than its members, directors or their reltives.

BUSINESS

4. The business of the company may comprise all or any part of the business and objects mentioned or included in the Memorandum of Association.

SHARE CAPITAL AND VARIATION OF RIGHTS

5. The Authorised Share Capital of the company is Rs.10,00,00,000/- (Rupees Ten Crores Only) divided into 10,00,000 (Ten Lakhs Only) equity shares of Rs.100/- (Rupees One Hundred) each with power to increase, divide, sub-divide into various classes of shares and attach thereto such preferential / deferred, special rights / privileges / conditions as may be determined by the company inaccordance with its regulations and the legislative provisions for the time being in force in that behalf. The minimum paid-up share capital of the company shall be Rs.1,00,000/- (Rupees One Lakh).

6. Subject to the provisions of the Act, the company may issue Sweat Equity shares of a class of shares already issued.

CERTIFICATES

7. The certificate of title of shares be issued sealed and signed in confirmity with the provisions of the Companies (Issue of Shares Certificate) Rules, 1960 or any statutory modifications of re-enactment thereof for the time being in force. Any two or more joint allottees or owners of share shall, for the purpose of this Article be treated as single member and the certificate of any shares may be delivered to any one of the such joint allottees or owners on behalf of all of them. The company shall comply with the provisions of Section 113 of the Act.

8. The company shall, within three months after the allotment of any of its shares, debentures or debenture stock and within one month after lodgement for the registration of transfer of any such shares, debentures or debenture stock complete and deliver the certificates of all shares and debentures and the certificates of all debentures or debenture stock allotted or transferred, unless the conditions of issue of the shares, debentures or debenture stock or otherwise provide.

9. The Board of Directors may renew a share certificate or issue a duplicate of a share certificate, if such share certificate:

   i) is proved to have been lost or destroyed or,

   ii) having been defaced or mutilated or torn is surrendered to the company, or

   iii) is old, decrepit or wornout or where the cages on the reverse for recording transfers are fully utilised.

COMPANY'S LIEN ON SHARES

10. The company shall have a first and paramount lien upon all the shares (other than fully paid-up shares) registered in the name of each of member (whether solely or jointly with others) and upon the proceeds of sale thereof for all money (whether presently or not) called or payable at any fixed time in respect of such shares and no equitable interest in any share shall be created except upon the footing and condition that this clause is to have full effect. And such lien shall extend to all dividends from time to time declared any share to be wholly or in part exempt from the provision of this clause. Unless and until otherwise agreed the registration of a transfer of shares shall operate as waiver of the company's lien if any, on such shares.

11. For the purpose of enforcing such lien the Board of Directors may sell the shares subject thereto in such manner as it thinks fit, but no sales shall be made unless a sum in respect of which the lien exists is presently payable and until notice in writing of the intention to sell has been served on such member, his executors or other legal representatives as the case may be and default shall have been made by him or them in the payment of the same sum payable as aforesaid for seven days after the date of such notice.

12. The net proceeds of any such sale after payment of the costs of such sale be applied in payment of such part of the amount in respect of which the lien exists as is presently payable and the residue, if any, shall (subject to a like lien for sums not presently payable as existed upon the shares prior to the sale) be paid to the person entitled to the shares on the date of sale. The purchaser shall be registered as the holder of the shares and he shall not be bound to see neither the application of the purchase money nor his title to the shares be affected by any irregularity or invalidity, in the proceeding in reference to the sale. After the name of the purchaser has been entered in the register of members, the validity of the sale shall not be impeached by any person and remedy of any person aggrieved by the sale shall be in damages only and against the company exclusively.

CALL ON SHARES

13. i) The Board may from time to time, make calls upon the members in respect of any monies unpaid on their shares (whether on account of the nominal value of the shares or by way of premium) and not by the conditions of allotment thereof made payable at fixed times. Provided that no call shall exceed one-half of the share or be payable at less than one month from the date fixed for the payment of the preceding call.

ii) A call may be revoked or postponed at the discretion of the board.

iii) The joint holders of the shares shall be jointly and severally liable to pay calls in respect thereof.

iv) Provided that any amount be paid-up in advance of calls on any shares such amount may carry interest but shall not in respect thereof confer a right to dividend or to participate in profits.

v) Provided that an option or right to call for shares shall not be given to any person(s) except with the sanction of the company in General Meeting.

14. i) If sum called in respect of a share is not paid before or on the date appointed for payment thereof, the person from whom the same is due shall pay an interest thereon from the date appointed for payment thereof to time of actual payment at 5% per annum or at such lower rate if any as the board may determine.

ii) The Board shall be at liberty to waive payment of any such interest wholly or in part.

15. i) Any sum which by the terms of issue of a share becomes payable on allotment or at any fixed date, whether on account of the nominal value of the share or by way of premium, shall for the purpose of regulations, Table A, be deemed to be a call duly made and payable on the date on which by the terms of issue such sum becomes payable.

ii) In case of non-payment of such sum, all the relevant provisions of Table - A as to payment of interestand expenses, forfeiture or otherwise shall apply as if such sum had become payable by virtue of a call duly made and notified.

TRANSFER AND TRANSMISSION OF SHARES

16. Shares in the company shall be transferred in the form prescribed by the Companies (Central Government's) General Rules and Forms,1956. The company shall not charge fees for registration of transfer. The provisions of section 108 and any, amendments thereof for the time being in force, shall be complied with in respect of all transfer of shares and registration thereof.

17. Subject to the provisions of section 111 of the Act, the directors may in their absolute and unqualified discretion decline to register any transfer of shares without assigning any reason. The directors may also decline to recognise any instrument of transfer unless it is accompanied by certificate of shares to which it relates and such other evidence as the directors may reasonably required to show the right of the transferor to make the transfer. If the Directors refuse to register a transfer of any shares, they shall, within one month after the date on which the transfer was lodged with the company, sent to the transferee and the transferor notice of the refusal, PROVIDED that the registration of a transfer shall not be refused on the ground of the transferor, being either alone or jointly with any other person or persons indebted to the company on any account whatsoever except a lien on shares.

18. Subject to the provisions of section 154, the registration of transfers may be suspended at such times and for such periods as the Board may from time to time determine, Provided, that such registration shall not be suspended for more than thirty days at any one time or for more than forty-five days in the aggregate in any year.

19. No fees shall be charged for the transfer or transmission of shares or for registration of any power of attorney, probate, letters, of administration or other similar documents. No fees shall be charged for sub-division or consolidation of share certificates into the market unit of trading or for issue of new certificates in replacement of those which are old decrepit, worn out or where the cages on the reverse for recording have been fully utilised.

20. No transfer of shares shall be made to a minor, except represented by a guardian.

BUY BACK OF SHARES AND SECURITIES

21. The Company may purchase any of its own share or other securities at any time on such terms and conditions, in such manner and up to such limit as may be prescribed by section 77A, Section 77AA, 77B, and any other provisions of the Companies Act,1956 and the relevent rule made there under and as may be amended from time to time .

GENERAL MEETINGS

22. i) All general meetings other than annual general meetings shall be called extraordinary general meetings.

ii) The Board may, whenever it thinks fit, call an extraordinary general meeting.

iii) If at any time there are not within India directors capable of acting who are sufficient in number to form a quorum, any director or any two members of the company may call an extraordinary general meeting in the same manner, as nearly as possible, as that in which such a meeting may be called by the Board.

PROCEEDINGS AT GENERAL MEETING

23. i) No business shall be transacted at any General Meeting unless a quorum of members is present at the time when the meeting proceeds business.

ii) Save as herein otherwise provided, two members present in person shall be quorum.

24. The Chairman, if any, of the Board shall preside as Chairman at every General Meeting of the company.

25. If there is no such Chairman, or if he is not present within fifteen minutes after the time appointed for holding the meeting or is unwilling to act as Chairman of the Meeting, the members present shall elect one of the Members to be chairman of the meeting.

26. The form of proxy shall be a two way proxy form as prescribed in Schedule IX of the Companies Act,1956.

BOARD OF DIRECTORS

27. Until otherwise decided by the General Meeting, the minimum and maximum number of Directors shall be two and twelve respectively.(Including Nominee Director(s), if any).

NO SHARE QUALIFICATION

28. Any person, whether a member of the company or not, may be appointed as Director. No qualification by way of holding shares in the capital of the company shall be required by any Director.

29. The first Directors of the Company shall be,

1. S.SIVASAMY
2. S.SUMATHI
3. R.RAMASAMY

The above three Directors shall be life time Directors unless they resign or vacate office in accordance with the provisions of the Act.Any other Director may be appointed by a resolution of the company in General Meeting and shall hold office for such period and upon such terms and conditions as may be stated in such resolution.

30. The Board shall have power at any time, and from time to time to appoint a person as an additional director, provided the number of the directors and additional directors together shall not at any time exceed the maximum strength fixed for the Board by the articles. Such person shall hold office only up to the date of the next annual general meeting of the company but shall be eligible for appointment by the company as a director at that meeting subject to the provisions of the Act.

DISQUALIFICATION OF DIRECTORS

31. A person shall not be capable of being appointed director of a company if he is subject to any disqualifications as specified in section 274, section 275, section 276, section 277, section 278 and any other provisions of the Act as amended from time to time.

QUORUM

32. The quorum for the meeting of the Board of Directors or a committee of Directors shall be one-third of its total strength or two Directors, whichever is higher (Any fraction contained in the one- third shall be rounded off as one)

DIRECTORS HOLDING OFFICE OR PLACE OF PROFIT

33. Subject to the provisions of the Companies Act, 1956 or any modifications thereof, no director of the company shall be disqualified by his office from holding any office or place of profit in the company or in any company in which this company shall be shareholder or otherwise, interested or from contracting with the company neither as Vendor, purchaser or otherwise nor shall any such contract or arrangement entered into by or on behalf of the company in which any Director shall be in any way interested be avoided nor shall any Director be liable to account to the Company for any profit arising from any such office or place of profit or realised by any such contract or arrangement by reason only of such Director holding that office or of the fiduciary relations thereby established.

DISCLOSURE OF INTEREST IN A PROPOSED CONTRACT

34. Every director of a company who is in any way, whether directly or indirectly, concerned or interested in a contract or arrangement,or proposed contract or arrangement, entered into or to be entered into, by or on behalf of the company, shall disclose the nature of his concern or interest at a meeting of the Board of Directors in accordance with the provisions of section 299 of the Act, as may be amended from time to time.

35. A Director may attend, take part in the discussions and vote in the meetings of the Board where a contract in which such Director is interested, is entered into by the company provided that the Director who is interested directly or indirectly in contract has disclosed his interest therein before it is entered into.

CHAIRMAN, MANAGING DIRECTOR

36. The Board of Directors of the Company may, subject to the provisions of the Companies Act, 1956 or any modifications thereof, from time to time appoint one or more of their body to the office of Chairman, Managing Director, Joint Managing Director or Wholetime Director for such period and on such terms as it thinks fit. Such appointee shall not, while holding such office, be subject to retirement by rotation at the Annual General Meeting. The Board of Directors may entrust to and confer upon such Chairman, Managing Director, Joint Managing Director or Wholetime Director all or any of the powers exercisable by them, with such restrictions of their own powers, and subject to their superintendence, control and direction. The remuneration payable to such persons shall be mentioned by the company in General Meeting. The appointment and the remuneration of such persons shall also be subject to the approval of the Central Government in cases where they are not covered by the exemption in Schedule XIII to or similar provisions of the Companies Act, 1956 as may be amended from time to time.

EXECUTIVE DIRECTOR

37. Subject to the provisions of the Act the Board of Directors may from time to time appoint one or more of their body to the office of Executive Director or Executive Directors of the company for such period and on such terms as they think fit. A Director so appointed shall not whilst holding that office be subject to retirement by rotation.

38. The remuneration of an Executive Director may be made by way of monthly salary, commission or participation of profits or by any one or more of these modes as the Board of Directors may from time to time determine.

SITTING FEES

39. Every Director of the company shall be paid a sitting fees of a maximum amount as fixed by the Central Government under Section 310 of the Companies Act, 1956, from time to time for each meeting including committee meetings attended by him/her in addition to actual travelling and out of pocket expenses incurred in attending and returning from such meeting.

40. If any Director, being willing, shall be called upon to perform extra services, or to make any special exertions in going or residing away from his residence for any purpose of the Company, the Board may arrange with such Director for such special remuneration for such services either by way of salary, or commission or the payment of a stated sum of money as they shall think fit, subject to the provisions of Section 314 of the Companies Act, 1956, and such remuneration may be either in addition to or in substitution of his remuneration provided in Article 39 supra.

BORROWINGS

41. The Board of Directors of the company may, time to time, at its discretion and subject to the provisions of the Companies Act, 1956 or any modifications thereof, borrow or secure the payment of any such sum or sums of money for the purposes of the company, provided that the Board of Directors shall not, except with the consent of the company in the General Meeting, borrow moneys, where the moneys to be borrowed together with the moneys already borrowed by the company (Apart from temporary loans obtained from the company's bankers in the ordinary course of business) will exceed the aggregate of the paid-up capital of the company and its free reserves, that is to say, reserves not set apart for any specific purpose.

42. Subject to the provisions of the Article 41 Supra, the Board of Directors of the company may raise or secure the repayment of such sum or sums in such manner, and upon such terms and conditions in all respects as it thinks fit, by the issue of bonds perpetual or redeemable debentures or debentures stock or any mortgage or charge, or other security on the undertaking of the whole or any part of the property of the company (both present and future) including its uncalled for the time being any bonds, debentures, debenture stock or others securities issued or to be issued by the company shall be under the control of the Board of Directors, which may issue them upon such terms and conditions and in such manner and for such consideration as it shall consider to be for the benefit of the company. The Board of Directors may upon the issue of any bonds, debentures, debenture stock or other securities, confer on the creditors of the company holding the same or any trustee or other persons acting on their behalf a voice in the mangement of the company whether by giving to them the right of attending but not voting at the General Meeting of the company or by empowering them to appoint a person to be a Director of the company or otherwise as may be agreed.

43. Debentures, debenture stock, loans, loan stocks, bonds or other securities conferring the right to allotment of conversion into shares or the option or right to call for allotment of shares shall not be issued except with the sanction of the company in General Meeting.

ALTERNATE DIRECTOR AND CASUAL VACANCY

44. The Board of Directors may appoint an alternate Director (herein after in this article called the original Director) during his absence for a period of not less than three months from India. An alternate Director shall not hold office as such for a longer period than that permissible to the original director in whose place he has been appointed and shall vacate office if and when the original director returns to India as aforesaid, any provision for the automatic reappointment of the retiring Director in default of another appointment shall apply to the original Director and not to the alternate Director.

45. If the office of any Director is vacated before his / her term of office will expire in the normal course, the resulting casual vacancy may be filled by the Board of Directors. The Board shall have power to appoint any person as an additional Director.

NOMINATED DIRECTORS

46. Any financial institution owned or sponsored either by the Central or State Government or any other Public or Local Authority shall be entitled to nominate a person who shall be Director of this company. Such entitlement can be exercised by such financial institution from time to time but only and until either such financial institutions hold in its own name equity shares or the loan or loans granted by such financial institutions are completely discharged. Such Director need neither possess the qualification shares, if any nor shall be liable to retire.

RESIGNATION OF DIRECTOR

47. A Director may at any time give notice in writing of his willingness to resign by delivering such notice to the Board and on the acceptance of his resignation by the Board and not before that his office shall be vacant.

REMOVAL OF DIRECTOR

48. A Director can be removed from office before the expiry of the term by an ordinary resolution passed in a General Meeting.

DIVIDEND

49. Any dividend, interest or other moneys payable in cash in respect of shares may be paid by cheque or warrant , drawn on Company's bankers or on the company itself and sent through post directly to the registered address of the holder or in the case of joint holder, to the registered address of that one of the joint holders who is first named on the register of the members, or to such persons and to such address as the holder or joint holders may in writing direct.

50. Any amount paid in advance of calls on any share shall carry interest at such rate as the Board of Directors may, from time to time fix, but shall not while carrying interest have any right to dividend or participate in the profits.

51. Dividend on fully paid shares shall be free of any charge and inrespect of partly paid shares, dividends can be adjusted only to the extent of calls presently payable on the shares.

52. No unclaimed dividends shall be forfeited by the Board and the company will comply with the provisions of Section 205A of the Companies Act, 1956.

53. The Board may, from time to time, pay to the members such interim dividend as in their judgement the position of the company justifies.

BOOKS OF ACCOUNTS

54. Subject to the provisions of section 209 of the Act, the booksof accounts shall be kept at the registered office of the company or at such places as may be decided by the Directors.

AUDIT

55. The provisions laid down in the Companies Act, 1956 as to the appointment of Auditors and the Auditing of the companies Books shall apply to this company.

SECRETARY

56. A Secretary may be appointed by the Board for such terms on such remuneration and upon such conditions as it may think fit and any Secretary so appointed may be removed by the Board.

THE SEAL

57. The Directors shall provide a common seal for the purpose of the company and shall have power from time to time destroy the same and substitute a new seal and in lieu thereof, and they shall provide for the safe custody of the seal for the time being and seal shall never be used except by a resolution of the Board and except in the presence of the two Directors (including Managing Director) who shall sign instrument to which the seal so affixed.

WINDING UP

58. Subject to the provisions of the Act, if the company shall be wound up and the assets available for distribution among the members as such shall be less than sufficient to repay the whole of the paid-up capital such assets shall be distributed so that, as nearly as may be the losses shall be borne by the members in proportion to the capital paid-up, or which ought to have been paid-up, at the commencement of winding up, on the shares held by them respectively. And if in winding up, the assets available for distribution among the members shall be more than sufficient to repay the whole of the capital paid-up at the commencement of the winding up the excess shall be distributed amongst the members in proportion to the capital at the commencement of winding up.

SECRECY

59. No member or person shall be entitled to visit or inspect the company's properties without the consent of the Board or the Managing Director or to require disclosure of any information regarding the details of the company's working, trading and on other matters or in the nature of trade secrets which in the opinion of the Managing Director may be expeditious in the interest of the member of the company to communicate to the public.

INDEMNITY

60. Every officer or agent for the time being of the company shall be indemnified out of the assets of the company against any liability incurred by him in defending any proceedings, whether civil or criminal, in which judgement is given in his favour or in which he is acquitted or in connection with any application under section 633 in which relief is granted to him by the Court.

Signatory Details

CIN / LLPIN companyID
Company / LLP Name companyName

List of Signatories

DIN/DPIN/PAN	Full Name	Designation	Date of Appointment	Whether DSC Registered	Expiry Date of DSC	Surrendered DIN
01691228	SENNIMALAIGOUNDER SIVASAMY	Managing Director	19/08/2005	Yes	26/09/2022	
01983958	SIVASAMY SUMATHI	Director	19/08/2005	Yes	12/12/2022	

ANNEXURE IX

Ultra Readymix Concrete (P) Limited.,

35-38, 11th Street
Tatabad, Coimbatore - 641 012.
Phone : 0422 - 249 7733
0422 - 249 7788
Fax : 0422 - 249 5545

Ref. :

Date : 11 JUL 2017

CIN.NO :U45201TZ2005PTC012060

CERTIFIFED TRUE COPY OF THE RESOLUTION PASSED IN THE MEETING OF BOARD OF DIRECTORS OF THE COMPANY HELD ON 02/08/2016 AT 10.00 HOURS AT THE REGISTERED OFFICE OF THE COMPANY

Subject: Authorising Chief Executive Officer (CEO) Mr.K.R.Ananth Kumar to sign papers and to deal with matters relating to the Company

"RESOLVED THAT in pursuance of the provisions of the Companies Act, 2013, the Board authorises Mr.K.R.Ananth Kumar, Chief Executive Officer of the Company

1. To make all necessary applications, signing tenders, including all Government departments for the purpose of carrying on the business of the Company
2. To represent the company before any authority in Central Government, State Government or Local Administration or any other Authority, banks Electricity Board, Financial institutions or elsewhere and to vote at any meeting on behalf of the company in all matters which the company may at any time be interested.
3. To sign, verify and file in all or any courts and offices in India and outside in all or any cases whether original or appellate, revision or review, plaints, complaints, written statements, affidavits, applications, review or revision petitions, statutory returns and memorandum of appeals or cross objections etc.
4. To appear before any judge, Magistrate or any public officer in connection with any of the matters herein contained.
5. To appeal from any order of judgement given against the company.
6. To institute commence defend legal proceeding, civil criminal or revenue including income tax, sales tax, excise duties, customs duties, VAT, Service Tax and prosecute and to defer, compound refer to arbitration and abandon all actions proceedings, suits, claims, demands in relation to the business and property of the company or otherwise in relation to the affairs of the company and for such purposes to sign verify and present any document, pleadings or other instruments in writing and to appear and make statements on oath or otherwise in relation to the affairs of the company and to appoint one or more persons and

ULTRA RMC P. LTD. CBE-12

Ultra Readymix Concrete (P) Limited.,

36-38, 11th Street
Tatabad, Coimbatore - 641 012.
Phone : 0422 - 249 7733
0422 - 249 7788
Fax : 0422 - 249 5545

11 JUL 2022

Ref. :

Date :

vest certain powers to such person to carry on business as may be necessary from time to time on behalf of the company and also to appoint any pleader, agent, solicitor or advocate for the said purpose and to obtain legal advice in any matter affecting the company.

7. To avail any type of loan from Banks, financial institutions and/or from other persons and to secure the properties of the company for availing such loan
8. Generally to act as agent of the company in relation to purchase of land and or premises or other fixed assets and all other matters in which the company may be interested or concerned and on behalf of the company to execute instruments and do all acts and things as fully and effecting in all respects as the Board of Directors of the company or the company or the company could do in that behalf.

AND the company do hereby confirm that all the deeds and acts done by the Mr.K.R.Ananth kumar, CEO in this behalf will be binding upon the company in the same manner as it would be if done by the company direct and the company shall further ratify all their deeds and acts done in respect of powers hereunder given.

SIGNATURE OF K.R. ANANTH KUMAR

For Ultra Ready Mix Concrete Pvt. Ltd

Managing Director

For ULTRA READY MIX CONCRETE P. LTD

DIRECTOR.

ANNEXURE X

SHASWI INTERNATIONAL SCHOOL OF EXCELLENCE

B454, Bogampatti, Coimbatore District, Tamilnadu. Pin - 641 658

(CARMEL PRAYER TOWER – CHARITABLE TRUST)

11 JUL 2022

TO WHOMSOEVER IT MAY CONCERN

NO OBJECTION CERTIFICATE

We understand that M/s.Ultra readymix concrete private limited purchased land located at Coimbatore District, Sulur Taluk, Idayapalayam Village, SF Number 168/2A, 168/2B, 169/1C, 169/2A for the purpose of establishing mining unit and to manufacture boulders. Since the above said properties are coming under the permissible classification to do mining activity and since legal safe distance is there between the said properties and our school and hostel properties, the Board of Trustees have unanimously expressed our No Objection for the purchasers to apply for license, obtain the same and to do mining activities.

Place : Coimbatore – 641658
Date : 25.10.2021

Yours Truly
For CARMEL PRAYER TOWER
(CHARITABLE TRUST)

Managing Trustee

11 JUL 2022

தமிழ்நாடு तमिलनाडु TAMIL NADU

00AC 488856

10.06.2022 ULTRA READYMIX CONCRETE PRIVATE LIMITED POLLACHI

M. DORAISWAMY
"STAMP VENDOR"
10-A, STATE BANK ROAD,
COIMBATORE - 641 018.
L.No:7333/B1/97-3

உறுதி மொழி

கோவை மாவட்டம், சூலூர் வட்டம், இடையபாளையம் கிராமத்தில் பத்திர எண் 6459/09.04.2021 - ன் படியும் மற்றும் 6454/26.04.2021-ன் படியும் பட்டா எண் 1028-ன் படியும் புல எண்-168(2B)-ல் 3.96 ஏக்கர் பூமியும், பட்டா எண் 1027-ன் படியும் புல எண்-169(1C)-ல் 1.89 ஏக்கர் பூமியும், பட்டா எண் 1029-ன் படியும் புல எண் - 169(2A)-ல் 3.36 ஏக்கர் பூமியும், பட்டா எண் 1030-ன் படியும் புல எண் - 168(2A)-ல் 0.93 ஏக்கர் பூமியும் மொத்தமாக-10.14 ஏக்கர் பூமி எங்கள் பெயரில் பாத்தியப்பட்டுள்ளது.

மேற்கண்ட பூமியில் எங்கள் நிறுவனம் புல எண்-168(2A)-ல் 0.48 ஏக்கர் பூமியும், புல எண்-168(2B)-ல் 1.94 ஏக்கர் பூமியும், புல எண் - 169(1C)-ல் 1.73 ஏக்கர்

ULTRA READYMIX CONCRETE (P) LTD COIMBATORE 641 402

11 JUL 2022

பூமியும், புல எண்-169(2A)-ல் 3.11$^{1/2}$ ஏக்கர் பூமியும், மொத்தமாக-07.26$^{1/2}$ ஏக்கர் பூமி சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் விண்ணப்பித்து நிலுவையில் உள்ளது. எங்கள் நிறுவனம் குவாரி குத்தகை உரிமம் விண்ணப்பித்த பூமிக்கு அருகில் CARMEL PRAYER CHARITABLE TRUST-ன் SHASWI INTERNATIONAL SCHOOL OF EXCELLENCE என்ற பள்ளி தற்போதைய நிலையில் இயங்கி வருவதாக தெரிய வருகிறது.

எங்கள் நிறுவனம் மேலே குறிப்பிட்டுள்ள பள்ளியின் அறங்காவலரிடம் (TRUSTEE) பேசி பரஸ்பர சம்மதத்தின் பேரில் தற்போதைய தேதியில் இயங்கி வருவதாக தெரிய வரும் பள்ளிக்கு, எங்கள் நிறுவனம் கல், குவாரி வெட்டியெடுக்கும் போது பாதிப்பு ஏற்படாத வண்ணம் அணைத்து முன்னெச்சரிக்கை நடவக்கைகளையும் எடுத்து வர வேண்டும். இது சம்பந்தமாக பேசி முடிவெடுத்து பள்ளியின் அறங்காவலரிடம் தடையின்மை சான்று (NO OBJECTION CERTIFICATE) பெற்று இந்த உறுதி மொழி பத்திரத்துடன் இணைத்துள்ளோம். மேலும் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்கும் போது எதிர்பாராவிதமாக ஏதாவது பாதிப்பு ஏற்பட்டால் எங்கள் நிறுவனம் அதனால் ஏற்படும் பாதிப்புக்கு மட்டும் பொறுப்பை ஏற்று நிவர்த்தி செய்து தருவோம் என உறுதி அளிக்கிறோம். மேலும் இந்த உறுதி மொழி பத்திரம் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் பெறுவதற்காக மட்டும் எங்கள் நிறுவனம் கூடுதல் ஆவணமாக இணைத்துள்ளது.

For Ultra Readymix Concrete (P) Ltd

Chief Executive Officer

இடம்: கோவை - 641 402

தேதி:

தங்கள் உண்மையுள்ள


आयकर विभाग
INCOME TAX DEPARTMENT
भारत सरकार
GOVT. OF INDIA
K R ANANTHKUMAR
MUTHANAIDU RAMACHANDRAN
25/04/1983
AHFPA0509E

ANNEXURE X1

14 JUL 2022

आधार

இந்திய அரசாங்கம்
Unique Identification Authority of India
Government of India

பதிவேட்டு எண்/Enrolment No.: 0000/00361/21836

To
க ரா ஆனந்த குமார்
K R Ananth Kumaar
S/O,Ramachandran
4/74-a
Mariamman Kovil Street
Kalapatti
Coimbatore Kalapatti
Tamil Nadu - 641048
9443507000

Download Date: 26/07/2017

Generation Date: 26/07/2017

உங்கள் ஆதார் எண் / Your Aadhaar No. :

2449 9491 4584

எனது ஆதார், எனது அடையாளம்

இந்திய அரசாங்கம்
Government of India

க ரா ஆனந்த குமார்
K R Ananth Kumaar
பிறந்த நாள்/ DOB: 26/04/1983
ஆண் / MALE

2449 9491 4584

எனது ஆதார், எனது அடையாளம்

AADHAAR

நமது
- ஆதார் அடையாளத்திற்கான சான்று, குடியுரிமைக்கு அல்ல.
- அடையாள சான்றை ஆன்லைனில் ஆதார் சேவைகள் மூலமாகப் பெறலாம்.
- இது எலக்ட்ரானிக் செயல்முறை மூலம் தயாரிக்கப்பட்ட கடிதமாகும்.

INFORMATION
- Aadhaar is a proof of identity, not of citizenship.
- To establish identity, authenticate online.
- This is electronically generated letter.

- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்.
- வருங்காலத்தில் அரசு மற்றும் அரசு சாரா சேவைகளை பயன்படுத்திக் கொள்ள ஆதார் உதவிகரமாக இருக்கும்.
- Aadhaar is valid throughout the country.
- Aadhaar will be helpful in availing Government and Non-Government services in future.

Unique Identification Authority of India

முகவரி:
ராமச்சந்திரன், 4/74-ஏ,
மாரியம்மன் கோவில் வீதி,
காளப்பட்டி, கோயம்புத்தூர்,
தமிழ் நாடு - 641048

Address:
S/O,Ramachandran, 4/74-a,
Mariamman Kovil Street,
Kalapatti, Coimbatore,
Tamil Nadu - 641048

2449 9491 4584

1947 | help@uidai.gov.in | www.uidai.gov.in

ANNEXURE XII

भारत सरकार / GOVERNMENT OF INDIA
खान मंत्रालय / MINISTRY OF MINES
भारतीय खान ब्यूरो / INDIAN BUREAU OF MINES

11 JUL 2022

अर्हताप्राप्त व्यक्ति के रुप में मान्यता प्रमाण पत्र
(खनिज रियायत नियमावली, 1960 के नियम 22सी के तहत)

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON
(Under Rule 22C of Mineral Concession Rules, 1960)

श्री एस. इलवरसन, पिता यू. सनंतानम, 7सी, मेट्टु स्ट्रट, भीमा नगर, तिरुची - १, तमिलनाडु, जिनका फोटो और हस्ताक्षर ऊपर दिया हुआ है, तथा जिनहोंने अपनी अर्हता और अनुभव का संतोषजनक साक्ष्य दिया है, को खनन योजना तैयार करने हेतु खनिज रियायत नियमावली 1960 के नियम 22सी के तहत अर्हताप्राप्त व्यक्ति के रूप में मान्यता प्रदान की जाती है ।

Shri S.Ilavarasan, S/o.U.Santhanam, 7C, Mettu Street, Beema Nagar, Tridhy -1, Tamilnadu, whose **Photograph and signature** is affixed herein above, having given satisfactory evidence of his qualifications & experience hereby **RECOGNISED** under Rule 22C of the Mineral Concession Rule, 1960 as a Qualified Person to prepare Mining Plans.

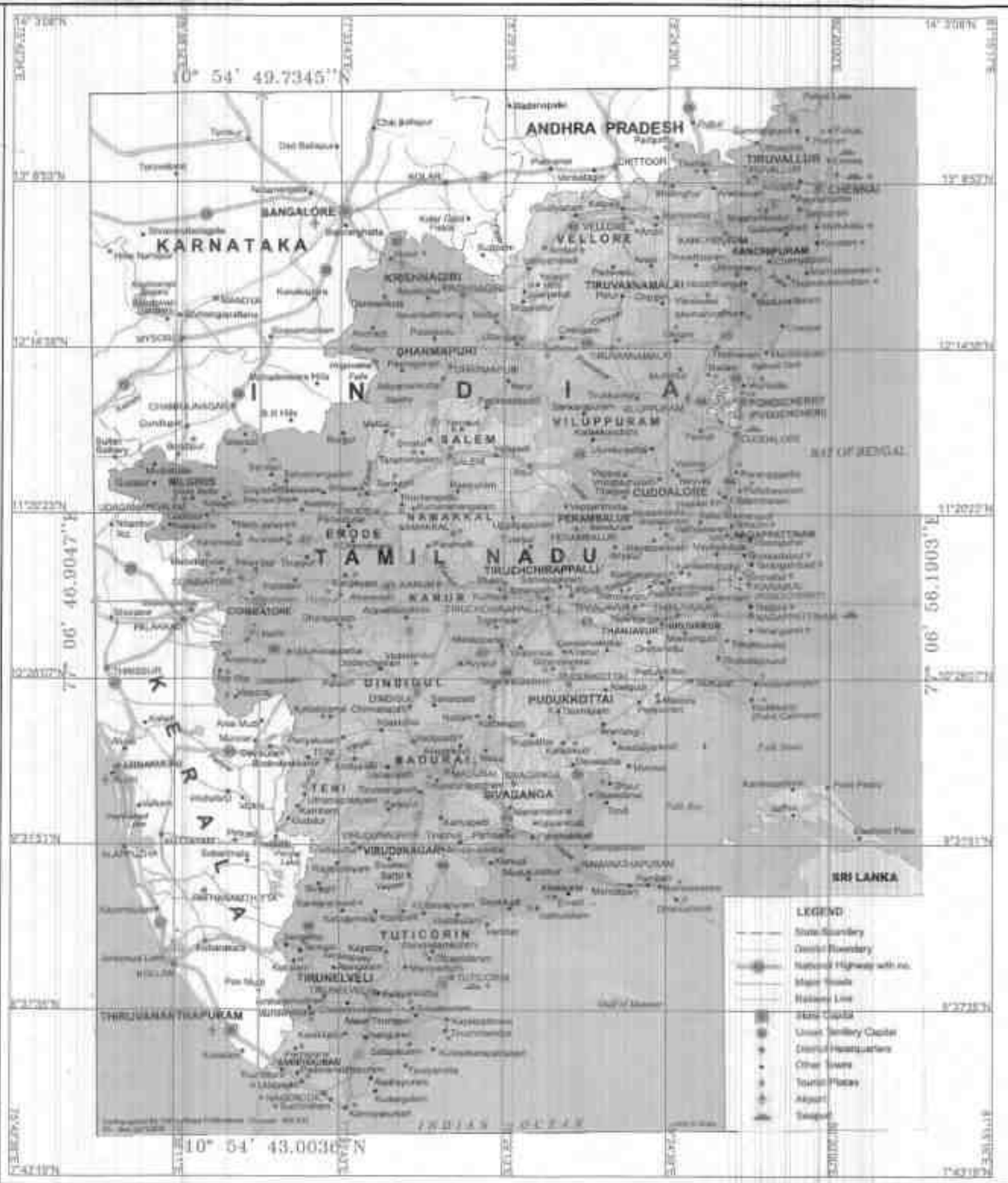
उनकी पंजीयन संख्या है
His registration number is : RQP /MAS/253/2013/A

यह मान्यता 10 वर्षों की अवधि के लिए मान्यता है जो दिनांक 27.08.2023 को समाप्त होगी।
This recognition is valid for a period of 10 years ending on 27.08.2023

उनके द्वारा प्रस्तुत खनन योजना में गलत जानकारी / दस्तावेज पाए जाने की स्थिती में यह प्रमाण पत्र वापस लिया जाएगा / निरस्त किया जाएगा।
This certificate will liable to be withdrawn / cancelled in the event of furnishing the wrong information / documents in the Mining Plan submitted by him.

स्थान / Place : Chennai
दिनांक / Date : 28.08.2013.

क्षेत्रीय खान नियंत्रक / Regional Controller of Mines
भारतीय खान ब्यूरो / Indian Bureau of Mines
चेन्नई क्षेत्र / Chennai Region



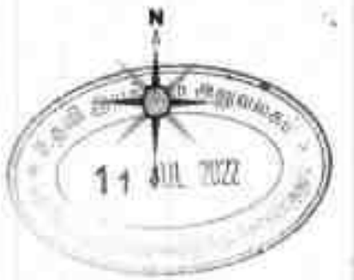


PLATE NO:I

DATE OF SURVEY :06.07.2022

APPLICANT:

TVI.ULTRA READYMIX CONCRETEPRIVATE LIMITED
25,TRICHY ROAD,
KANNAPPALAYAM,
COIMBATORE DISTRICT.

LOCATION OF QUARRY

LEASE APPLIED AREA:-

S.F.No	: 168/2A(P),2B(P),&169/1C(P),2A(P)
EXTENT	: 2.94.01 HA.
VILLAGE	: IDAYARPALAYAM
TALUK	: SULUR
DISTRICT	: COIMBATORE

INDEX

Q. L.A. AREA :

TOPO SHEET NO. : 58 – F/01

LATITUDE : 10° 54'43.0036"N to 10° 54'49.7345"N

LONGITUDE : 77° 06'46.9041"E to 77° 06'56.1983"E

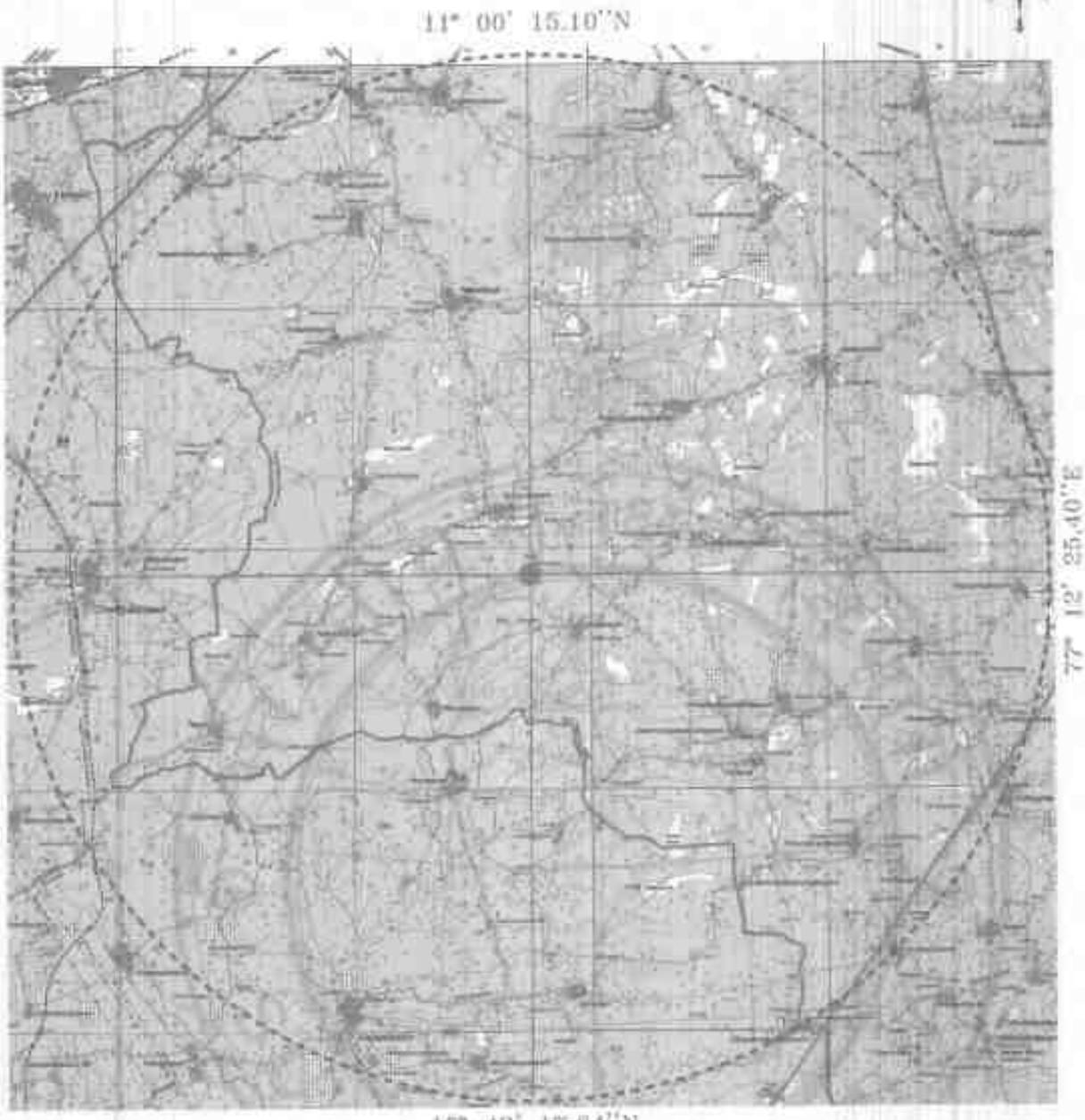
LOCATION PLAN

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

S.JAYARAMAN,M.Sc.,
RECOGNISED QUARRY PERSON
ROP/MAS/2330/2017/A



TOPO SHEET NO. : 58 – F/01

LATITUDE : 10° 54'43.0036"N to 10° 54'49.7345"N

LONGITUDE : 77° 06'46.9047"E to 77° 06'58.1903"E

10KM RADIUS :

Q.L.APPLIED AREA :

PLATE NO:I-A

DATE OF SURVEY :06.07.2022

APPLICANT:

M/s.ULTRA READYMIX CONCRETEPRIVATE LIMITED,
25,TRICHY ROAD,
KANNAPPALAYAM,
COIMBATORE DISTRICT.

11 JUL 2022

LOCATION OF QUARRY LEASE APPLIED AREA:-

S.F.No : 168/2A(P),2B(P),&169/1C(P),2A(P),
EXTENT : 2.94.01 HA.,
VILLAGE : IDAYARPALAYAM
TALUK : SULUR
DISTRICT : COIMBATORE

INDEX

CONVENTIONAL SYMBOLS

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

S.N.KAVARASAN,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/223/2013/A

LANDUSE PATERN	
DESCRIPTION	PERCENTAGE
ROADS\ODAI	(10%)
HABITATION	(12%)
TREES\ WIND MILL	(20%)
AGRICULTURAL LAND	(48%)
PIT\DUMP	(10%)

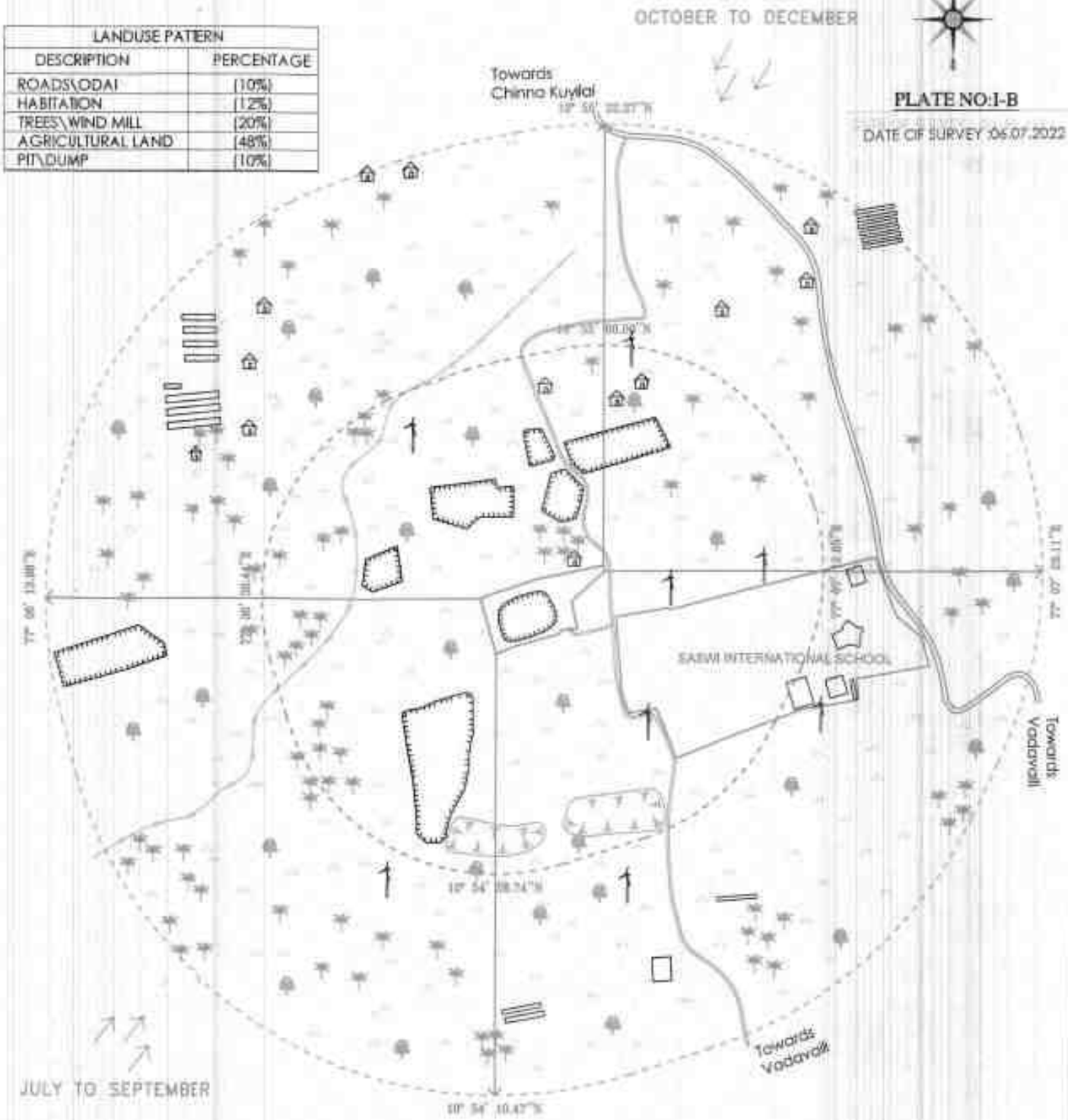


PLATE NO:I-B

DATE OF SURVEY :06.07.2022

1Km Radius :

500m Radius :

Q.L.Applied Area :

TOPO SHEET NO. :

LATITUDE :

LONGITUDE :

11 JUL 2022

APPLICANT:

M/s.ULTRA READYMIX CONCRETEPRIVATE LIMITED,
25,TRICHY ROAD,
KANNAPPALAYAM,
COIMBATORE DISTRICT.

LOCATION OF QUARRY
LEASE APPLIED AREA:-

S.F.No : 168/2A(P),2B(P),&169/1C(P),2A(P),
EXTENT : 2.94.01 HA.
VILLAGE : IDAYARPALAYAM
TALUK : SULUR
DISTRICT : COIMBATORE

INDEX

- APPROACH ROAD
- VILLAGE ROAD
- MAJOR ROAD
- HABITATION
- TREES
- AGRICULTURAL LAND
- PIT
- WIND DIRECTION
- DUMP
- ODAI
- WIND MILL
- INFRASTRUCTURE

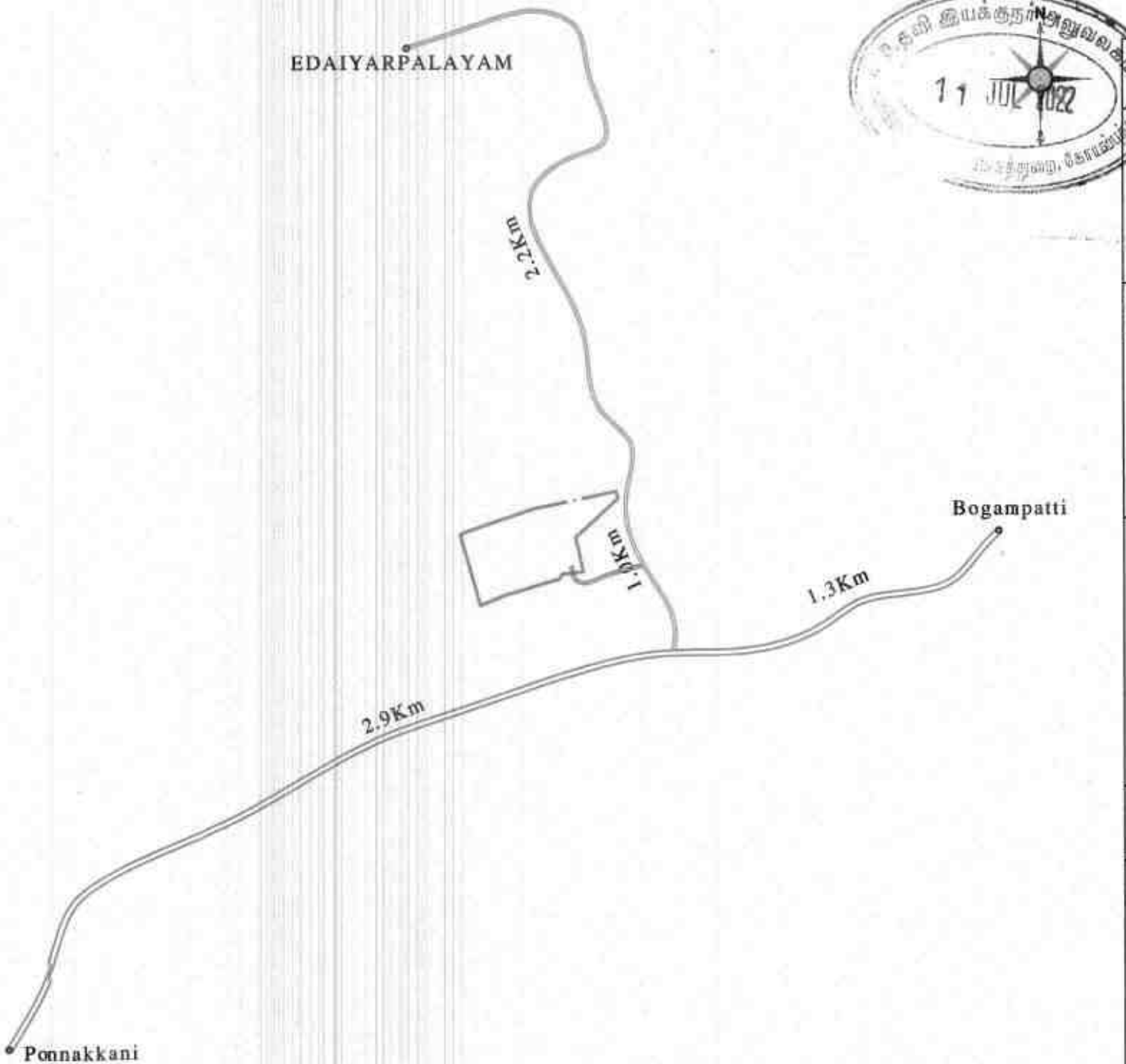
ENVIRONMENTAL AND
LANDUSE PLAN FOR 1Km RADIUS

SCALE:- 1:10,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

S.ILAYARASAN,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/253/2015/A



11 JUL 2022

PLATE NO:I-C

DATE OF SURVEY :06.07.2022

APPLICANT:

M/s.ULTRA READYMIX CONCRETEPRIVATE LIMITED,
25,TRICHY ROAD,
KANNAPPALAYAM,
COIMBATORE DISTRICT.

LOCATION OF QUARRY

LEASE APPLIED AREA:-

S.F.No	: 168/2A(P),2B(P),&169/1C(P),2A(P),
EXTENT	: 2.94.01 HA.
VILLAGE	: IDAYARPALAYAM
TALUK	: SULUR
DISTRICT	: COIMBATORE

INDEX

Q.L.APPLIED AREA

MAJOR ROAD

VILLAGE ROAD

APPROACH ROAD

ROUTE PLAN

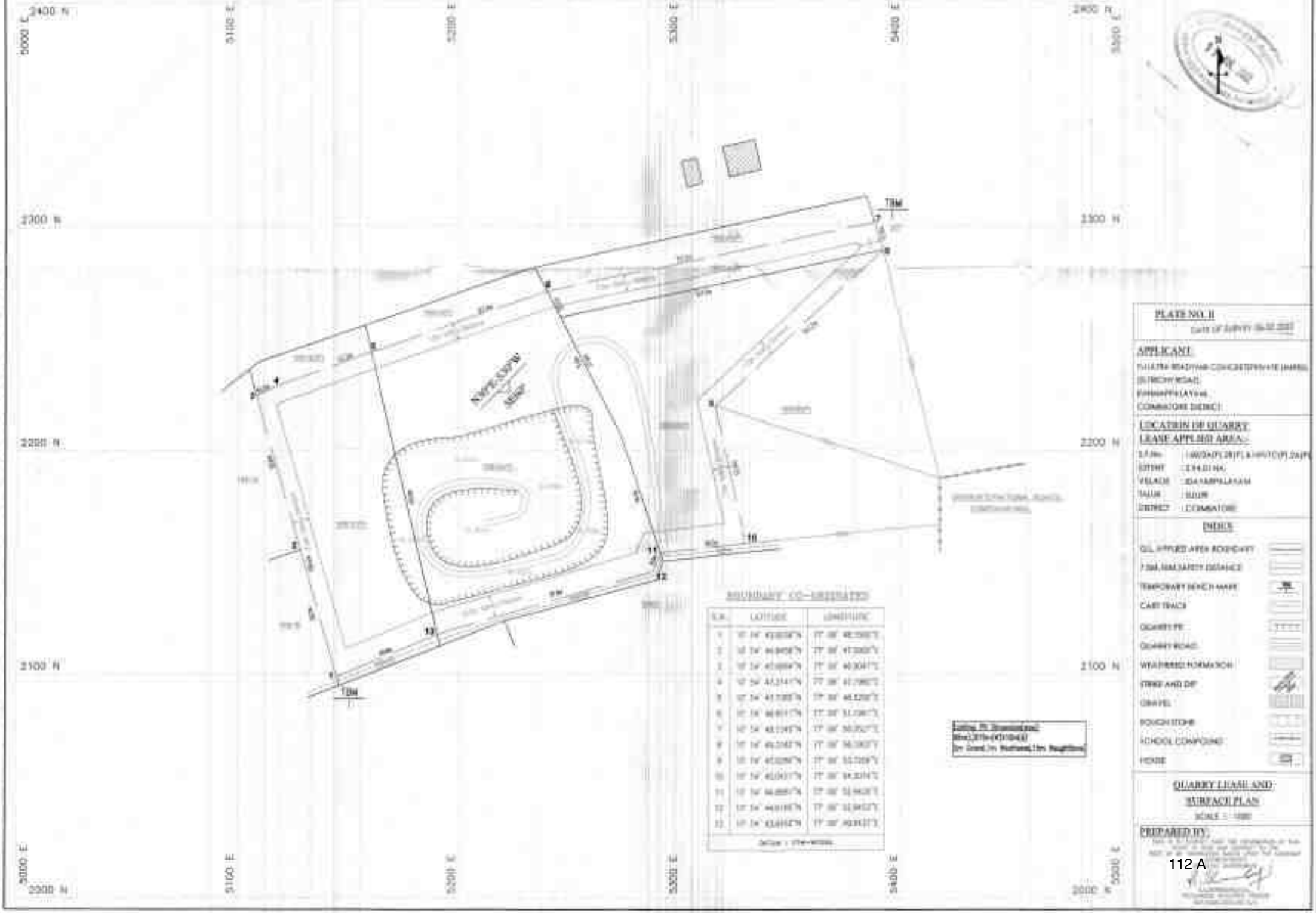
Not To Scale

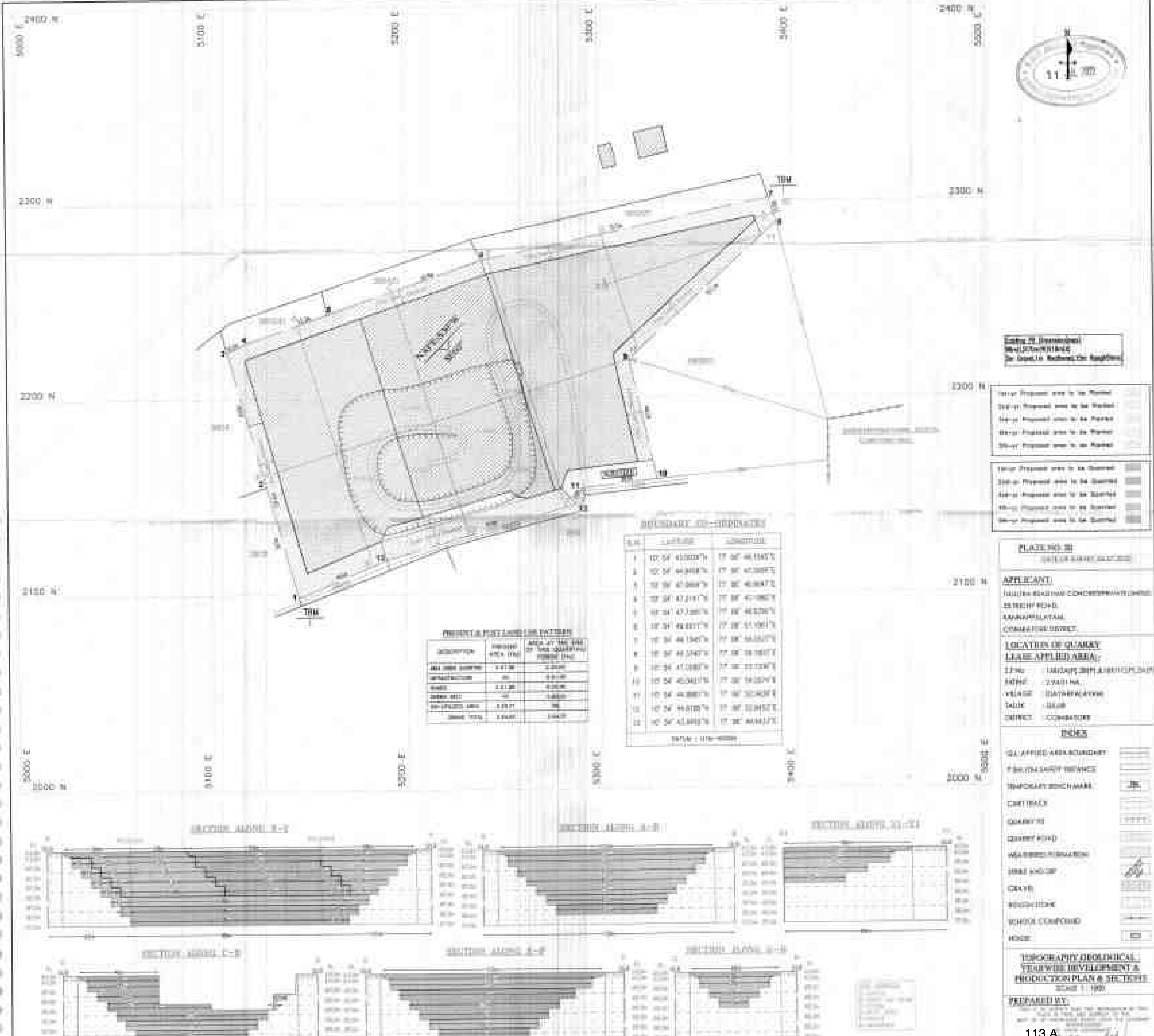
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

S.ILAVARASAN,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/253/2013/A

111 A


2400 N
2300 N
2200 N
2100 N
2000 N
5000 E
5100 E
5200 E
5300 E
5400 E
TBM
TBM
PLATE NO. II
APPLICANT
LOCATION OF QUARRY LEASE APPLIED AREA:-
INDEX
QUARRY LEASE AND SURFACE PLAN
PREPARED BY,
112 A



2400 N
2300 N
2200 N
2100 N
2000 N
5000 E
5100 E
5200 E
5300 E
5400 E
5500 E
TBM
BOUNDARY CO-ORDINATES
PRESENT & POST LAND USE PATTERN
PLATE NO. III
APPLICANT:
LOCATION OF QUARRY LEASE APPLIED AREA:
INDEX
TEMPORARY BENCH MARK
CART TRACK
QUARRY PIT
QUARRY ROAD
STRIKE AND DIP
GRAVEL
ROUGH STONE
SCHOOL COMPOUND
HOUSE
TOPOGRAPHY GEOLOGICAL, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS
PREPARED BY:

2400 N

2300 N

2200 N

2100 N

2000 N

5000 E

5100 E

5200 E

5300 E

5400 E

5500 E

TBM

BOUNDARY CO-ORDINATES

Sub.	LATITUDE	LONGITUDE
1	11° 34' 43.0830"N	77° 35' 48.1992"E
2	11° 34' 44.6005"N	77° 35' 47.3992"E
3	11° 34' 47.0464"N	77° 35' 46.8047"E
4	11° 34' 47.2341"N	77° 35' 47.1088"E
5	11° 34' 47.1385"N	77° 35' 48.6295"E
6	11° 34' 48.8311"N	77° 35' 51.1467"E
7	11° 34' 49.7305"N	77° 35' 50.2527"E
8	11° 34' 48.3443"N	77° 35' 48.1457"E
9	11° 34' 47.2382"N	77° 35' 47.7255"E
10	11° 34' 45.5411"N	77° 35' 46.2574"E
11	11° 34' 44.3881"N	77° 35' 47.8405"E
12	11° 34' 44.3455"N	77° 35' 47.8457"E
13	11° 34' 43.6452"N	77° 35' 48.5437"E

SECTION ALONG X-Y

SECTION ALONG A-B

SECTION ALONG P1-P2

SECTION ALONG C-D

SECTION ALONG E-F

SECTION ALONG G-H

PLATE NO. IV

APPLICANT

LOCATION OF QUARRY

LEASE APPLIED AREA :-

S.F.No.	
EXTENT	2.04.0 Hect.
VILLAGE	
TALUK	
DISTRICT	

INDEX

- G.L. APPLIED AREA BOUNDARY
- 7.5M SAFETY DISTANCE
- TEMPORARY BENCH MARK
- QUARRY FACE
- QUARRY PIT
- QUARRY ROAD
- DIRECTION OF DIP
- SCHOOL COMPOUND
- HOUSE
- EXISTING LAND FORM
- OLD SURFACE LEVEL
- FINISHED SURFACE LEVEL
- TREES
- SOIL LAYER
- FENCING
- PROPOSED GARLAND DRAIN
- REPRESENTED LANDFORM
- PROPOSED WATER STORAGE

PROGRESSIVE QUARRY CLOSURE PLAN & SECTIONS

SCALE 1 : 1000

PREPARED BY:

114 A

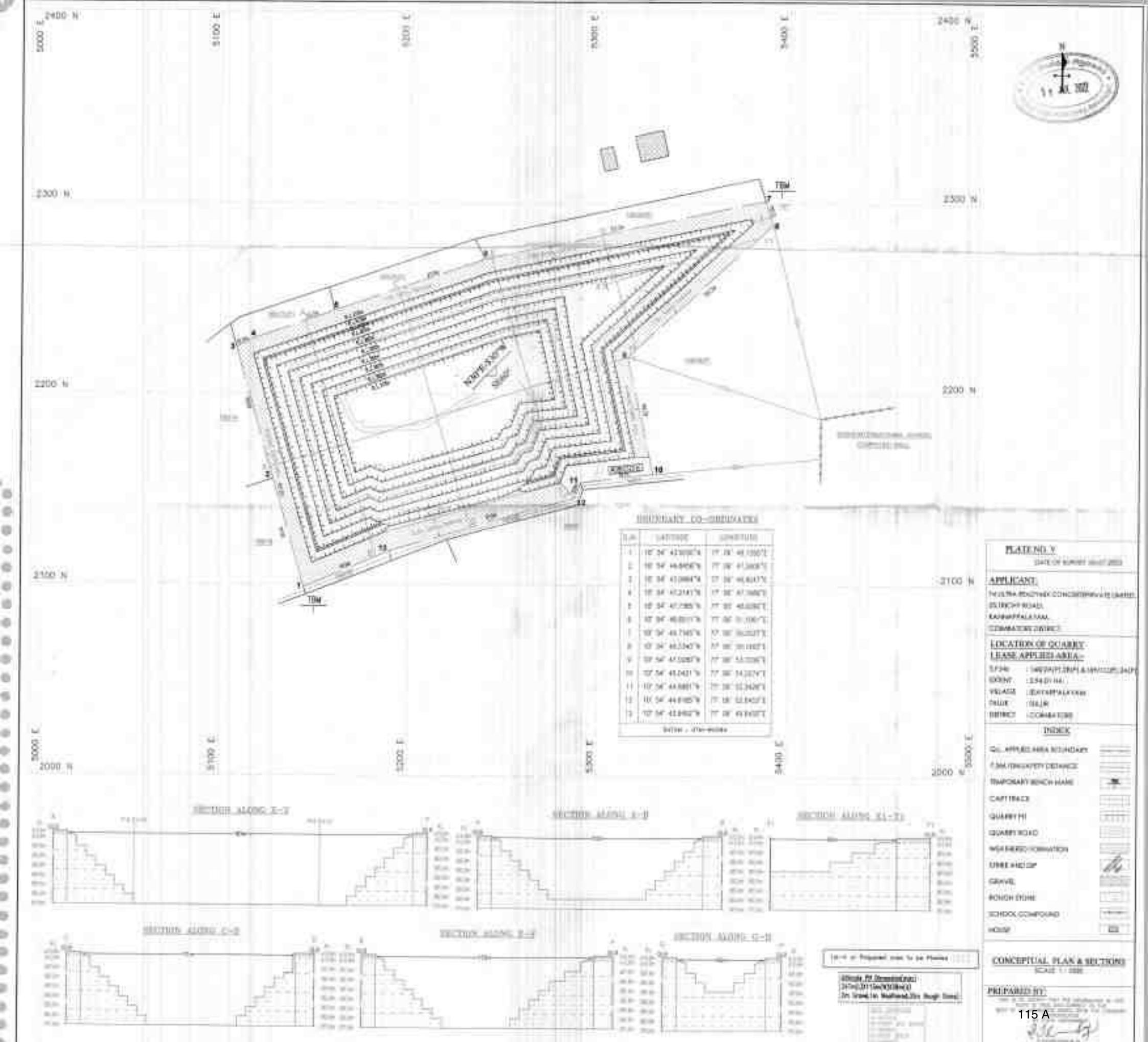


PLATE NO. V

APPLICANT

LOCATION OF QUARRY LEASE APPLIED AREA :-

INDEX

CONCEPTUAL PLAN & SECTIONS

PREPARED BY

அறிக்கை

கோயம்புத்தூர் மாவட்டம், அன்னூர் வட்டம், கண்ணம்பாளையம் கிராமம், கதவு எண்: 25 என்ற முகவரியில் இயங்கிவரும் 'அல்ட்ரா டெக் ஸ்டீல்' காஸ்டிங் பிரைவேட் லிமிடெட் என்ற நிறுவனத்திற்கு, அதன் நிர்வாக அதிகார திரு. ராமச்சந்திரன் அவர்கள் குமாரர் திரு. ஆனந்தகுமார் என்பவருக்கு,

~~[struck out]~~ உடைமை அன்னூர் சார்பதிவாளர் அலுவலக கிரைய ஆவண எண்: 6459/2021-ன்படி கனையம்பாளையம் கிராமம், அன்னூர் வட்டம், (ரீ. உட்பிரிவு க.ச 168/2B)

1) க.ச 168/2 -ல் ஹெ 3.96

2) க.ச 169/2A -ல் ஹெ 3.36

3) க.ச 169/1C -ல் ஹெ 1.89

ஆக மொத்தம் ஹெ 9.21 விஸ்தீரணம்

உள்ள நிலமானது, 4 ஆவணம் (6) கணினி பட்டா எண்கள்: 1028, 1027, 1029-ன்படி அவருக்கு நேரடியாக மாற்றப்பட்டுள்ளது. உ.இ.ெ [illegible]

மேலும், அன்னூர் உ.ஆ.0 அன்னூர் வட்டம், எண்: 6459/2021-ன்படி இலையம்பாளையம் கிராமம், 4) க.ச 168/2 (ரீ. உட்பிரிவுபடி 168/2B)-ல் ஹெ 0.93 என்ற விஸ்தீரணம் உள்ள நிலமானது, 4 ஆவணம் (6) கணினி பட்டா எண்: 1030-ன்படி நேரடியாக மாற்றப்பட்டுள்ளது.

(P.T.O)

மேற்படி இடத்தில் கல்குவாரி அமைப்பதற்கு அனுமதி கோரியதன் பேரில் மேற்படி இடத்தில் புலத்தணிக்கை செய்யப்பட்டது, அதில்

1) க.ச 169/1C, 2A கல்குவாரிக்கு அருகில் 4 மீட்டர் தொலைவில் ~~தெற்கு~~ தென்திசைக்கு பக்கம் "சாலை 25 [illegible] பாதை" அந்த -அமைந்துள்ளது. மின்சார கட்டமைப்பு அருகில் 600 மீ தொலைவில் மின்சார கம்பம் அமைந்துள்ளது. 50 மீ தொலைவில் மின்சார கம்பம் உள்ளது.

2) க.ச 169/1C, 2A (ம) க.ச 168/2A, 2B கல்லுக்கு "மேற்கே" க.ச 169/1A, 1B, திரு. ராஜேந்திரன் என்பவருக்கு சொந்தமான விவசாய பூமி (ம) கிணறு 200 மீட்டர் தொலைவில் உள்ளது.

3) கல்குவாரிக்கு வடக்கே, க.ச 171/1 திரு. ரங்கசாமி என்பவருக்கு சொந்தமான கல்வேலி அருகில் 200 மீ தொலைவில் உள்ளது.

4) கல்குவாரிக்கு கிழக்கே, க.ச 168/1 காளை வேலுச்சாமி விவசாய பூமி, கிணறு 25 மீ தொலைவில் உள்ளது. கால்நடை 300 மீ தொலைவில் உள்ளது.

அன்புடன் தெரிவித்துக் கொள்கிறேன்.

குறிப்பு: கல்குவாரிக்கு அருகாமையில் வழிபாட்டுத் தலங்கள் (ம) புராதான சின்னங்கள் ஏதும் இல்லை.

22.07.2022

கிராம நிர்வாக அலுவலர்
இடையர்பாளையம் கிராமம்
சூலூர் வட்டம்

TOPOGRAPHICAL VIEW OF IDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRY LEASE APPLIED AREA

Name of the Applicant	:	Tvl. Ultra Readymix Concrete Private Limited,
Address	:	No. 25, Trichy Road, Kannampalayam, Coimbatore District, Tamil Nadu State – 641 402.

LOCATION DETAILS

Extent	:	2.94.01ha
S.F.No.	:	168/2A (P), 2B (P), 169/1C (P) & 2A (P)
Village	:	Idayarpalayam
Taluk	:	Sulur
District	:	Coimbatore
State	:	Tamil Nadu

Signature of the applicant

For Tvl. Ultra Readymix Concrete Private Limited

K.R.Ananth Kumar

(Authorized Chief Executive Officer)

(Village Administrative Officer)

Attestation

Subramaniam
Chemicals & Explosives Private Ltd

Grams : ANNEX
☎ 2687544
2688838
subramaniam.chemicals@hotmail.com

Date 25.07.2022

To
M/s.Ultra Readymix concrete Private Limited,
No.25, Trichy Road,
Kannampalayam,
Coimbatore – 641 402.

Sub: Regarding Blasting Work using Explosives in your proposed quarry.

Sir,

We are having Explosives Licence in Form 22 holding No. E/SC/TN/22/173(E10486) situated at Survey No.14&15, Sulur Town, Sulur Taluk, Coimbatore District. Our office functioning at 208, Trichy Road, Sulur, Coimbatore District – 641402.

We are enacting two Explosives Vans for Transporting detonators and class 2 separately from our magazine to our Work site and well experienced licenced Blasters and Shot Firers for safe blasting work since 2 years without untoward incident.

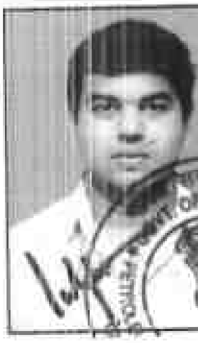
We are willing to undertake blasting work on contract basis at your S.F.No.168/2A (P), 2B(P), 169/1C (P) & 2A (P) in Idayarpalayam Village, Sulur Taluk, Coimbatore District, Tamilnadu.

Thanking You.

Yours Faithfully
For SUBRAMANIAM CHEMICALS & EXPLOSIVES (P) LTD

Manager

Encl:
1. Licence Copy



अनुज्ञप्ति प्रपत्र एल.ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद [illegible])
(Seeanticle [illegible] of Part 1 of Schedule IV of Explosives Rules, 2008)

(ग) उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मैगज़ीन में वर्ग 6 के विस्फोटक रखने [illegible]
Licence to possess (c) for use explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazine

अनुज्ञप्ति सं. (Licence No.) : E/SC/TN/22/173(E1340)
वार्षिक फीस रुपए (Annual Fee Rs) 7200

1. Licence is hereby granted to

SUBRAMANIAM CHEMICALS AND EXPLOSIVES (अधिभोगी (Occupier) : Shri **S.P.VIGNESWARAN**) 10,KALANGIAM RD,SULUR DIST COIMBATORE, Town/Village - SULUR, District - COIMBATORE, State-Tamil Nadu, Pincode - 641402

को अनुज्ञप्ति अनुदत्त की जाती है।

2. अनुज्ञप्तिधारी की प्रास्थिति : Status of licencee : Company

3. अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमान्य है। purpose for use of **Nitrate Mixture, Safety Fuse, Detonating Fuse, Detonators,** - के उपयोग के लिए
Licence is valid only for the following purpose

4. अनुज्ञप्ति विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमान्य है।
Licence is valid for the following kinds and quantity of explosives [illegible]

क्र. Sr. No.	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1	Nitrate Mixture	2, 0	0	1000 Kg.
2	Safety Fuse	6, 3	0	50000 Mtrs
3	Detonating Fuse	6, 2	0	50000 Mtrs
4	Detonators	6, 3	0	44000 Nos

(ख) किसी एक कलैंडर मास में क्रय की जाने वाली विस्फोटक की मात्रा [illegible] (ग) के अधीन अनुज्ञप्ति के लिए **25 times as above.**
(b) Quantity of explosives to be purchased in a calendar month [illegible] licence under article 3(b) and (c)

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञप्त परिसर की पुष्टि होती है। रेखाचित्र क्र (Drawing No.) E/SC/TN/22/173(E10486)
दिनांक (Dated) 21/04/2002
The licensed premises shall conform to the following drawings:

6. अनुज्ञप्ति परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at the 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)	04222680138	ई मेल (E-Mail)		फैक्स (Fax)	

7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं। main Magazine and lobby
The licensed premises consist of following facilities

8. अनुज्ञप्ति समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उसके अधीन विरचित विस्फोटक नियम 2008 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपाबंधों के अधीन रहते हुए अनुदत्त की जाती है।
The licence is granted subject to the provisions of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures

1. उपर्युक्त क्रम सं 5 में यथा कथित रेखाचित्र (स्थल, अभिन्यास [illegible] और अन्य विवरण दर्शित करते हुए)।
   Drawings (showing site, construction and and other details) as stated in serial No. 5 above.
2. अनुज्ञप्ति प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञप्ति की शर्तें और अतिरिक्त शर्तें।
   Conditions and Additional Conditions of this licence signed by the licensing authority
3. दूरी प्रपत्र डीई-2 | Distance Form DE-2

9. यह अनुज्ञप्ति तारीख 31 मार्च 2008 तक विधिमान्य रहेगी। This licence shall remain valid till **31st day of March 2008.**

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची [illegible] के भाग 4 या यदि विहित सेट-VIII के अधीन तथा उपवर्णित इस अनुज्ञप्ति की शर्तों का अतिक्रमण करने या यदि अनुज्ञप्त परिसर [illegible] में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहृत की जा सकती है, जहां यह 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 Annexures attached hereto.

तारीख | The Date - 21/05/2002

Sd/-
संयुक्त मुख्य विस्फोटक नियंत्रक | **Joint Chief Controller of Explosives**
South Circle, Chennai

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated 22/04/2011
- Change in Authorized Signatory/Occupier/Partners/Directors dated [illegible]
- 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 [illegible]/02/2017

नवीकरण के पृष्ठांकन के लिए स्थान
Space for Endorsement of Renewal

नवीकरण की तारीख Date of Renewal	समाप्ति की तारीख Date of Expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प Signature of licensing authority and stamp
23/03/2018	1/01/2023	Jt. Chief Controller of Explosives, South Circle, Chennai

From
Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To
Thiru.N.Kathiresh,
S/o.V.Nataraj,
3/175, Karacheri,
Periyakuyili Post,
Chettipalayam Via,
Coimbatore District.

Rc.No.111/Mines/2021 Dated: 05.01.2022

Sir,

Sub: Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Edayarpalayam Village - Survey Nos. 172/1B (0.43.72 Hec), 172/2 (0.49.50 Hec) and 173/2A2 (0.49.60 Hec) - over an extent of 1.42.82 hectares of patta land - Application preferred by Thiru.N.Kathiresh for quarrying Roughstone and Gravel– Precise area communicated - Details of quarries situated within 500 meter radial distance - Requested – furnished - reg.

Ref. 1. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.111/Mines/2021, Dated:21.10.2021
2. Thiru.N.Kathiresh, Coimbatore letter dated 15.11.2021.

****

I invite kind attention to the reference cited wherein Thiru.N.Kathiresh has been issued precise area for the grant of Rough Stone and Gravel quarry lease over an extent of 1.42.82 hectares of patta land in Survey Nos. 172/1B (0.43.72 Hec), 172/2 (0.49.50 Hec) and 173/2A2 (0.49.60 Hec) of Edayarpalayam Village, Sulur Taluk, Coimbatore District.

In the reference 2nd cited of Thiru.N.Kathiresh has requested to furnish 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 is furnished below.

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i) **Existing Quarries**

Sl. No.	Name of the Owner	Village &S.F.Nos.	Extent in Hect.	Lease period	Remarks
1.	Thiru.V.Saravanan	Edayarpalayam 171/2(Part), 176/2 (Part)	1.22.5	15.09.2017 to 14.09.2022	
2.	Thiru.B.Sakthivel	Edayarpalayam 164/6A(Part), 164/7	1.19.5	07.10.2017 to 06.10.2022	

ii) **Expired Quarries**

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

iii) **Abandoned quarries**

Sl. No.	Name of the Owner	Village &S.F.Nos.	Extent in Hect.	Lease period	Remarks
1.	Tmt.Ponnammal	Edayarpalayam 178/2	2.34.5	-	
2.	Government Quarry	Edayarpalayam 164/1	3.13.5		

iv) **Proposed quarries**

Sl. No.	Name of the Owner	Village &S.F.Nos.	Extent in Hect.	Remarks
1	Thiru.N.Kathiresh	Edayarpalayam 172/1B, 172/2 and 173/2A2	1.42.82	Subject area precise area communicated
2	Tvl.Ultra Redymix Concrete (P) Ltd.,	Edayarpalayam 168/2A, 168/2B, 169/1C, 169/2A	4.10.50	-

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.

TMT. P. RAJESWARI, I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY – TAMIL NADU
3rd Floor, Panagal Maaligai,
No.1 Jeenis Road, Saidapet,
Chennai-15.
Phone No.044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.9034/SEAC/ToR- 1165/2022 Dated: 06.06.2022

To

Thiru. N.Kathiresh
S/o. V.Natraj
No.3/175, Karacheri
Periyakuyili Post
Chettipalayam Via
Coimbatore District – 641201

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone & Gravel quarry lease over an extent of 1.42.82 Ha in S.F.Nos. 172/1B, 172/2 & 173/2A2 of Edaiyarpalayam Village, Sulur Taluk, Coimbatore District by Thiru N. Kathiresh - under project category – "B1" and Schedule S.No. 1(a) – ToR issued along with Public Hearing- preparation of EIA report – Regarding.

Ref: 1. Online proposal No.SIA/TN/MIN/ 72484/2022, dated: 22.02.2022
2. Your application seeking Terms of Reference submitted on: 25.02.2022
3. Minutes of the 273rd Meeting of SEAC held on 14.05.2022
4. Minutes of the 518th Meeting of SEIAA held on 06.06.2022.

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

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The project proponent, Thiru.N.Kathiresh has submitted application seeking ToR for B1 category project in Form-I, for the Proposed Rough Stone & Gravel quarry lease over an extent of 1.42.82 Ha in S.F.Nos. 172/1B, 172/2 & 173/2A2 of Edaiyarpalayam Village, Sulur Taluk, Coimbatore District Tamil Nadu and has furnished Pre-feasibility report.

The proposal was placed in 273rd SEAC meeting held on 14.5.2022. The project proponent gave detailed presentation. SEAC noted the following:

1. The Project Proponent, Thiru N. Kathiresh has applied for Terms for Reference for the proposed Rough Stone & Gravel quarry lease over an extent of 1.42.82 Ha in S.F.Nos. 172/1B, 172/2 & 173/2A2 of Edaiyarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. **As per the mining plan, the lease period is 5 year. The production as per mining plan for 5 years not to exceed -65140 m3 of Rough Stone and 5712 m3 of Gravel. The Annual peak production as per mining plan is 15120 m3 of Rough Stone (3rd year) & 2016m3 of Gravel (3rd year) with ultimate depth of 27 BGL.**

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

1. The Proponent shall carry out the cumulative & comprehensive impact study due to mining operations carried out in the quarry cluster specifically with reference to the environment in terms of air pollution, water pollution & health impacts, accordingly the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
2. The PP shall carry out controlled blasting & vibration study with the reputed institution and furnish the same along with EIA report.
3. Certified EC compliance report shall be included in the EIA report.

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4. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
   a) What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
   b) Quantity of minerals mined out.
   c) Highest production achieved in any one year
   d) Detail of approved depth of mining.
   e) Actual depth of the mining achieved earlier.
   f) Name of the person already mined in that leases area.
   g) If EC and CTO already obtained, the copy of the same shall be submitted.
   h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
5. 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).
6. The PP shall carry out Drone video survey covering the cluster, Green belt , fencing etc.,
7. 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.
8. 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.
9. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure

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safety and to protect the environment.

10. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
11. 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.
12. 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.
13. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
14. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
15. The PP shall produce/display the EIA report, Executive summery and other related with respect to public hearing should in Tamil Language also.
16. The recommendation for the issue of "Terms of Reference" is subjected to the outcome of the Hon'ble NGT, Principal Bench, New Delhi in O.A No.186 of 2016 (M.A.No.350/2016) and O.A. No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No. 758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A. No. 843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No. 981/2016, M.A.No.982/2016 & M.A.No.384/2017).
17. 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

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in the **appendix** in consultation with the DFO, State Agriculture University and local school/college authorities. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.

18. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted in proper espacement 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.
19. A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
20. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report.
21. The specific flora & fauna studies shall be carry out with the help of local School/College students and the same shall be included in EIA Report.
22. 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.
23. 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.
24. 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 Reference besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix -I
List of Native Trees Suggested for Planting

1. ***Aeglemarmelos***–Vilvam
2. ***Adenauntherapavonina***-Manjadi

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3. *Albizialebbeck*–Vaagai
4. *Albiziaamara*-Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa*–Iruvathi
8. *Buchananiaalllaris*-Kattuma
9. *Borassusflabellifer*- Panai
10. *Buteamonosperma* - Murukkamaram
11. *Bobaxceiba*– Ilavu, Sevvilavu
12. *Calophylluminophyllum* - Punnai
13. *Cassia fistula*- Sarakondrai
14. *Cassia roxburghii*- Sengondrai
15. *Chloroxylonsweitenia* - Purasamaram
16. *Cochlospermumreligiosum*– Kongu, Manjalllavu
17. *Cordiadichotoma*– Mookuchalimaram
18. *Cretevaadansonii*–Mavalingum
19. *Dilleniaindica*– Uva, Uzha
20. *Dilleniapentagyna*– SiruUva, Siruzha
21. *Diospyrosebenum*- Karungali
22. *Diospyroschloroxylon*– Vaganai
23. *Ficusamplissima*– Kalltchi
24. *Hibiscus tiliaceous*–Aatrupoovarasu
25. *Hardwickiabinata*– Aacha
26. *Holoptelliaintegrifolia*-Aayili
27. *Lanneacoromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthestetraphylla*- Neikottaimaram
30. *Limoniaacidissima* - Vila maram
31. *Litseaglutinosa*–Pisinpattai
32. *Madhucalongifolia* - Illuppai
33. *Manilkarahexandra*–IllakkaiPaalai
34. *Mimusopselengi* - Magizhamaram
35. *Mitragynaparvifolia* - Kadambu
36. *Morindapubescens*–Nuna
37. *Morindacitrifolia*– VellaiNuna
38. *Phoenix sylvestre*-Eachai
39. **Pongamiapinnata**–Pungam
40. **Premnamollissima**– Munnai
41. **Premnaserratifolia**– Narumunnai
42. **Premnatomentosa**-PurungaiNaari, PudangaNaari
43. **Prosopiscinerea** - Vannimaram

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44. **Pterocarpusmarsupium** - Vengai
45. **Pterospermumcanescens**–Vennangu, Tada
46. **Pterospermumxylocarpum** - Polavu
47. **Puthranjivaroxburghii**–Puthranjivi
48. **Salvadorapersica**– UgaaMaram
49. **Sapindusemarginatus**- Manipungan, Soapukai
50. **Saracaasoca** - Asoca
51. **Streblusasper**- Pirayamaram
52. **Strychnosnuxvomica**–Yetti
53. **Strychnospotatorum** - TherthangKottai
54. **Syzygiumcumini** - Nayal
55. **Terminaliabellerica**- Thandri
56. **Terminalia arjuna**- Vennaruthu
57. **Toona ciliate** – Sandhanavembu
58. **Thespesiapopulnea**- Puvarasu
59. **Walsuratrifoliata**–valsura
60. **Wrightiatinctoria**- Vep

Discussion by Authority and the Remarks

The proposal was placed in the 518th Authority meeting held on 06.06.2022. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal condition in addition to the following conditions:

1. Detailed study shall be carried out regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
2. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological structures etc.
3. 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.
4. The Environmental Impact Assessment shall study in detail on the carbon emission and also suggest the measures to mitigate carbon emission including development of

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carbon sinks and temperature reduction including control of other emission and climate mitigation activities.

5. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
6. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
7. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the nearby water body and Reservoir.
8. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
9. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
10. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
11. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.
12. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.
13. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.
14. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.
15. The project proponent shall study and furnish the impact of project on plantations in adjoin patta lands, Horticulture, Agriculture and livestock.
16. The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.
17. 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,

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heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.

18. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.
19. The project proponent shall study on impact of mining on Reserve forests free ranging wildlife.
20. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
    a) Soil health & bio-diversity.
    b) Climate change leading to Droughts, Floods etc.
    c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
    d) Possibilities of water contamination and impact on aquatic ecosystem health.
    e) Agriculture, Forestry & Traditional practices.
    f) Hydrothermal/Geothermal effect due to destruction in the Environment.
    g) Bio-geochemical processes and its foot prints including environmental stress.
    h) Sediment geochemistry in the surface streams.
21. 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 water bodies 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.
22. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

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23. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.
24. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.
25. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

A. STANDARD TERMS OF REFERENCE

1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the

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EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.

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

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

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

11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.

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

13) Status of forestry clearance for the broken up area and virgin forestland involved in the

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Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

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

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

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

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

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

19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed

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Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.

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

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

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

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

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

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

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

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

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

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

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

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

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

31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory

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afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

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

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

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

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

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

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

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

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

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

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

43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

44) Besides the above, the below mentioned general points are also to be followed:-

a) Executive Summary of the EIA/EMP Report

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

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

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

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

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

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

h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as

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the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

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

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

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

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

1. Project name and location (Village, District, State, Industrial Estate (If applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be 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.

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10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
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.

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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 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website http://www.moef.nic.in/ may be referred.

- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental

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clearance in accordance with the procedure prescribed under the EIA Notification, 2006.

- The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
- The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

Rajeswari.P

MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, Chennai -34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
6. The District Collector, Coimbatore District.
7. Stock File.

From
Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To
Thiru.N.Kathiresh,
S/o.V.Nataraj,
3/175, Karacheri,
Periyakuyili Post,
Chettipalayam Via,
Coimbatore District.

Rc.No.111/Mines/2021 Dated: 05.01.2022

Sir,

Sub: Mines & Minerals - Minor Mineral - Coimbatore District – Sulur Taluk – Edayarpalayam Village - Survey Nos. 172/1B (0.43.72 Hec), 172/2 (0.49.50 Hec) and 173/2A2 (0.49.60 Hec) - over an extent of 1.42.82 hectares of patta land - Application preferred by Thiru.N.Kathiresh for quarrying Roughstone and Gravel - Submission of mining plan for approval - approved -regarding.

Ref:
1. Quarry lease application dated 20.01.2021 and 07.10.2021 preferred by Thiru.N.Kathiresh, Coimbatore.
2. Assistant Director, Dept. of Geology and Mining, Coimbatore Letter Rc.No.111/Mines/2021, Dated: 21.10.2021
3. Thiru.N.Kathiresh, Coimbatore District letter dated 15.11.2021.

****

In response to the precise area communicated by the Assistant Director of Geology and Mining, Coimbatore the applicant Thiru.N.Kathiresh vide reference 3rd cited has submitted three copies of mining plan for the area applied for the grant of Roughstone and Gravel quarry lease over an extent of 1.42.82 hectares of patta land in Survey Nos. 172/1B (0.43.72 Hec), 172/2 (0.49.50 Hec) and 173/2A2 (0.49.60 Hec) of Edayarpalayam Village, Sulur Taluk, Coimbatore District.

2. The mining plan submitted for the grant of Roughstone and Gravel quarry lease over an extent of 1.42.82 hectares of patta land in Survey Nos. 172/1B (0.43.72 Hec), 172/2 (0.49.50 Hec) and 173/2A2 (0.49.60 Hec) 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.111/Mines/2021, Dated: 21.10.2021 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) An EB line passing on the Northern side of the applied area should be shifted 50 meters away from the lease applied area.

d) A safety distance of 10 meters should be provided to the Govt poramboke land situated on the Eastern side of the applied area.

e) A safety distance of 50 meters should be provided to the temple situated on the North Eastern side of the applied area.

v) Quarrying shall be done as per the approved Mining Plan and that the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

Encl: Two copies of Approved Mining Plan.

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

Copy submitted to:
The Director of Geology and Mining, Chennai-32.

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From
Thiru.S.Rameshkumar, M.Sc.,
Assistant Director,
Dept. of Geology and Mining,
Coimbatore.

To
Thiru.N.Kathiresh,
S/o.V.Nataraj,
3/175, Karacheri,
Periyakuyili Post,
Chettipalayam Via,
Coimbatore District.

Rc.No.111/Mines/2021 Dated: 05.01.2022

Sir,

Sub : Mines & Minerals – Minor Mineral – Coimbatore District – Sulur Taluk – Edayarpalayam Village - Survey Nos. 172/1B (0.43.72 Hec), 172/2 (0.49.50 Hec) and 173/2A2 (0.49.60 Hec) - over an extent of 1.42.82 hectares of patta land - Application preferred by Thiru.N.Kathiresh for quarrying Roughstone 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.111/Mines/2021, Dated: 21.10.2021.

2. Thiru.N.Kathiresh, Coimbatore letter dated: 15.11.2021.

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In the reference 2nd cited Thiru.N.Kathiresh has requested to furnish certain particulars regarding the precise area granted in Survey Nos. 172/1B (0.43.72 Hec), 172/2 (0.49.50 Hec) and 173/2A2 (0.49.60 Hec) over an extent of 1.42.82 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.Manthirasalam	172/2 0.49.50	Rc.No.1151/2002/ MM2 dated: 16.12.2002	5 Years	16.12.2002 to 23.12.2007
2	Thiru.M.Arumugam	172/2(Part) 0.43.0	Rc.No.1746/2007/ X1 dt: 18.05.2008	5 Years	18.05.2008 to 17.05.2013

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At the time of inspection, the quarry pit with a dimension of 78 Meter (length) X 49 Meter (width) X 17 Meter (Max depth) is noticed in the applied area.

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

MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR EDAIYARPALAYAM ROUGH STONE AND GRAVEL QUARRY

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

Patta Lands / Lease Period = Five Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT	:	1.42.82Ha
S.F.Nos.	:	172/1B, 172/2 & 173/2A2
VILLAGE	:	EDAIYARPALAYAM
TALUK	:	SULUR
DISTRICT	:	COIMBATORE
STATE	:	TAMIL NADU

FOR

APPLICANT

Thiru.N.Kathiresh,

S/o. V.Nataraj,

No. 3/175, Karacheri,

Periyakuyili Post, Chettipalayam Via,

Coimbatore District,

Tamil Nadu State – 641 201.

PREPARED BY

P.Viswanathan, M.Sc.,

Qualified Person

No.17, Advaitha Ashram Road,

Alagapuram, Salem - 636 004.

Cell: 94422 78601 & 94433 56539.

E-Mail: infogeoexploration@gmail.com

N.Kathiresh,
S/o. V.Nataraj,
No. 3/175, Karacheri,
Periyakuyili Post, Chettipalayam Via,
Coimbatore District,
Tamil Nadu State – 641 201.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Edaiyarpalayam Rough Stone and Gravel Quarry lease applied area over an extent of 1.42.82 Hectares of patta lands in S.F.Nos. 172/1B, 172/2 and 173/2A2 of Edaiyarpalayam Village, Sulur Taluk, Coimbatore District and Tamil Nadu State has been prepared by

P.Viswanathan, M.Sc.,
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.

P.Viswanathan, M.Sc.,
No. 17, Advaitha Ashram Road,
Alagapuram, Salem – 636 004.
Cell: 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

N.Kathiresh

Place: Coimbatore
Date: 22.10.2021

N.Kathiresh,
S/o. V.Nataraj,
No. 3/175, Karacheri,
Periyakuyili Post, Chettipalayam Via,
Coimbatore District,
Tamil Nadu State – 641 201.

DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Edaiyarpalayam Rough Stone and Gravel Quarry lease applied area over an extent of 1.42.82 Hectares of patta lands in S.F.Nos. 172/1B, 172/2 and 173/2A2 of Edaiyarpalayam Village, Sulur Taluk, Coimbatore District and 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

N.Kathiresh

Place: Coimbatore
Date: 22.10.2021

CERTIFICATE

Certified that I am, **P.Viswanathan, M.Sc.,** having an office at Regd. Off. No.17, Advaitha Ashram Road, Alagapuram, Salem – 636 004, holding a Post Graduate Degree in Geology (M.Sc. Geology) from Periyar University, Salem and I worked in the field of Geology in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 stipulates the eligibility for preparing Mining plans as "(I)(a) a post graduate degree in Geology granted by a university established" and (I)(b) "Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree". Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

Accordingly, I am prepared this Mining Plan and Progressive Quarry Closure Plan in Respect of Edaiyarpalayam Rough Stone and Gravel Quarry in S.F.Nos. 172/1B, 172/2 and 173/2A2 over an extent of 1.42.82 Ha of Patta lands in Edaiyarpalayam Village, Sulur Taluk, Coimbatore District and Tamilnadu State for **Thiru.N.Kathiresh,** S/o. V.Nataraj, residing at No. 3/175, Karacheri, Periyakuyili Post, Chettipalayam Via, Coimbatore District, Tamil Nadu State – 641 201. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person

P.Viswanathan, M.Sc.,

Place: Salem

Date: 25.10.2021

P.Viswanathan, M.Sc.,
No. 17, Advaitha Ashram Road,
Alagapuram, Salem – 636 004.
Cell: 94422 78601 & 94433 56539.

CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of Prepared under Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959. The preparation of Mining Plan and Progressive Quarry Closure Plan for Edaiyarpalayam Rough Stone and Gravel Quarry in S.F.Nos.172/1B, 172/2 and 173/2A2 over an extent of 1.42.82 Ha of Patta lands in Edaiyarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for

Thiru. N.Kathiresh,
S/o. V.Nataraj,
No. 3/175, Karacheri,
Periyakuyili Post, Chettipalayam Via,
Coimbatore District,
Tamil Nadu State – 641 201.

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 for such permissions/ exemptions/ relaxations and approvals.

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

Signature of the Qualified Person

P.Viswanathan, M.Sc.,

Place: Salem
Date: 25.10.2021

P.Viswanathan, M.Sc.,
No. 17, Advaitha Ashram Road,
Alagapuram, Salem – 636 004.
Cell: 94422 78601 & 94433 56539.

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations or Orders made there under have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Edaiyarpalayam Rough Stone and Gravel Quarry in S.F.Nos. 172/1B, 172/2 and 173/2A2 over an extent of 1.42.82 Ha of Patta lands in Edaiyarpalayam Village, Sulur Taluk, Coimbatore District and Tamil Nadu State has been prepared for

Thiru. N.Kathiresh,
S/o. V.Nataraj,
No. 3/175, Karacheri,
Periyakuyili Post, Chettipalayam Via,
Coimbatore District,
Tamil Nadu State – 641 201.

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 for such permissions / exemptions / relaxations and approvals.

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

Signature of the Qualified Person

P.Viswanathan, M.Sc.,

Place: Salem
Date: 25.10.2021

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MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR EDAIYARPALAYAM ROUGH STONE AND GRAVEL QUARRY OVER AN EXTENT OF 1.42.82 Ha IN EDAIYARPALAYAM VILLAGE, SULUR TALUK, COIMBATORE DISTRICT, TAMILNADU

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

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

The Mining Plan and Environmental Management plan is prepared for **Thiru. N. Kathiresh,** S/o. V.Nataraj, residing at No. 3/175, Karacheri, Periyakuyili Post, Chettipalayam Via, Coimbatore District, Tamil Nadu State – 641 201.

The applicant applied for Rough Stone and Gravel quarry over an extent of 1.42.82 Hectares of patta lands in S.F.Nos.172/1B, 172/2 and 173/2A2 of Edaiyarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State under Rule 19(1) and 20 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the Assistant Director, Department of Geology and Mining, Coimbatore District and passed a Precise area Communication letter vide **Rc.No.111/Mines/2021, Dated:21.10.2021** to submit an approved Mining Plan and obtain Environmental Clearance from the SEIAA, Tamil Nadu with the conditions to provide (Refer Annexure No. I):

1. No hindrance shall be caused to the adjacent patta lands and Public while Rough Stone and Gravel quarry operation.
2. A safety distance of 7.5 meters should be provided to the adjacent Patta lands.
3. There is an EB power (LT) line passing on the Northern side of the applied area, applicant should shift the power line more than 50 meters away from the applied area.
4. A safety distance of 10 meters should be provided to the Government poramboke land situated on the Eastern side of the applied area.
5. A safety distance of 50 meters should be provided to the Kovil situated on the Northeastern side of the applied area.
6. Do not quarry Granite dimensional stones.
7. Child labor should not be engaged in the quarry operation.

In order to ensure compliance of the order of the Honourable Supreme Court Dated: 27.02.2012 in I.A.No.12-13 of 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 submitting the mining plan along with Progressive Quarry Closure Plan for approval and subsequent submission of Form-I, Form-1M and Pre feasibility report to obtain environmental clearance from the SEIAA, Tamil Nadu, 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 24.01.2019.

Short Notes of Mining plan:

a. Village Panchayat - Edaiyarpalayam

b. Panchayat Union - Sulur

c. The Geological Resources are **2,86,860m^3** of Rough Stone and **11,230m^3** of Gravel in the entire area.

d. The Total Mineable Reserves are **65,140m^3** of Rough Stone and **5,712m^3** of Gravel in the entire area.

e. The proposed quantity of reserves/ (level of production) to be mined are **65,140m^3** of Rough Stone and **5,712m^3** of Gravel for five years in the entire area.

f. Total extent of the lease applied area is about 1.42.82 Ha.

g. Topography of the area = The area is flat topography

h. Proposed Depth of mining = 27m (2m Gravel + 25m 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 **first granted** in favour of **Thiru. K.Manthirachalam,** S/o. Kaliyappa Gounder, over an extent of **0.49.5Hectares** of patta lands in **S.F.No. 172/2** of Edaiyarpalayam Village, Sulur (Formerly Palladam) Taluk, Coimbatore District vide District Collector's proceedings letter **R.C.No. 1151/2002/MM2, dated: 16.12.2002** for the period of **five years from 24.12.2002 to 23.12.2007** and **once again** the quarry lease was **granted** in Favour of **Thiru. M.Arumugam,** S/o. Muthusamy, over an extent of **0.43.0 Hectares** of patta land in **S.F.No. 172/2(P)** of Edaiyarpalayam Village, Sulur (Formerly Palladam) Taluk, Coimbatore District vide District Collector's proceedings letter **R.C.No. 1746/2007/X1, dated: 18.02.2008** for the period of **five years from 18.05.2008 to 17.05.2013** for quarrying of Rough stone and Gravel. Now the same applicant has again applied the Rough stone and Gravel quarry lease on 07.10.2021. The application was meritoriously processed by the Assistant Director, Department of Geology and Mining, Coimbatore and recommended the quarry lease for the period of five years. The maximum dimension of the **Present quarry pit** is given table below (Refer Plate No. II and III).

Table – 1

Length (m) (Max)	Width (m) (Max)	Depth(m) (Max)
78	49	17m below ground level

k. Method of mining / level of mechanization.

Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.

l. Type of machineries proposed in the quarrying operation is given below.

Excavators attached with rock breaker (Rental Basis).

Jack hammer, Compressor (Diesel drive) (4 Jack Hammer capacity) (Rental Basis).

m. No trees will be uprooted due to this quarry operation.

n. The approach road from the main road to quarry is already in existence and same will be maintained in a good condition for the haulage of quarry materials and machineries.

o. There is No Export of this Rough Stone and Gravel.

p. Topo sketch covering 10Km and 1Km radius around the proposed area with markings of habitations, water bodies including streams, rivers, roads, major structure like bridges, wells, archaeological importance, places of worships is marked and enclosed as Plate No. IA and IB.

q. The lease applied area is about 1.42.82Ha bounded by eight corners; the corners are designated as 1-8 clock-wise from the Southwestern corner and the Co – ordinates for all the corners are clearly marked in the Quarry Lease Plan and Surface Plan enclosed as Plate No.II.

r. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are and marked in the Topography, Geological Plan and section enclosed as Plate No. III.

s. General conditions will not applicable for the proposed area. The area applied for lease is 10Km away from the,

i) Interstate Boundary.

ii) Protected area under wild life protection ACT 1972,

iii) Critically polluted areas as identified by CPCB,

iv) Notified Eco sensitive areas.

t. There is no wastage anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.

u. Around 15 employees are deploying in the quarrying operation.

v. Total Cost of the project is about **Rs.67,45,000/-**.

w. Infrastructures around the quarry lease applied area:

Table – 2

Particulars	Location	Approximate aerial distance from lease applied area.
Nearest Post Office	Edaiyarpalayam	1km – NW
Nearest School	Edaiyarpalayam	1km – NW
Nearest Dispensary	Chettipalayam	8km – West
Nearest Town	Sulur	12km – NE
Nearest Police Station	Chettipalayam	8km – West
Nearest Govt. Hospital	Sulur	12km – NE
Nearest D.S.P. Office	Coimbatore	20km – NW
Nearest Railway Station	Chettipalayam	8km – West
Nearest Airport	Coimbatore	20km – NW
Nearest Seaport	Kochi	144km – SW
District Head quarters	Coimbatore	20km – NW

- 5 JAN 2022

2.0 GENERAL INFORMATION

2.1 a) Name of the Applicant : **Thiru.N.Kathiresh**

: S/o. V.Nataraj,

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

Address	:	No. 3/175, Karacheri, Periyakuyili Post, Chettipalayam Via, Coimbatore District.
Pin Code	:	641 201
Mobile No	:	+91 97882 70883
Aadhaar No	:	9206 0639 8194
E-mail	:	kathiresh089677@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.111/Mines/2021, Dated: 21.10.2021** to submit an approved mining plan and Environmental Clearance from the SEIAA, Tamil Nadu.

c) Period of permission / lease to be granted:

The applicant has applied for five years, the Assistant Director, Department of Geology and Mining, Coimbatore District has recommended for Five years for Rough Stone and Gravel.

d) Name and address of the Qualified Person preparing the mining plan:

Name	:	**P.Viswanathan M.Sc.,** Qualified Person
Address	:	No.17, Advaitha Ashram Road, Alagapuram, Salem - 636 004.
Mobile	:	94422 78601 & 94433 56539
Telephone No.	:	0427- 2431989
Email	:	infogeoexploration@gmail.com

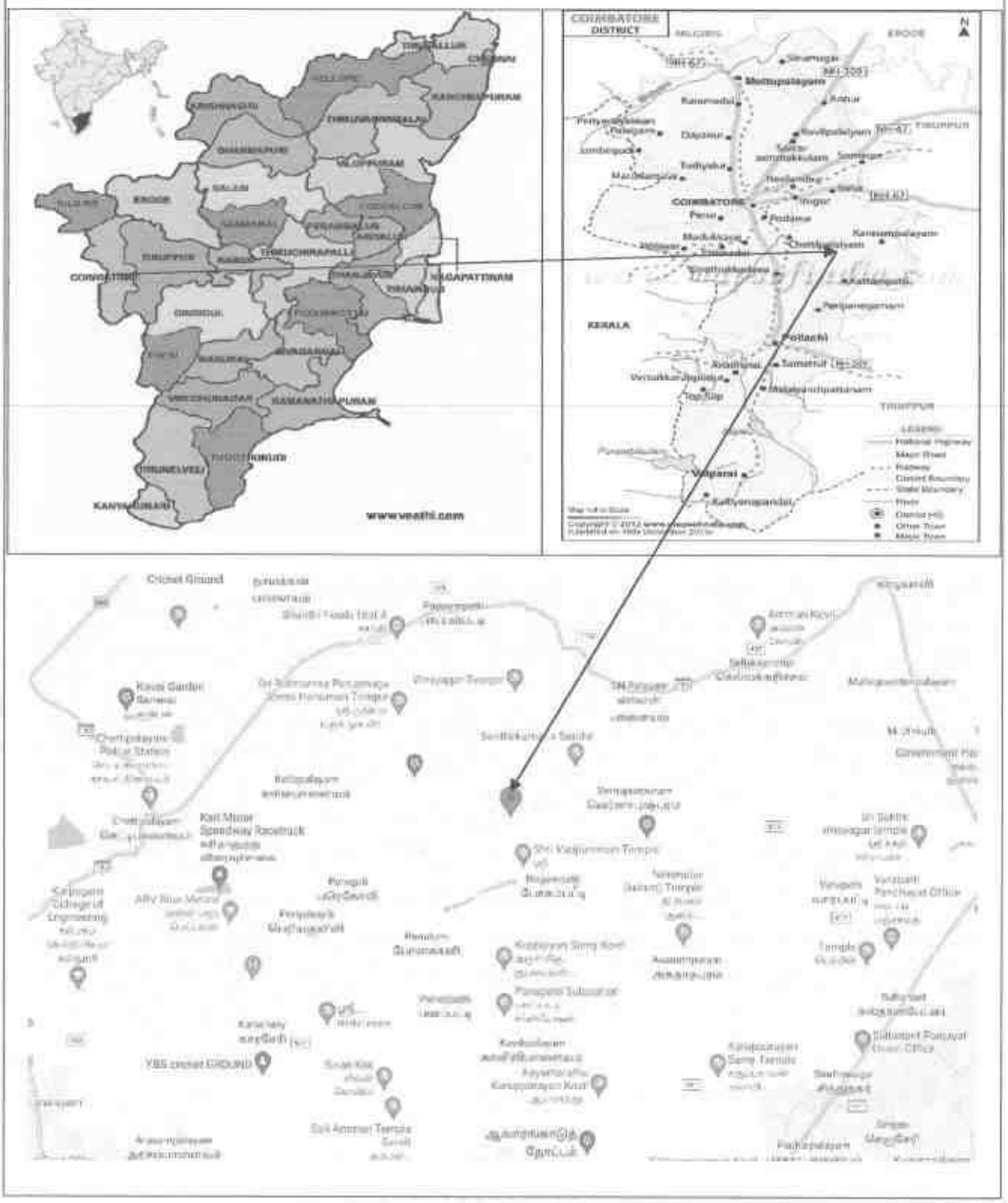
3.0 LOCATION

a) Details of the area with location map:

The lease applied area is located about 20km Southeast of Coimbatore, 12km Southwest of Sulur and 1km Southeast side of Edaiyarpalayam Village.

	19km		11km		1km	
Coimbatrore	→	Sulur	→	Edaiyarpalayam	→	Lease applied area
	East		Southwest		Southwest	

Location Map of the Lease Applied area



160 A

Table – 3

District	Taluk	Village	S.F. No.	Area in Ha.	Patta No.
Coimbatore	Sulur	Edaiyarpalayam	172/1B	0.43.72	978
			172/2	0.49.50	501
			173/2A2	0.49.60	1051
Total Extent				**1.42.82**	

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

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

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

It is a Patta land. Jointly registered in the name of the applicant (Thiru.N.Kathiresh), Tmt.Ladha, Thiru.N.Rathinasamy, Thiru.M.Sathivel and Thiru.M.Rayyappan vide Patta No.978, 501 and 1051. The applicant has been obtained consent from co pattadar. Refer the Patta copy and consent document as Annexure Nos. IV & VII.

d) Toposheet No. with latitude and longitude:

The lease applied area falls in the Toposheet No: **58 - F/01** Latitude between: **10°54'56.31"N to 10°55'02.21"N** and Longitude between: **77°06'49.03"E to 77°06'53.12"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 road (Earth road) is situated on the Northern side of the area which is connects to the Village Road located on the Eastern side of the area.

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

The approach road from the quarry is 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 located about 9km on the Southeastern side of the area.

PART – A

4.0 GEOLOGY AND MINERAL RESERVES

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

The lease applied area is flat terrain. The area has gentle sloping towards Southwestern side and altitude of the area is 425m above from Mean sea level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite which is clearly inferred from the existing quarry pit.

The Water level in the surrounding area is 70m in summer and at 65m in rainy seasons below general ground profile which is observed from the nearby bore wells. Average annual rainfall is about 689mm.

Topographical View of Edaiyarpalayam Rough Stone and Gravel Quarry 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:

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

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, commercial aspects etc.,

Totally four sections have been drawn, two section is along the strike direction as (A-B & C-D) width wise and another two cross section is drawn perpendicular to strike as (X-Y & X1-Y1) length wise to cover the maximum area considered for lease.

The Topographical, Geological plan and sections demarcated the commercial marketable Rough Stone (Charnockite) deposit has been prepared in the scale of 1:1000 (please refer the Geological plan and sections Plate No- III). As the sale of Rough Stone are in terms of cubic metres (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 27m [2m Gravel + 25m Rough Stone] below from the general ground level. The total Geological Resources are calculated in cross section method and the geological resource calculated after depletion of the existing pit.

Table – 4

GEOLOGICAL RESOURCES						
Section	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Geological Resources of Rough Stone (m^3)**	**Gravel (m^3)**
XY-AB	i	80	64	2	-	10240
	ii	80	64	5	25600	-
	iii	80	64	5	25600	-
	iv	80	64	5	25600	-
	v	80	64	5	25600	-
	vi	80	64	5	25600	-
Total					**128000**	**10240**
XY-CD	i	11	45	2	-	990
	ii	48	94	5	22560	-
	iii	56	94	5	26320	-
	iv	56	94	5	26320	-
	v	89	94	5	41830	-
	vi	89	94	5	41830	-
Total					**158860**	**990**
Grand Total					**286860**	**11230**

The Geological Resources of Gravel : **11,230m^3**

The Geological Resources of Rough Stone : **2,86,860m^3**

Mineable Reserves:

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

Table – 5

MINEABLE RESERVES						
Section	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Mineable Reserves of Rough Stone (m^3)**	**Gravel (m^3)**
XY-AB	i	68	42	2	-	5712
	ii	68	42	5	14280	-
	iii	63	32	5	10080	-
	iv	58	22	5	6380	-
	v	53	12	5	3180	-
Total					**33920**	**5712**
XY-CD	ii	37	49	5	9065	-
	iii	37	39	5	7215	-
	iv	37	29	5	5365	-
	v	70	19	5	6650	-
	vi	65	9	5	2925	-
Total					**31220**	**-**
Grand Total					**65140**	**5712**

The Mineable reserves have been computed as **65,140m^3** of Rough Stone and **5,712m^3** of Gravel at the rate of 100% recovery up to a depth of 27m (2m Gravel + 25m Rough Stone) below from the general ground level for five years.

5.0 MINING

- 5 JAN 2022

5.1. Method of mining (opencast / underground):

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

However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act - 1952.

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

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

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

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

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

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

5.3. Proposed Bench Height and Width:

The bench height is proposed 5.0 meter vertical bench the width of the bench is not less than the Height.

5.4. Indicate the overburden / mineral production expected pit wise as detailed below (composite plan and section showing pit layout, dumps, disposal of waste if any etc.):

The overburden in the form of Gravel will be directly loaded into tippers for the filling and levelling of low lying areas and the Gravel was dumped in Northern side of the lease applied area, this will be transported 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, Green belt development are shown in Plate Nos. III.

Year wise Development and Production

Table – 6

YEARWISE RESERVES							
Year	**Section**	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Recoverable Reserves of Rough Stone (m^3)**	**Gravel (m^3)**
I	XY-AB	i	22	42	2	-	1848
		ii	22	42	5	4620	-
	XY-CD	ii	37	49	5	9065	-
		Total				**13685**	**1848**
II	XY-AB	i	22	42	2	-	1848
		ii	22	42	5	4620	-
	XY-CD	iii	37	39	5	7215	-
		Total				**11835**	**1848**
III	XY-AB	i	24	42	2	-	2016
		ii	24	42	5	5040	-
		iii	63	32	5	10080	-
		Total				**15120**	**2016**
IV	XY-AB	iv	58	22	5	6380	-
	XY-CD	iv	37	29	5	5365	-
		Total				**11745**	-
V	XY-AB	v	53	12	5	3180	-
	XY-CD	v	70	19	5	6650	-
		vi	65	9	5	2925	-
		Total				**12755**	-
Grand Total						**65140**	**5712**

The Recoverable reserves have been computed as **65,140m^3** of Rough Stone and **5,712m^3** of Gravel at the rate of 100% recovery up to a depth of 27m (2m Gravel + 25m Rough Stone) below ground level for five years.

The applicant ensures the total quantity proposed in the benches will not exceed during the quarrying operation. Besides the Rough Stone locked up in benches will be exploited after obtaining necessary permission from the office of Director General of Mine Safety, Chennai region by submitting relevant documents, appropriate safety plans and its Mitigation measures.

One lorry load	=	$6m^3$ (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed in this five years plan period	=	$65,140m^3$
Hence total Lorry loads per day	=	$65,140m^3/6m^3$
	=	10,857 Lorry loads
	=	10,857/5 years
	=	2,171/300 days
Rough Stone	=	**7 – 8 Lorry loads per day**
Total quantity of Gravel to be removed during three years	=	$5,712m^3$
Hence total Lorry loads per day	=	$5,712m^3/6m^3$
	=	952 Lorry loads
	=	952/3 years
	=	317/300 days
Gravel load per day	=	**1 Lorry loads per day**

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

5.5. Machineries to be used:

For Mining:

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

I. DRILLING MACHINE:

Table – 7

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Motive power
1	Jack hammer	2	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	1	20 tonnes	Diesel Drive

5.6. Disposal of Overburden/Waste:

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. The excavated Rough Stone (100%) will be directly loaded into tippers to the needy customers. There is no Waste anticipated during this plan period hence, disposal of waste does not arise.

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

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

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

As the applicant has applied quarry lease for 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)
146	49	27m below ground level

Greenbelt has proposed on the Panchayat roads by planting native species of Neem, Casuarina and Pongamia pinnata, etc., tree sapling. All the base line information studies like Air quality monitoring, Noise and vibration monitoring, Water analysis studies will be carried out every year as per the MoEF&CC Norms. It is propose to engage any local institution to monitor the EIA and EMP during the course of quarrying operation after the grant of quarry lease.

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

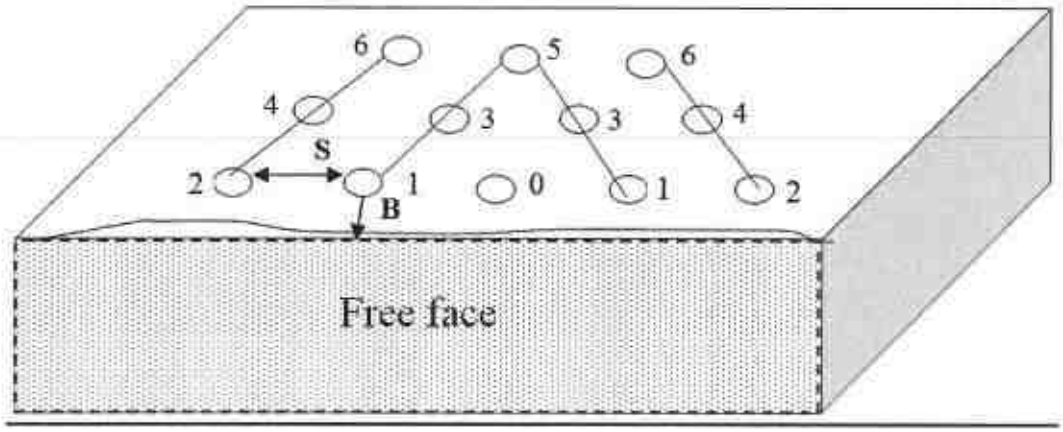
6.1 Blasting pattern:

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

Drilling and blasting parameters are as follows:

Depth of Each hole	:	1.5m
Diameter of hole	:	30-32mm
Spacing between holes	:	1.2m
Burden for hole	:	1.0m
Pattern of hole	:	Zigzag – Multi-rows
Inclination of holes	:	80^0 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	=	**38 Holes**

6.2 Type of explosives to be used:

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

6.3 Measures proposed to minimize ground vibration due to blasting:

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

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

Delay detonators:

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

The major advantages of delay blasting are:

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

Blasting program for the production per day:

No of Holes	= 38 Holes
Yield	= 114 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 19 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.00 – 12.30 P.M. (whenever required)

6.4 Storage and safety measures to be taken while blasting:

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

7.0 MINE DRAINAGE

7.1 Depth of water table (based on nearby wells and water bodies):

The water table in the area is about 70m in summer season and 65m in Rainy season which is observed from the existing private boreholes. The lease applied area is fully covered by Massive Charnockite formation and it is revealed from the adjacent quarries. Hence the Ground Water problem will not arise. If water seepage may occur due to the fracture, the same will be used for Greenbelt.

Table – 9

Type	Distance & Direction	Location
Bore Well	52m Northeastern side	10°55'3.46"N 77°06'52.15"E

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

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

8.0 OTHER PERMANENT STRUCTURES (also shown in the map)

8.1 Habitations/ Villages natham:

There is no approved habitation within 300m radius from the lease applied area.

8.2 Power Lines (HT/LT):

EB power (LT) line passing on the Western and Northern side of the area, hence 50m safety distance provided for western side of the Line and Northern side power line shifting more than 50 meters away from the applied area. There is no Power Lines (HT) within 300m radius from the lease applied area.

8.3 Water bodies (river, pond, lake, odai, canal, etc.,):

There is no River, Pond, Lake, Odai, Canal, Reservoir located within 50m radius of the lease applied area.

8.4 Archaeological / historical monuments:

Temple is situated on the Northeastern side of the lease applied area, hence 50m safety distance has been provided. There is no Archaeological / historical monuments within 300m radius of the area.

8.5 Road (NH, SH):

The Nearest National Highway (NH - 544) Thirussur – Coimbatore road is situated about 10.0km on the Northwestern side of the lease applied area.

The State Highway (SH-163) Othakalmandapam – Palladam Road is about 4.0km on the Northeastern side of the lease applied area.

Village Road is situated on the eastern side of lease applied area. Hence 10m safety distance has been maintained.

8.6 Places of worships:

There is no other place of worships within the radius of 300m from the lease applied area.

8.7 Reserved forest / forest / social forest / wild life sanctuary etc.:

There is no reserved forest / social forest / wild life sanctuary etc., situated within 500m radius of the lease applied area.

SALIENT FEATURES

Table – 10

S. No.	Salient Features Present around the site	Prescribed safety distance	If any present within Prescribed distance - Actual Distance and direction from the site
1.	Railways, Highways, Reservoirs or Canal	50m	None of the above situated within 50m radius.
2.	Village Road	10m	Village Road is situated on the eastern side of area. Hence 10m safety distance has been maintained.
3.	Habitation / Village	300m	There is no approved habitation within 300m radius from the lease applied area.
4.	Adjacent Patta/Govt. Land	7.5m/10m	<table><tr><th>Direction</th><th>S.F.No</th><th>Classification</th><th>Safety Distance</th></tr><tr><td>North</td><td>173/2A1</td><td>Patta Land</td><td>7.5m</td></tr><tr><td>East</td><td>164</td><td>Govt land / V.Road / Kovil</td><td>10m / 50m</td></tr><tr><td>South</td><td>164 & 171</td><td>Govt Land & Patta Land</td><td>10m &7.5m</td></tr><tr><td>West</td><td>172/1A & 174</td><td>Patta Land / EB line</td><td>7.5m / 50m</td></tr></table> (Refer Plate No. II).
5.	Power House, EB line (HT & LT Line)	50m	EB power (LT) line passing on the Western and Northern side of the area, hence 50m safety distance provided for western side of the Line and Northern side power line shifting more than 50 meters away from the applied area.
6.	Boundaries of the permitted area	7.5m/10m	The boundaries of the permitted areas as follows: North – S.F.No. 173/2A1 East – S.F.No. 164 South – S.F.Nos. 164 & 171, West – S.F.Nos. 172/1A & 174 (Refer Plate No. II).
7.	Reserve forest / protected area / ECO sensitive area	60m	There is no reserved forest located within the radius of 60m from the lease applied area.
8.	Protected area / ECO sensitive area/ Wild Life Sanctuary/ Interstate Border	10km	There is no ECO sensitive Zone / Wild Life Sanctuary / Interstate Border / Critically Polluted Area / HACA / CRZ located within 10km radius of the area.

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 Mettaliferrous mines regulations, 1961.

a. Mine official & Competent Persons:

Mines Manager/Mines Foreman	:	1
Mate/Blaster	:	1

b. Machinery Operators

Jack hammer operator	:	4
Excavator Operator	:	1
Tippers Driver	:	1

c. Ordinary Employee

Helper	:	4
Cleaner & Co-Operator	:	2
Security	:	1
Total	**:**	**15**

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

9.2 Welfare Measures:

a) Drinking Water:

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

b) Sanitary Facilities:

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

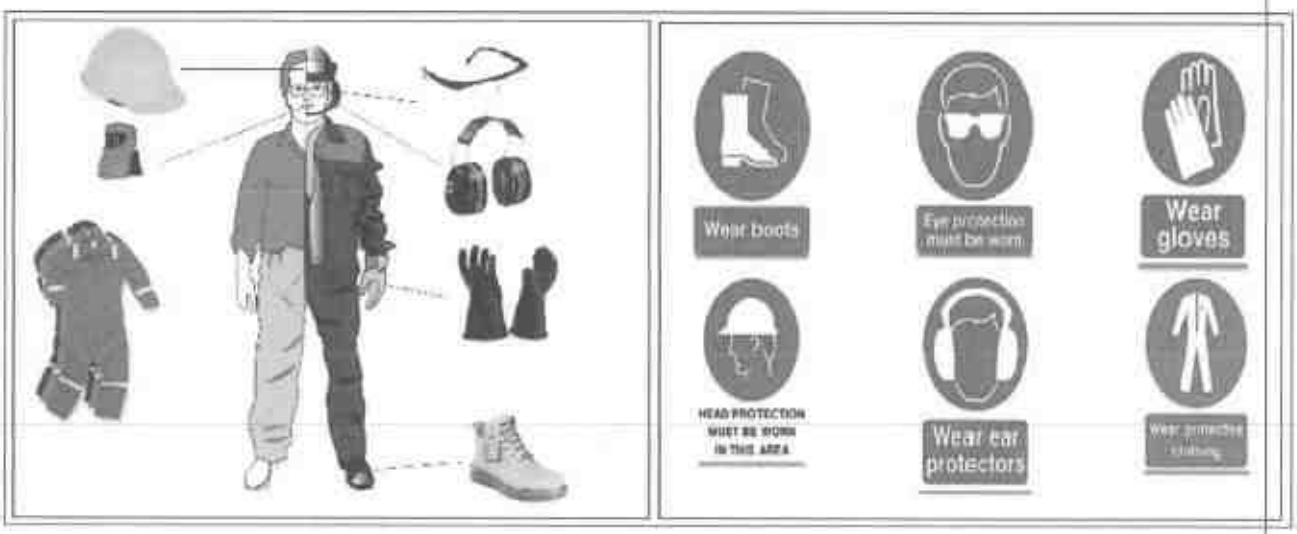
c) First aid facility:

First aid kits are kept in Mines office room, in case of such eventuality as the victim will be given first aid immediately at the site by the competent and statutory foreman / permit manager / mate will be in charge of first aid and injured person will be taken to the hospital by the applicant's vehicle. Hospital is available in Sulur located at a distance of 12km on the Northeastern 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 flat terrain. The area is a dry barren land devoid of Agriculture and Habitations. The land is not used for any specific vegetation.

LAND USE PATTERN

Table – 11

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area under quarrying	0.40.70	0.73.00
Infrastructure	Nil	0.01.00
Roads	0.01.00	0.02.00
Green Belt	Nil	0.26.08
Unutilized Area	1.01.12	0.40.74
Grand Total	**1.42.82**	**1.42.82**

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 – 12

S.No	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	Prosopis juliflora	Fabaceae	Seemai karuvelam	Tree	
2.	Azadirachta indica	Meliaceae	Neem, Vembu	Tree	
3.	Cocos nucifera	Arecaceae	Thennai	Tree	
4.	Aloe vera	Asphodelaceae	Katralai	Shrub	
5.	Borassus flabellifer	Arecaceae	Panai	Tree	
6.	Cissus quadrangularis	Vitaceae	Pirandai	Shrub	

List of Fauna			
S.No.	Scientific Name	Common Name	Picture
1.	Capra aegagrus hircus	Goat	
2.	Funambulus palmarum	Squirrel	
3.	Bos taurus	Cow	
4.	Danaus plexipppus	Striped tiger	
5.	Corvus levaillantii	Crow	
6.	Agrion sp & Petalura sp	Dragon fly	

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10.4 Climatic Conditions:

The area receives rainfall of about 689mm/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 within 5km radius of the area; the approximate distance, direction and populations are given below:

Table – 13

S.No.	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Edaiyarpalayam	1.0km – NW	2,400
2.	Bogampatti	2.0km – SE	2,500
3.	SN Palayam	4.0km – NE	6,300
4.	Ponakani	4.0km – SW	1,700

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Sulur 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 blasting, jack hammer drilling, Loading and unloading during the Rough Stone quarry operation.

The following Mitigations measures will be carried out:

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

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

10.7 Plan for Noise level control:

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

Engineering Noise control:

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

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

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

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

10.8 Environmental impact assessment statement describing impact of mining on the next 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 environmental impact studies will be conducted as per EIA notification issued by MoEF& CC. It is B2 Category mine. The estimated budget would be around **Rs.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 and at the end of mining (refilling / fencing etc.):

In the mining plan only to a maximum depth of 27m [2m Gravel + 25m Rough Stone] has been envisaged as workable depth for safe & economic mining during entire lease applied area. The quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. There is no waste hence, no proposal for backfilling. The barbed wire fencing cost would be around **Rs.1,56,000/-**.

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 – 14

Year	No. of tress proposed to be planted	Survival %	Area to be covered sq.m.	Name of the species	No. of trees expected to be grown
I	58	80%	521	Neem, Pongamia pinnata, Casuarina, etc.,	46
II	58	80%	521		46
III	58	80%	522		46
IV	58	80%	522		46
V	58	80%	522		46

Nearly 2,608 sq.m area is proposed to use under Greenbelt by planting 290 Numbers of trees during mining plan period with an anticipated survival rate of 80% (Please refer Plate No.III). The estimated budget for plantation and maintenance of Green belt development would be around **Rs. 29,000/-** for the period of five years.

The Greenbelt Development will be formed in around the quarried out top benches, Approach and Panchayat road. The cost would be around **Rs. 25,000/-**.

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

Budget Provision for the Mining Plan period:

Table – 15

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

The EMP cost would be around **Rs. 3,80,000/-** for the period of five years.

<table>
<tr><td colspan="3">A. Project cost / investment</td></tr>
<tr><td>i) Land cost</td><td>The Land value as per the Government Guideline land cost.
<table>
<tr><td>S.F.No</td><td>Extent</td><td>Cost / Ha</td><td>Total</td></tr>
<tr><td>172/1B</td><td>0.4372</td><td>1159500</td><td>506933</td></tr>
<tr><td>172/2</td><td>0.495</td><td>1325000</td><td>655875</td></tr>
<tr><td>173/2A2</td><td>0.496</td><td>7250000</td><td>3596000</td></tr>
<tr><td colspan="3">Total</td><td>47,58,808</td></tr>
</table>
Rs.47,58,808/- i.e., Rs.47,59,000/-
(source: https://tnreginet.gov.in/portal/)</td><td>Rs. 47,59,000/-</td></tr>
<tr><td>ii) Machinery to be used</td><td>The following machineries are proposed to meet out the productions. Excavator attached with rock breaker, Tipper, Tractor mounted compressor with jack Hammer and loose tools (Rental Basis)</td><td>Rs.7,00,000/-</td></tr>
<tr><td>iii) Refilling/ Fencing</td><td>Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattle cost would be around</td><td>Rs.1,56,000/-</td></tr>
<tr><td>iv) Labourers shed</td><td>Labour sheds already constructed as semi permanent structure. The cost is around</td><td>Rs. 80,000/-</td></tr>
<tr><td>v) Sanitary facility</td><td>Adequate latrine and urinal accommodation has provided at conveniently accessible places the cost would be around</td><td>Rs. 50,000/-</td></tr>
<tr><td>vi) Others items</td><td>First aid room & accessories</td><td>Rs. 50,000/-</td></tr>
<tr><td>vii) Drinking water facility for the labourers</td><td>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</td><td>Rs.70,000/-</td></tr>
<tr><td>viii) Sanitary arrangement</td><td>The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around</td><td>Rs. 50,000/-</td></tr>
<tr><td>ix) Safety kit</td><td>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</td><td>Rs.60,000/-</td></tr>
<tr><td>x) Water sprinkling</td><td>Water will be sprinkled in the haul roads by water sprinklers the cost would be around</td><td>Rs.80,000/-</td></tr>
<tr><td>xi) Garland drain</td><td>Construction of Garland drain with check dam to prevent surface run-off rain water in to the quarry pit, the construction cost is around</td><td>Rs. 1,23,000/-</td></tr>
<tr><td rowspan="3">xii) Greenbelt etc.</td><td>Greenbelt development and maintenance will be carried out in the boundary barriers the cost would be around</td><td>Rs.29,000/-</td></tr>
<tr><td>Greenbelt development and maintenance will be carried out in the quarried out top benches, approach and panchayat road</td><td>Rs.25,000/-</td></tr>
<tr><td>Total Project Cost</td><td>Rs.62,32,000/-</td></tr>
</table>

B. EMP Cost :- (Per year)	
Air Quality monitoring	Rs. 52,000/-
Water Quality Sampling	Rs. 18,000/-
Noise Monitoring	Rs. 2,000/-
Ground vibration test	Rs. 4,000/-
Total Cost	**Rs. 76,000/-**

Total EMP Cost for the five years period is **Rs.3,80,000/-**

Description	Amount (Rs.)
A. Operational Cost	**62,32,000**
B. EMP Cost	**3,80,000**
Total Project Cost (A+ B)	**66,12,000**
The applicant Indents to involve corporate environment responsibilities (CER) activity like Water Purifier, Medicine Storage rack, Cot and Bed facilities to the nearby Dispensary and Water Purifier and Table facilities to the nearby Government school at 2.0% from the total project cost. The Cost would be around **Rs.1,33,000/-.**	**1,33,000**
Total Cost	**67,45,000**

The Total cost would be around sixty seven lakh and forty five thousand only.

11.0 PROGRESSIVE QUARRY CLOSURE PLAN

11.1 Introduction:

The Progressive Quarry Closure Plan for Rough Stone and Gravel quarry lease applied area over an extent of 1.42.82 Hectares of patta land in S.F.No. 172/1B, 172/2 and 173/2A2 of Edaiyarpalayam Village, Sulur Taluk, Coimbatore District, Tamil Nadu State has been prepared for **Thiru. N. Kathiresh,** S/o. V.Nataraj, residing at No. 3/175, Karacheri, Periyakuyili Post, Chettipalayam Via, Coimbatore District, Tamil Nadu State – 641 201.

11.2 Present Land use pattern:

Land Use Table – 16

Description	Present area (Ha)
Quarrying Pit	0.40.70
Infrastructure	Nil
Roads	0.01.00
Green Belt	Nil
Unutilized Area	1.01.12
Grand Total	**1.42.82**

11.3 Method of Mining:

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

However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106 (2) (b) of MMR-1961, under Mine Act – 1952.

11.4 Mineral Processing Operations:

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

11.5 Reasons for closure:

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

11.6 Statutory obligations:

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

11.7 Progressive quarry closure plan preparation:

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

P.Viswanathan, M.Sc.,
Qualified Person
No.17, Advaitha Ashram Road,
Alagapuram, Salem - 636 004.
Cell: 94433 56539 & 94422 78601

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

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

There is no waste generated during entire life of quarry, hence backfilling is not possible in the quarried out pit. The entire quarry area is an active also no proposal given for Progressive quarry closure plan in the previous mining plan hence, the applicant has not taken any action for progressive quarry closure. Hence, review of implementation of progressive quarry closure does not arise at present. However, if any work done for progressive quarry closure plan during this plan period, it will be discussing in the ensuing Mining Plan.

11.9 Closure Plan:

(i) Mined Out Land:

At the end of mining plan period, about 0.73.00 Ha of area will be mined out. Land use at various stages is given in the table below.

Land Use Table – 17

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area Under Quarrying	0.40.70	0.73.00
Infrastructure	Nil	0.01.00
Roads	0.01.00	0.02.00
Green Belt	Nil	0.26.08
Unutilized Area	1.01.12	0.40.74
Grand Total	**1.42.82**	**1.42.82**

The Greenbelt Development will be formed in around the quarried out top benches, approach and Panchayat road of the lease applied area.

(ii) Water quality management:

Following control measures will be adopted for controlling water pollution:-

- Construction of Garland drain with check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- The quarried out pit will be allowed to collect rain and seepage water which will act as a reservoir for storage. This water storage will enhance the static level and ground water recharge of nearby wells and it will be used for agriculture purpose to the nearby agriculture lands.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

(iii) Air Quality Management:

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. Workers will be provided with personnel protective equipment like face-mask, earplug/ muffs.

For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

(iv) Top Soil and Waste Management:

There is no topsoil and waste generated during the proposed plan period. The entire quarried out Rough Stone and Gravel is utilized (100%). Hence, waste management does not arise.

(v) Disposal of mining machinery:

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 un-authorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0 m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the work persons.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations and proper signal by siren alarm will be given to the public before blasting to prevent accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

(vii) Disaster Management and Risk Assessment:

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse, flying stones due to blasting etc.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.
- The Greenbelt Development will be formed in around the quarried out top benches and Panchayat road of the lease applied area.

(viii) Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:

  Quarry roads and approach roads,

  Fencing on approach roads,

  Checking and maintenance of machines and equipment,

  Drinking water arrangements,

  Quarry office, first aid stations etc.
- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:

The quarry lease is granted for a period of 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 – 18

ACTIVITY		YEAR					RATE	AMOUNT (Rs.)
		I	II	III	IV	V		
Plantation under safety zone	**Nos.**	58	58	58	58	58	@100 Rs Per sapling	29,000
	Cost	5800	5800	5800	5800	5800		
Plantation in the quarried out top benches, approach & Panchayat road	Nos.	50	50	50	50	50		25,000
	Cost	5,000	5,000	5,000	5,000	5,000		
Wire Fencing (In Mtrs) 520		1,56,000					@300 Rs Per Meter	1,56,000
Garland drain (In Mtrs) 410		1,23,000					@300 Rs Per Meter	1,23,000
TOTAL								**3,33,000**

12 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

E-5 JAN 2022

This Mining plan for Rough Stone (Charnockite) and Gravel is under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied within the quarrying operation, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Concerned Department.

Prepared by

P. Viswanathan.

P. Viswanathan, M.Sc.,
Qualified Person

Place: Salem
Date: 25.10.2021

DONATE RED
SPREAD GREEN
SAVE BLUE

This Mining Plan is Approved subject to the conditions / stipulation & indicated in the Mining Plan Approval Letter No: 111/Mines/2021 dt 5-1-22 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 Tamilnadu Minor Mineral Concession Rules 19[illegible]

5/1/22

ASSISTANT DIRECTOR
DEPARTMENT OF GEOLOGY & MINING
COIMBATORE DISTRICT.

5/1/22

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ANNEXURE - 1

உதவி இயக்குநர், அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
மாவட்ட ஆட்சியர் அலுவலக வளாகம்,
கோயம்புத்தூர் – 18.

நாள்:21.10.2021

ந.க.எண்.111/கனிமம்/2021

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - கோயம்புத்தூர் மாவட்டம் - சூலூர் வட்டம் - இடையர்பாளையம் கிராமம் - புல எண்கள்.172/1B-ல் 0.43.72 ஹெக்டேர், 172/2–ல் 0.49.50 ஹெக்டேர் மற்றும் 173/2A2-ல் 0.49.60 ஹெக்டேர் ஆக மொத்தம் 1.42.82 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் வெட்டியெடுக்க திரு.N.கதிரேஷ் என்பவருக்கு - குவாரி குத்தகை அனுமதி வழங்குவது – தொடர்பாக.

பார்வை:
1. திரு.N.கதிரேஷ், த/பெ.V.நடராஜ், 3/175, காரச்சேரி, பெரியகுயிலை அஞ்சல், செட்டிபாளையம் வழி, கோயம்புத்தூர் என்பவரது விண்ணப்பம் நாள் 20.01.2021 மற்றும் 07.10.2021
2. இவ்வலுவலக கடிதம் இதே எண். நாள்: 20.01.2021.
3. வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு அவர்களின் கடித ந.க.எண். 0299/2021/அ2 நாள் 14.05.2021.
4. உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் அவர்களின் தணிக்கை அறிக்கை நாள்: 12.10.2021.
5. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை கடிதம் எண். 1870/எம்.எம்-1/2020 .நாள்: 12.08.2020.

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பார்வை 1-ல் கோயம்புத்தூர் மாவட்டம், செட்டிபாளையம் வழி, பெரியகுயிலை அஞ்சல், காரச்சேரி, 3/175 என்ற முகவரியில் வசிக்கும் திரு.V.நடராஜ் என்பவரின் மகன் திரு.N.கதிரேஷ் என்பவர் கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், இடையர்பாளையம் கிராமம், புல எண்கள். 172/1B-ல் 0.43.72 ஹெக்டேர், 172/2-ல் 0.49.50 ஹெக்டேர் மற்றும் 173/2A2-ல் 0.49.60 ஹெக்டேர் ஆக மொத்தம் 1.42.82 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் கோரி உரிய ஆவணங்களுடன் விண்ணப்பித்துள்ளார்.

மேற்படி மனு தொடர்பாக, கோயம்புத்தூர் தெற்கு வருவாய் கோட்டாட்சியர் மற்றும் கோயம்புத்தூர் புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு கோயம்புத்தூர் மாவட்டம், செட்டிபாளையம் வழி, பெரியகுயிலை அஞ்சல், காரச்சேரி, 3/175 என்ற முகவரியில் வசிக்கும் திரு.V.நடராஜ் என்பவரின் மகன் திரு.N.கதிரேஷ் என்பவருக்கு கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், இடையர்பாளையம் கிராமம், புல எண்கள். 172/1B-ல் 0.43.72

ஹெக்டேர், 172/2-ல் 0.49.50 ஹெக்டேர் மற்றும் 173/2A2-ல் 0.49.60 ஹெக்டேர் ஆக மொத்தம் 1.42.82 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் சாதாரணகற்கள் மற்றும் கிராவல் வெட்டியெடுக்க சில நிபந்தனைகளுடன் பரிந்துரை செய்துள்ளார்கள்.

அனுமதி கோரும் புல எண்கள். 172/1B மற்றும் 172/2 ஆகியவை பட்டா எண்கள் முறையே 978, 501-ன் படி திரு.விஸ்வநாதன் என்பவரின் மனைவி லதா, நடராஜ் என்பவரின் மகன் திரு.ரத்தினசாமி மற்றும் நடராஜ் என்பவரின் மகன் கதிரேஷ் (மனுதாரர்), முத்துச்சாமி என்பவரின் மகன் சக்திவேல், காளியப்பன் என்பவரின் மகன் ராயப்பன் ஆகியோர் பெயரில் கூட்டுப்பட்டாவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. மனுதாரர் மேற்படி பூமியில் மாவட்ட ஆட்சியர் அனுமதி வழங்கும் நாளிலிருந்து சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 5 ஆண்டுகளுக்கு தங்களுக்கு எவ்வித ஆட்சேபணையும் இல்லை என கூட்டுப்பட்டாதாரர்கள் இணைந்து மனுதாரருக்கு சம்மத கடிதம் அளித்துள்ளார்கள். எனவே மேற்படி பூமியில் மனுதாரர் குவாரி குத்தகை உரிமம் பெற தகுதியுடையவர் ஆவார்.

மனுதாரர் விண்ணப்பித்துள்ள புல எண். 173/2A ஆனது 173/2A1 மற்றும் 173/2A2 என மாற்றப்பட்டுள்ளது. மேற்படி 173/2A1 ஆனது பொதுப்பாதையாகவும், 173/2A2-ல் மனுதாரர் குத்தகை உரிமம் கோரியும் விண்ணப்பித்துள்ளார். மேற்படி 173/2A2 ஆனது பட்டா எண். 1051-ன் படி திரு.விஸ்வநாதன் என்பவரின் மனைவி லதா, நடராஜ் என்பவரின் மகன் திரு.ரத்தினசாமி மற்றும் நடராஜ் என்பவரின் மகன் கதிரேஷ் (மனுதாரர்), முத்துச்சாமி என்பவரின் மகன் சக்திவேல், காளியப்பன் என்பவரின் மகன் ராயப்பன் ஆகியோர் பெயரில் கூட்டுப்பட்டாவாக கிராம கணக்கில் தாக்கலாகியுள்ளது. மேலும் கூட்டுப்பட்டாதாரர்கள் மனுதாரருக்கு ஏற்கனவே சம்மத கடிதம் அளித்துள்ளார்கள்.

எனவே, வருவாய் கோட்டாட்சியர், கோயம்புத்தூர் தெற்கு மற்றும் உதவி புவியியலாளர், புவியியல் மற்றும் சுரங்கத்துறை, கோயம்புத்தூர் ஆகியோரின் பரிந்துரைகளின் அடிப்படையில் கோயம்புத்தூர் மாவட்டம், செட்டிபாளையம் வழி, பெரியகுயிலை அஞ்சல், காரச்சேரி, 3/175 என்ற முகவரியில் வசிக்கும் திரு.V.நடராஜ் என்பவரின் மகன் திரு.N.கதிரேஷ் என்பவருக்கு கோயம்புத்தூர் மாவட்டம், கூலூர் வட்டம், இடையர்பாளையம் கிராமம், புல எண்கள். 172/1B-ல் 0.43.72 ஹெக்டேர், 172/2-ல் 0.49.50 ஹெக்டேர் மற்றும் 173/2A2-ல் 0.49.60 ஹெக்டேர் ஆக மொத்தம் 1.42.82 ஹெக்டேர் பரப்பளவுள்ள பட்டா பூமியில் 1959-ஆம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் விதி 19(1) மற்றும் 20-ன் படி குத்தகை ஒப்பந்த பத்திரம் நிறைவேற்றும் நாளிலிருந்து 5 (ஐந்து) ஆண்டுகளுக்கு சாதாரண கல் மற்றும் கிராவல் மண் வெட்டியெடுக்க கீழ்கண்ட நிபந்தனைகளுக்குட்பட்டு குவாரி குத்தகை வழங்குவதற்குரிய நிலப்பரப்பாக (Precise Area Communication) கருதப்படுகிறது.

நிபந்தனைகள்

1. அருகிலுள்ள பட்டா நிலங்களுக்கும் மற்றும் பொது மக்களுக்கும், எவ்வித இடையூரும் இன்றி சாதாரண கல் மற்றும் கிராவல் குவாரி மேற்கொள்ள வேண்டும்.

2 அருகில் உள்ள பட்டா நிலத்திற்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி மேற்கொள்ள வேண்டும்.

3. அனுமதி கோரும் புலத்தின் வடக்கு பகுதியில் செல்லும் மின்னழுத்த கம்பி பாதையை 50 மீட்டருக்கு அப்பால் மாற்றி அமைத்துக் கொள்ள வேண்டும்.

4. அனுமதி கோரும் புலத்திற்கு கிழக்கு பகுதியில் உள்ள அரசு புறம்போக்கு பூமிக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி அளித்து குவாரிப்பணி புரிய வேண்டும்.

5. அனுமதி கோரும் புலத்தின் வடகிழக்கு பகுதியில் உள்ள கோவிலுக்கு 50 மீட்டர் பாதுகாப்பு இடைவெளி அளித்து குவாரிப்பணி புரிய வேண்டும்.

6. மெருகேற்றக்கூடிய கிரானைட் கற்கள் வெட்டியெடுக்க கூடாது.

7. குழந்தை தொழிலாளர்களை வேலைக்கு அமர்த்தல் கூடாது.

மேலும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள்-1959 விதி எண். 41 மற்றும் 42-ன் படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறும், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு அதிகார அமைப்பின் அனுமதியினை பெற்று சமர்ப்பிக்கவும் மனுதாரரை கேட்டுக் கொள்ளப்படுகிறது.

உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை
கோயம்புத்தூர்.

பெறுநர்:
திரு.N.கதிரேஷ்,
த/பெ.V.நடராஜ்,
3/175, காரச்சேரி,
பெரியகுயிலை அஞ்சல்,
செட்டிபாளையம் வழி,
கோயம்புத்தூர்.

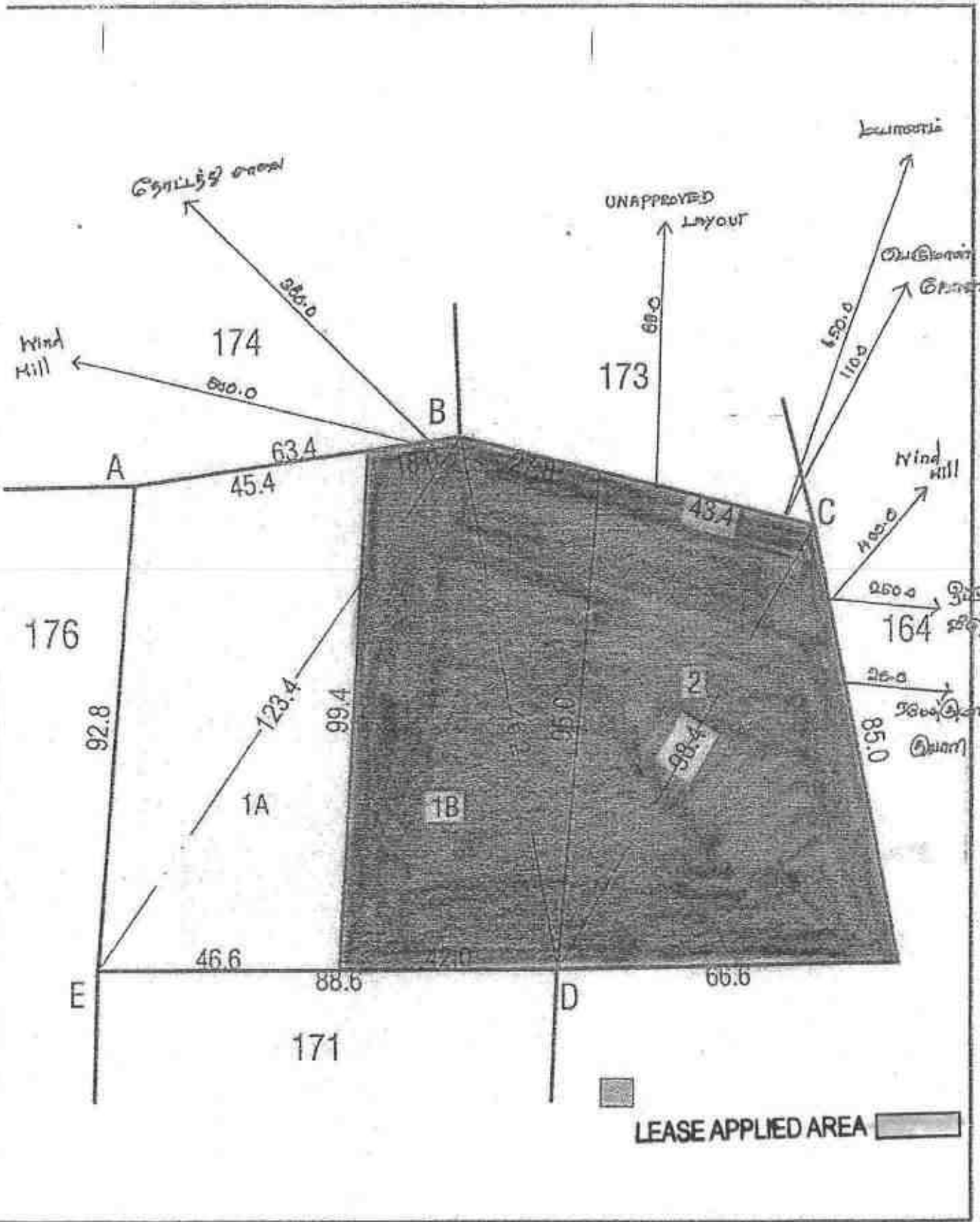
21/10/21

ANNEXURE - II

கிராமம் பெயர் :

வட்டம் : சூலூர்

புலஎண்: 172 பரப்பு :ஹெக். ஏர்ஸ்



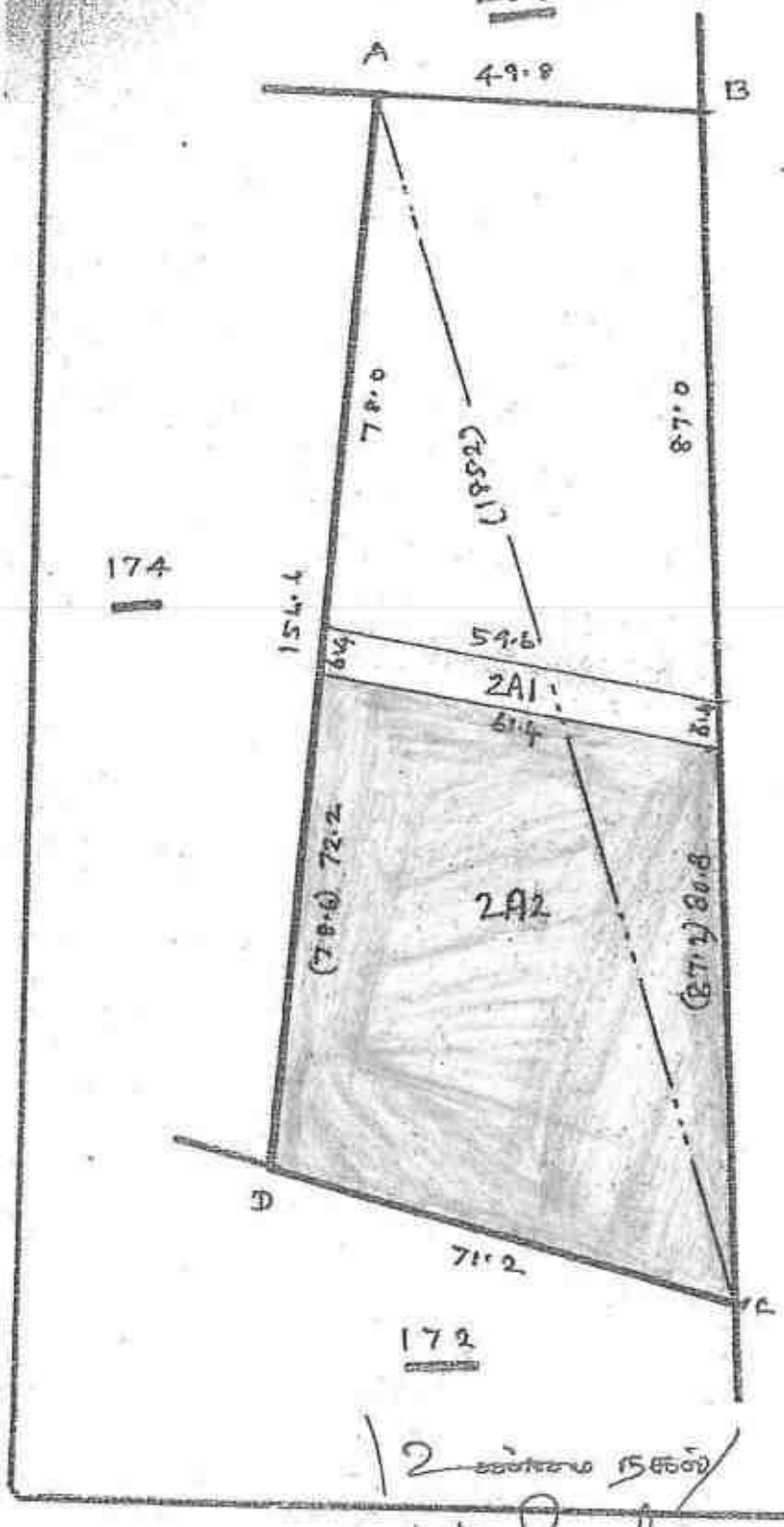
அளவு 1:1000

192 A

குநர் ச

.5 JAN 2022

208



193 A

153

ANNEXURE - III

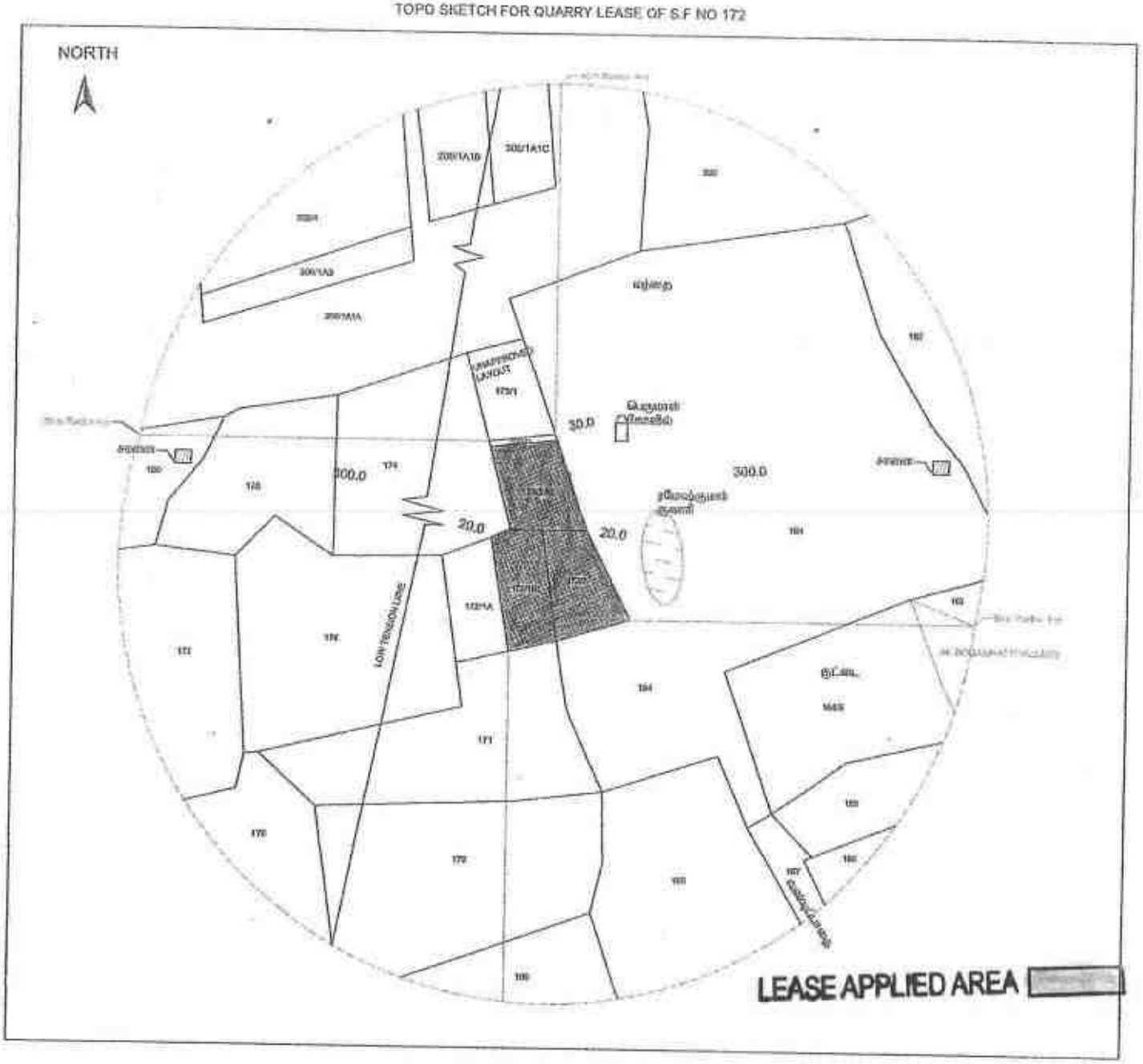
- 5 JAN 2017

DISTRICT : COIMBATORE

TALUK : SULUR

VILLAGE : IDAYARPALAYAM

TOPO SKETCH FOR QUARRY LEASE OF S.F NO 172



உள்வட்ட அளவர்
செலக்கரிச்சல்
சூலூர் வட்டம்.

ANNEXURE – IV

உதவி இயக்குநர்

5 JAN 2022

தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கோயம்புத்தூர் வட்டம் : சூலூர்

வருவாய் கிராமம் : இடையபாளையம் பட்டா எண் : 978

உரிமையாளர்கள் பெயர்

1.	விஸ்வநாதன்	மனைவி	லதா
2.	நடராஜ்	மகன்	ரத்தினசாமி
3.	நடராஜ்	மகன்	கதிரேஷ்
4.	முத்துச்சாமி	மகன்	சக்திவேல்
5.	காளியப்பன்	மகன்	ராயப்பன்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
172	1B	0 - 43.72	0.87	--	--	--	--	2020/0105/12/159666--2020/12/10/000049SD -- 12-11-2020
		0 - 43.72	0.87					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் https://eservices.tn.gov.in என்ற இணைய தளத்தில் 12/10/027/00978/110784 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 17-11-2020 அன்று 12:09:13 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

172/1B - 0.43.72
172/1A - 0.49.50

தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கோயம்புத்தூர் வட்டம் : சூலூர்

வருவாய் கிராமம் : இடையபாளையம் பட்டா எண் : 501

உரிமையாளர்கள் பெயர்

1.	நடராஜ்	மகன்	ரத்தினசாமி	
2.	நடராஜ்	மகன்	கதிரேஷ்	
3.	விஸ்வநாதன்	மனைவி	வதா	
4.	காளியப்பன்	மகன்	ராயப்பன்	
5.	முத்துச்சாமி	மகன்	சக்திவேல்	

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	நீர்வை	
		ஹெக்-ஏர்	ரூ-பை	ஹெக்-ஏர்	ரூ-பை	ஹெக்-ஏர்	ரூ-பை	
172	2	0-49.50	1.00	-	-	-	-	2020/0103/12/260410--20-11-2020
		0-49.50	1.00					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் https://eservices.tn.gov.in என்ற இணைய தளத்தில் 12/10/027/00501/70716 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இந்த தகவல்கள் 20-11-2020 அன்று 07:23:09 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

196 A 5b

தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) சிட்டா

மாவட்டம் : கோயம்புத்தூர் வட்டம் : சூலூர்

வருவாய் கிராமம் : இடையபாளையம் பட்டா எண் : 1051

உரிமையாளர்கள் பெயர்

1.	காளியப்பன்	மகன்	ராயப்பன்	-
2.	நடராஜ்	மகன்	சத்தினசாமி	-
3.	நடராஜ்	மகன்	கதிரேஷ்	-
4.	விஸ்வநாதன்	மனைவி	வசந்தா	-
5.	முத்துச்சாமி	மகன்	சக்திவேல்	-

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	ஹெக் - ஏ	ரூ - பை	
173	2A2	0 - 49.60	0.99	--	--	--	--	2021/0105/12/238838--2021/12/10/000064SD -- 24-09-2021
		0 - 49.60	0.99					

குறிப்பு2 :

1. மேற்கண்ட நகல்கள் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இதனைத் தாங்கள் https://eservices.tn.gov.in என்ற இணைய தளத்தில் 12/10/027/01051/30717 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 28-09-2021 அன்று 11:32:23 AM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

1430 - ஆம் பசலியில் கோவை மாவட்டம் திருப்பூர் வட்டம் இடையர்பாளையம் கிராமக் கணக்கு

எண் 2

கிராமத்தில் வருடவாரி புலவாரி கைப்பற்று சாகுபடி அடங்கல் கணக்கு

நில அளவை எண் (1)	உட்பிரிவு எண் (2)	பரப்பு (3)	தீர்வை (4)	இரு போகம் அல்லது ஒரு போகம் (5)	கைப்பற்று தாரருடைய பெயரும் அல்லது அனுபோகதாரருடைய பெயரும் (6)	சாகுபடியாளரின் பெயர் — நிலத்தில் எந்த பகுதி பயிர் செய்யப்பட்டது (7)	முதல் போகம் — எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் அறுவடை செய்யப்பட்டது (8)	பயிரின் பெயர் (9)	பயிரான / அறுவடையான பரப்பு (10)	உள்ளபடியான பாசன ஆதாரம் (11)	விளைச்சல் அளவு (குறிப்பு) (12)
173	2A2	0.49.65	0.99	1051	ராமர்பன்(அ)						
172	1B	0.42.7	0.87	978	வநா (அ)						
172	2	1.49.5	1.00	501	[illegible](அ)						

இரண்டாம் போகம் — எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் அறுவடை செய்யப்பட்டது (13)	பயிரின் பெயர் (14)	பயிரான / அறுவடையான பரப்பு (15)	உள்ளபடியான பாசன ஆதாரம் (16)	விளைச்சல் அளவு (குறிப்பு) (17)	(18)	கிழ்க்கண்டவைகளில் பயிரிடப்படாத உள்ள நிலத்தின் தன்மை மற்றும் பரப்பில் விவரங்கள் (19அ)	பயிர் பரிசோதனை குறிப்புகள் (19)
					கல்வேலி		

உண்மை நகல்

K. P[illegible] (கையொப்பம்)

கிராம நிர்வாக அலுவலர்

63. இடையர்பாளையம் கிராமம்

[illegible] வட்டம்

380/28-R.F. III-A-18-10,00,000 Cps.-GSP.-Mdu.-7-2020.

ANNEXURE - VI

அ-பதிவேடு விவரங்கள்

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : சூலூர்

கிராமம் : இடையபாளையம்

1. புல எண்	172	9. மண் வயனும் ரகமும்	B - 3
2. உட்பிரிவு எண்	2	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	172-P	11. நீர்வை (ரு - ஹெ)	2.00
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் ஏர்)	0 - 49.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த நீர்வை (ரு - பை)	1.00
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	501
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	ரத்தினசாமிமற்றும 4பேர்

குறிப்பு 1:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் 30716 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்

மாவட்டம் : கோயம்புத்தூர்

வட்டம் : சூலூர்

கிராமம் : இடையபாளையம்

1. புல எண்	172	9. மண் வகைமை	B - 3
2. உட்பிரிவு எண்	1B	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	172-1	11. தீர்வை (ரூ - பை)	2.00
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 43.72
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.87
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	978
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	வதாமற்றும் சகோர்

குறிப்பு 1:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் 30784 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

2	3	4	5	6	7	8	9	10	11	12
						ஏ. வை.	தொ.எச்ஸ்.	ஏ. வை.		
169-1பக	உ	பு	—	8-3	5	2 00	0 02·0	0 06	29 ஆ. ஆறுமுகக் கவுண்டர்.	
-2பக	உ	பு	—	8-3	5	2 00	1 36·0	2 70	204 ச. ராமசாமிக் கவுண்டர்.	தினை-1.
-2பக	உ	பு	—	8-3	5	2 00	0 05·0	0 10	29 ஆ. ஆறுமுகக் கவுண்டர்.	
							2 95·5	5 94		
170	உ	பு	—	8-3	5	2 00	2 89·0	5 81	263 ம. வேலுசாமி.	
							2 16·5	4 37		
171	உ	பு	—	8-3	5	2 00			357 ம. வேலுசாமி (1), ச. ராமசாமிக் கவுண்டர் (2),	
172	உ	பு	—	8-3	5	2 00	1 37·0	2 75	453 ர. சாமிநாதன் (1), சாந்தலிங்கம் (2), ச. முனியாண்டி (3).	
173-பக	உ	பு	—	8-3	5	2 00	0 45·5	0 92	264 பூ. வேலாயுத கோனார்.	
-பக	உ	பு	—	8-3	5	2 00	0 53·5	1 08	176 க. மந்திரி உடையார்.	
							0 99·0	2 00		
174-பக	உ	பு	—	8-3	5	2 00	0 17·0	0 34	294 ர. நாச்சி வண்ணான்.	தினை-1.
-பக	உ	பு	—	8-3	5	2 00	0 84·0	1 70	176 க. மந்திரி உடையார்.	தினை-1. சாலை.
-பக	உ	பு	—	8-3	5	2 00	0 19·5	0 39	158 க. பெருமாள் உடையார்.	
-பக	உ	பு	—	8-3	5	2 00	0 90·0	1 82	264 பூ. வேலாயுத கோனார்.	
							2 10·5	4 25		
175-பக	உ	பு	—	8-3	5	2 00	0 62·0	1 25	...பட்டர் (1), வெங்கடாசல கவுண்டர் (2), திருவேங்கட	கட்டு தினை-1
-பக	உ	பு	—	8-3	5	2 00	0 20·5	0		
-பக	உ	பு	—	8-3	5	2 00	0 64·0	1 94		

202 A

ANNEXURE - VII

தமிழ்நாடு तमिलनाडु TAMIL NADU

7/10/2021

N. ரதினசாமி
கோவை

R. RADHAMANI 93AB 416030
STAMP VENDOR
Lic No: 8936/B1/2017 dt. 11.01.2018
Shop No.16,Old Post Office Road,
813, UMS Building,
Coimbatore - 641 018.

சம்மதக் கடிதம்

கோயமுத்தூர் மாவட்டம், கிணத்துக்கடவு வட்டம், பெரிய குயிலை அஞ்சல் காரச்சேரி என்ற முகவரியில வசிக்கும் திரு.நடராஜ் அவர்களின் மகன் என்.ரத்தினசாமி, திரு.முத்துச்சாமி அவர்களின் மகன் எம். சக்திவேல், கிணத்துக்கடவு வட்டம், வடசித்தூர் அஞ்சல் என்ற முகவரியில் வசிக்கும் திரு.விஸ்வநாதன் அவர்களின் மனைவி லதா, மதுக்கரை வட்டம், செட்டிபாளையம் அஞ்சல் என்ற முகவரியில் வசிக்கும் திரு காளியப்பன் அவர்களின் மகன் கே.ராயப்பன் ஆகிய நாங்கள் நால்வரும் எழுதிக் கொடுக்கும் உறுதிமொழிப்பத்திரம் என்னவென்றால்:

கோயமுத்தூர் மாவட்டம், சூலூர் வட்டம், இடையர்பாளையம், பட்டாஎண் 978-ன் படி க.ச.எண்172/1Bல்(0.43.72)ம் பட்டா எண்.501-ன் படி 172/2ல்(0.49.50)ம் ,பட்டா எண் 1051 ன் படி க.ச.எண்173/2A2(0.49.60)ம் மொத்தம் 1.42.82 ஹெக்டேர் பரப்பானது எங்களுக்கும், மனுதாரர் திரு என்.கதிரேஷ் ஆகிய ஐந்து பேருக்கும் கூட்டாகப் பாத்தியப்பட்டது. மேற்படி காலைகளில் சாதாரணக்கல் மற்றும் கிராவல் மண் வெட்டி எடுக்க அரசாங்கத்தால் குத்தகை ஒப்பந்தப்பத்திரம் நிறைவேற்றப்படும் நாளிலிருந்து ஐந்து ஆண்டுகளுக்கு சாதாரணக்கல் மற்றும் மண் வெட்டி எடுக்க மனுதாரரான திரு என். கதிரேஷ் என்பவருக்கு குத்தகை உரிமம் வழங்க எவ்வித ஆட்சேபணையும் இல்லை என்பதை இச்சம்மதகீ கடித்தின் மூலம் தெரிவித்துக் கொள்கிறோம்.

இப்படிக்கு

N. Rathinasamy

M. Sathish

V. Latha

K. [illegible]

NOTARY
R. PRAKASH
67/2019
NOTARIAL
OF TAMIL NADU

R. PRAKASH BBM BL.,
Notary Public Advocate
8/25 Annamali Hotel Building
Opp. To District Registrar Office
Gopalapuram 1st Street
COIMBATORE - 641 018
Cell : 98437 88988

ANNEXURE - VIII

ANNEXURE - IV

பெரியார் பல்கலைக்கழகம்
Periyar University

05 JAN 2022

அறிவியல் புலம்
FACULTY OF SCIENCE

பெரியார் பல்கலைக்கழக ஆட்சிக்குழு **2010** ஆம் ஆண்டு **ஏப்ரல்** மாதம் நடந்த **பயன்பாட்டுப்புவியமைப்பியல்** தேர்வில் அரசு கலைக் கல்லூரி, சேலம் - 636 007 (தன்னாட்சி) பயின்ற **P விஸ்வநாதன்** என்பவர் **முதல் வகுப்பு A++ தரத்தில்** தேர்ச்சி பெற்றார் என்று தக்க தேர்வாளர்கள் சான்றளித்தபடி **அறிவியல் நிறைஞர்** என்னும் பட்டத்தை அவருக்குப் பல்கலைக்கழக இலச்சினையுடன் வழங்குகிறது.

The Syndicate of the **Periyar University** *hereby makes known that* **VISWANATHAN P** *has been admitted to the* **DEGREE OF MASTER OF SCIENCE in APPLIED GEOLOGY** *he/she having been certified by duly appointed Examiners to be qualified to receive the same and was placed in the* **FIRST CLASS WITH A++ GRADE** *at the Examination held in* **APR-2010** *through* GOVERNMENT ARTS COLLEGE, SALEM - 636 007 (AUTONOMOUS).

Given under the seal of this university

நாள்
Dated 28-02-2011
சேலம் 636011, தமிழ்நாடு, இந்தியா.
Salem 636011, Tamil Nadu, India.

பதிவாளர்
Registrar

துணைவேந்தர்
Vice-Chancellor

205 A

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ANNEXURE - X

TIN. No. : 3312 2703755
C.S.T. No. : 880783 / 29.11.2005
Area Code : 142

Ph : Mines : 0427 - 2403645
Fact : 0427 - 2400046

05 JAN 2022

SUDHARSHAAN MINING CORPORATION

Mfrs : Dead Burnt Magnesite, Lightly Calcined Magnesite, Dunite Chips & Powder.
S.F. No. 77, Kuduvampatty Road, Vinayagampatti, SALEM - 636 008.

Date : 28.12.2015.....

EXPERIENCE CERTIFICATE

This is to certify that **Shri.P.Viswanathan, S/o. P.Paramasivam, Geologist,** has worked in our Magnesite Mines from **13.09.2010 to 25.11.2015** as our company Geologist. During his service he used to maintain all records and returns submitted to Government Departments.

His nature of work in the mines was to show the plan of working and demarcate Magnesite reserve areas. He was looking after production of Magnesite and was maintaining quality of the Mineral as per the specifications given by the buyers.

During his tenor of his service he was very sincere and prompt in his duties.

I wish him the best of luck in all his future endevours.

For M/s.SUDHARSHAAN MINING CORPORATION,

SUDHARSHAN MINING CORPORATION
SF-77, KUDUVAMPATTI ROAD,
SALEM - 636 008. Tamilnadu.

28 Dec 2015

G.PASUPATHY,
Proprietor

Resi : "Garuda" 14/315, Kaliyapillai Garden IInd Cross, Fairlands, Salem - 636 004. Tamilnadu.

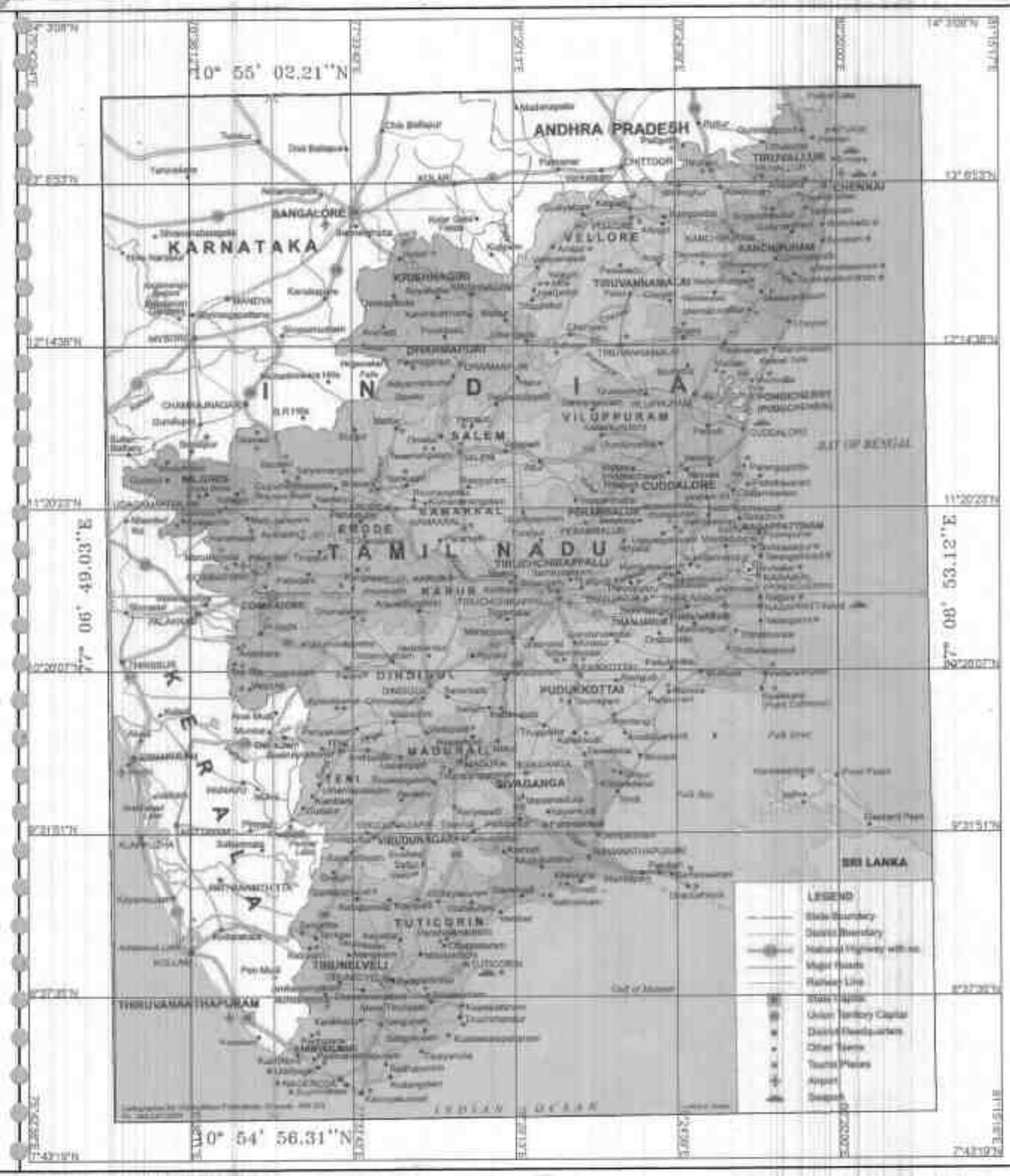


PLATE NO:I

DATE OF SURVEY : 23.10.2021

APPLICANT:

THIRU.N.KATHIRESH,
S/O.NADARAJ,
3/175,KARACHERI,PERIYAKUILAI POST,
CHETTIPALAYAM VIA,
COIMBATORE.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NO	: 172/1B,172/2 and 173/2A2.
EXTENT	: 1.42.82 Ha.
VILLAGE	: EDAIYARPALAYAM.
TALUK	: SULUR.
DISTRICT	: COIMBATORE.
STATE	: TAMIL NADU.

INDEX

Q. L.A. AREA :

TOPO SHEET 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

LOCATION PLAN

SCALE 1:24,00,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

P.VISWANATHAN,M.Sc.,
QUALIFIED PERSON

PLATE NO:I-A

DATE OF SURVEY : 23.10.2021

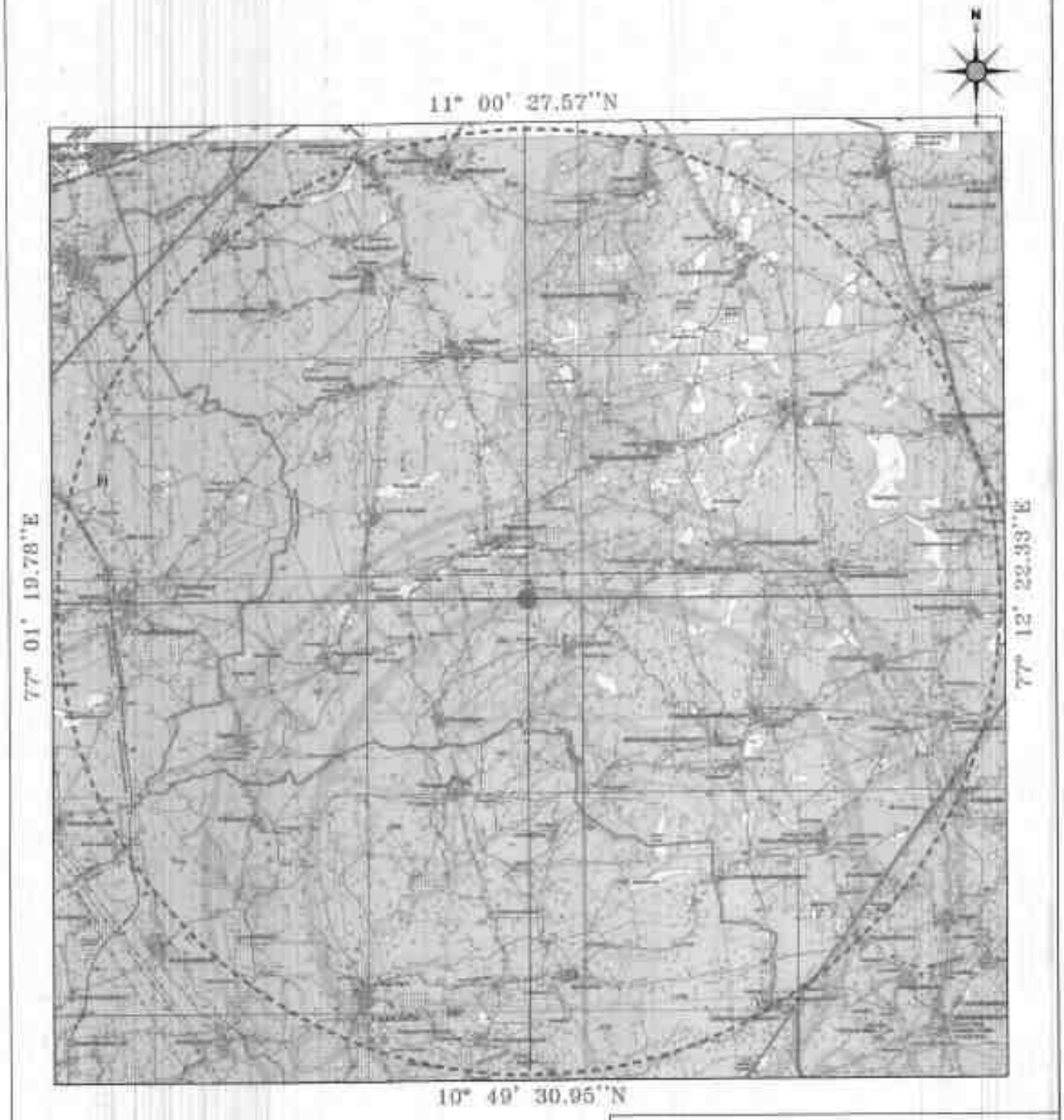
APPLICANT:

THIRU.N.KATHIRESH,
S/O.NADARAJ,
3/175,KARACHERI,PERIYAKULAI POST,
CHETTIPALAYAM VIA,
COIMBATORE.

RECEIVED
5 JAN 2022

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NO	: 172/1B,172/2 and 173/2A2.
EXTENT	: 1.42.82 Ha.
VILLAGE	: EDAIYARPALAYAM.
TALUK	: SULUR.
DISTRICT	: COIMBATORE.
STATE	: TAMIL NADU.



TOPO SHEET 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

10KM RADIUS :

Q.L.APPLIED AREA :

INDEX

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

P. ISWARAMOORTHY, M.Sc.,
QUALIFIED PERSON

LANDUSE PATTERN	
DESCRIPTION	PERCENTAGE
ROADS\ODAI	(10%)
HABITATION	(10%)
TREES\WIND MILL	(20%)
AGRICULTURAL LAND	(50%)
PIT\DUMP	(10%)

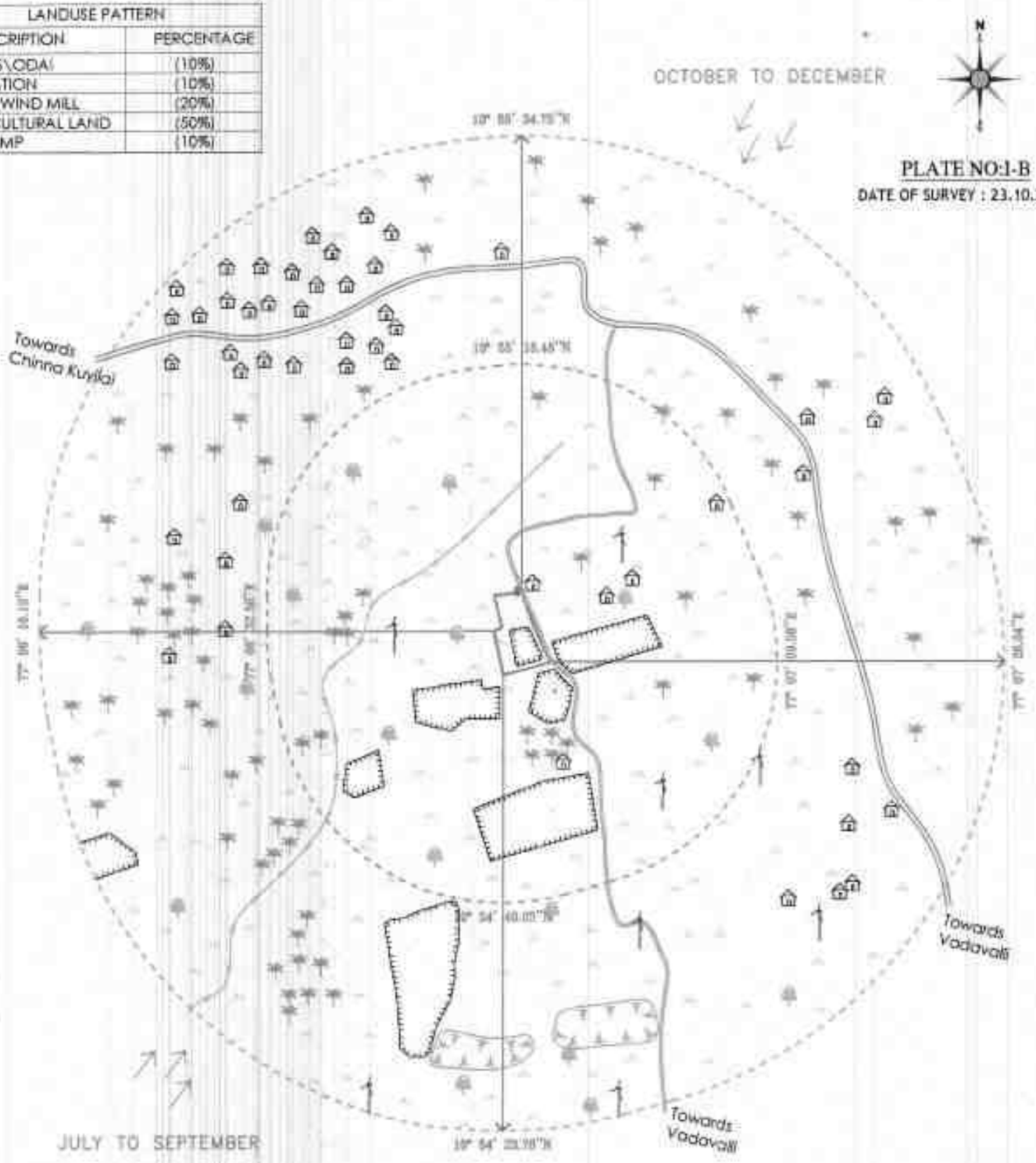


PLATE NO:1-B

DATE OF SURVEY : 23.10.2021

1Km Radius :

500m Radius :

O.L.Applied Area :

TOPO SHEET NO. 58 F/01

LATITUDE : 10° 54' 36.31"N to 10° 55' 02.21"N

LONGITUDE : 77° 06' 49.03"E to 77° 06' 53.12"E

APPLICANT:

THIRU.N.KATHIRESH,
S/O.NADARAJ,
3/175,KARACHERI,PERIYAKUILAI POST,
CHETTIPALAYAM VIA,
COIMBATORE.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NO	: 172/1B,172/2,173/2A2,
EXTENT	: 1.42.82 Ha.
VILLAGE	: EDAIYARPALAYAM,
TALUK	: SULUR,
DISTRICT	: COIMBATORE.
STATE	: TAMIL NADU.

INDEX

- APPROACH ROAD
- VILLAGE ROAD
- MAJOR ROAD
- HABITATION
- TREES
- AGRICULTURAL LAND
- PIT
- WIND DIRECTION
- DUMP
- ODAI
- WIND MILL

ENVIRONMENTAL AND LANDUSE PLAN FOR 1Km RADIUS

SCALE- 1:10,000

PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

P.VISWANATHAN,M.Sc.,
QUALIFIED PERSON

209 A

169

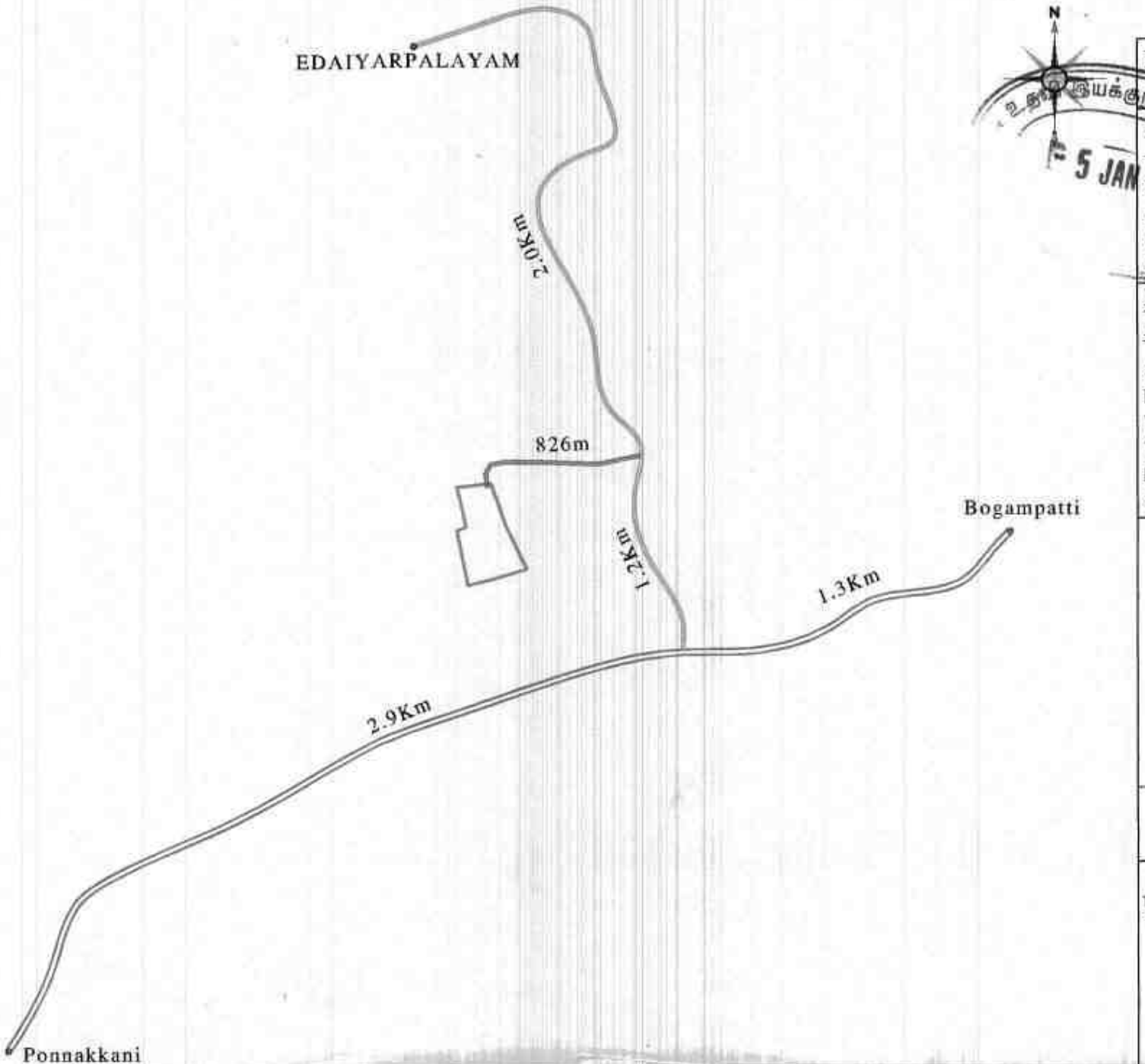


PLATE NO:I-C

DATE OF SURVEY : 23.10.2021

APPLICANT:

THIRU.N.KATHIRESH,
S/O.NADARAJ,
3/175,KARACHERI,PERIYAKUILAI POST,
CHETTIPALAYAM VIA,
COIMBATORE.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NO	: 172/1B,172/2,173/2A2.
EXTENT	: 1.42.82 Ha.
VILLAGE	: EDAIYARPALAYAM,
TALUK	: SULUR,
DISTRICT	: COIMBATORE,
STATE	: TAMIL NADU.

INDEX

Q.L.APPLIED AREA

MAJOR ROAD

VILLAGE ROAD

APPROACH ROAD

ROUTE PLAN

Not To Scale

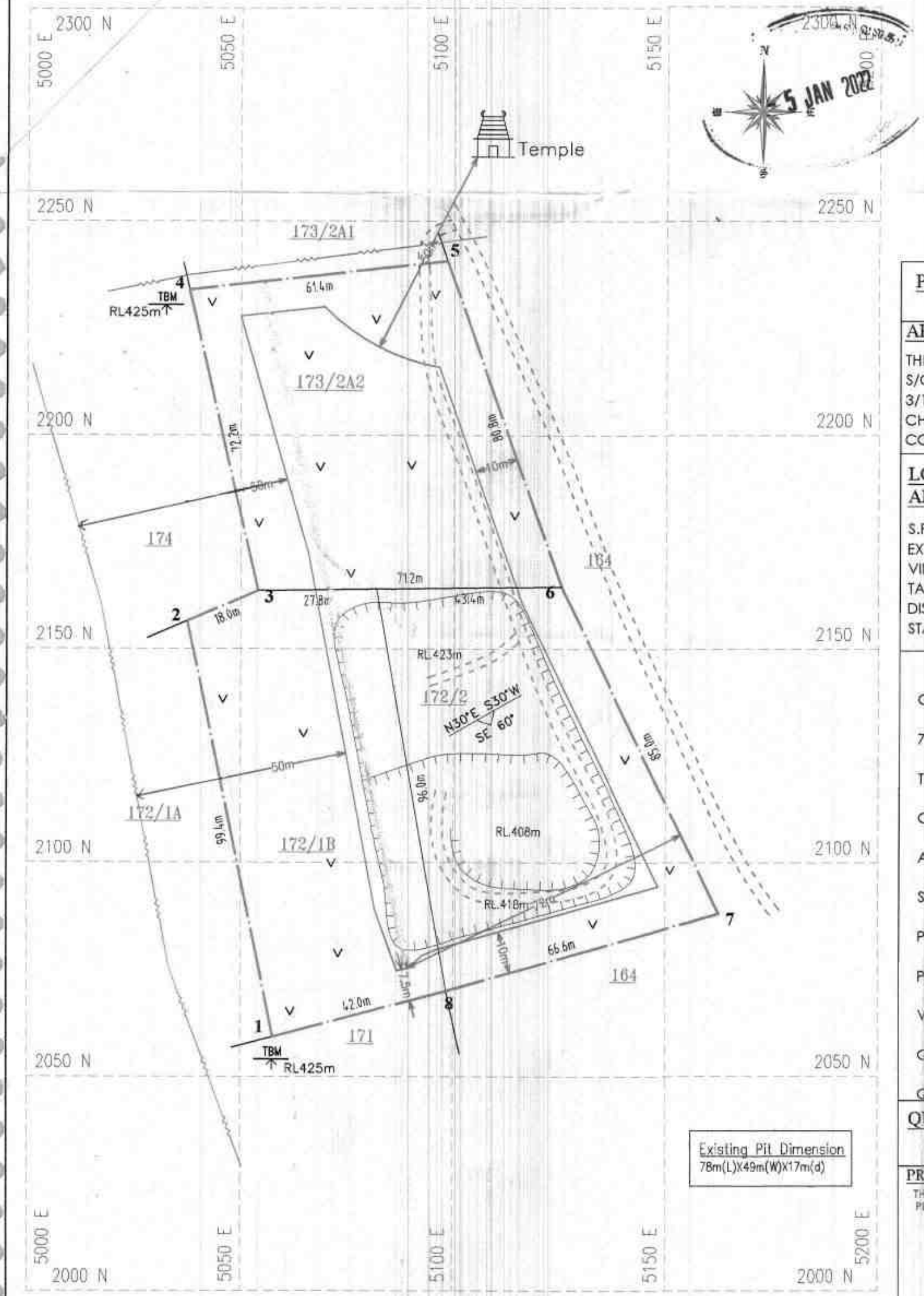
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

P. Viswanathan

P.VISWANATHAN,M.Sc.,
QUALIFIED P[illegible]

210 A



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	10° 54' 56.31"N	77° 06' 49.67"E
2	10° 54' 59.48"N	77° 06' 49.03"E
3	10° 54' 59.71"N	77° 06' 49.57"E
4	10° 55' 02.00"N	77° 06' 49.05"E
5	10° 55' 02.21"N	77° 06' 51.05"E
6	10° 54' 59.73"N	77° 06' 51.92"E
7	10° 54' 57.23"N	77° 06' 53.12"E
8	10° 54' 56.65"N	77° 06' 51.01"E

DATUM : UTM-WGS84, ZONE 43 NORTH

PLATE NO - II

Date of Survey : 23.10.2021

APPLICANT:

THIRU.N.KATHIRESH,
S/O.NADARAJ,
3/175,KARACHERI,PERIYAKUILAI POST,
CHETTIPALAYAM VIA,
COIMBATORE.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NO	: 172/1B,172/2 and 173/2A2.
EXTENT	: 1.42.82 Ha.
VILLAGE	: EDAIYARPALAYAM,
TALUK	: SULUR,
DISTRICT	: COIMBATORE,
STATE	: TAMIL NADU.

INDEX

- Q.L. APPLIED BOUNDARY
- 7.5m,10m&50m SAFETY DISTANCE
- TEMPORARY BENCH MARK (T.B.M)
- GRAVEL
- APPROACH ROAD
- STRIKE AND DIP
- POWER LINE (Tobe Shifted)
- POWER LINE
- VILLAGE ROAD
- QUARRY PIT
- QUARRY ROAD

QUARRY LEASE & SURFACE PLAN

SCALE 1 : 1000

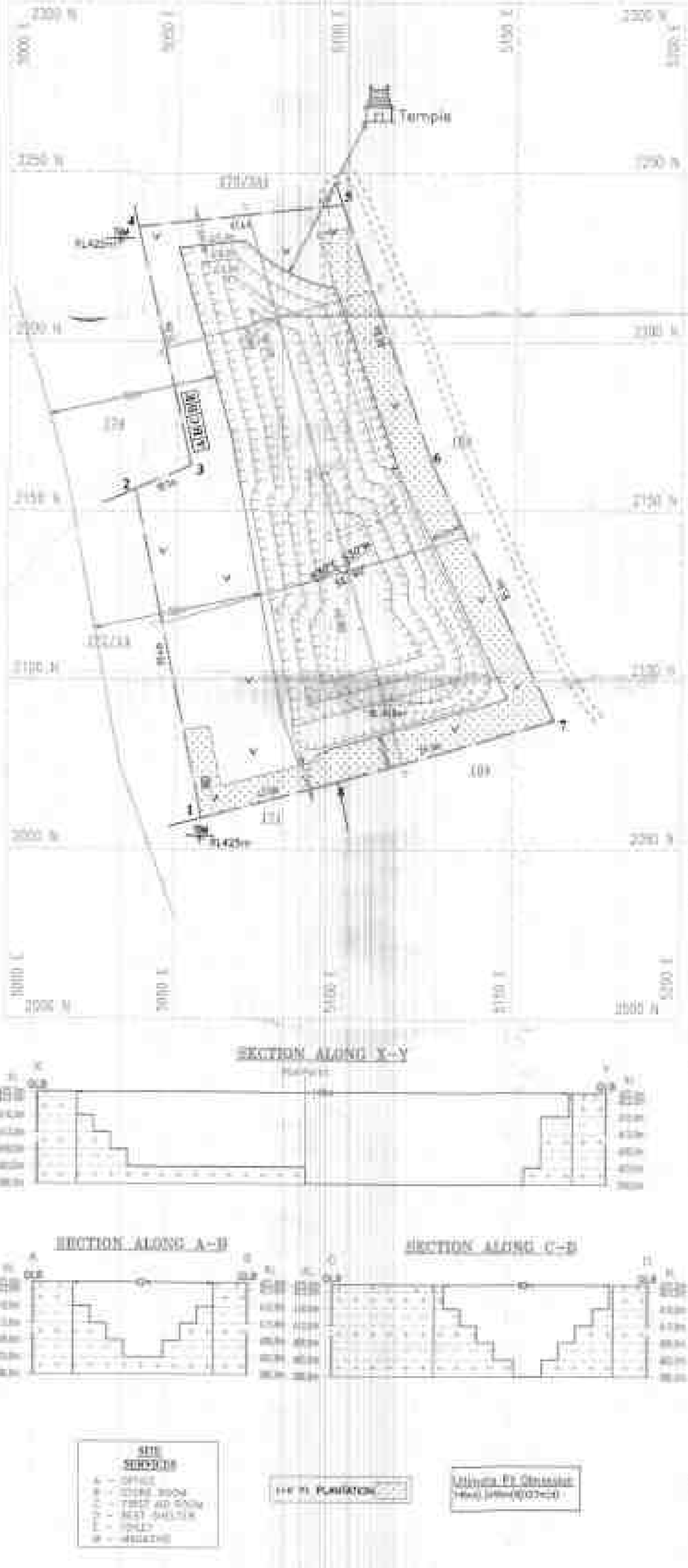
PREPARED BY :

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLATE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

P.VISWANATHAN,M.Sc.,
QUALIFIED PERSON

211 A

171



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	[illegible]	[illegible]
2	[illegible]	[illegible]
3	[illegible]	[illegible]
4	[illegible]	[illegible]
5	[illegible]	[illegible]
6	[illegible]	[illegible]
7	[illegible]	[illegible]
8	[illegible]	[illegible]
[illegible]		

PLATE NO - V

Date of Survey : [illegible]

APPLICANT:

THIRU.N.KATHIRESH,
S/O.NADARAJ,
3/175,KARACHERI,PERIYAKULAI POST,
CHETTIPALAYAM VIA,
COIMBATORE.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NO	: 172/1B,172/2 and 173/2A2
EXTENT	: 1.42.82 Ha.
VILLAGE	: EDAIYARPALAYAM
TALUK	: SULUR
DISTRICT	: COIMBATORE
STATE	: TAMIL NADU

INDEX

- Q.L. APPLIED BOUNDARY
- 7.5m,10m&50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- APPROACH ROAD
- STRIKE AND DIP
- VILLAGE ROAD
- QUARRY PIT
- QUARRY ROAD
- ROUGH STONE
- POWER LINE

CONCEPTUAL PLAN & SECTIONS

SCALE 1 : 1000

PREPARED BY :

[illegible]

212 A

BOUNDARY CO-ORDINATES

S.No.	LATITUDE	LONGITUDE
1	[illegible]	[illegible]
2	[illegible]	[illegible]
3	[illegible]	[illegible]
4	[illegible]	[illegible]
5	[illegible]	[illegible]
6	[illegible]	[illegible]
7	[illegible]	[illegible]
8	[illegible]	[illegible]
[illegible]		

SECTION ALONG X-Y

SECTION ALONG A-B

SECTION ALONG C-D

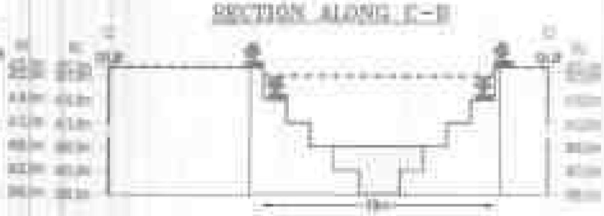


PLATE NO :IV

Date of Survey : 21.10.2021

APPLICANT:

THIRU.H.KATHIRESH,
S/O.NAGARAJ,
3/175,KARACHERI,PERIYAKULAI POST,
CHETTIPALAYAM VIA,
COIMBATORE.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NO	: 173/1B,172/2 and 173/2A2
EXTENT	: 1.42.82 Ha.
VILLAGE	: EDAIYARPALAYAM,
TALUK	: SULUR,
DISTRICT	: COIMBATORE.
STATE	: TAMIL NADU.

INDEX

- Q.L. APPLIED BOUNDARY
- 7.5m,10m&50m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- STRIKE AND DIP
- VILLAGE ROAD
- QUARRY PIT
- QUARRY ROAD
- POWER LINE
- EXISTING LANDFORM
- OLD SURFACE LEVEL
- FINISHED SURFACE LEVEL
- TREES
- SOIL LAYER
- RAIN WATER STORAGE
- REHABILITATED LANDFORM
- FENCING
- PROPOSED GARLAND DRAIN

PROGRESSIVE QUARRY CLOSURE PLAN & SECTIONS

SCALE 1 : 1000

PREPARED BY :

213 A

BOUNDARY CO-ORDINATES

S.No.	LATITUDE	LONGITUDE
1	10° 54' 56.21"N	77° 00' 49.57"E
2	10° 54' 56.48"N	77° 00' 49.02"E
3	10° 54' 56.71"N	77° 00' 48.57"E
4	10° 55' 02.66"N	77° 00' 48.68"E
5	10° 55' 03.21"N	77° 00' 51.06"E
6	10° 54' 58.13"N	77° 00' 51.82"E
7	10° 54' 51.13"N	77° 00' 53.12"E
8	10° 54' 56.40"N	77° 00' 51.01"E

SECTION ALONG X–Y

SECTION ALONG A–B

SECTION ALONG C–D

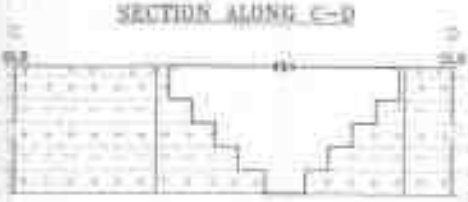


PLATE NO.– V

Date of Survey : 23.10.2021

APPLICANT:

THIRU.N.KATHIRESH,
S/O.NADARAJ,
5/175,KARACHERI(PERIYAKEELAI) POST,
CHETTIPALAYAM VIA,
COIMBATORE.

LOCATION OF QUARRY LEASE APPLIED AREA:

S.F.NO	: 172/1B,172/2 and 173/2A2,
EXTENT	: 1.42.82 Ha.
VILLAGE	: EGAIYARPALAYAM,
TALUK	: SULUR,
DISTRICT	: COIMBATORE,
STATE	: TAMIL NADU.

INDEX

- G.L APPLIED BOUNDARY
- 7.5m, 15m&30m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- APPROACH ROAD
- STRIKE AND DIP
- VILLAGE ROAD
- QUARRY PIT
- QUARRY ROAD
- ROUGH STONE
- POWER LINE

CONCEPTUAL PLAN & SECTIONS

SCALE 1 : 1000

PREPARED BY

214 A'

TOPOGRAPHICAL VIEW OF EDAIYARPALAYAM ROGH STONE AND GRAVEL QUARRY LEASE APPLIED AREA

Name of the Applicant	:	N.Kathiresh,
		S/o. V.Nataraj,
Address	:	No. 3/175, Karacheri,
		Periyakuyili Post, Chettipalayam Via
		Coimbatore District – 641 201.

Location:

S.F.No.	:	172/1B, 172/2 and 173/2A2
Extent	:	1.42.82 Ha
Village	:	Edaiyarpalayam
Taluk	:	Sulur
District	:	Coimbatore

Signature of the Applicant

N.Kathiresh

N.Kathiresh

K. Panu 24/12/2021

(Village Administrative Officer)

Attestation

இடையர்பாளையம் கிரா
ஆலர் வட்டம்

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ப.அ

கோவை மாவட்டம், கிணத்துக்கடவு வட்டம், காரச்சேரி கிராமம், கதவு எண்: 3/175 என்ற முகவரியில் வசிக்கும் V. நடராஜ் மகன் N. கதிரோன் என்பவருக்கு தாலூர் வட்டம், இடையர்பாளையம் கிராமத்தின் க.ச.எண்: 172/1B, 172/2, 173/2A2-ல் 4.வே.1.42.82 ஏர்ல் விஸ்தீரணமுள்ள பூமியானது, பட்டா எண்கள்: 501, 978, 1051-ன் படியும், தாலூர் சார்பதிவாளர் அனுவலக பத்திர எண்கள்: 11105/2020, 2207/2003-ன் படியும் மனுதாரருக்கு கூட்டாக பாத்தியப்பட்டது. மேலும் மேற்படி பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க மனுதாரர் அனுமதி கோரியுள்ளார். மேற்படி பூமிக்கு 300மீ சுற்றளவில் குடியிருப்புகளோ, பள்ளிக்கூடம் ஏதுமில்லை. சுமார் 30மீ தொலைவில் பெருமாள் கோவில் அமைந்துள்ளது என்பதை இதன் மூலம் தெரிவித்துக் கொள்கிறேன்.

24/12/2021

கிராம நிர்வாக அலுவலர்

1. இடையர்பாளையம் கிராமம்

ஆலர் வட்டம்

வருவாய் கோட்டாட்சியர் அலுவலகம்,
கோயம்புத்தூர் தெற்கு
நாள் 01.2021

ந.க.299/2021/அ2

குறிப்பாணை

பொருள் : கனிமங்களும் சுரங்கங்களும் - கோயம்புத்தூர் மாவட்டம் - சூலூர் வட்டம் - இடையர்பாளையம் கிராமம் - புல எண்கள் 172/1B, 172/2, 173/2A காலைகள் – 1.42.82 ஹெக்டேர் பரப்புள்ள பட்டாபூமி – சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க தனியார் குத்தகை உரிமம் கோருதல் - தொடர்பாக.

பார்வை : 1) திரு.N.கதிரேஷ், த./பெ.V.நடராஜ் என்பவரது விண்ணப்பம், நாள் 19.01.2021

2) கோயம்புத்தூர் புவியியல் மற்றும் சுரங்கத்துறை உதவி இயக்குநரின் கடிதம் ந.க.111/கனிமம்/2021, நாள் 20.01.2021

*****

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், இடையர்பாளையம் கிராமம், புல எண்கள் 172/1B, 172/2, 173/2A காலைகளில் முறையே 0.43.72, 0.49.5, 0.49.6 ஆக மொத்தம் 1.42.82 ஹெக்டேர் பரப்புள்ள பட்டா பூமியில், சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க திரு.N.கதிரேஷ், த./பெ.V.நடராஜ் என்பவர் பார்வை 1-இல் காணும் விண்ணப்பம் செய்துள்ளது தொடர்பாக, வரப்பெற்றுள்ள பார்வை 2-இல் காணும் கோயம்புத்தூர் புவியியல் மற்றும் சுரங்கத்துறை உதவி இயக்குநரின் கடிதத்தில் கீழ்க்காணும் விவரங்கள் கேட்கப்பட்டுள்ளன.

1. மனு செய்துள்ள புலங்கள் மனுதாரருக்கு பாத்தியப்பட்டுள்ளதா அல்லது சம்பந்தப்பட்ட பட்டாதாரர்களிடம் சம்மதம் பெற்றுள்ளாரா என்ற விபரம்.
2. விண்ணப்பம் செய்துள்ள பகுதியை புல வரைபடத்தில் தெளிவாக அளவுகளுடன் அடையாளமிட்டு, அதை சுற்றியுள்ள புலங்களின் விவரத்துடன் வட்டாட்சியரின் ஒப்புதலுடன் அனுப்பப்பட வேண்டும்.
3. சாதாரணக் கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குத்தகை உரிமம் கோரியுள்ள புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் அங்கீகரிக்கப்பட்ட வீட்டுமனைகள் /வீட்டுமனைபிரிவுகள் /குடியிருப்புகள் /கிராம நத்தம் இருப்பின் அதன் விவரத்தை குறிப்பிடப்படவேண்டும்.
4. சாதாரணக்கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குத்தகை உரிமம் கோரியுள்ள புலத்திலிருந்து 50 மீட்டர் சுற்றளவில் உயர் மின்னழுத்த கம்பங்கள் அல்லது தாழ் மின்னழுத்த கம்பங்கள் மற்றும் ஓடைப் பகுதிகள் இருப்பின் அதன் விவரம்.
5. மனுதார் குத்தகை உரிமம் கோரியுள்ள புலத்தில் தற்காலிக உரிமம் வழங்கல் அறிவிப்பு செய்து பொதுமக்கள் ஆட்சேபனை ஏதேனும் இருப்பின் அதன் விவரம்.

இத்தேர்வில், புலத்தணிக்கை மற்றும் விசாரணை செய்து, மேற்காண் விவரங்களுடன் விரிவான அறிக்கை அனுப்பி வைக்குமாறு சூலூர் வட்டாட்சியர் கேட்டுக் கொள்ளப்படுகிறார்.

வருவாய் கோட்டாட்சியர்,
கோயம்புத்தூர் தெற்கு

பெறுநர்:
வட்டாட்சியர்,
சூலூர்

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1137/2021 299/2021/A2 89

அனுப்புநர்:

திரு.எஸ்.சிவக்குமார்,
வட்டாட்சியர்,
சூலூர்.

பெறுநர்:

வருவாய் கோட்டாட்சியர்,
கோயம்புத்தூர் தெற்கு.

ந.க: 530/2021/A2 நாள்:01.03.2021

ஐயா,

பொருள் கனிமங்களும் - சுரங்கங்களும் - கோயம்புத்தூர் மாவட்டம் - சூலூர் வட்டம் - இடையர்பாளையம் கிராமம் - புல எண்கள்.172/1B, 172/2, 173/2A ஆகிய காலைகளில் 1.42.82 ஹெக்டேர் பரப்புள்ள பட்டாபூமியில் - சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் புதுப்பித்து வழங்கக் கோரி திரு.கதிரேஷ் த/பெ.நடராஜ் என்பவர் மனு செய்தது அறிக்கை அனுப்புதல் - தொடர்பாக

பார்வை 1.வருவாய் கோட்டாட்சியர் கோயம்புத்தூர் தெற்கு அவர்களின் அலுவலக கடிதம் ந.க.எண்.299/2021/அ2 நாள்.05.02.2021
2.இடையர்பாளையம் கிராம நிர்வாக அலுவலர் அறிக்கை நாள்.24.02.2021
3.செலக்கரிச்சல் நில வருவாய் ஆய்வாளர் அறிக்கை நாள்.25.02.2021

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், இடையர்பாளையம் கிராமம், புல எண்கள்.172/1B, 172/2, 173/2A ஆகிய காலைகளில் 1.42.82 ஹெக்டேர் பரப்புள்ள பட்டாபூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்கக்கோரி திரு.கதிரேஷ் த/பெ.நடராஜ் என்பவர் மனு செய்தது தொடர்பாக பிரஸ்தாப புலத்தினை தணிக்கை மற்றும் விசாரணை மேற்கொண்டு எனதறிக்கையினை கீழ்க்கண்டவாறு அனுப்பி வைக்கிறேன்.

பிரஸ்தாப உரிமம் புதுப்பிக்க கோரிய இடமானது இடையர்பாளையம் கிராமம், க.ச.எண்.172/1B தெ.காலையில் 1.08 ஏக்கர் மற்றும் புல எண்.172/2 தெ.காலையில் 1.22 ஏக்கர் ஆக மொத்தம் 2.30 ஏக்கர் விஸ்தீரணமுள்ள பூமியானது சூலூர் சார்பதிவாளர் அலுவலக கிரைய ஆவண எண்.11105/2020 ன் படியும், புல எண்.173/2A தெ.காலையில் 1.22 ½ ஏக்கர் பூமியானது சூலூர் சார்பதிவாளர் அலுவலக கிரைய ஆவண எண்.11104/2003 ன் படியும், கிராம பட்டா எண்.979, 978 மற்றும் 501 ன் படி நடராஜ் மகன் ரத்தினசாமி(1), நடராஜ் மகன் கதிரேஷ்(2), விஸ்வநாதன் மனைவி லதா(3), காளியப்பன் மகன் ராயப்பன்(4) மற்றும் முத்துச்சாமி மகன் சக்திவேல்(5) ஆகியோருக்கு கூட்டாகப் பாத்தியப்பட்டது. மொத்தம் 3.52 ½ விஸ்தீரணமுள்ள பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க நடராஜ் மகன் கதிரேஷ் என்பவருக்கு குவாரி குத்தகை உரிமம் வழங்க மற்ற பட்டாதாரர்கள் ஆட்சேபனையின்மை தெரிவித்துள்ளனர்.

மேற்படி பிரஸ்தாப புலத்தின் எல்லைகளாக

1.வடக்கில் க.ச.எண்.173/1 காலையில் வீட்டுமனையிடம் மற்றும் 30 மீட்டர் தொலைவில் பெருமாள் கோவிலும்,

2.கிழக்கில் குவாரியும்,

3.தெற்குப்பகுதியில் க.ச.எண்.164/1 ல் பழைய கல்குவாரியும்,

4.மேற்குப்பகுதியில் தோட்டத்து சாலையும் நான்கு எல்லைகளாக அமைந்துள்ளன.

1 மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் நத்தம் குடியிருப்பு பகுதிகளோ, அங்கரிக்கப்பட்ட வீட்டுமனைகளோ ஏதுமில்லை.

2 மேற்படி பூமியானது நகர்ப்புற உச்சவரம்பு சட்டம் 1978-ன் கீழ் கவரப்படவில்லை

3 மேற்படி பூமியானது நில சீர்த்திருத்த சட்டம் 1961-ன் கீழ் கவரப்படவில்லை.

4 மேற்படி பூமியிலிருந்து 300 சுற்றளவிற்குள் அரசு புறம்போக்கு நிலங்களோ, அரசு கட்டிடங்கள், மசூதிகள், தேவாலயங்கள் இந்து சமய அறநிலைத்துறைக்கு சொந்தமான கோவில்கள், பள்ளிகள், கல்லூரிகள் ஏதுமில்லை.

5 மேற்படி பூமியில் புராதானச் சின்னங்கள் ஏதும் இல்லை.

6 மேற்படி புலத்திலிருந்து 300 மீ சுற்றளவில் தேசிய மற்றும் மாநில நெடுஞ்சாலைகள் ஏதும் செல்லவில்லை

7 மேற்படி பூமியில் வாய்க்கால் மற்றும் ஓடைகள் ஏதும் செல்லவில்லை.

8 மேற்படி பூமியில் உயர், குறை மின்னழுத்த கம்பிகள் மற்றும் கைப்பேசி கோபுரம் ஏதுமில்லை.

மனுதாரர் திரு.கதிரேஷ் த/பெ.நடராஜ் என்பவருக்கு சூலூர் வட்டம், இடையர்பாளையம் கிராமம் கிராமம், க.ச.எண்.172/1B நெ.காலையில் 1.08 ஏக்கர், புல எண்.172/2 நெ.காலையில் 1.22 ஏக்கர் மற்றும் எண்.173/2A நெ.காலையில் 1.22 ½ ஏக்கர் ஆக மொத்தம் 3.52 ½ விஸ்தீரணமுள்ள பூமியில் கல்குவாரி உரிமம் வழங்கலாம் என்பதைப் பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

தங்கள் உண்மையுள்ள

1.3.2021.

வட்டாட்சியர்

சூலூர்.

இணைப்பு:ஆவணங்கள்.

219 A

புலத்தணிக்கை குறிப்பு

இடம்: இடையர்பாளையம் கிராமம்

நாள்.20.02.2021

கோயம்புத்தூர் மாவட்டம், சூலூர் வட்டம், இடையர்பாளையம் கிராமம், புல எண்கள்.172/1B, 172/2, 173/2A ஆகிய காலைகளில் 1.42.82 ஹெக்டேர் பரப்புள்ள பட்டாபூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குவாரி குத்தகை உரிமம் வழங்கக்கோரி திரு.கதிரேஷ் த/பெ.நடராஜ் என்பவர் மனு செய்தது தொடர்பாக பிரஸ்தாப புலமானது இன்று(20.02.2021) என்னால் தணிக்கை செய்யப்பட்டது. தணிக்கையின் போது கிராம நிர்வாக அலுவலர் மற்றும் நில வருவாய் ஆய்வாளர் ஆகியோர் உடனிருந்தனர்.

பிரஸ்தாப உரிமம் புதுப்பிக்க கோரிய இடமானது இடையர்பாளையம் கிராமம், க.ச.எண்.172/1B நெ.காலையில் 1.08 ஏக்கர் மற்றும் புல எண்.172/2 நெ.காலையில் 1.22 ஏக்கர் ஆக மொத்தம் 2.30 ஏக்கர் விஸ்தீரணமுள்ள பூமியானது சூலூர் சார்பதிவாளர் அலுவலக கிரைய ஆவண எண்.11105/2020 ன் படியும், புல எண்.173/2A நெ.காலையில் 1.22 ½ ஏக்கர் பூமியானது சூலூர் சார்பதிவாளர் அலுவலக கிரைய ஆவண எண்.11104/2003 ன் படியும், கிராம பட்டா எண்.979, 978 மற்றும் 501 ன் படி நடராஜ் மகன் ரத்தினசாமி(1), நடராஜ் மகன் கதிரேஷ்(2), விஸ்வநாதன் மனைவி லதா(3), காளியப்பன் மகன் ராயப்பன்(4) மற்றும் முத்துச்சாமி மகன் சக்திவேல்(5) ஆகியோருக்கு கூட்டாகப் பாத்தியப்பட்டது. மொத்தம் 3.52 ½ விஸ்தீரணமுள்ள பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க நடராஜ் மகன் கதிரேஷ் என்பவரக்கு குவாரி குத்தகை உரிமம் வழங்க மற்ற பட்டாதாரர்கள் ஆட்சேபனையின்மை தெரிவித்துள்ளனர்.

மேற்படி பிரஸ்தாப புலத்தின் எல்லைகளாக

1.வடக்கில் க.ச.எண்.173/1 காலையில் வீட்டுமனையிடம் மற்றும் 30 மீட்டர் தொலைவில் பெருமாள் கோவிலும்,

2.கிழக்கில் குவாரியும்,

3.தெற்குப்பகுதியில் க.ச.எண்.164/1 ல் பழைய கல்குவாரியும்,

4.மேற்குப்பகுதியில் தோட்டத்து சாலையும் நான்கு எல்லைகளாக அமைந்துள்ளன.

மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் நத்தம் குடியிருப்பு பகுதிகளோ, அங்கீகரிக்கப்பட்ட வீட்டுமனைகளோ ஏதுமில்லை.

2 மேற்படி பூமியானது நகர்ப்புற உச்சவரம்பு சட்டம் 1978-ன் கீழ் கவரப்படவில்லை

3 மேற்படி பூமியானது நில சீர்த்திருத்த சட்டம் 1961-ன் கீழ் கவரப்படவில்லை.

4 மேற்படி பூமியிலிருந்து 300 சுற்றளவிற்குள் அரசு புறம்போக்கு நிலங்களோ, அரசு கட்டிடங்கள், மசூதிகள், தேவாலயங்கள் இந்து சமய அறநிலைத்துறைக்கு சொந்தமான கோவில்கள், பள்ளிகள், கல்லூரிகள் ஏதுமில்லை.

5 மேற்படி பூமியில் புராதானச் சின்னங்கள் ஏதும் இல்லை.

6 மேற்படி புலத்திலிருந்து 300 மீ சுற்றளவில் தேசிய மற்றும் மாநில நெடுஞ்சாலைகள் ஏதும் செல்லவில்லை

7 மேற்படி பூமியில் வாய்க்கால் மற்றும் ஓடைகள் ஏதும் செல்லவில்லை.

8 மேற்படி பூமியில் உயர், குறை மின்னழுத்த கம்பிகள் மற்றும் கைப்பேசி கோபுரம் ஏதுமில்லை.

மனுதாரர் திரு.கதிரேஷ் த/பெ.நடராஜ் என்பவருக்கு சூலூர் வட்டம், இடையர்பாளையம் கிராமம் கிராமம், க.ச.எண்.172/1B நெ.காலையில் 1.08 ஏக்கர், புல எண்.172/2 நெ.காலையில் 1.22 ஏக்கர் மற்றும் எண்.173/2A நெ.காலையில் 1.22 ½ ஏக்கர் ஆக மொத்தம் 3.52 ½ விஸ்தீரணமுள்ள பூமியில் கல்குவாரி உரிமம் வழங்கலாம் என்பதை தெரிவித்து வருவாய் கோட்டாட்சியர் கோயம்புத்தூர் தெற்கு அவர்களுக்கு கடித வரைவு தயார் செய்யவும்.

25.2.2021

ப.அ

கோவை மாவட்டம், சூலூர் வட்டம், 41, சின்னியம்பாளையம் கிராமத்தில் கதிரேசன் த/பெ நடராஜ் என்பவர் இந்த நபர்களுக்கு கூட்டாக பாத்தியப்பட்ட க.ச. எண் 172/1B, க.ச.எண் 172/2 மற்றும் க.ச. 173/2A ஆகிய நிலங்களில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க உரிமம் கோரிய மனுவின் மீது விசாரணை மற்றும் புலத்தணிக்கை மேற்கொள்ளப்பட்டு அறிக்கை பணிந்து சமர்ப்பிக்கப்படுகிறது.

கோவை மாவட்டம், சூலூர் வட்டம், 41, சின்னியம்பாளையம் கிராமம் க.ச.எண் 172/1B-ல் 1.08 ஏக்கர் மற்றும் க.ச. 172/2-ல் 1.22 ஏக்கர் ஆக மொத்தம் 2.30 ஏக்கர் பரப்பு சூலூர் சார்-பதிவாளர் அலுவலக கிரைய ஆவண எண் 11105/2020-ன் படியும், மேலும் க.ச.எண் 173/2A-ல் 1.22½ ஏக்கர் பரப்பு சூலூர் சார்-பதிவாளர் அலுவலக கிரைய ஆவண எண் 11104/2003-ன் படியும், மேற்படி இரு பத்திர எண்களின் படி ஆக மொத்தம் 3.52½ ஏக்கர் பரப்பு திரு. ரத்தினசாமி த/பெ நடராஜ் (1), கதிரேசன் த/பெ நடராஜ் (2), ஜெகநாதன் மனைவி லதா (3), ராமப்பன் த/பெ செல்லப்பன் (4) மற்றும் சக்திவேல் த/பெ முத்துச்சாமி (5) ஆகிய நபர்களுக்கு கூட்டாகப் பாத்தியப்பட்டது எனவும், மேலும் க.ச.எண் 172/1 ஐ உட்பிரிவு செய்து க.ச.எண் 172/1B எனவும், க.ச.எண் 173/2 ஐ உட்பிரிவு செய்து க.ச. 173/2A எனவும் உள்ளது. மேலும் க.ச.எண் 172/1B க்கு பட்டா எண் 978-ம், க.ச எண் 172/2 க்கு பட்டா எண் 501-ம், க.ச.எண் 173/2A-க்கு பட்டா எண் 979-ம் ஆகும். மேற்படி பட்டாவில் மேற்கண்ட ஐந்து நபர்கள் பெயரும் தாக்கலாகியுள்ளது. மேலும் மேற்படி க.ச. எண்கள் 172/1B-ல் 1.08 ஏக்கர், க.ச.எண் 172/2-ல் 1.22 ஏக்கர் மற்றும் க.ச.எண் 173/2A-ல் 1.22½ ஏக்கர் ஆக மொத்தம் 3.52½ ஏக்கர் பரப்பு பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க உரிமம் கோரி கதிரேசன் த/பெ

மேற்படி பூமியில் கிறிஸ்டோ என்பவர் பெயரில் சொத்தாக உரிமம் வழங்க நிதிஷ்சாமி த/பெ நடராஜ் (1), சிவராஜன் மனைவி சுதா (2), ராமப்பன் த/பெ சீனியப்பன் (3) மற்றும் சக்திவேல் த/பெ முத்துச்சாமி (4) ஆகியோர்களுக்கு எவ்வித ஆட்சேபணையும் இல்லை என சம்மதக் கடிதம் அளித்துள்ளனர்.

மேலும் மேற்படி பூமிக்கு வடக்கு பகுதியில் 173/1ல் அங்கீகரிக்கப்படாத வீட்டுமனை இடமும், 30 மீட்டர் தொலைவில் பெருமாள் கோவிலும், பூமிக்கு மேற்கு பகுதியில் 300 மீட்டர் தொலைவில் P.K. பழனிச்சாமி என்பவரது தோட்டத்துச் சாளையும், கிழக்குப் பகுதியில் 20 மீட்டர் தொலைவில் [illegible] என்பவரது சாளையும், 250 மீட்டர் தொலைவில் ஆறுமுகசுப்பிரமணியம் (லேட்) என்பவரது வீடும், பூமிக்கு தெற்கு பகுதியில் க.ச. எண் 164/1 ல் பழைய கல் குவாரியும் மேற்படி பூமிக்கு நான்கு எல்லைகளாக அமைந்துள்ளது. மேலும் வடக்கு பகுதியில் சுமார் 100 மீட்டர் தொலைவில் மத்திய மாநில அரசுகளின் புறவழிச் சாலை அமைய உள்ளதாக பொதுமக்கள் விசாரணையில் தெரிய வருகிறது.

1) மேற்படி பூமியில் அரசு புறம்போக்கு நிலம் ஏதும் இல்லை.

2) மேற்படி பூமியில் இருந்து 300 மீட்டர் சுற்றளவுக்குள் கிராம நத்தம் குடியிருப்பு பகுதியோ, அங்கீகரிக்கப்பட்ட வீட்டுமனைகளோ ஏதும் இல்லை.

3) மேற்படி பூமியானது தமிழ்நாடு நில உச்சவரம்பு சட்டம் 1978-ன் கீழ் பாதிப்படவில்லை.

4) மேற்படி பூமியானது நில சீர்திருத்த சட்டம் 1961-ன் கீழ் பாதிப்படவில்லை.

5) மேற்படி பூமியில் வாய்க்கால் ஓடைகள் ஏதும் செல்வது இல்லை

6) மேற்படி பூமியில் இருந்து 300 மீட்டர் சுற்றளவுக்குள் பள்ளிகளோ, அரசு கட்டிடங்களோ, கோவில்களோ, மசூதிகள், தேவாலயங்கள், மக்கள் குடியிருப்பு பகுதியும் மற்றும் புராதன சின்னங்களோ, சாலைகளோ ஏதும் இல்லை.

7) மேற்படி பூமியில் உயர், தாழ் மின்னழுத்த கம்பிகள் மற்றும் கம்பங்களோ ஏதும் இல்லை. மேற்படி பூமிக்கு 20 மீட்டர் தொலைவில் தாழ் மின்னழுத்த கம்பி செல்கிறது.

8) மேற்படி பூமியிலிருந்து 300 மீட்டர் சுற்றளவில் மாநில மற்றும் தேசிய நெடுஞ்சாலைகள் ஏதும் செல்லவில்லை.

எனவே மேற்படி இடையர்பாளையம் கிராமம் க.ச. எண்கள் 172/1B, 172/2 மற்றும் க.ச. 173/2A ஆகிய நிலங்களில் 3.52 1/2 ஏக்கர் பரப்பளவில் திரு. [illegible] என்பவர் பெயரில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குத்தகை உரிமம் வழங்கிடும் பொருட்டு மேல்நடவடிக்கைக்கு அறிக்கை பணிந்து சமர்ப்பிக்கப்படுகிறது.

25.2.2024
வருவாய் ஆய்வாளர்
செலக்கரிச்சல் உள் வட்டம்,
சூலூர் வட்டம்

பெறுநர்

வட்டாட்சியர் அவர்கள்

சூலூர்

கிராம நிர்வாக அலுவலர் அறிக்கை

[illegible]

[illegible]

[illegible] (2) [illegible]

[illegible]

[illegible] ச.எண் 173/1 22½ [illegible]

எண் 11104/2020 [illegible]

[illegible] 11105/2020 [illegible] 172

[illegible] ச.எண் 172/1ல் 1.08 [illegible]

1.22 [illegible] 352½ [illegible]

[illegible]

[illegible] ச.எண் 173/1 ([illegible]) [illegible]

[illegible] 30 [illegible] 300

[illegible] 20 மீட்டர் [illegible] 20 மீட்டர் [illegible]

[illegible] 300 மீட்டர் [illegible]

ச.எண் 164/1ல் [illegible] 500 [illegible]

[illegible] 45 [illegible]

[illegible]

[illegible] /2021

[illegible]

10/02/2021 99

அ. அறிவிப்பு

[illegible] மாவட்டம், ஊத்துக்குளி வட்டம், 41 இடையர்
பாளையம் கிராமத்தில் க.ச.எண் 172/1B-ல் 0.43.72
ஹெக்டேர், க.ச.எண் 172/2-ல் 0.49.5 மற்றும் க.ச.எண்
173/2A-ல் 0.49.6 ஹெக்டேர் ஆக மொத்தம் 1.42.82 ஹெக்டேர்
பரப்பில் [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible] அறிவிக்கப்படுகிறது
[illegible]

வருவாய் ஆய்வாளர்
செங்கப்பள்ளி உள் வட்டம்
ஊத்துக்குளி வட்டம்

[signature]

S. [illegible] 1/127 இடையர்பாளையம் S. [signature]

ஆர். ரமேஷ் 3/30A இடையர்பாளையம் R Ramesh

S. [illegible] 4/35 இடையர்பாளையம் [signature]

R. Manikandan 3/17 〃 [signature]

K. Palani Sami 1/214 Edayarpalayam K Palanisami

R. மகேந்திரன் 2/52 இடையர்பாளையம் R. மகேந்திரன்

[illegible]

S. Perumalsamy 1/18 இடையர்பாளையம் S. [signature]

227 A

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S. [illegible]	3/40 [illegible]	[illegible]
[illegible]	3/18 இடையர் [illegible]	[illegible]
T [illegible]	1/12 [illegible]	T [illegible]
m. Mohankumar	2/54 E [illegible]	m. Mohankumar
A. [illegible]	11/210 [illegible]	A. [illegible]
[illegible]	55 [illegible]	[illegible]
K. [illegible]	1/11 [illegible]	[illegible]
T [illegible]	2/10 [illegible]	T. [illegible]
S. [illegible]	2/51 [illegible]	S [illegible]
J. [illegible]	3/116 [illegible]	J. [illegible]
M. [illegible]	2/48 [illegible]	M. [illegible]
[illegible]	1/208 [illegible]	K. Rajamani
K. Rajamani	3/20 E [illegible]	L. Kalai
L. Kalai	3/12 [illegible]	

[illegible]

[illegible] 23/2/2021

பொதுமக்கள் வாக்குமூலம்

[illegible]

[illegible] 173/1B - 0.43.7 [illegible] 173/2 - 0.49.5 [illegible] 173/1B - 0.43.7 [illegible] 173/2A - 0.49.6 [illegible] 1.42.82 [illegible]

[illegible]

M. Kumar

[illegible]

S. [illegible] 1/187 [illegible] S. [illegible]

[illegible] 3/35 [illegible] P Ramesh

S. Jayaprakash 3/35 [illegible] [illegible]

[illegible]. Maikandan 3/17 [illegible] [illegible]

K. Palanisami 1/214 Edayarpalayam. K. Palanisami

[illegible] 2/52 [illegible] [illegible]

P [illegible] 1/214 [illegible] P [illegible]

S. [illegible] [illegible]

229 A

SRI ANJANEYA EXPLOSIVES
EXPLOSIVES BLASTING CONTRACTORS
LICENCE No : E/SC/TN/22/200 (E10559)
Prof : A. THANGARAJ

C/o. Raja Medicals, Main Road,
Koduvai Post, Tirupur District.
Phone : 0421-2312610
Mobile : 98422 76627

Date. 7.01.2022

To:

Thiru N.Kathiresh,

S/o V.Nataraj,

No.3/175, Karacheri,

Periyakuyili Post,

Chettipalayam Via, Coimbatore (Dist).

Sir,

Sub:-Regarding blasting Work using explosives in your proposed quarry.

We are having explosive license No in Form 22 holding No:E10559, Situated magazine in SF NO:1335/1, Nelali Village, Kangayam Taluk, Tirupur Dist, Our office functioning at Address 4/356-Velliyampalayam Village, Koduvai Post, Tirupur Taluk & Dist.

We are having two explosive vans for transporting Detonators and Class 2 explosive separately from our magazine to work sites and we have well experienced and licensed blasters and short firer's for safety blasting works for the last Five years without any untoward incidents.

We are willing to undertake blasting work on contract basis at your S.F.NO:172/1B (0.43.72), 172/2 (0.49.50), & 173/2A2 (0.49.60) at the extent (1.42.82) hectares at Edayarpalayam Village, Sulur (Taluk), Coimbatore (Dist), Tamil Nadu.

Thanking you,

Signature,

For Sri Anjeneya Explosives

A.Thanagaraj

(Authorized Signatory)

भारत सरकार | Government of India
वाणिज्य और उद्योग मंत्रालय | Ministry of Commerce & Industry
पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पेसो) | Petroleum & Explosives Safety Organisation (PESO)
पूर्व नाम- विस्फोटक विभाग | Formerly- Department of Explosives
A और D - विंग, ब्लॉक 1-8, दूसरा तल, शास्त्री भवन | A & D - Wing, Block 1-8, IInd Floor, Shastri Bhavan
26 हड्डोउम रोड, नुंगम्बक्कम चेन्नै | 26 Haddous Road, Nungambakkam Chennai 600006
फोन (Phone):- 28281023 | फैक्स (Fax):- 28284848
ई-मेल Email :cceechennai@explosives.gov.in

संख्या (No.) E/SC/TN/22/200(E10559)

दिनांक (Date) 19/03/2019

सेवा में | To,

Sri ANJANEYA EXPLOSIVES & CO.,
MAIN ROAD, KODUVAI-post, Town Village - KODUVAI
District-TIRUPUR, State-Tamil Nadu, Pincode - 638660

72 Ka

विषय Subject: Survey No(s).1355/1, ग्राम NELALI,KANGEYAM taluk, जिला TIRUPUR, राज्य Tamil Nadu में विस्फोटक के मैगजीन में उपयोग के लिए कब्जा हेतु विस्फोटक नियम, 2008 के अंतर्गत LE-3 में जारी अनुज्ञप्ति सं E/SC/TN/22/200(E10559) के नवीनीकरण संदर्भ में।

Possession for Use of of Explosives from magazine situated at Survey No(s). 1355/1, NELALI,KANGEYAM taluk, Dist. TIRUPUR, Tamil Nadu -Licence No. E/SC/TN/22/200(E10559) granted in Form LE-3 of Explosives Rules, 2008 - Renewal regarding

महोदय Sir,

आपके उपर्युक्त विषय पर पत्र संख्या x दिनांक 01/03/2019 का संदर्भ ग्रहण करें। विस्फोटक नियम, 2008 के अंतर्गत प्ररूप LE-3 में जारी अनुज्ञप्ति दिनांक 31/3/2024 तक नवीनीकृत कर इस पत्र के साथ भेजी जा रही है।
Reference to your letter No. x dated: 01/03/2019, the subject licence duly renewed upto 31/3/2024 and issued in Form LE-3 of Explosives Rules, 2008 is forwarded herewith.

अनुज्ञप्ति के आगामी नवीकरण हेतु कृपया निम्नलिखित दस्तावेज दिनांक 31/03/ 2024 से पहले इस कार्यालय को भेजे जाएं
For further renewal of licence, please submit the following documents so as to reach this office on or before 31/3/2024.

- प्ररूप आरई-I में विधिवत पूर्ण एवं हस्ताक्षरित आवेदन।
  Application in Form RE-I duly filled in and signed.
- एक से पाँच वर्ष के अनुज्ञप्ति शुल्क का बैंक ड्राफ्ट। बैंक ड्राफ्ट किसी भी राष्ट्रीयकृत बैंक के नाम आहरित, संयुक्त मुख्य विस्फोटक नियंत्रक, चेन्नई के पक्ष में चेन्नई में देय हो।
  Licence fees for one to five years in the form of demand draft drawn on any Nationalized Bank in favour of Jt. Chief Controller of Explosives, Chennai payable at Chennai
- अनुमोदित प्लान के साथ मूल अनुज्ञप्ति।
  Original licence with approved plan.
- कृपया इस संबंध में विस्फोटक नियम, 2008 के नियम 112 का भी संदर्भ ग्रहण करें।
  In this connection, please also refer to Rule 112 of Explosives Rules, 2008.
- विस्फोटकों के क्रय हेतु आरई-11 में मांगपत्र (इंडेंट) आपूर्तिकर्ता को दिया जाए और उसी की एक प्रति इस कार्यालय को भेजी जाए (आतिशबाजी गोदाम के लिए लागू नहीं)।
  Indent for purchase of explosives shall be placed in RE-11 with the supplier and copy of the same shall be sent to this office.(Not applicable for fireworks store house)
- कृपया विस्फोटकों की त्रैमासिक विवरणी हर तिमाही के अंत में आरई-7 में प्रस्तुत की जाए। विवरणी इस कार्यालय के कार्यालय में आगामी तिमाही के 10 तारीख से पहले पहुंच जानी चाहिए (आतिशबाजी गोदाम के लिए लागू नहीं)। Please submit quarterly returns of explosives in RE-7 at the end of every quarter so as to reach this office by 10th of the succeeding quarter.(Not applicable for fireworks store house)
- सभी ब्लास्टिंग आपरेशन एक सक्षम दवारा की जाएगी जो उपरोक्त नियमों के तहत एक वैध शॉट फायर प्रमाणपत्र धारक हो। हालांकि, खान अधिनियम 1952 के अधीन आने वाले खानों में ब्लास्टिंग आपरेशन करने वाले ब्लास्टर की योग्यता उसी अधिनियम से निर्धारित हो।
  All blasting operations shall be carried out by a competent person holding a valid shot firer's permit granted under above rules. However, blasting operations in mines coming under the purview of the Mines Act 1952, the blaster shall have qualifications prescribed in the regulations framed under the said Act.

भवदीय Yours faithfully,

(डी.सी.पांडेय | D.C.PANDEY)
विस्फोटक नियंत्रक | Controller of Explosives
कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives
दक्षिणांचल, चेन्नै | South Circle, Chennai

प्रतिलिपि प्रेषित | Copy Forwarded to:
1. जिला मजिस्ट्रेट (District Magistrate), TIRUPUR (Tamil Nadu)- सूचना के लिए (for information.)

कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives
दक्षिणांचल, चेन्नै | South Circle, Chennai

(अधिक जानकारी जैसे आवेदन की स्थिति, शुल्क आदि के लिए हमारी वेबसाइट http://peso.gov.in देखें।)
(For more information regarding status,fees and other details please visit our website http://peso.gov.in)

अनुज्ञप्ति प्ररूप एल. ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए)।
(See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)

(क) उपयोग के लिए एक समय पर वर्ग 1,2,3,4,5 या वर्ग 7 के विस्फोटक या किसी मैगज़ीन में वर्ग 6 के विस्फोटक रखने
Licence to possess (a) for use explosives of class 1, 2,3,4,5,6 or 7 in a magazine

अनुज्ञप्ति सं. (Licence No.) : E/SC/TN/22/200(E10559)
वार्षिक फीस रुपए (Annual Fee Rs.) 3000/-

1. Licence is hereby granted to

M/s ANJANEYA EXPLOSIVES & CO. (अधिभोगी / Occupier : Shri A. Thangaraj), MAIN ROAD, KODUVAI-post, Town/Village - KODUVAI, District-TIRUPUR, State-Tamil Nadu, Pincode - 638660

(i) अनुज्ञप्ति अनुदत्त की जाती है।

2. अनुज्ञप्तिधारी की प्रास्थिति Status of licensee : Partnership Firm

3. अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमान्य है।
Licence is valid only for the following purpose

possess for use of Nitrate Mixture, Detonators, Safety Fuse, Detonating Fuse, के उपयोग के लिए

4. अनुज्ञप्ति विस्फोटकों के निम्नलिखित किस्मों प्रकार और मात्रा के लिए विधिमान्य है।
Licence is valid for the following kinds and quantity of explosives : – (क) (a)

क्र. Sl. No	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1	Nitrate Mixture	2	ब	1000 Kg
2	Detonators	6	2	15000 Nos.
3	Safety Fuse	6	1	5000 Mtrs
4	Detonating Fuse	6	2	10000 Mtrs

(ख) किसी एक कलैंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा [अनुच्छेद 3(क) और (ग) के अधीन अनुज्ञप्ति के लिए]
(b) Quantity of explosives to be purchased in a calendar month [applicable for licence under article 3(b) and (c)] 25 times as above.

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञप्त परिसर की पुष्टि होती है।
The licensed premises shall conform to the following drawing(s).

रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/200(E10559)
दिनांक (Dated) 09/12/2002

6. अनुज्ञप्ति परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:
Survey No(s). 1355/1, ग्राम (Town/Village) : NELALIKANGEYAM taluk,
जिला (District) TIRUPUR, राज्य (State) Tamil Nadu, पुलिस थाना (Police Station) : KODUVAI
दूरभाष (Phone) 9842276627, ई. मेल (E-Mail), पिनकोड (Pincode), फैक्स (Fax)

7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट है।
The licensed premises consist of following facilities

MAIN ROOM LOBBY AND DETONATORS(since detonating fuse also to be accounted and accommodated and accordingly the high explsoives quantity is restricted to 1000kg)

8. अनुज्ञप्ति समय समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उसके 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 provisions of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures

1. उपर्युक्त क्रम सं. 5 में यथा वर्णित रेखाचित्र (स्थान, संनिर्माण संबंधी और अन्य विवरण दर्शित करते हुए)।
Drawings (showing site, constructional and other details) as stated in serial No. 5 above
2. अनुज्ञप्ति प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञप्ति की शर्तें और अतिरिक्त शर्तें।
Conditions and Additional Conditions of this licence signed by the licensing authority
3. दूरी प्ररूप DE-2 Distance Form DE-2

9. यह अनुज्ञप्ति तारीख 31 मार्च 2004 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2004.

10. यह अनुज्ञप्ति अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञप्ति की शर्तों का अतिक्रमण करने या यदि अनुज्ञप्त परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या परिसंहृत की जा सकती है जहां वह लागू हो।
This license 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 : 09.12.2002

Sd -
संयुक्त मुख्य विस्फोटक नियंत्रक : Joint Chief Controller of Explosives
South Circle, Chennai

Amendments :
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 03/06/2011
- Change in Authorized Signatory/Occupier/Partners/Directors dated : 28/12/2011
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 29/05/2012
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 22/05/2014
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 04/12/2014

नवीनीकरण के पृष्ठांकन के लिए स्थान
Space for Endorsement of Renewal

नवीकरण की तारीख Date of Renewal	समाप्ति की तारीख Date of Expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प Signature of licensing authority and stamp
19/03/2019	31/03/2024	Jt. Chief Controller of Explosives, South Circle, Chennai

GOVERNMENT OF INDIA
MINISTRY OF COMMERCE & INDUSTRY
PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION(PESO)
(Formerly Department of Explosives)
A & D - Wing, Block 1-8, IInd Floor, Shastri Bhavan
26 Haddous Road, Nungambakkam Chennai 600006
Tele: 28281023 Fax: 28284848
Email: jtcecchennai@explosives.gov.in

No:**E/SC/TN/25/745(E71911)**

Dated : 14/02/2018

To,
A Thangaraj,
M/s. Sri Anjaneya Explosives, Raja Complex, Koduvai (Post), Tiruppur.
Town/Village - Tirupur
Distt. TIRUPUR, State Tamil Nadu, Pincode-0

Subject: **Road Van for the carriage of Explosives Registration No TN-42 H 4253 Licence No.E/SC/TN/25/745(E71911) granted in Form LE-7 of of Explosives Rules 2008 - Renewal regarding**

Sir(s),

Reference to your letter No.: NIL dated: 12/02/2018, the subject licence duly renewed upto **31/3/2023** 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 **31/3/2023**.

- Application in Form RE-1 duly filled in and signed.
- Licence fees for one to five years in the form of demand draft drawn on any Nationalized Bank in favour of Jt. **Chief Controller of Explosives, Chennai** payable at Chennai.
- 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 Administrattion as required in Rule 67(7) of Explosives Rules 2008.

An amount of Rs. 300/- balance is in your credit, which may be utilized for future transaction by quoting this reference.

Enclosures :

14-Feb-18
234 A

Licence Endorsed under Rule 107(3) of Explosives Rules,2008
By Shri UJWAL SHANKAR BHANGE, Dy. Controller of Explosives, Chennai on 05/06/2013

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 1 of Schedule IV of Explosives Rules, 2008)

अनुज्ञप्ति : सडक वैन में विस्फोटकों के परिवहन के लिए
Licence to : transport explosives in a road van

अनुज्ञप्ति संख्या / Licence No. : E/SC/TN/25/745(E71911)
वार्षिक फीस रूपए / Annual Fee Rs : 2500/-

1. अनुज्ञप्ति एतदद्वारा जारी की जाती है
   Licence is hereby granted to : **A Thangaraj (Occupier : A. Thangaraj)**
   M/s. Sri Anjaneya Explosives, Raja Complex, Koduvai (Post),
   Tiruppur.,
   District-TIRUPUR, State-Tamil Nadu, Pincode-0
2. अनुज्ञप्तिधारी की प्रास्थिति / Status of licensee : **Individual**
3. सड़क वैन की विशिष्टियाँ / Particulars of the road van:

पंजीकरण संख्या / Registration No.	**TN-42 H 4253**
यान का मेक एवं मॉडल / Make and model of vehicle	071 MAHINDRA AND MAHINDRA LD.
लदान रहित वजन / Unladen weight	1875 Kg(s)
लदान सहित अधिकतम वजन / Maximum laden weight	2450 Kg(s)
परिवहन के लिए अनुज्ञेय विस्फोटकों की अधिकतम मात्रा Maximum quantity of explosives permitted for transport	575 Kg(s)
इंजिन संख्या / Engine No.	GLC1M88147
चैसिस संख्या / Chassis No.	MA1ZP2GLKD1A11076
अन्य फिटिंग्स का विवरण / Desription of Other Fittings	Fire Extinguisher, Spark Arrestor
वाहन के लिए अनुमत्य विस्फोटकों की मात्रा / Quantity of Explosives permitted to carry	575 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/25/745(E71911) दिनांक / dated : 05/06/2013
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

Cert No. MR/SZ/901

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 जयकुमार के सुपुत्र कंडासामी
जिनकी जन्म तिथि 07.05.1971 है, को अपनी
आयु स्वस्थता, सदाचार, साक्षरता और धात्विकीय खानों में काम करने के विहित अनुभव का सन्तोषजनक प्रमाण
प्रस्तुत करने एवं दिनांक 24.03.2018 को जी.वी.टी.सी. त्रिची केन्द्र पर आयोजित
विहित परीक्षा में उत्तीर्ण होने पर एतद्द्वारा केवल ओपेनकास्ट खानों तक सीमित मेट सक्षमता प्रमाण-पत्र
प्रदान किया जाता है।

Shri Jayakumar K son of Kandasamy
born on 07.05.1971 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 24.03.2018 is hereby granted MINING MATE'S CERTIFICATE OF
COMPETENCY restricted to mines having opencast workings only.

बाएं का निशान
Left hand thumb impression

अंचल सचिव
खनन परीक्षा बोर्ड
Zonal Secretary
Board of Mining
Examinations
Board of Mining Examinations
Southern Zone, Bangalore
Signed and Sealed

अध्यक्ष
खनन परीक्षा बोर्ड
Chairman
Board of Mining
Examinations

GOVERNMENT OF INDIA
MINISTRY OF COMMERCE & INDUSTRY
PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION(PESO)
(Formerly Department of Explosives)
A & D - Wing, Block 1-8, IInd Floor, Shastri Bhavan
26 Haddous Road, Nungambakkam Chennai 600006
Tele: 28281023 Fax: 28284848
Email: jtccechennai@explosives.gov.in

No:**E/SC/TN/25/595(E56115)**

Dated : 16/03/2020

To,
Sri A.Thangaraj,
Sri Anjaneya Explosives & Co., C/o. Raja Medicals, Koduvai (Post), Tiruppur District. Tamilnadu
Town/Village - Koduvai
Distt. TIRUPUR. State. Tamil Nadu, Pincode-638660

Subject: **Road Van for the carriage of Explosives Registration No TN42 C 3839 Licence No.E/SC/TN/25/595 (E56115) granted in Form LE-7 of of Explosives Rules 2008 - Renewal regarding**

Sir(s),

Reference to your letter No.: x dated: 05/03/2020, the subject licence duly renewed upto **31/3/2025** 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 **31/3/2025**.

- 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 Administrattion as required in Rule 67(7) of Explosives Rules 2008.

Enclosures :

Yours faithfully,

(ARUN NANDI)
Dy. Controller of Explosives
For Joint Chief Controller of Explosives
South Circle, Chennai

Copy Forwarded to:

1. **District Magistrate, TIRUPUR (Tamil Nadu) for information.**

For Joint Chief Controller of Explosives
South Circle, Chennai

[For more information regarding status, fees and other details, please visit our web site http://peso.gov.in]

Licence endorsed under Rule 107(3) of Explosives Rules,2008
Sri. Dr. S. K. Dixit, Controller of Explosives, Chennai on 06/12/2010

अनुज्ञप्ति प्ररूप एलई – 7 | LICENCE FORM LE-7
(विस्फोटक नियम 2008 की अनुसूची 4 के भाग I का अनुच्छेद 7 देखें)
(See article no 7 of Part I of Schedule IV of Explosives Rules, 2008)

अनुज्ञप्ति : सडक वैन में विस्फोटकों के परिवहन के लिए
Licence to : transport explosives in a road van

अनुज्ञप्ति संख्या / Licence No. : E/SC/TN/25/595(E56115)
वार्षिक फीस रूपए / Annual Fee Rs : 2500/-

1. अनुज्ञप्ति एतदद्वारा जारी की जाती है
Licence is hereby granted to : **Sri.A.Thangaraj (Occupier : A.Thangaraj)**
Sri Anjaneya Explosives & Co., C/o. Raja Medicals, Koduvai (Post), Tiruppur District. Tamilnadu,
District-TIRUPUR, State-Tamil Nadu, Pincode-638660
2. अनुज्ञप्तिधारी की प्रास्थिति / Status of licensee : **Individual**
3. सड़क वैन की विशिष्टियाँ / Particulars of the road van:

पंजीकरण संख्या / Registration No.	TN42 C 3839
यान का मेक एवं मॉडल / Make and model of vehicle	Mahindra Mahindra ltd
लदान रहित वजन / Unladen weight	1830 Kg(s)
लदान सहित अधिकतम वजन / Maximum laden weight	2450 Kg(s)
परिवहन के लिए अनुज्ञेय विस्फोटकों की अधिकतम मात्रा Maximum quantity of explosives permitted for transport	620 Kg(s)
इंजिन संख्या / Engine No.	GKA 1 F 39797
चैसिस संख्या / Chassis No.	MAIZP 2GKAA 1F43598
अन्य फिटिंग्स का विवरण / Desription of Other Fittings	Fire extinguishers,Spark Arrestor, Battery, cutoff switch.
वाहन के लिए अनुमत्य विस्फोटकों की मात्रा / Quantity of Explosives permitted to carry	620 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/25/595(E56115) दिनांक / dated : 26/11/2010
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 2015** तक विधिमान्य रहेगी / This licence shall remain valid till **31st day of March 2015**

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 आरेखण या उससे संलग्न उपाबद्धों में दर्शाए गए विवरण के अनुरूप नहीं पाए जाने पर निलम्बित या प्रतिसंहृत 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: 26/11/2010

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 Date of Renewal	वैधता समाप्ति की तिथि Date of Expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर Signature of licensing authority
16/03/2020	31/03/2025	Jt. Chief Controller of Explosives, South Circle, Chennai

वैधानिक चेतावनी : विस्फोटकों का लापरवाही से प्रयोग या दुरूपयोग, विधि के अधीन गम्भीर दाण्डिक अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

K.V. GIRIDHAR, I.F.S
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU
3rd Floor, Panagal Maaligai,
No.1 Jeenis Road, Saidapet,
Chennai-15.
Phone No.044-24359973
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.7480/1(a)/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, Sulur 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 157th SEAC Meeting held on 20.06.2020.
4. Proponent reply dated: 09.09.2020.
5. Minutes of the 177th SEAC meeting held on 26.09.2020.
6. Minutes of the 406th 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	**Name of Project Proponent and address**	Tmt.N.Chithradevi W/o.S.Nandhagopal No.3/349, GVP Nagar Perur Chettipalayam (via) Coimbatore District - 641010
2	**Location of the Proposed Activity**	
	Survey Number	179/2(P)
	Latitude and Longitude	10°54'33.16"N to 10°54'41.78"N 77°06'40.42"E to 77°06'47.14"E
	Village	Edayarpalayam
	Taluk	Sulur
	District	Coimbatore
3	**Proposed Activity**	
	i. Minor mineral	Rough stone & Gravel quarry
	ii. Mining Lease Area	3.64.5 ha
	iii. Approved quantity	263226cu.m of Rough stone & 27000cu.m of Gravel
	iv. Depth of Mining	47m (2m Gravel and 45 m of Rough Stone)
	v. Type of mining	Opencast Mechanized Mining
	vi. Category(B1/B2)	B2
	vii. Precise area communication approved by the District Collector with date	Na.Ka.No.614/Kanimam/2018, Dated:30.07.2019
	viii. Mining plan approval by Assistant Director of Geology and Mining, with date	Rc.No.614/Mines/2018, Dated:12.09.2019
	ix. Mining period	5 Years
4	**Whether Project area attracts any General conditions specified in the EIA notification,**	Not attracted.

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	2006 as amended:-	
5	**Man Power requirement per day:**	31 Employees
6	**Utilities**	
	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	**Cost**	
	i. Project Cost	Rs. 142.60 Lakhs
	ii. EMP Cost	Rs. 3.80 Lakhs
8	**Validity:** **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 3.64.5Hectares 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 (Rs. In Lakhs)	CER Cost 2.0% of project cost (Rs. In Lakhs)
1. Developing the Garden maintenance in Edayarpalayam School. 2. If we are instructed by PWD/Competetnt bodies to desilt the water bodies nearby. We assure to spend out bunds of the nearby water bodies.	146.407	2.93
Total Cost Allocation	**146.407**	**2.93**

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, Sulur 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, Sulur 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, Sulur 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, Sulur 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.	Lease Period
1	Thiru. M.Arumugam	Edayar palayam Village, Sulur Taluk	172/2	0.49.5	15.08.2008 to 17.05.2013
2	Ponnammal	Edayar palayam Village, Sulur Taluk	178/2	2.34.5	-
3	Government Quarry	Edayar palayam Village, Sulur 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

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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 177th 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 406th 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 p

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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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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

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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.

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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, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, TNPC Board, 76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Coimbatore District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
29 OCT 2020

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,Sulur Taluk, Coimbatore District- Issue of Environmental Clearance – Reg.

Ref:
1. Your Application for Environmental Clearance dt: 12.09.2016
2. Minutes of the 82nd 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.

1	**Name of Project Proponent and address**	Thiru. V. Saravanan S/o. Velusamy No.3/165, Atjhikuttai Thottam Idayarpalayam Coimbatore - 641016
2	**Location of the Proposed Activity**	
	Survey Number	171/2 (Part) & 176/2 (Part)
	Latitude and Longitude	10°54'53"N to 10°54'56"N 77°06'43"E to 77°06'49"E
	Village	Idayarpalayam
	Taluk	Sulur
	District	Coimbatore

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3	**Proposed Activity**	
	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 Rc.No. 472/2016/Mines dated 27.08.2016
	ix. Mining lease period	5 Years
4	**Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-**	Not attracted. Affidavit furnished
5	**Man Power requirement per day:**	14 Employees
6	**Utilities**	
	i. Source of Water :	Water vendors/Existing Borehole
	ii. Quantity of Water Requirement in KLD:	
	a. Domestic b. Industrial c. Green Belt & Dust Suppression	0.3KLD } 0.7KLD
	iii. Power Requirement: a. Domestic Purpose b. Industrial Purpose	 TNEB 29940 Litres of HSD
7	**Cost** i. Project Cost ii. EMP Cost	 Rs.29.15 Lakhs Rs.4.25 Lakhs
8	**Public Consultation:-**	Not required as per O.M. dated 24.12.2013 of MoEF, GoI.
9	**Date of Appraisal by SEAC:-** **Agenda No:**	21.10.2016 & 22.10.2016 82-16
10	**Date of Review/Discussion by SEIAA and the Remarks:-** 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	**Validity:** **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.**	

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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.

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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.

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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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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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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, ShastriBhawan, 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, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Chairman, Central Pollution Control Board, PariveshBhawan, 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. EI Division, Ministry of Environment & Forests, ParyavaranBhawan, New Delhi.
10. Spare.

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.044-24359973

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.5691/1(a)/ EC.No: 3863 /2016 dated: 31.05.2017

To
Thiru. B. Sakthivel
S/o. Balakrishnan
No.2/30, Periyakuyilai
Chettipalayam (Via)
Coimbatore District

Sir,

Sub: SEIAA-TN – Proposed **Rough Stone & Gravel** quarry located at S.F.No 164/6A (P) & 164/7, Idayarpalayam Village,Sulur Taluk, Coimbatore District- issue of Environmental Clearance – Reg.

Ref:
1. Your Application for Environmental Clearance dt: 31.08.2016
2. Minutes of the 82nd SEAC held on 21.10.2016 & 22.10.2016
3. Minutes of the 213rd SEIAA meeting held on 31.05.2017

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.

1	**Name of Project Proponent and address**	Thiru. B. Sakthivel No.2/30, Periyakuyilai Chettipalayam (Via) Coimbatore District
2	**Location of the Proposed Activity**	
	Survey Number	164/6A (P) & 164/7
	Latitude and Longitude	10°54'56.69"N to 10°55'01.20"N 77°06'52.82"E to 77°06'57.82"E
	Village	Idayarpalayam
	Taluk	Sulur

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	District	Coimbatore
3	**Proposed Activity**	
	i. Minor mineral	Rough Stone & Gravel
	ii. Mining Lease Area	1.19.5 Ha
	iii. Approved quantity	76650 cu.m of Rough stone & 6328 cu.m of Gravel
	iv. Depth of Mining	32 m
	v. Type of mining	Opencast Semi Mechanized Mining Method
	vi. Category(B1/B2)	B2
	vii. Precise area communication	R.C. 489/Mines/2016, dated: 17.08.2016
	viii. Mining plan approval	Assistant Director R.C.No. 489/Mines/2016, dated: 27.08.2016
	ix. Mining lease period	5 Years
4	**Whether Project area attracts any General conditions specified in the EIA notification, 2006 as amended:-**	Not attracted. Affidavit furnished
5	**Man Power requirement per day:**	11 Employees
6	**Utilities**	
	i. Source of Water :	Water vendors/Existing bore hole
	ii. Quantity of Water Requirement in KLD:	
	a. Domestic b. Industrial c. Green Belt & Dust Suppression	0.3KLD } 0.7KLD
	iii. Power Requirement: a. Domestic Purpose b. Industrial Purpose	TNEB 62362 Liters of HSD
7	**Cost** i. Project Cost ii. EMP Cost	Rs.49.89 Lakhs Rs.7.10 Lakhs
8	**Public Consultation:-**	Not required as per O.M. dated 24.12.2013 of MoEF, GoI.
9	**Date of Appraisal by SEAC:-** **Agenda No:**	21.10.2016 & 22.10.2016 82-2
10	**Date of Review/Discussion by SEIAA and the Remarks:-** The proposal was placed before the SEIAA in its **213th** Meeting held on **31.05.2017** 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	**Validity:** **This Environmental Clearance is granted to Mining of Rough Stone & Gravel for the production quantity of 76650 cu.m of Rough Stone & 6328 cu.m of Gravel for the period of 5 Years from the date of execution of the Mining Lease period.**	

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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.

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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.

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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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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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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 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.
67. The Project Proponent shall plant not less than 500 trees along the public road/school premises in consultation with the local body.

MEMBER SECRETARY
SEIAA-TN

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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/001	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/001
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ 1 – CORE ZONE 10°55'1.74"N 77° 6'49.45"E**		

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)
05.12.2022	7:00-7:00	45.5	23.5	6.2	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	43.2	22.1	7.3	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	42.1	21.3	8.2	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	44.1	24.6	6.0	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	45.0	25.2	7.8	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	46.3	22.3	6.3	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	47.1	24.5	8.2	20.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	43.1	25.1	7.0	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	44.2	22.1	8.1	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	46.3	23.4	6.4	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	44.2	21.4	7.5	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	42.3	22.0	6.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	42.0	21.3	7.3	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	43.6	24.2	8.1	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	44.5	22.3	7.6	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	45.6	22.1	8.3	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	47.2	23.0	6.1	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	46.3	24.2	6.4	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	44.2	25.3	7.3	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	46.0	25.0	8.2	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	45.3	24.3	7.1	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2023	7:15-7:15	47.2	23.5	6.8	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	46.3	22.1	8.6	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	44.1	23.6	8.2	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2023	7:00-7:00	47.3	24.5	7.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2023	7:15-7:15	46.5	26.1	6.4	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

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EHS 360 LABS PRIVATE LIMITED

TEST REPORT

Report No	EHS360/TR/2022-23/001	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/001
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ 1 – CORE ZONE 10°55'1.74"N 77° 6'49.45"E**		

Date	Period. hrs	SPM (µg/m³)	As (ng/m³)	C6H6 (µg/m³)	BaP (ng/m³)	Pb (µg/m³)	Ni (ng/m³)
05.12.2022	7:00-7:00	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	69.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	60.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	67.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	69.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	60.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	68.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	69.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	60.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.02.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.02.2023	7:00-7:00	69.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.02.2023	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;**DL**: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/002	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/002
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ 2 – Core Zone - 10°54'44.79"N 77° 6'52.63"E**		

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)
05.12.2022	7:00-7:00	45.5	23.2	7.2	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	46.1	23.1	6.3	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	47.2	24.1	8.0	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	49.2	25.3	7.5	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	46.3	23.1	6.8	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	47.2	24.2	7.0	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	45.2	22.1	6.2	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	46.2	25.3	7.3	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	47.0	26.1	6.4	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	48.2	24.3	6.0	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	49.3	25.1	7.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	47.2	26.3	8.3	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	45.1	25.1	6.5	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	46.5	26.3	7.3	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	47.2	27.3	6.8	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	48.3	25.1	7.2	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	46.2	26.3	6.5	23.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	47.3	27.1	8.1	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	45.3	25.2	6.4	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	46.1	26.3	6.3	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	47.2	27.0	7.2	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2023	7:15-7:15	48.2	26.1	6.5	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	49.2	27.3	7.6	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	48.1	25.3	8.3	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2023	7:00-7:00	47.2	26.3	6.5	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2023	7:15-7:15	48.3	24.3	7.3	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;**DL**: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

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EHS 360 LABS PRIVATE LIMITED

TEST REPORT

Report No	EHS360/TR/2022-23/002	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/002
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ 2 – Core Zone - 10°54'44.79"N 77° 6'52.63"E**		

Date	Period. hrs	SPM (µg/m³)	As (ng/m³)	C6H6 (µg/m³)	BaP (ng/m³)	Pb (µg/m³)	Ni (ng/m³)
05.12.2022	7:00-7:00	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	61.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	61.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	65.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	63.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	62.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.02.2023	7:15-7:15	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.02.2023	7:00-7:00	61.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.02.2023	7:15-7:15	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;**DL**: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory
Name : Santhosh Kumar A
Designation : Quality Manager

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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/003	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/003
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ3 – SN Palayam 10°56'23.05"N 77° 8'23.14"E**		

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)
05.12.2022	7:00-7:00	45.5	23.2	6.2	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	43.2	21.2	7.2	20.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	42.1	21.0	6.5	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	46.3	22.5	6.3	19.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	47.2	23.6	7.2	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	48.2	24.2	7.5	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	46.2	25.3	6.2	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	45.2	24.5	7.3	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	44.3	23.1	6.8	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	42.1	24.6	6.2	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	46.5	25.1	7.3	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	47.2	25.0	6.2	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	48.2	24.3	7.2	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	44.2	23.6	6.5	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	45.3	25.3	6.2	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	46.1	23.6	7.4	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	47.2	24.1	7.2	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	48.1	25.0	6.2	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	44.3	24.3	7.1	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	45.2	23.1	7.0	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	46.1	22.5	6.3	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2023	7:15-7:15	47.0	25.2	6.4	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	48.2	23.6	7.6	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	46.3	22.4	6.8	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2023	7:00-7:00	47.1	24.1	6.5	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2023	7:15-7:15	48.2	25.3	6.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;**DL**: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

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Ashok Nagar, Chennai – 600083.

EHS 360 LABS PRIVATE LIMITED

TEST REPORT

Report No	EHS360/TR/2022-23/003	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/003
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ3 – SN Palayam 10°56'23.05"N 77° 8'23.14"E**		

Date	Period. hrs	SPM (µg/m^3)	As (ng/m^3)	C6H6 (µg/m^3)	BaP (ng/m^3)	Pb (µg/m^3)	Ni (ng/m^3)
05.12.2022	7:00-7:00	62.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	61.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	63.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	61.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	63.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	63.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	62.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	61.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	63.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	62.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	63.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.02.2023	7:15-7:15	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	62.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.02.2023	7:00-7:00	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.02.2023	7:15-7:15	63.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;**DL**: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory
Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/004	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/004
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ4 – Bogampatti - 10°54'17.60"N 77° 7'27.62"E**		

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)
05.12.2022	7:00-7:00	43.5	23.5	5.2	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	44.2	22.1	6.2	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	41.3	26.3	5.8	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	42.3	25.4	6.3	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	43.5	24.1	5.0	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	44.5	26.1	6.2	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	45.3	27.3	6.3	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	46.1	25.4	5.1	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	43.5	26.3	6.4	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	44.6	24.1	5.2	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	45.2	25.3	5.1	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	42.3	26.1	6.3	23.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	44.5	25.0	5.8	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	46.1	24.3	6.3	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	45.2	23.5	5.1	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	44.3	22.1	6.0	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	45.2	23.0	5.3	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	46.1	23.5	6.2	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	43.2	21.6	5.8	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	44.1	22.0	6.3	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	45.6	24.3	5.6	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2023	7:15-7:15	46.1	26.7	5.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	44.2	25.1	6.3	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	42.3	24.3	5.2	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2023	7:00-7:00	44.2	22.1	6.4	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2023	7:15-7:15	45.1	23.6	5.8	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;**DL**: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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EHS 360 LABS PRIVATE LIMITED

TEST REPORT

Report No	EHS360/TR/2022-23/004	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/004
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ4 – Bogampatti - 10°54'17.60"N 77° 7'27.62"E**		

Date	Period. hrs	SPM (µg/m³)	As (ng/m³)	C6H6 (µg/m³)	BaP (ng/m³)	Pb (µg/m³)	Ni (ng/m³)
05.12.2022	7:00-7:00	63.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	66.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	64.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.02.2023	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.02.2023	7:00-7:00	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.02.2023	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;**DL**: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/005	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/005
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ5 – Periyakuyili - 10°53'57.13"N 77°4'36.73"E**		

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)
05.12.2022	7:00-7:00	44.5	22.2	7.2	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	45.6	24.3	6.1	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	46.0	23.2	6.3	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	44.0	22.0	7.3	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	43.2	21.2	6.8	18.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	45.3	22.3	6.2	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	46.1	23.2	7.2	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	47.2	24.5	6.5	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	44.2	25.5	7.1	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	43.2	21.5	8.2	18.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	45.6	23.6	7.8	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	46.3	22.4	8.1	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	44.2	24.2	7.5	18.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	45.3	25.6	7.3	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	46.1	23.2	6.2	23.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	47.2	22.1	7.4	18.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	45.1	23.6	6.3	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	46.3	24.5	7.5	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	47.2	26.3	6.0	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	45.2	23.2	7.2	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	44.3	22.4	7.3	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2023	7:15-7:15	46.8	24.5	6.8	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	45.3	25.3	6.0	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	44.2	22.3	7.3	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2023	7:00-7:00	43.1	24.5	7.1	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2023	7:15-7:15	44.2	26.1	6.5	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;**DL**: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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EHS 360 LABS PRIVATE LIMITED

TEST REPORT

Report No	EHS360/TR/2022-23/005	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/005
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ5 – Periyakuyili - 10°53'57.13"N 77°4'36.73"E**		

Date	Period. hrs	SPM (µg/m^3)	As (ng/m^3)	C6H6 (µg/m^3)	BaP (ng/m^3)	Pb (µg/m^3)	Ni (ng/m^3)
05.12.2022	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	62.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	64.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	61.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	62.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.02.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	66.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.02.2023	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.02.2023	7:15-7:15	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;**DL**: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/006	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/006
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ 6 - Lakshminaickenpalayam- 10°55'15.25"N 77° 9'15.62"E**		

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)
05.12.2022	7:00-7:00	45.5	23.1	6.5	18.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	44.3	22.3	6.8	17.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	46.3	23.1	7.0	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	45.3	22.4	6.2	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	46.1	24.3	7.6	18.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	45.1	22.1	6.3	17.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	44.3	22.6	7.4	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	45.2	23.6	6.2	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	46.3	24.3	7.1	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	44.1	22.1	6.5	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	45.3	24.3	7.8	18.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	46.3	26.5	6.8	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	44.2	23.1	7.2	20.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	46.3	24.3	6.5	17.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	45.0	25.6	7.2	17.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	46.2	22.1	6.3	18.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	44.1	23.5	7.1	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	46.2	24.5	6.5	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	45.2	25.6	7.2	17.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	46.3	26.2	6.8	18.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	44.2	24.1	7.3	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2023	7:15-7:15	43.2	23.5	6.9	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	41.3	22.1	7.2	18.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	45.3	26.3	7.0	19.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2023	7:00-7:00	46.2	22.4	7.2	20.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2023	7:15-7:15	44.1	21.3	6.5	19.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;**DL**: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

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EHS 360 LABS PRIVATE LIMITED

TEST REPORT

Report No	EHS360/TR/2022-23/006	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/006
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ 6 - Lakshminaickenpalayam- 10°55'15.25"N 77° 9'15.62"E**		

Date	Period. hrs	SPM (µg/m³)	As (ng/m³)	C6H6 (µg/m³)	BaP (ng/m³)	Pb (µg/m³)	Ni (ng/m³)
05.12.2022	7:00-7:00	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	62.0	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	60.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	62.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	60.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	65.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	60.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	62.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	62.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	63.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	63.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	62.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.02.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	62.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.02.2023	7:00-7:00	63.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.02.2023	7:15-7:15	62.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;**DL**: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/007	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/007
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ7 – Panapatti- 10°52'43.85"N 77° 6'1.60"E**		

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)
05.12.2022	7:00-7:00	44.1	22.0	6.5	17.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	43.2	21.3	7.2	18.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	45.2	22.0	6.0	19.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	46.3	24.3	7.3	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	47.0	22.5	6.4	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	44.2	23.6	7.2	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	43.5	21.5	6.8	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	42.1	22.1	7.1	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	45.0	23.0	6.5	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	46.1	25.6	6.3	18.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	47.1	24.3	7.4	19.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	43.0	23.0	7.0	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	44.0	25.2	6.8	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	45.1	24.1	7.2	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	46.2	23.1	6.2	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	47.3	22.1	7.4	19.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	44.2	21.3	7.3	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	43.2	22.1	7.2	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	46.1	23.0	6.9	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	43.0	23.1	7.0	18.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	46.2	22.1	6.8	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2023	7:15-7:15	45.2	22.4	7.2	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	46.3	25.3	6.4	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	43.5	26.3	7.3	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2023	7:00-7:00	44.1	27.1	6.8	22.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2023	7:15-7:15	46.3	23.1	7.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;**DL**: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client.
4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

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EHS 360 LABS PRIVATE LIMITED

TEST REPORT

Report No	EHS360/TR/2022-23/007	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/007
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ7 – Panapatti- 10°52'43.85"N 77° 6'1.60"E**		

Date	Period. hrs	SPM (µg/m^3)	As (ng/m^3)	C6H6 (µg/m^3)	BaP (ng/m^3)	Pb (µg/m^3)	Ni (ng/m^3)
05.12.2022	7:00-7:00	78.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	79.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	70.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	76.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	78.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	79.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	70.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	72.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	72.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	73.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	72.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	71.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	70.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	72.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	73.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	78.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	79.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	72.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	73.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	72.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	71.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.02.2023	7:15-7:15	70.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	72.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	74.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.02.2023	7:00-7:00	73.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.02.2023	7:15-7:15	72.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;**DL**: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/008	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/008
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ8 – Chinnakuyili - 10°55'39.11"N 77° 5'13.51"E**		

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)
05.12.2022	7:00-7:00	43.5	22.5	6.2	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.12.2022	7:15-7:15	44.2	22.3	7.2	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.12.2022	7:00-7:00	45.3	21.3	6.5	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.12.2022	7:15-7:15	42.1	24.1	7.0	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.12.2022	7:00-7:00	46.3	26.3	6.3	23.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.12.2022	7:15-7:15	44.3	28.4	7.4	21.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.12.2022	7:00-7:00	45.2	24.0	6.8	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.12.2022	7:15-7:15	46.1	25.3	7.2	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.01.2023	7:00-7:00	45.3	26.5	6.5	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.01.2023	7:15-7:15	44.1	27.4	7.1	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.01.2023	7:00-7:00	43.2	28.3	6.4	20.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.01.2023	7:15-7:15	41.2	22.5	7.5	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.01.2023	7:00-7:00	45.6	24.3	6.3	22.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.01.2023	7:15-7:15	44.3	25.4	7.2	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.01.2023	7:00-7:00	46.1	26.3	6.0	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.01.2023	7:15-7:15	47.1	28.1	7.4	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.01.2023	7:00-7:00	44.3	25.2	6.8	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
31.01.2023	7:15-7:15	46.2	26.3	7.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.02.2023	7:00-7:00	45.2	27.4	6.3	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
07.02.2023	7:15-7:15	47.2	24.3	7.2	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.02.2023	7:00-7:00	46.1	25.2	7.3	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
14.02.2023	7:15-7:15	43.2	28.3	6.4	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.02.2023	7:00-7:00	44.6	29.2	7.3	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
21.02.2023	7:15-7:15	45.2	27.4	6.4	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.02.2023	7:00-7:00	46.1	28.3	7.0	25.0	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
28.02.2023	7:15-7:15	47.1	29.4	6.2	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<80	<80	<100	<400	<4

Note: BDL: Below Detection Limit ;**DL**: Detection Limit
Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

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EHS 360 LABS PRIVATE LIMITED

TEST REPORT

Report No	EHS360/TR/2022-23/008	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 5182	**Sample Drawn by**	Laboratory
Sample Name	Air	**Sample Code**	EHS360/008
Sample Description	Ambient Air Quality Monitoring	**Sample Condition**	Good
Sampling Location	**AAQ8 – Chinnakuyili - 10°55'39.11"N 77° 5'13.51"E**		

Date	Period. hrs	SPM (µg/m³)	As (ng/m³)	C6H6 (µg/m³)	BaP (ng/m³)	Pb (µg/m³)	Ni (ng/m³)
05.12.2022	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.12.2022	7:15-7:15	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.12.2022	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.12.2022	7:15-7:15	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.12.2022	7:00-7:00	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.12.2022	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.12.2022	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.12.2022	7:15-7:15	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.01.2023	7:00-7:00	68.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.01.2023	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.01.2023	7:00-7:00	67.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.01.2023	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.01.2023	7:00-7:00	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.01.2023	7:15-7:15	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.01.2023	7:00-7:00	64.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.01.2023	7:15-7:15	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.01.2023	7:00-7:00	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
31.01.2023	7:15-7:15	68.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.02.2023	7:00-7:00	66.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
07.02.2023	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.02.2023	7:00-7:00	65.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
14.02.2023	7:15-7:15	64.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.02.2023	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
21.02.2023	7:15-7:15	65.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.02.2023	7:00-7:00	66.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
28.02.2023	7:15-7:15	67.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	6	5	1	1	20

Note: BDL: Below Detection Limit ;DL: Detection Limit

Remarks: The values observed for the pollutants given above are within the CPCB standards.

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/ 009	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 9989	**Sample Drawn by**	Laboratory
Sample Name	Noise Level Monitoring	**Sample Code**	EHS360/ 009
Sample Description	Ambient Noise	**Sample Collected Date**	28.02.2023

Location	N1 – Core Zone - 10°55'1.67"N 77° 6'50.88"E			N2 – Core Zone - 10°54'46.62"N 77° 6'47.59"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	42.1	44.2	**43.3**	38.2	42.1	**41.8**
07:00-08:00	43.2	45.1	**44.3**	37.2	44.2	**35.3**
08:00-09:00	44.3	46.3	**45.4**	40.1	43.2	**41.8**
09:00-10:00	42.3	47.2	**45.4**	39.2	43.2	**35.3**
10:00-11:00	43.2	45.1	**44.3**	38.2	45.2	**41.8**
11:00-12:00	42.1	44.1	**43.2**	37.3	43.2	**35.3**
12:00-13:00	41.3	44.3	**43.1**	36.2	42.1	**41.8**
13:00-14:00	40.2	42.6	**41.6**	35.2	44.3	**35.3**
14:00-15:00	42.1	44.2	**43.3**	38.6	45.6	**41.8**
15:00-16:00	43.1	45.3	**44.3**	42.1	48.2	**35.3**
16:00-17:00	44.6	46.1	**45.4**	41.3	45.2	**41.8**
17:00-18:00	43.2	45.2	**44.3**	42.6	43.2	**35.3**
18:00-19:00	41.2	43.1	**42.3**	41.1	45.3	**41.8**
19:00-20:00	38.6	40.2	**39.5**	38.2	40.2	**35.3**
20:00-21:00	37.2	39.2	**38.3**	36.1	43.2	**41.8**
21:00-22:00	36.4	38.2	**37.4**	34.1	44.2	**35.3**
22:00-23:00	35.2	38.3	**37.0**	35.2	38.2	**41.8**
23:00-00:00	33.2	36.2	**35.0**	33.1	35.1	**35.3**
00:00-01:00	31.6	35.2	**33.8**	32.1	34.6	**41.8**
01:00-02:00	33.2	38.2	**36.4**	33.6	36.1	**35.3**
02:00-03:00	32.6	34.6	**33.7**	34.2	36.2	**41.8**
03:00-04:00	34.3	36.5	**35.5**	35.6	38.2	**35.3**
04:00-05:00	36.2	38.2	**37.3**	36.2	38.2	**41.8**
05:00-06:00	34.2	36.5	**35.5**	33.2	36.2	**35.3**
Result	Day Means		**42.5**	Day Means		**41.8**
	Night Means		**35.3**	Night Means		**35.3**

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/ 010	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 9989	**Sample Drawn by**	Laboratory
Sample Name	Noise Level Monitoring	**Sample Code**	EHS360/ 010
Sample Description	Ambient Noise	**Sample Collected Date**	28.02.2023

Location	N3 – SN Palayam -10°56'23.14"N 77° 8'22.82"E			N4 – Bogampatti- 10°54'17.66"N 77° 7'27.41"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	38.1	42.1	**40.5**	37.5	39.2	**38.4**
07:00-08:00	36.2	40.1	**38.6**	36.2	38.1	**37.3**
08:00-09:00	35.2	42.3	**40.1**	35.1	37.6	**36.5**
09:00-10:00	36.5	40.2	**38.7**	38.2	40.2	**39.3**
10:00-11:00	40.2	42.1	**41.3**	40.2	42.3	**41.4**
11:00-12:00	42.3	44.3	**43.4**	44.3	41.2	**43.0**
12:00-13:00	44.1	46.1	**45.2**	45.2	43.1	**44.3**
13:00-14:00	45.3	47.3	**46.4**	46.2	44.1	**45.3**
14:00-15:00	38.2	40.3	**39.4**	39.1	40.3	**39.7**
15:00-16:00	36.1	38.2	**37.3**	38.2	41.2	**40.0**
16:00-17:00	33.2	36.2	**35.0**	37.2	45.3	**42.9**
17:00-18:00	34.2	36.5	**35.5**	36.1	38.2	**37.3**
18:00-19:00	38.6	40.2	**39.5**	35.2	37.1	**36.3**
19:00-20:00	32.1	36.2	**34.6**	34.2	36.1	**35.3**
20:00-21:00	31.6	35.2	**33.8**	33.2	35.2	**34.3**
21:00-22:00	38.3	36.1	**37.3**	32.1	34.1	**33.2**
22:00-23:00	36.2	38.2	**37.3**	31.2	38.1	**35.9**
23:00-00:00	34.1	36.1	**35.2**	33.5	37.2	**35.7**
00:00-01:00	35.6	38.2	**37.1**	32.5	35.2	**34.1**
01:00-02:00	33.2	36.1	**34.9**	30.6	36.5	**34.5**
02:00-03:00	31.2	33.4	**32.4**	32.1	34.6	**33.5**
03:00-04:00	30.2	36.2	**34.2**	31.2	36.8	**34.8**
04:00-05:00	35.2	38.1	**36.9**	33.2	35.4	**34.4**
05:00-06:00	36.1	40.2	**38.6**	32.5	36.5	**34.9**
Result	Day Means		**39.0**	Day Means		**38.8**
	Night Means		**35.6**	Night Means		**34.6**

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/ 011	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 9989	**Sample Drawn by**	Laboratory
Sample Name	Noise Level Monitoring	**Sample Code**	EHS360/ 011
Sample Description	Ambient Noise	**Sample Collected Date**	28.02.2023

Location	N5 – Periyakuyili 10°53'57.54"N 77° 4'36.49"E			N6 – Lakshminaickenpalayam- 10°55'15.52"N 77° 9'15.45"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	40.2	42.3	41.4	39.2	42.3	**41.0**
07:00-08:00	38.2	40.2	**39.3**	40.2	44.2	**42.6**
08:00-09:00	36.1	38.2	**37.3**	42.3	48.6	**46.5**
09:00-10:00	35.2	38.6	**37.2**	38.8	42.3	**40.9**
10:00-11:00	34.1	36.4	**35.4**	31.2	36.2	**34.4**
11:00-12:00	33.6	36.4	**35.2**	33.2	39.4	**37.3**
12:00-13:00	36.8	42.1	**40.2**	36.5	38.2	**37.4**
13:00-14:00	38.6	40.2	**39.5**	35.1	37.1	**36.2**
14:00-15:00	36.5	42.3	**40.3**	34.2	36.2	**35.3**
15:00-16:00	39.2	42.1	**40.9**	38.2	40.2	**39.3**
16:00-17:00	40.1	43.1	**41.9**	37.2	41.2	**39.6**
17:00-18:00	36.2	38.6	**37.6**	36.1	38.2	**37.3**
18:00-19:00	37.2	39.1	**38.3**	38.2	36.2	**37.3**
19:00-20:00	35.2	37.1	**36.3**	36.2	39.2	**38.0**
20:00-21:00	34.1	36.4	**35.4**	33.4	38.5	**36.7**
21:00-22:00	33.6	35.1	**34.4**	32.1	36.2	**34.6**
22:00-23:00	32.1	36.4	**34.8**	31.2	35.2	**33.6**
23:00-00:00	30.2	35.2	**33.4**	32.8	34.2	**33.6**
00:00-01:00	31.2	38.2	**36.0**	33.6	36.4	**35.2**
01:00-02:00	33.2	38.6	**36.7**	34.5	38.2	**36.7**
02:00-03:00	34.1	36.2	**35.3**	33.8	35.6	**34.8**
03:00-04:00	35.5	39.2	**37.7**	32.6	34.2	**33.5**
04:00-05:00	34.1	36.5	**35.5**	31.4	36.5	**34.7**
05:00-06:00	33.2	34.2	**33.7**	36.5	38.2	**37.4**
Result	Day Means		**38.0**	Day Means		**38.1**
	Night Means		**35.5**	Night Means		**35.1**

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

**********End of Report**********

Verified by

CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/ 012	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	IS 9989	**Sample Drawn by**	Laboratory
Sample Name	Noise Level Monitoring	**Sample Code**	EHS360/ 012
Sample Description	Ambient Noise	**Sample Collected Date**	28.02.2023

Location	N7 - Panapatti - 10°52'43.62"N 77° 6'1.10"E			N8 – Chinnakuyili 10°55'39.20"N 77° 5'13.11"E		
Parameter	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	38.2	40.2	**39.3**	35.2	37.2	**36.3**
07:00-08:00	36.2	38.3	**37.4**	34.2	36.2	**35.3**
08:00-09:00	37.2	39.2	**38.3**	33.1	34.1	**33.6**
09:00-10:00	38.2	40.6	**39.6**	32.6	34.2	**33.5**
10:00-11:00	40.2	42.1	**41.3**	31.2	33.2	**32.3**
11:00-12:00	42.3	44.3	**43.4**	32.6	34.6	**33.7**
12:00-13:00	44.2	46.2	**45.3**	33.4	35.4	**34.5**
13:00-14:00	43.2	45.2	**44.3**	37.1	39.1	**38.2**
14:00-15:00	46.2	48.2	**47.3**	36.2	38.2	**37.3**
15:00-16:00	42.1	44.2	**43.3**	38.2	40.1	**39.3**
16:00-17:00	40.2	44.2	**42.6**	40.3	42.3	**41.4**
17:00-18:00	38.2	40.2	**39.3**	42.1	44.2	**43.3**
18:00-19:00	34.1	36.5	**35.5**	44.5	46.3	**45.5**
19:00-20:00	35.6	37.4	**36.6**	42.1	44.1	**43.2**
20:00-21:00	34.1	36.2	**35.3**	44.2	46.3	**45.4**
21:00-22:00	33.2	35.1	**34.3**	35.2	37.4	**36.4**
22:00-23:00	31.5	33.2	**32.4**	34.2	36.4	**35.4**
23:00-00:00	32.6	34.2	**33.5**	33.3	35.4	**34.5**
00:00-01:00	33.2	35.6	**34.6**	31.2	34.2	**33.0**
01:00-02:00	31.4	35.2	**33.7**	32.6	37.3	**35.6**
02:00-03:00	30.2	32.6	**31.6**	35.2	38.6	**37.2**
03:00-04:00	32.6	35.2	**34.1**	34.1	35.2	**34.7**
04:00-05:00	33.1	35.1	**34.2**	33.6	36.1	**35.0**
05:00-06:00	35.2	37.6	**36.6**	34.1	37.2	**35.9**
Result	Day Means		**38.2**	Day Means		**37.9**
	Night Means		**36.2**	Night Means		**35.1**

Note: CPCB Norms Industrial Area Day Time:75 dB(A); Night Time:70 dB(A)

The Noise level in the above location exists within the permissible limits of CPCB.

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/ 013	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Soil	**Sample Code**	EHS360/ 013
Sample Description	Soil 1	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 KG	**Sample Received On**	01.03.2023
Sample Condition	Good	**Test Commenced On**	01.03.2023
Sampling Location	**Soil – 1 – Core Zone - 10°55'1.31"N 77° 6'49.39"E**		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.53
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	485 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	48.1 %
04	Bulk Density	By Cylindrical Method	1.08 g/cm^3
05	Porosity	By Gravimetric Method	40.5 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	135.8 mg/kg
07	Magnesium as Mg		62.5 mg/kg
08	Chloride as Cl		133 mg/kg
09	Soluble Sulphate as SO4		0.008 %
10	Total Phosphorus as P		4.4 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	325 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.17 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.68 %

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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EHS 360 LABS PRIVATE LIMITED

TEST REPORT

Report No	EHS360/TR/2022-23/ 013	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Soil	**Sample Code**	EHS360/ 013
Sample Description	Soil 1	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 KG	**Sample Received On**	01.03.2023
Sample Condition	Good	**Test Commenced On**	01.03.2023
Sampling Location	**Soil – 1 – Core Zone - 10°55'1.31"N 77° 6'49.39"E**		

S. No	Test Parameters	Protocols	Results
14	**Texture :**		
	Clay	Gravimetric Method	37.9 %
	Sand		38.8 %
	Silt		23.3 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	30.7 mg/kg
16	Zinc as Zn		1.85 mg/kg
17	Boron as B		3.01 mg/kg
18	Potassium as K		35.4 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		0.87 mg/kg
23	Iron as Fe		2.05 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	40.1 meq/100g of soil

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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Ashok Nagar, Chennai – 600083.

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TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/ 014	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Soil	**Sample Code**	EHS360/ 014
Sample Description	Soil 2	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 KG	**Sample Received On**	01.03.2023
Sample Condition	Good	**Test Commenced On**	01.03.2023
Sampling Location	**Soil – 2 – Core Zone - 10°54'49.29"N 77° 6'55.69"E**		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	7.54
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	510 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.2 %
04	Bulk Density	By Cylindrical Method	1.01 g/cm^3
05	Porosity	By Gravimetric Method	44.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	166 mg/kg
07	Magnesium as Mg		80.4 mg/kg
08	Chloride as Cl		130.6 mg/kg
09	Soluble Sulphate as SO_4		0.0004 %
10	Total Phosphorus as P		1.11 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	290.5 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.31 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.34 %

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 014	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Soil	**Sample Code**	EHS360/ 014
Sample Description	Soil 2	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 KG	**Sample Received On**	01.03.2023
Sample Condition	Good	**Test Commenced On**	01.03.2023
Sampling Location	**Soil – 2 – Core Zone - 10°54'49.29"N 77° 6'55.69"E**		

S. No	Test Parameters	Protocols	Results
14	**Texture :**		
	Clay	Gravimetric Method	32.3 %
	Sand		31.9 %
	Silt		35.8 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	24.6 mg/kg
16	Zinc as Zn		3.5 mg/kg
17	Boron as B		2.2 mg/kg
18	Potassium as K		39.7 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		0.77 mg/kg
23	Iron as Fe		1.02 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	34.4 meq/100g of soil

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/ 015	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Soil	**Sample Code**	EHS360/ 015
Sample Description	Soil 3	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 KG	**Sample Received On**	01.03.2023
Sample Condition	Good	**Test Commenced On**	01.03.2023
Sampling Location	**Soil – 3 – SN Palayam - 10°56'22.11"N 77° 8'22.92"E**		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.55
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	581 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	45.4 %
04	Bulk Density	By Cylindrical Method	1.03 g/cm^3
05	Porosity	By Gravimetric Method	48.7 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	101 mg/kg
07	Magnesium as Mg		76 mg/kg
08	Chloride as Cl		100 mg/kg
09	Soluble Sulphate as SO_4		0.0084 %
10	Total Phosphorus as P		1.60 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	341 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.29 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.33 %

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 015	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Soil	**Sample Code**	EHS360/ 015
Sample Description	Soil 3	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 KG	**Sample Received On**	01.03.2023
Sample Condition	Good	**Test Commenced On**	01.03.2023
Sampling Location	**Soil – 3 – SN Palayam - 10°56'22.11"N 77° 8'22.92"E**		

S.No	Test Parameters	Protocols	Results
14	**Texture :**		
	Clay	Gravimetric Method	37.9 %
	Sand		38.5 %
	Silt		23.6 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	20.5 mg/kg
16	Zinc as Zn		1.05 mg/kg
17	Boron as B		2.88 mg/kg
18	Potassium as K		35.9 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		0.53 mg/kg
23	Iron as Fe		1.4 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	44 meq/100g of soil

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 016	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Soil	**Sample Code**	EHS360/ 016
Sample Description	Soil 4	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 KG	**Sample Received On**	01.03.2023
Sample Condition	Good	**Test Commenced On**	01.03.2023
Sampling Location	**Soil – 4 – Lakshminaickenpalayam - 10°55'14.50"N 77° 9'15.07"E**		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.07
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	476 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	46.2. %
04	Bulk Density	By Cylindrical Method	0.89 g/cm^3
05	Porosity	By Gravimetric Method	41.5 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	223 mg/kg
07	Magnesium as Mg		65.6 mg/kg
08	Chloride as Cl		76 mg/kg
09	Soluble Sulphate as SO_4		0.0053 %
10	Total Phosphorus as P		1.44 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	440 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.22 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.29 %

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 016	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Soil	**Sample Code**	EHS360/ 016
Sample Description	Soil 4	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 KG	**Sample Received On**	01.03.2023
Sample Condition	Good	**Test Commenced On**	01.03.2023
Sampling Location	**Soil – 4 – Lakshminaickenpalayam - 10°55'14.50"N 77° 9'15.07"E**		

S. No	Test Parameters	Protocols	Results
14	**Texture :**		
	Clay	Gravimetric Method	35.0 %
	Sand		35.9 %
	Silt		29.1 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	29 mg/kg
16	Zinc as Zn		1.08 mg/kg
17	Boron as B		1.27 mg/kg
18	Potassium as K		48 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		0.96 mg/kg
23	Iron as Fe		2.91 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	37.9 meq/100g of soil

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 017	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Soil	**Sample Code**	EHS360/ 017
Sample Description	Soil 5	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 KG	**Sample Received On**	01.03.2023
Sample Condition	Good	**Test Commenced On**	01.03.2023
Sampling Location	**Soil – 5 – Panapatti - 10°52'43.98"N 77° 6'2.22"E**		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	7.84
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	500 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	44.1 %
04	Bulk Density	By Cylindrical Method	1.03 g/cm^3
05	Porosity	By Gravimetric Method	45.4 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	86 mg/kg
07	Magnesium as Mg		60.1 mg/kg
08	Chloride as Cl		93.3 mg/kg
09	Soluble Sulphate as SO_4		0.0026 %
10	Total Phosphorus as P		2.03 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	366 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.24 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.30 %

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 017	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Soil	**Sample Code**	EHS360/ 017
Sample Description	Soil 2	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 KG	**Sample Received On**	01.03.2023
Sample Condition	Good	**Test Commenced On**	01.03.2023
Sampling Location	**Soil – 5 – Panapatti - 10°52'43.98"N 77° 6'2.22"E**		

S. No	Test Parameters	Protocols	Results
14	**Texture :**		
	Clay	Gravimetric Method	34.2 %
	Sand		37.9 %
	Silt		27.9 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	20.2 mg/kg
16	Zinc as Zn		1.2 mg/kg
17	Boron as B		2.9 mg/kg
18	Potassium as K		25.3 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		0.43 mg/kg
23	Iron as Fe		2.65 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	37 meq/100g of soil

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/ 018	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Soil	**Sample Code**	EHS360/ 018
Sample Description	Soil 6	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 KG	**Sample Received On**	01.03.2023
Sample Condition	Good	**Test Commenced On**	01.03.2023
Sampling Location	**Soil – 6 – Chinnakuyili - 10°55'35.80"N 77° 5'14.84"E**		

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987	7.69
02	Conductivity @ 25°C	IS 14767 - 2000	442 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	48.9 %
04	Bulk Density	By Cylindrical Method	1.27 g/cm^3
05	Porosity	By Gravimetric Method	40.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	150 mg/kg
07	Magnesium as Mg		70.5 mg/kg
08	Chloride as Cl		52.7 mg/kg
09	Soluble Sulphate as SO_4		0.0006 %
10	Total Phosphorus as P		3.1 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999	426 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972	1.74 %
13	Organic Carbon	IS : 2720 Part 22: 1972	1.01 %

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 018	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Soil	**Sample Code**	EHS360/ 018
Sample Description	Soil 6	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 KG	**Sample Received On**	01.03.2023
Sample Condition	Good	**Test Commenced On**	01.03.2023
Sampling Location	**Soil – 6 – Chinnakuyili - 10°55'35.80"N 77° 5'14.84"E**		

S. No	Test Parameters	Protocols	Results
14	**Texture :**		
	Clay	Gravimetric Method	27.6 %
	Sand		36.6 %
	Silt		35.8 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	29 mg/kg
16	Zinc as Zn		1.19 mg/kg
17	Boron as B		2.5 mg/kg
18	Potassium as K		26 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		0.9 mg/kg
23	Iron as Fe		2.58 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	46.7 meq/100g of soil

**********End of Report**********

Verified by

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/ 019	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Water	**Sample Code**	EHS360/019
Sample Description	Surface Water (SW-1)	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 Litres	**Sample Received On**	01.03.2023
Sample Condition	Fit for Analysis	**Test Commenced On**	01.03.2023
Sampling Location	**Pallapalayam Lake - 10°59'25.25"N 77° 4'43.75"E**		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	15 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.85
4	Conductivity @ 25°C	IS 3025 Part 14:2013	1117 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	4.2 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	659 mg/l
7	Total Hardness as $CaCO_3$	IS 3025 Part 21:2009	172.59 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	32.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	22.5 mg/l
10	Total Alkalinity as $CaCO_3$	IS 3025 Part 23:1986	240 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	188 mg/l
12	Sulphate as SO_4	IS 3025 Part 24:1986	60.7 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.12 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23rd Edn. 2017:4500 F,D	0.4 mg/l
16	Nitrate as NO_3	IS 3025 Part 34:1988	7.1 mg/l

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/019	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Water	**Sample Code**	EHS360/019
Sample Description	Surface Water (SW-1)	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 Litres	**Sample Received On**	01.03.2023
Sample Condition	Fit for Analysis	**Test Commenced On**	01.03.2023
Sampling Location	**Pallapalayam Lake - 10°59'25.25"N 77° 4'43.75"E**		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C_6H_5OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	BOD @ 27°C for 3 days	IS 3025 Part 44:1993 (Reaff:2019)	8.3 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	48 mg/l
33	Dissolved Oxygen	IS 3025 Part 38:1989 (Reaff:2019)	5.6 mg/l
34	Barium as Ba	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL:0.05 mg/l)
35	Ammonia (as total ammonia-N)	IS 3025 Part 34-1988 (Reaff. 2019)	2.7 mg/l
36	Sulphide as H_2S	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:0.01 mg/l)
37	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
38	Total Arsenic as As	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
39	Total Suspended Solids	IS 3025 Part 17 -1984 (Reaff:2017)	22.2 mg/l
	Discipline: Biological	**Group:** Water	
40	Total Coliform	APHA 23rd Edn. 2017:9221B	810 MPN/100ml
41	*Escherichia coli*	APHA 23rd Edn. 2017:9221F	110 MPN/100ml

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 020	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Water	**Sample Code**	EHS360/020
Sample Description	Ground Water (WW-1)	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 Litres	**Sample Received On**	01.03.2023
Sample Condition	Fit for Analysis	**Test Commenced On**	01.03.2023
Sampling Location	**Edaiyarpalayam - 10°55'32.16"N 77° 6'48.21"E**		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.17
4	Conductivity @ 25°C	IS 3025 Part 14:2013	688 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.2 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	406 mg/l
7	Total Hardness as $CaCO_3$	IS 3025 Part 21:2009	135 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	28.9 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	15.4 mg/l
10	Total Alkalinity as $CaCO_3$	IS 3025 Part 23:1986	117 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	90 mg/l
12	Sulphate as SO_4	IS 3025 Part 24:1986	51.3 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.27 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23rd Edn. 2017:4500 F,D	0.15 mg/l
16	Nitrate as NO_3	IS 3025 Part 34:1988	7.7 mg/l

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 020	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Water	**Sample Code**	EHS360/020
Sample Description	Ground Water (WW-1)	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 Litres	**Sample Received On**	01.03.2023
Sample Condition	Fit for Analysis	**Test Commenced On**	01.03.2023
Sampling Location	**Edaiyarpalayam - 10°55'32.16"N 77° 6'48.21"E**		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C_6H_5OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H_2S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	**Group:** Water	
37	Total Coliform	APHA 23rd Edn. 2017:9221B	170 MPN/100ml
38	*Escherichia coli*	APHA 23rd Edn. 2017:9221F	< 1.8 MPN/100ml

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/ 021	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Water	**Sample Code**	EHS360/021
Sample Description	Ground Water (WW-2)	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 Litres	**Sample Received On**	01.03.2023
Sample Condition	Fit for Analysis	**Test Commenced On**	01.03.2023
Sampling Location	**Lakshminaickenpalayam - 10°55'22.78"N 77° 8'58.13"E**		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.11
4	Conductivity @ 25°C	IS 3025 Part 14:2013	844 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	2.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	497 mg/l
7	Total Hardness as $CaCO_3$	IS 3025 Part 21:2009	177.3 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	29.9 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	25 mg/l
10	Total Alkalinity as $CaCO_3$	IS 3025 Part 23:1986	141.5 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	122 mg/l
12	Sulphate as SO_4	IS 3025 Part 24:1986	68.3 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.24 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23rd Edn. 2017:4500 F,D	0.29 mg/l
16	Nitrate as NO_3	IS 3025 Part 34:1988	5.4 mg/l

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 021	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Water	**Sample Code**	EHS360/021
Sample Description	Ground Water (WW-2)	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 Litres	**Sample Received On**	01.03.2023
Sample Condition	Fit for Analysis	**Test Commenced On**	01.03.2023
Sampling Location	**Lakshminaickenpalayam - 10°55'22.78"N 77° 8'58.13"E**		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C_6H_5OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H_2S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	**Group:** Water	
37	Total Coliform	APHA 23rd Edn. 2017:9221B	110 MPN/100ml
38	*Escherichia coli*	APHA 23rd Edn. 2017:9221F	< 1.8 MPN/100ml

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/ 022	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Water	**Sample Code**	EHS360/022
Sample Description	Ground Water (WW-3)	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 Litres	**Sample Received On**	01.03.2023
Sample Condition	Fit for Analysis	**Test Commenced On**	01.03.2023
Sampling Location	**Chinnakuyili - 10°55'30.38"N 77° 5'4.07"E**		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.50
4	Conductivity @ 25°C	IS 3025 Part 14:2013	843 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.4 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	497 mg/l
7	Total Hardness as $CaCO_3$	IS 3025 Part 21:2009	130.49 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	23.3 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	17.6 mg/l
10	Total Alkalinity as $CaCO_3$	IS 3025 Part 23:1986	153.1 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	120 mg/l
12	Sulphate as SO_4	IS 3025 Part 24:1986	70.1 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.3 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23rd Edn. 2017:4500 F,D	0.21 mg/l
16	Nitrate as NO_3	IS 3025 Part 34:1988	14.5 mg/l

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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EHS 360 LABS PRIVATE LIMITED

TEST REPORT

Report No	EHS360/TR/2022-23/ 022	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Water	**Sample Code**	EHS360/022
Sample Description	Ground Water (WW-3)	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 Litres	**Sample Received On**	01.03.2023
Sample Condition	Fit for Analysis	**Test Commenced On**	01.03.2023
Sampling Location	**Chinnakuyili - 10°55'30.38"N 77° 5'4.07"E**		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C_6H_5OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H_2S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	**Group:** Water	
37	Total Coliform	APHA 23rd Edn. 2017:9221B	70 MPN/100ml
38	*Escherichia coli*	APHA 23rd Edn. 2017:9221F	< 1.8 MPN/100ml

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstance's lab accepts any liability or loss/damage caused by use or misuse of test report after invoicing or issued of test report.

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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/ 023	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Water	**Sample Code**	EHS360/023
Sample Description	Ground Water (BW-1)	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 Litres	**Sample Received On**	01.03.2023
Sample Condition	Fit for Analysis	**Test Commenced On**	01.03.2023
Sampling Location	**Core Zone - 10°54'50.77"N 77° 6'54.48"E**		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	8.03
4	Conductivity @ 25°C	IS 3025 Part 14:2013	902 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.3 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	532 mg/l
7	Total Hardness as $CaCO_3$	IS 3025 Part 21:2009	211.59 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	38.5 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	28.1 mg/l
10	Total Alkalinity as $CaCO_3$	IS 3025 Part 23:1986	157.6 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	140 mg/l
12	Sulphate as SO_4	IS 3025 Part 24:1986	60.5 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.11 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23rd Edn. 2017:4500 F,D	0.16 mg/l
16	Nitrate as NO_3	IS 3025 Part 34:1988	6.8 mg/l

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 023	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Water	**Sample Code**	EHS360/023
Sample Description	Ground Water (BW-1)	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 Litres	**Sample Received On**	01.03.2023
Sample Condition	Fit for Analysis	**Test Commenced On**	01.03.2023
Sampling Location	**Core Zone - 10°54'50.77"N 77° 6'54.48"E**		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C_6H_5OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H_2S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	**Group:** Water	
37	Total Coliform	APHA 23rd Edn. 2017:9221B	170 MPN/100ml
38	*Escherichia coli*	APHA 23rd Edn. 2017:9221F	< 1.8 MPN/100ml

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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EHS 360 LABS PRIVATE LIMITED

TC-9583

TEST REPORT

Report No	EHS360/TR/2022-23/ 024	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Water	**Sample Code**	EHS360/024
Sample Description	Ground Water (BW-2)	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 Litres	**Sample Received On**	01.03.2023
Sample Condition	Fit for Analysis	**Test Commenced On**	01.03.2023
Sampling Location	**Periyakuyili - 10°53'57.81"N 77° 4'34.40"E**		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical		
1	Colour	IS 3025 Part 4:1983	5 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.06
4	Conductivity @ 25°C	IS 3025 Part 14:2013	926 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	1.3 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	546 mg/l
7	Total Hardness as $CaCO_3$	IS 3025 Part 21:2009	163.52 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	31.1 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	20.9 mg/l
10	Total Alkalinity as $CaCO_3$	IS 3025 Part 23:1986	175 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	123.2 mg/l
12	Sulphate as SO_4	IS 3025 Part 24:1986	70 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.16 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23rd Edn. 2017:4500 F,D	0.3 mg/l
16	Nitrate as NO_3	IS 3025 Part 34:1988	6.5 mg/l

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2022-23/ 024	**Report Date**	06.03.2023
Site Location	**M/s. EDAYARPALAYAM ROUGH STONE AND GRAVEL QUARRIES, S.F.Nos. 168/2A (P), 168/2B (P), 169/1C (P) & 169/2A (P), 172/1B, 172/2 & 173/2A2, Edayarpalayam Village, Sulur Taluk,Coimbatore.**		
Sampling Method	SOP Method	**Sample Drawn by**	Laboratory
Sample Name	Water	**Sample Code**	EHS360/024
Sample Description	Ground Water (BW-2)	**Sample Collected Date**	28.02.2023
Qty. of Sample Received	2 Litres	**Sample Received On**	01.03.2023
Sample Condition	Fit for Analysis	**Test Commenced On**	01.03.2023
Sampling Location	**Periyakuyili - 10°53'57.81"N 77° 4'34.40"E**		

S.No.	Parameters	Test Method	RESULTS
17	Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
18	Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
19	Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
21	Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
22	Aluminium as Al	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
23	Lead as Pb	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)
24	Zinc as Zn	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
25	Total Chromium as Cr	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.02 mg/l)
26	Boron as B	IS 3025 Part 65:2014 (Reaff:2019)	BDL(DL : 0.05 mg/l)
27	Mineral Oil	IS 3025 Part 39-1991 (Reaff. 2019)	BDL(DL : 0.01 mg/l)
28	Phenolic compounds as C_6H_5OH	IS 3025 Part 43-1992(Reaff: 2019)	BDL (DL:0.0005 mg/l)
29	Anionic Detergents (as MBAS)	IS 13428 – 2005 (Reaff:2019) (Annex K)	BDL (DL:0.01 mg/l)
30	Cyanide as CN	IS 3025 Part 27-1986 (Reaff. 2019)	BDL (DL:0.01 mg/l)
31	Barium as Ba	IS 3025 Part 44:1993 (Reaff:2019)	BDL(DL:0.05 mg/l)
32	Ammonia (as total ammonia-N)	IS 3025 Part 58:2006 (Reaff:2017)	BDL (DL:0.01 mg/l)
33	Sulphide as H_2S	IS 3025 Part 38:1989 (Reaff:2019)	BDL (DL:0.01 mg/l)
34	Molybdenum as Mo	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
35	Total Arsenic as As	IS 3025 Part 34-1988 (Reaff. 2019)	BDL (DL:0.005 mg/l)
36	Total Suspended Solids	IS 3025 Part 29-1986 (Reaff: 2019)	BDL (DL:1.0 mg/l)
	Discipline: Biological	**Group:** Water	
37	Total Coliform	APHA 23rd Edn. 2017:9221B	160 MPN/100ml
38	*Escherichia coli*	APHA 23rd Edn. 2017:9221F	< 1.8 MPN/100ml

**********End of Report**********

EHS360 LABS PRIVATE LIMITED CHENNAI 600 083

Verified by

Authorised Signatory

Name : Santhosh Kumar A

Designation : Quality Manager

Note: 1. The test results are only to the sample submitted for test. 2.Any correction of the test report in full or part shall invalidate the report.
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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

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