

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENT MANAGEMENT PLAN



FOR OBTAINING

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

“B1” CATEGORY (Cluster) – MINOR MINERAL – CLUSTER – PATTA LAND

KEERANUR ROUGH STONE AND GRAVEL CLUSTER QUARRIES

P1	P2
B. Vishnu Kumar, S/o. Balasubramaniam, No.4/114-G, Sedarpalayam, Vavipalayam, Tiruppur District– 641 666 Extent : 2.00.21 ha	Thiru.P.Sasikumar, S/o. Palanisamy, No. 5/257, Keeranur Village, Kangayam Taluk, Tiruppur District – 638 701 Extent: 4.44.0 ha

PROJECT LOCATION	PROPOSED PRODUCTION
S.F.No. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.	Reserves: P1 2,64,320 m ³ of Rough stone, 42480 m ³ of Weathered Rock & 30,240 m ³ of Gravel Depth:45m bgl Reserves: P2 4,52,430 m ³ of Rough stone Depth:37m bgl
ToR obtained vide Lr No.SEIAA-TN/F.No.10458/SEAC/ToR-1627/2023 Dated: 12.12.2023-P1 Lr No.SEIAA-TN/F.No.9456/SEAC/1(a) ToR-1692/2024 Dated: 23.04.2024-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 Cat ‘A’, sector 31 & 38 Cat ‘B’ Certificate No : NABET/EIA/2225/RA 0276 Phone: 0427-2431989, Email: infogeoexploration@gmail.com Web: www.gemssalem.com 	Laboratory EHS 360 LABS PRIVATE LIMITED, 10/2 Ground floor, 50th street, 7th Avenue, Ashok Nagar, Chennai – 600 083.
<u>Baseline Monitoring Period</u> December 2023 to February 2024	
APRIL 2024	

UNDERTAKING

I B.Vishnu kumar given undertaking that this EIA & EMP report prepared for our Rough Stone and gravel quarries situated in S.F. No 441/A1(P), A2(P), A3(P) & A4(P) Keeranur Village, Kangayam Taluk, Tiruppur District based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide Letter No Lr No. SEIAA-TN/F.No.10458/SEAC/ToR-1627/2023 Dated: 12.12.2023

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

Signature of the Project Proponent



B.Vishnu kumar

Place : Tiruppur

Dated :

UNDERTAKING

I P.Sasikumar given undertaking that this EIA & EMP report prepared for our Rough Stone and gravel quarries situated in S.F. No 449(P), 450 Keeranur Village, Kangeyam Taluk, Tiruppur District based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide Letter No Lr No.SEIAA-TN/F.No.9456/SEAC/1(a) ToR-1692/2024 Dated: 23.04.2024

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

Signature of the Project Proponent



P. Sasi Kumar

Place: Tiruppur

Dated:

DECLARATION

I Dr. M.Ifthikhar Ahmed – EIA Co Ordinator declare that the EIA & EMP report for the Rough stone and Gravel cluster quarry in S.F.No 441/A1 (P), A2 (P), A3 (P) & A4 (P) ,449 (P),450 over an extent of 6.44.21 Ha in Keeranur Village, Kangeyam Taluk and Tiruppur District has been prepared by Geo Exploration and Mining Solutions, Salem, Tamil Nadu.

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

Signature of the EIA Co-Ordinator



Dr. M. Ifthikhar Ahmed

Managing Partner

M/s. Geo Exploration and Mining Solutions

Place : Salem

Dated :

For easy representation of Proposed and Existing, Expired Quarries in the Cluster are given unique codes and identifies and studied in this EIA/ EMP Report.

PROPOSED QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	Thiru.B. Vishnu Kumar, S/o. Balasubramaniam, No.4/114-G, Sedarpalayam, Vavipalayam, Tiruppur District – 641 666	Keeranur	441/A1 (P), A2 (P), A3 (P) & A4 (P)	2.00.21	Lr.No.SEIAA- TN/F.No.10458/ToR- 1627/2023 Dated: 12.12.2023.
P2	Thiru.P.Sasikumar, S/o. Palanisamy, No. 5/257, Keeranur Village, Kangayam Taluk, Tiruppur District – 638 701	Keeranur	449 (P) & 450	4.44.0	Lr.No.SEIAA- TN/F.No.9456/SEAC/1(a) ToR-1692/2024 Dated: 23.04.2024
P3	Thiru.P. Sasikumar, S/o. Palanisamy, No. 5/257, Keeranur Village, Kangayam Taluk, Tiruppur District – 638 701	Keeranur	442(P)	2.00.0	File No.: 8549 EC Granted on 25.03.2024
TOTAL EXTENT				8.44.21	
EXISTING QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
E-1	S.P.Balasubramaniam	Keeranur	603/3 (P), 603/4(P)	2.01.17	01.10.2018 to 30.09.2023
TOTAL EXTENT				2.01.17	
EXPIRED QUARRIES					
EX-1	C.P.Velusamy			2.15.0	
EX-2	Thiru.N.Subramaniam			2.15.0	
EX-3	Thiru.A.M.Palanisamy			2.41.0	
TOTAL EXTENT				6.71.0	
TOTAL CLUSTER EXTENT				10.45.38ha	

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

TERMS OF REFERENCE (ToR) COMPLIANCE**Thiru.B.Vishnu Kumar****Lr.No.SEIAA-TN/F.No.10458/ToR-1627/2023 Dated: 12.12.2023**

Specific Conditions		
1	The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/ end-users and travel path.	Detailed study in Reserve estimation and deposit for chapter-2
2	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.	Chapter-3 Socioeconomic environment- Structures map around 500m details of structures.
3	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc located within 1 km of the proposed quarry.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 4
4	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	Detailed in chapter-2 and chapter 3 environmental attributes. Enclosed Lease photographs chapter-2
5	The Proponent shall carry out Bio diversity study through Department of Ecology and Environmental Sciences, Pondicherry University and the same shall be included in EIA Report.	Biodiversity study has been carried out by Functional Area Expert by the NABET accredited consultant. The detailed study is given in the Chapter No.3
6	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.	Proponent given Affidavit stating that the blasting operation will be carried out by the competent person as per the MMR 1961.
ANNEXURE-1		
1	The PP shall furnish the letter obtained from the AD (Mines) indicating the existing pit dimensions and pit conditions showing the details on mine having worked during the earlier lease period.	Existing pit: 68m (L)*23m (W)*12m (D) bgl
2	The PP shall furnish DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	To be furnished Final EIA Report
3	The PP shall provide individual notice regarding the Public Hearing to the nearby house owners located in the vicinity of the project site.	There is no houseowner located nearby quarry.
4	The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation,	Rough Stone in 2,64,320 m ³ Peak Production 61,120 m ³

	place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end users and travel path.	
5	The PP shall also justify the selection of mining methodology (conventional or nonconventional) adopting blasting techniques/non-explosive techniques with proper ground reality & laboratory testing.	Opencast mechanized method the quarry operation drilling, slurry blasting.
6	The proponent shall submit the "Blast Design Parameters for controlling the vibration and fly rock from the quarry blasting" considering the existence of sensitive structures including habitations within 500 m from the lease boundary.	Detailed in chapter 4
7	The PP shall justify the estimation of HEMM population for excavation and transportation in the proposed quarries with proper calculation methodology adopted.	Noted and agreed
8	The PP shall enumerate the environmental settings situated within a radial distance of 1km such rivers/water bodies/reserve forestry grazing land/existence of the hospitals and educational institutions/structures.	Noyyal River-3Km_N Karaikattupudur Eri-3.5km_SW Odai- 4Km_SE Tank-7.5Km_NW Canal-6Km_N Palatholuvu Kulam-9Km NW
9	The PP shall provide the details of the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	Detailed in chapter-4 anticipated impacts of the mining operations on the surrounding environment.
10	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants. whether it belongs to the owner (or) not places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.	Chapter-3 Socioeconomic environment- Structures map around 500m details of structures.
11	The PP shall submit a Slope Stability Action plan' for the proposed quarry where the proposed depth exceeds 30 m and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.	Noted and agreed
12	If the blasting operation is to be carried out, the pp shall present a conceptual design for carrying out the NONEL initiation based controlled blasting operation including the line drilling & muffle blasting techniques and a Simulation Model indicating the anticipated Blast induced Ground vibration levels in the proposed quarry as stipulated by the DGMS circular No.7 of 1997, during the EIA proposal.	Blasting operation detailed in chapter-4
13	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.	Proponent given Affidavit stating that the blasting operation will be carried out by the competent person as per the MMR 1961.
14	The PP shall give an affidavit stating that no contractual persons provided by the explosive suppliers will be employed for carrying out the blasting operations in the proposed quarries.	To be submit final EIA/EMP report.

15	The PP shall also give an affidavit that no highly sensitive structure such as fire-cracker manufacturing units, Gas godown/explosive Magazine, LPG Bottling Units, etc are located within a radial distance of 300 m from the lease boundary of the proposed quarry.	To be submit final EIA/EMP report.
16	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 20m from the blast site.	Noted and agreed
17	The EIA Coordinates shall obtain and furnish the details of quarry /quarries operated by the PP in the past, either in the same location or elsewhere in the state with video and Photographic evidences.	Noted and agreed. There are three quarries including this proposal in the cluster belongs to the Proponent Thiru.P.Sasikumar and S.P.Balasubramaniam
18	The PP shall provide the environmental mitigation measures implemented for the crusher(s) located within the mining lease.	Crushers located near about 50m-SW from P1 quarry. When Blasting time slot between afternoon 1 or 2pm. Blasting materials will be reduced.
19	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 <ul style="list-style-type: none"> 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) Quantify 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 	Penalty imposed on the previous lease regarding R.C No.685/Mines/2022, dated:04.09.2023. (Previous Lessee: Tmt.B.Vijayalakshmi W/o. Balasubramaniam Lease period : 03.07.2012 – 02.07.2017) Previous Lessee paid penalty amount of Rs 36,82,890/- for quarrying without EC Lessee paid Rs 31,82,890/ - upto 11.08.2023 CCR Not Applicable (Different lessee) Depth of mining: 45m bgl (2m Gravel + 3m weathered rock+ 40m Rough stone) Actual depth of mining 12m Mineable reserves: 2,64,320m ³ Highest Production 61,120m ³
20	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.	No Quarry EC is sought in the project.
21	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).	Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2, Figure No.2.2, Page No.11. Geomorphology of the area is given in Chapter No 2, Figure No.2.9, Page No.21 Land use pattern of the project area is tabulated in the Chapter No.2. Table no 2.3, Pg.No.18 Land use pattern of the Study area is tabulated in the Chapter No.2, Table no 2.3, Pg.No.17.

22	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,	Drone video survey covering the Cluster, Greenbelt and fencing will be submitted during appraisal.
23	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.	The area has been fenced and the photographs are given in the Chapter No.2, Figure No.2.1 Page No.11 No trees within the proposed excavation area, no transplantation is required. Water bodies near to the project site is given in the Chapter No.2 Table No.2.13 Page No.26
24	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.	Noted and agreed. Detailed under Chapter 6.
25	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.	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 of open wells and borewells within 1km radius along with water level is given in the Chapter No.3
26	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	Baseline data 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 to assess the cumulative impact of the proposed project on the environment is prepared. The details of Baseline study are given in the Chapter No. 3.
27	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 No.7, Page No.112 to 122.
28	Rain water harvesting management with recharging details along with water balance (both) monsoon & non-monsoon) be submitted.	The rain water will be collected in the mine pit at the lower point later it will be utilized for the haul road maintenance, Greenbelt development etc.,
29	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 Cother 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 Land cover study within the radius of 10km is detailed in the Chapter No. 3 Page No.30 to 33.
30	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as	Not applicable,

	extent of land area, distance from mine lease, its land use. R&R issues, if any. should be provided.	There are no wastages anticipated, the entire quarried out rough stone material will be utilized.
31	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.
32	If the village road / State highway National highway are located within a radial distance of 500 m from the lease boundary of the quarry proposal, the PP shall carry out traffic studies to indicate impact on local transport infrastructure due to the Project and mitigation measures.	There is no group of Houses, Schools in the proposed transportation route. Proposed Transportation route with mitigation measures is given in the Chapter No.2
33	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.	The Flora study in the core zone has been carried out and the details are given in the Chapter No.3 Page No.62
34	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	The mine closure plan is detailed in the Chapter No.4 Page No.49 The budget for the mine closure is included in the Environmental Management plan in Chapter No.10 ,Table:10.10
35	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 EWEMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.	The outcome of public hearing will be updated in the final EIA/EMP report
36	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Public hearing advertisement release national newspaper and Daily thanthi both English and Tamil
37	The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.	Encloses as separate volume (English and Tamil)
38	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.	The Flora and Fauna study around the vicinity of the site is carried out by the Functional area experts along with Local School Students it will submit final EIA presentation..
39	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.	The plantation in the project site will be carried out using native and mixed plantation. The recommended species for the plantation is given in the Chapter No.4 Table No.4.10
40	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	Noted and agreed. The plantation in the project site will be carried out using native and mixed plantation. The recommended species for the plantation is given in the Chapter No.4 Table No.4.10

	boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	
41	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan is detailed in the Chapter No.7
42	A Risk Assessment and management Plan shall be prepared and included in the ELA/EMP Report.	A Risk Assessment and management Plan detailed in the Chapter No.7
43	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts of the project with mitigation measures are detailed in the Chapter No.7 Details of Periodical Medical Examination given in the Chapter No.10
44	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.	The details of the population in the impact zone (within 500m radius) are detailed in the Chapter No.3, Page No.76
45	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.	Socio Economic study covering 10 km radius is detailed in the Chapter No.3
46	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 court case and litigation pending against the project.
47	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	It is explained in Chapter -3- socio economic study and Chapter-8 Project benefits.
48	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.	Not applicable, the project is Existing proposal.
49	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.	The EMP has been prepared for the entire life of the mine. Proponent given affidavit stating the EMP will be submitted during the appraisal after completion of public hearing.
50	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted & agreed.

TERMS OF REFERENCE (ToR) COMPLIANCE**Thiru.P.Sasikumar****Lr.No. SEIAA-TN/F.No.9456/SEAC/1(a) ToR-1692/2024 Dated: 23.04.2024**

Specific Conditions		
1	The project proponent shall submit certified compliance report for the EC obtained earlier along with the EIA report.	It will furnish final EIA Presentation
2	The PP shall furnish a letter from DFO on the proximity details of nearest RF with respect to the proposed project site.	It will furnish final EIA Presentation
3	The Project Proponent shall necessarily prepare and submit an 'Action Plan' for carrying out the realignment of the benches, i.e., section '-A-B' & 'C-D' where the bench width of 10m to be maintained as 'safety berm' in the proposed quarry lease which shall be approved by the concerned Asst. Director of Geology and Mining indicating the revised quantity of excavation during the time of appraisal for obtaining the EC.	Noted and agreed
4	The PP shall furnish slope stability action plan vetted by the concerned AD (Mines) for the systematic working by maintaining proper benches incorporating the haul road with proper gradient as the height of the proposed quarry is exceeding 30 m, during the EIA appraisal.	Noted and agreed
5	The PP shall give an affidavit stating that the jack hammer drill machine fitted with the dust extractor will be deployed for the drilling operations such that the fugitive dust is controlled effectively at the source.	Noted and agreed It will furnish final EIA Presentation
6	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.	Proponent given Affidavit stating that the blasting operation will be carried out by the competent person as per the MMR 1961.
7	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry.	Detailed in chapter4 blasting operation details.
8	The EIA Coordinates shall obtain and furnish the details of quarry /quarries operated by the PP in the past, either in the same location or elsewhere in the state with video and Photographic evidences.	There are three quarries including this proposal in the cluster belongs to the Proponent Thiru.B.Vishnukumar and Thiru.P.Sasikumar
9	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 <ol style="list-style-type: none"> What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? Quantify of minerals mined out Highest production achieved in any one year Detail of approved depth of mining. Actual depth of the mining achieved earlier. Name of the person already mined in that leases area. 	EC Letter No. SEIAA-TN/F.No.5252/1(a)/EC.No.3526/2016 Dated 10.08.2016 Mining Plan Approved letter: R.CNo 1309/2021/Mines dated: 22.06.2022. Proposed Depth = 37m (BGL) [2m Gravel + 35m Rough Stone] Rough Stone = 4,52,430 m³ Thiru.B.Sasikumar owner of the mine lease area.

	<p>g) If EC and CTO already obtained, the copy of the same shall be submitted.</p> <p>h) Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches</p>	
10	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	<p>Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2, Figure No.2.2, Page No.11.</p> <p>Geomorphology of the area is given in Chapter No 2, Figure No.2.9, Page No.21</p> <p>Land use pattern of the project area is tabulated in the Chapter No.2. Table no 2.3, Pg.No.18</p> <p>Land use pattern of the Study area is tabulated in the Chapter No.2, Table no 2.3, Pg.No.17.</p>
11	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,	Drone video survey covering the Cluster, Greenbelt and fencing will be submitted during appraisal.
12	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	<p>The area has been fenced and the photographs are given in the Chapter No.2, Figure No.2.1 Page No.11</p> <p>No trees within the proposed excavation area, no transplantation is required.</p> <p>Water bodies near to the project site is given in the Chapter No.2 Table No.2.13 Page No.26</p>
13	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	<p>Mineable Reserves -6,76,350 m³</p> <p>Peak Production -92,430 m³</p> <p>anticipated impacts of the mining operations on the surrounding environment in chapter-4</p>
14	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.	<p>Noted and agreed.</p> <p>Detailed under Chapter 6.</p>
15	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.	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 of open wells and borewells within 1km radius along with water level is given in the Chapter No.3
16	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.	<p>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 to assess the cumulative impact of the proposed project on the environment is prepared.</p> <p>The details of Baseline study are given in the Chapter No. 3.</p>

17	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 No.7, Page No.112 to 122.
18	Rain water harvesting management with recharging details along with water balance (both) monsoon & non-monsoon) be submitted.	The rain water will be collected in the mine pit at the lower point later it will be utilized for the haul road maintenance, Greenbelt development etc.,
19	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 Land cover study within the radius of 10km is detailed in the Chapter No. 3 Page No.30 to 33.
20	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, There are no wastages anticipated, the entire quarried out rough stone material will be utilized.
21	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.	The area is not declared as Critically polluted area, no court case pending against the project. Proponent obtained Precise area communication letter, Approval for the Mining plan. The Details are enclosed as Annexure.
22	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.
23	Impact on local transport infrastructure due to the Project should be indicated.	There is no group of Houses, Schools in the proposed transportation route. Proposed Transportation route with mitigation measures is given in the Chapter No.2
24	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.	The Flora study in the core zone has been carried out and the details are given in the Chapter No.3
25	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	The mine closure plan is detailed in the Chapter No.4 Page No.49 The budget for the mine closure is included in the Environmental Management plan in Chapter No.10 Table:10.10
26	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 EWEMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.	The outcome of public hearing will be updated in the final EIA/EMP report
27	The Public hearing advertisement shall be published in one major National daily and one most circulated Tamil daily.	Public hearing advertisement release national newspaper and Daily thanthi both English and Tamil.

28	The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.	Encloses as separate volume in the EIA report.
29	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.	The Flora and Fauna study around the vicinity of the site is carried out by the Functional area experts along with Local School Students to be submit final EIA presentation.
30	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.	The plantation in the project site will be carried out using native and mixed plantation. The recommended species for the plantation is given in the Chapter No.4 Table No.4.10
31	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.	Noted and agreed. The plantation in the project site will be carried out using native and mixed plantation. The recommended species for the plantation is given in the Chapter No.4 Table No.4.10
32	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Disaster management Plan is detailed in the Chapter No.7
33	A Risk Assessment and management Plan shall be prepared and included in the ELA/EMP Report.	A Risk Assessment and management Plan detailed in the Chapter No.7
34	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts of the project with mitigation measures are detailed in the Chapter No.7 Details of Periodical Medical Examination given in the Chapter No.10
35	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.	The details of the population in the impact zone (within 500m radius) are detailed in the Chapter No.3, Page No.76
36	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.	Socio Economic study covering 10 km radius is detailed in the Chapter No.3 Page No.75
37	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 court case and litigation pending against the project.

38	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	It is explained in Chapter -3- socio economic study and Chapter-8 Project benefits.
39	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.	Not applicable, the project is Existing proposal.
40	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.	The EMP has been prepared for the entire life of the mine. Proponent given affidavit stating the EMP will be submitted during the appraisal after completion of Public hearing.
41	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted & agreed.

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 chapter 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	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.	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 of the 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 furnish 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 furnish the Emergency Management 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 of the public.	Details discussed in chapter 10.
10	The committee shall furnish 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.
<i>Impact study of mining</i>		
12	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health' e) Agriculture, Forestry & Traditional practices. 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.	Species Recommended for Plantation in chapter 3&10.
<i>Agriculture & Agro-Biodiversity</i>		
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 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.	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 for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted & agreed
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands. Horticulture, Agriculture and livestock.	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.
<i>Forest</i>		
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 Groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	Hydro-geological study considering the contour map of the water table detailing Chapter-3
24	Erosion Control measures.	Noted & agreed
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby villages, water-bodies/ Rivers. & any ecological fragile areas.	Details in Chapter 2
26	The project proponent 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 Environment by the activities.	Noted & agreed
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.	Noted & agreed. Detailed under Chapter 3.
29	The Terms of 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 impact 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 utilize 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 mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Details of carbon emission and mitigation activities are given in the Chapter No.4
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Details in Chapter-3 for meteorological 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 in Study 7.3 Disaster Management Plan in Chapter -7
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.,	Noted & agreed. Detailed under Chapter 4
40	As per the MoEF& CC office memorandum tr.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted and agreed
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.	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 study area (core and buffer zone).	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 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	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

	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	Not Applicable. There is no waste anticipated during this quarry 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. Chennimalai – 7.43 km –North-P1 Chennimalai – 7.65 km –North-P2 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. Chennimalai – 7.43 km –North-P1 Chennimalai – 7.65 km –North-P2
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.	Chennimalai – 7.43 km –North-P1 Chennimalai – 7.65 km –North-P2
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.	Vellode Birds Sanctuary -20.5km-North East-P1 Vellode Birds Sanctuary -21 km-North East-P2
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 for	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.

	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 predominant 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.	Baseline Data were collected for Winter Season (Dec 2023-Feb 2024) as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3.
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	Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD Model. Details in Chapter No. 4,

	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.	
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 65m below ground level. The ultimate depth of this projects is 45m from the general ground profile.-P1 The ultimate depth of this projects is 37m from the general ground profile.-P2 Maximum depth is proposed in this EIA project is 45m-P1
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 282m AMSL-P1 Ultimate depth of the mine is 45m AMSL Water level in the area is 58m 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 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.	Traffic density survey was carried out to analyse the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no much significant impact due to the proposed transportation from the project area. Details in Chapter 2.

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/EMP 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.	After Public Hearing points raised and commitment will be updated in the final EIA/EMP report in chapter-7
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	Details in Chapter.8.

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

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1.INTRODUCTION

1.0 PREAMBLE

Project History: -

The project proponents Thiru B. Vishnu Kumar and Thiru P. Sasikumar applied for Rough stone and Gravel quarries over a cluster extent of 6.44.21 Ha 1Ha in S.F. No 441/A1 (P), A2 (P), A3 (P) & A4 (P),449 (P), 450 & 442(P), Keeranur Village, Kangayam Taluk, Tiruppur District.

As per the EIA Notification, 2006 and subsequent amendments and OM The proposal falls in the B1 Category (Cluster quarries – 2 proposal, 1 Approved EC Proposal and 1 Existing quarries forming Cluster Category {Total Extent of the Cluster is 10.45.38ha}- Cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016).

- Proponent applied for Terms of Reference vide Proposal No. SIA/TN/MIN/446654/2023 Dated 06.10.2023 and the ToR Was Granted vide Letter No. SEIAA-TN/F.No.10458/ToR-1627/2023 Dated: 12.12.2023-P1
- Proponent applied for Terms of Reference vide Proposal No. SIA/TN/MIN/81244/2021 Dated 28.07.2022 and the ToR Was Granted vide Lr. No. SEIAA-TN/F.No.9456/SEAC/1(a) ToR-1692/2024 Dated: 23.04.2024-P2

Based on the ToR Baseline Monitoring study has been carried out for one season i.e., **Dec 2023 to Feb 2024** and this EIA and EMP report is prepared for considering cumulative impacts arising out of these projects, the Cumulative Environmental Impact Assessment study is undertaken, which is followed by preparation of a detailed Environmental Management Plan (EMP) to minimize those adverse impacts.

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

1.1 PURPOSE OF THE REPORT

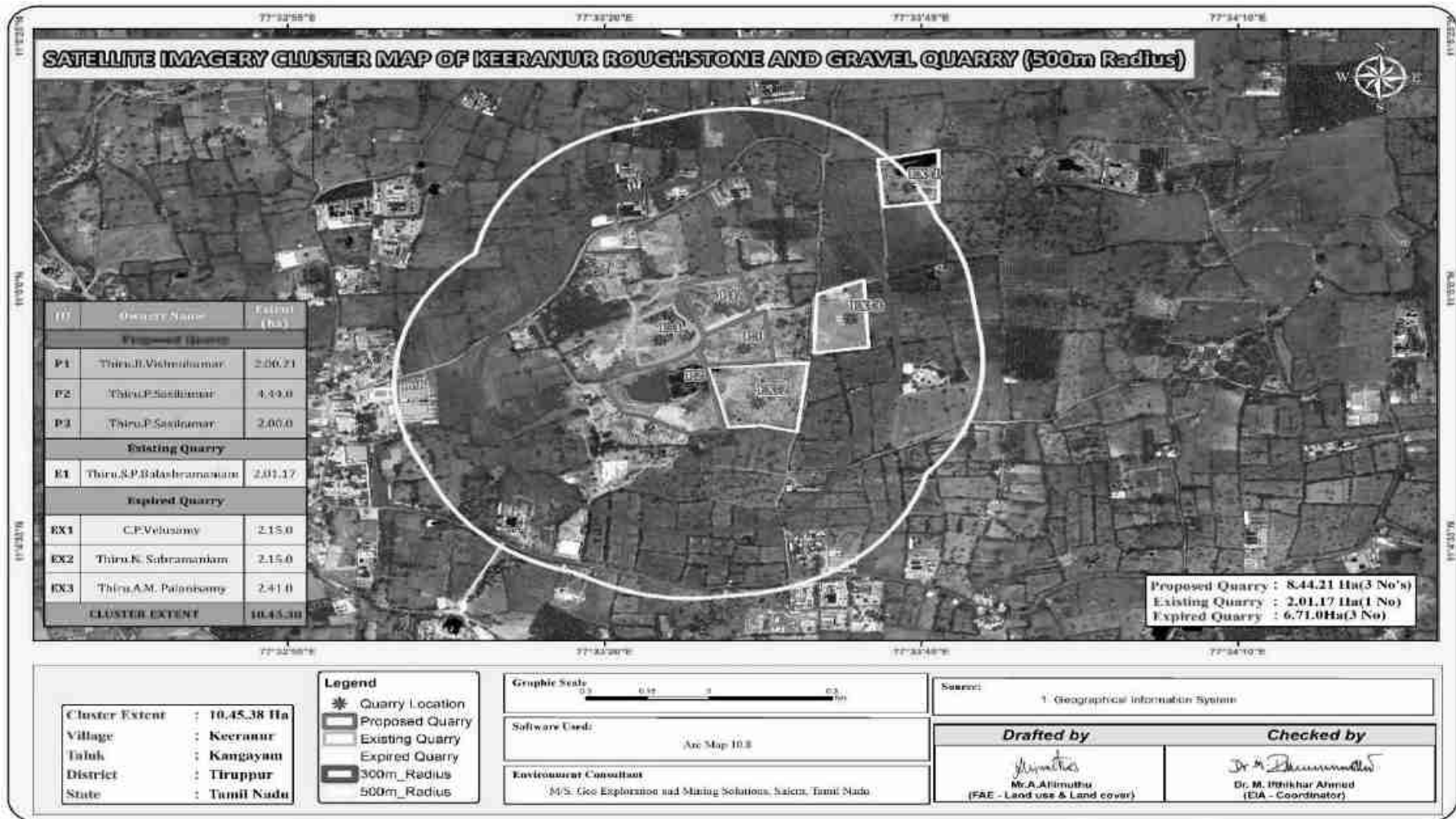
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 1889 of 20th April 2022, Mining Projects are classified under two categories i.e. A (> 250 Ha) and B (\leq 250 Ha),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

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

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

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

FIGURE 1.1 SATELLITE IMAGERY CLUSTER QUARRIES



1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENTS

1.2.1 Identification of Project Proponent

TABLE 1.1: DETAILS OF PROJECT PROPONENT-P1

Name of the Project Proponent	Thiru. B. Vishnu Kumar Rough Stone and gravel quarries
Address	S/o. Balasubramaniam, No.4/114-G, Sedarpalayam, Vavipalayam, Tiruppur District, Tamil Nadu State – 641 666
Mobile	+91 96888 54077
Email	vish.kum19@gmail.com
Status	Individual

TABLE 1.1A: DETAILS OF PROJECT PROPONENT-P2

Name of the Project Proponent	Thiru. P. Sasi kumar Rough Stone and gravel quarries
Address	S/o. Palanisamy, No. 5/257, Keeranur Village, Kangayam Taluk, Tiruppur District – 638 701
Mobile	+91 98945 44917
Email	sasibluemetal@gmail.com
Status	Individual

1.2.2 Identification of Project

TABLE 1.2: SALIENT FEATURES OF THE PROPOSED PROJECT

Name of the Project	Thiru. B. Vishnu Kumar Rough Stone and gravel quarries		
S.F. No.	441/A1 (P), A2 (P), A3 (P) & A4 (P)		
Extent	2.00.21 ha		
Village Taluk and District	Keeranur Village, Kangayam Taluk, Tiruppur District.		
Land Type	It is a patta lands, registered in the name of the applicant (Thiru.B. Vishnu Kumar) vide patta no. 3902 and Tmt B. Vijay Lakshmi, vide patta no.556,508 & 518. The applicant has obtained consent from the pattadhars.		
Previous history	The lease was previously operated by Thiru.Sasikumar vide proceeding No.Rc.No.900/Mines/2009, dated:08.05.2010 and lease period from 08.05.2010 to 07.05.2015 at S.F.Nos. 449(P) & 450 (Extent :4.44.0 ha).		
Existing Pit Dimensions	68m (L)*23m (W)*12m (D) bgl		
Toposheet No	58-E/12		
Latitude between	11° 04' 56.20"N to 11° 05' 02.05"N		
Longitude between	77° 33' 27.55"E to 77° 33' 33.06"E		
Elevation of the area	282m AMSL		
Lease period/Mining Plan period	5 years		
Proposed Depth of Mining	45m bgl (2m Gravel + 3m weathered rock+ 40m Rough stone)		
Geological Resources	Rough Stone in m ³	Weathered Rock m ³	Gravel m ³
	7,94,365	55,770	36,894
Mineable Reserves	2,64,320	42,480	30,240
Year wise Production	2,64,320	42,480	30,240
Peak Production	61,120	18,054	13,680
Ultimate Pit Dimension	126m (L) x 131 (W) x 45m(D) bgl		
Water Level in the region	58 m bgl		
Method of Mining	Opencast Mechanized Mining Method involving drilling and Controlled blasting using Slurry Explosives		

Topography	The lease applied area is plain terrain. The area has gentle sloping towards Northeastern side and altitude of the area is 282m above from Mean sea level. The area is covered by 2m thickness of Gravel, 3m of weathered rock and followed by Massive Charnockite is found after 5m (2m Gravel + 3m weathered rock) which is clearly inferred from existing quarry pit.	
Machinery proposed	Jack Hammer	6 Nos
	Compressor	2 No
	Excavator with Bucket and Rock Breaker	2No
	Tippers	4 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	32 Nos	
Project Cost	Rs. 73,48,000/-	
EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs. 77,28,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Noyyal River	3Km_N
	Karaikattupudur Eri	3.5km_SW
	Odai	4Km_SE
	Tank	7.5Km_NW
	Canal	6Km_N
	Palatholuvu Kulam	9Km_NW
Greenbelt Development Plan	Proposed to plant 1000 Nos of trees considering 500 Nos of trees/ Ha criteria. The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	1.0 KLD	
Nearest Habitation	790m – S.West	
Nearest Reserve Forest	Chennimalai – 7.43 km –North (Source - TNGIS)	
Nearest Wild Life Sanctuary	Vellode Birds Sanctuary -20.5km-North East	

Source: Approved Mining & Land Documents.

Name of the Project	Thiru. P. Sasi Kumar Rough Stone Quarry	
S.F. No.	449(P) & 450	
Extent	4.44.0 ha	
Village Taluk and District	Keeranur Village, Kangayam Taluk, Tiruppur District.	
Land Type	It is a patta lands, registered in the name of the applicant (Thiru.P. Sasi Kumar).	
Previous history	The lease was previously operated by Tmt. B. Vijaylakshmi vide proceeding No.Rc.No.166/Mines/2011, dated:03.07.2012 and lease period from 03.07.2012 to 02.07.2017 at S.F.Nos. 441/A1,441/A2 & 441/A3 (Extent :2.78.0 ha. A penalty of Rs.32,86,890/- has been levied and amount paid by Tmt. B. Vijaylakshmi	
Existing Pit Dimensions	210m (L)*220m (W)*12m (D) bgl	
Toposheet No	58-E/12	
Latitude between	11° 04' 45.60"N to 11° 04' 53.95"N	
Longitude between	77° 33' 19.87"E to 77° 33' 29.50"E	
Elevation of the area	273m AMSL	
Lease period/Mining Plan period	5 years	
Proposed Depth of Mining	37m bgl (2m Gravel + 35m Rough stone)	
Geological Resources	Rough Stone in m ³	Gravel m ³

	11,64,716	2,552
Mineable Reserves	6,76,350	-
Year wise Production	4,52,430	-
Peak Production	92,430	-
Ultimate Pit Dimension	210m (L) x 220 (W) x 37m(D) bgl	
Water Level in the region	65 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is flat terrain. The area has gentle sloping towards West side and altitude of the area is 273m above from Mean sea level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite is found after 2m Gravel which is clearly inferred from existing quarry pit.	
Machinery proposed	Jack Hammer	10 Nos
	Compressor	3 No
	Excavator with Bucket and Rock Breaker	2 No
	Tippers	5 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	40 Nos	
Project Cost	Rs. 75,56,000/-	
EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs. 79,36,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Noyyal River	3.1Km_N
	Karaikattupudur Eri	3.2Km_W
	Odai	3.9Km_SE
	Tank	7.5Km_NW
	Canal	6Km_NE
	Palatholuvu Kulam	9.1Km_NW
Greenbelt Development Plan	Proposed to plant 2,220 Nos of trees considering 500 Nos of trees/ Ha criteria. The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	2.0 KLD	
Nearest Habitation	610m – SW	
Nearest Reserve Forest	Chennimalai – 7.65 km –North (Source - TNGIS)	
Nearest Wild Life Sanctuary	Vellode Birds Sanctuary -21 km-North East	

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.

1.3.2 Location of the Project

- The project site is located in Keeranur Village, Kangayam Taluk and Tiruppur District.
- 24km Southeast of Tiruppur, 8km North of Kangayam and 1km Northeast side of Keeranur Village.

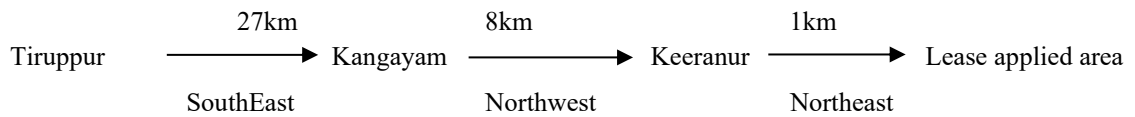
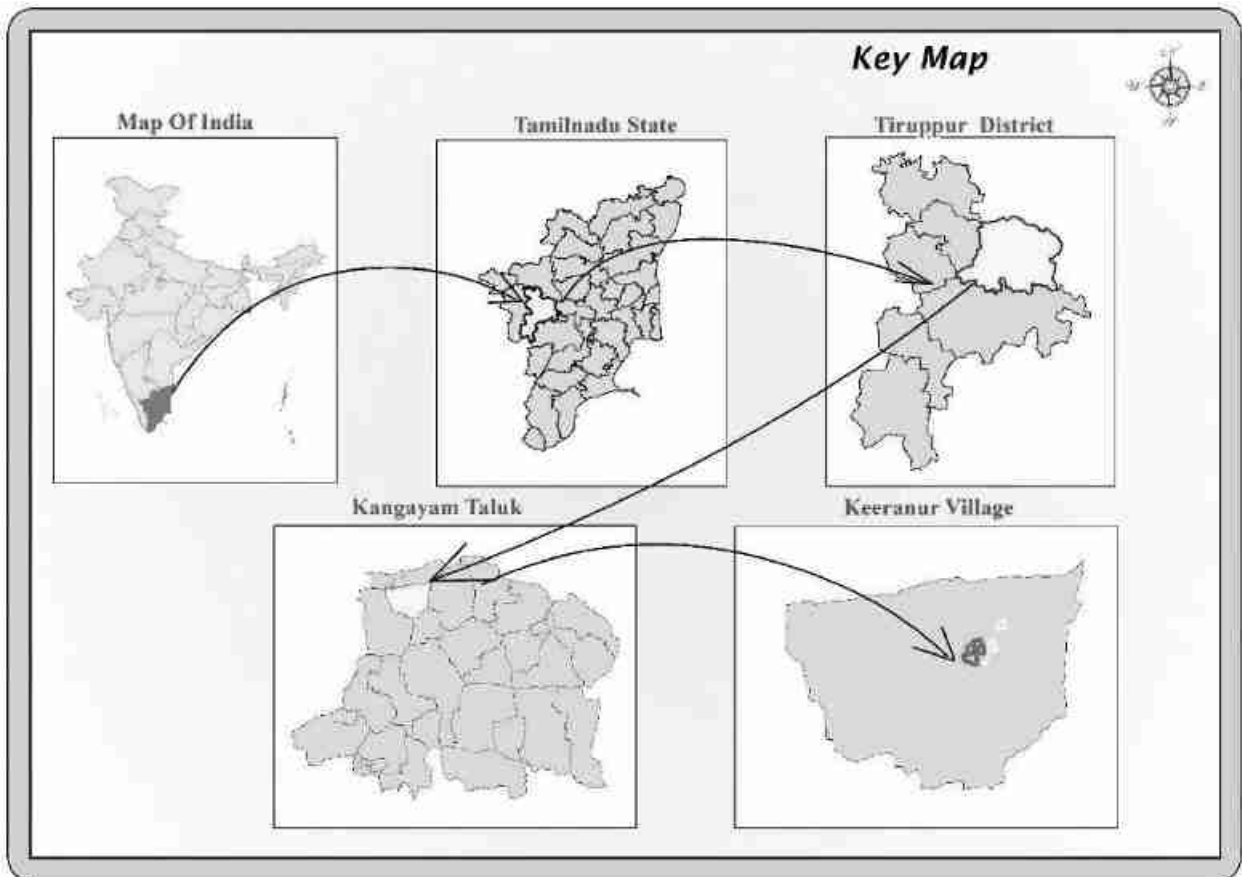


FIGURE 1.2 LOCATION MAP OF THE PROJECT SITE



Source: Survey of India Toposheet 58-E/12

FIGURE 1.3: TOPOSHEET MAP OF THE STUDY AREA 10 KM RADIUS

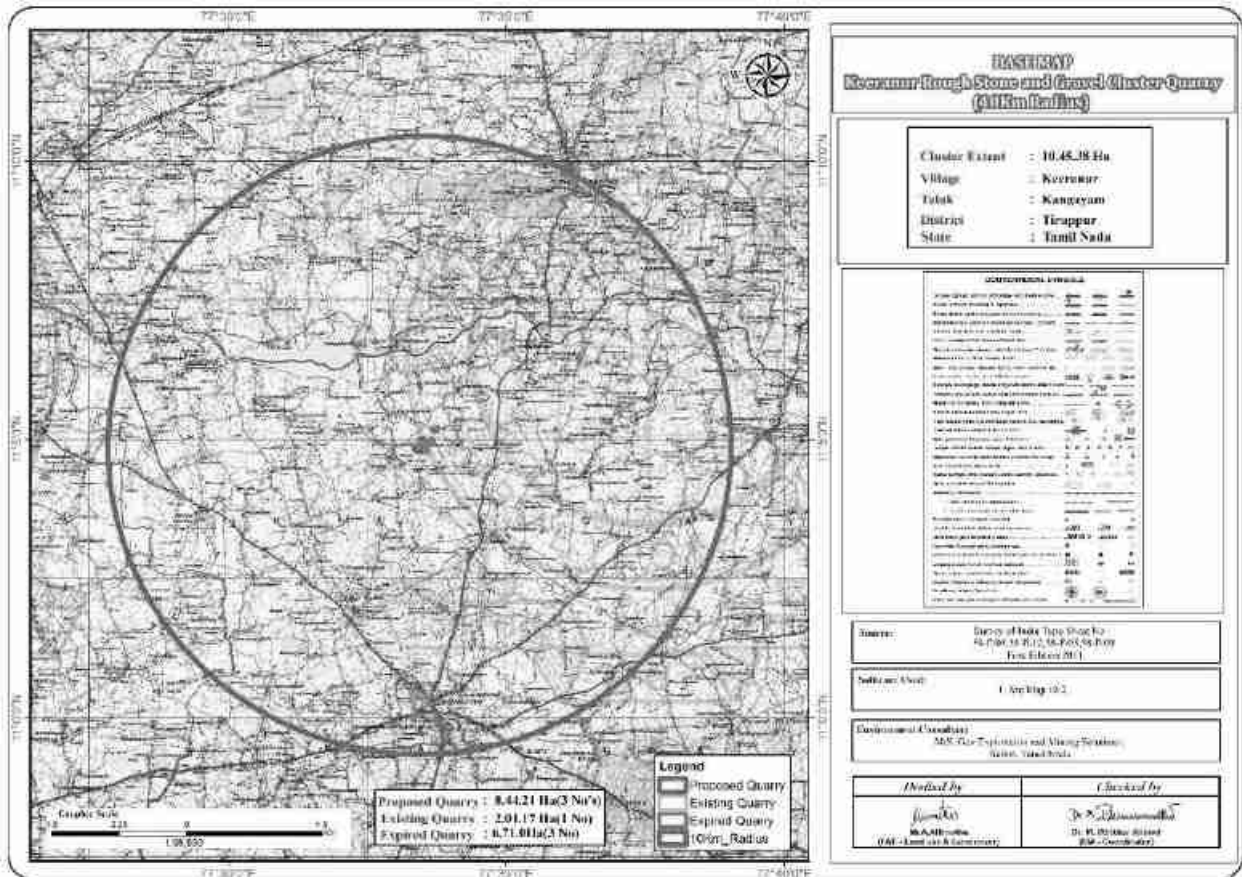
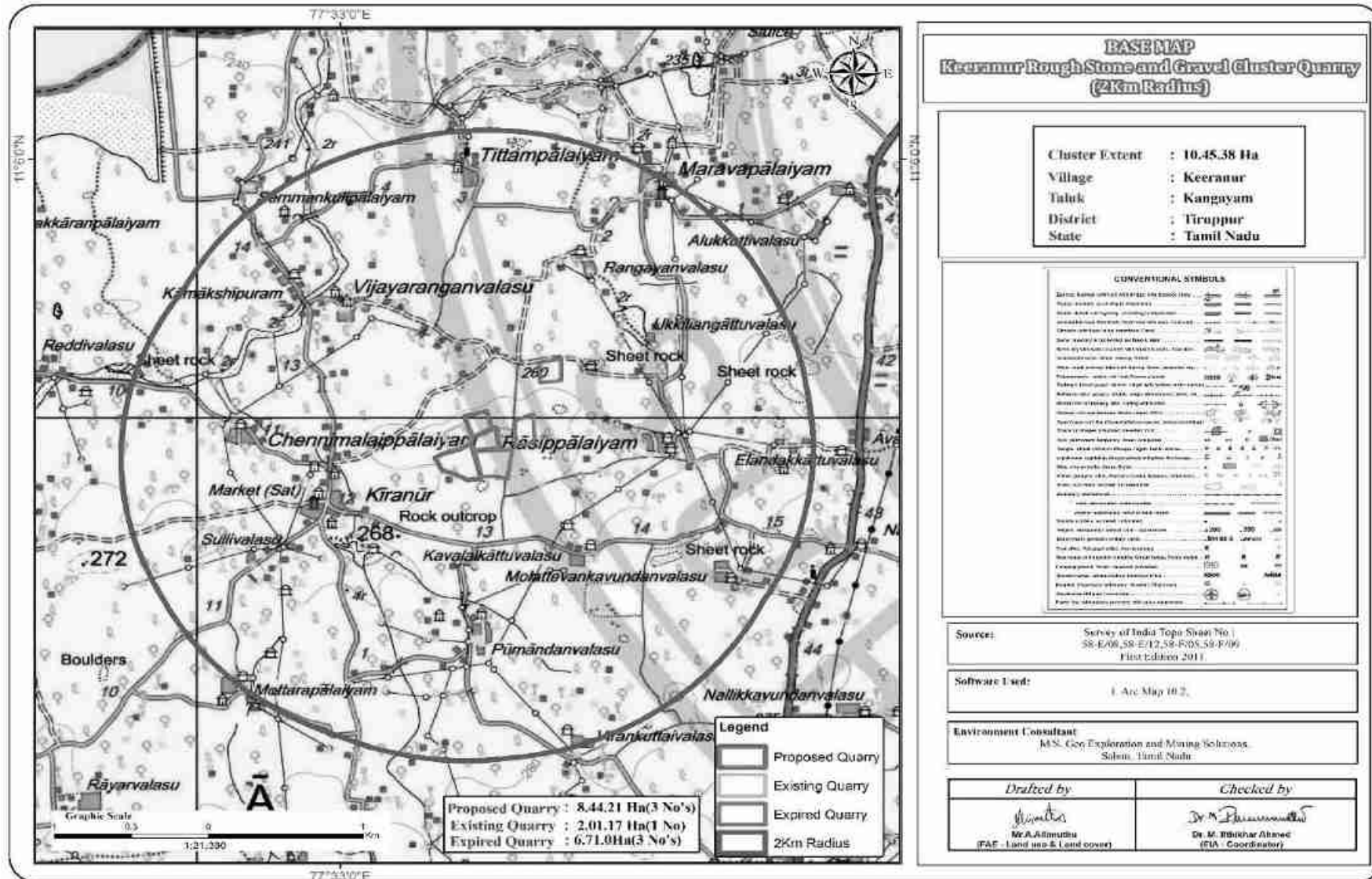


FIGURE 1.4: TOPOSHEET MAP OF THE STUDY AREA 2KM RADIUS



1.4 ENVIRONMENTAL CLEARANCE

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

- Screening,
- Scoping
- Public consultation &
- Appraisal

SCREENING –P1

- The proponent applied for Rough Stone and gravel quarries Lease Dated: 10.10.2022.
- Precise Area Communication Letter was issued by the District Collector, Tiruppur vide RC.No. 685/mines/2022 Dated 21.03.2023
- The Mining Plan was prepared by Recognized Qualified Person and approved by Assistant Director, Geology and Mining, Tiruppur District, vide RC.No. 685/mines/2022 Dated 03.04.2023
- The proposed project falls under “B1” Category 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
- Proponent applied for ToR for Environmental Clearance vide online Proposal No. SIA/TN/MIN/446038/2023. dated: 27.09.2023.

SCREENING –P2

- The proponent applied for Rough Stone and gravel quarries Lease Dated: 01.09.2021
- Precise Area Communication Letter was issued by the District Collector, Tiruppur vide RC.No. 1309/mines/2021 Dated 25.04.2022
- The Mining Plan was prepared by Recognized Qualified Person and approved by Assistant Director, Geology and Mining, Tiruppur District, vide RC.No. 1309/mines/2021 Dated 22.06.2022
- The proposed project falls under “B1” Category 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
- Proponent applied for ToR for Environmental Clearance vide online Proposal No. SIA/TN/MIN/81244/2021. dated: 28.07.2022.

SCOPING-P1:

- The proposal was placed in 423th SEAC meeting held on 15.11.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 678thSEIAA meeting held on 11.12.2023 & 12.12.2023 and issued ToR vide Lr No. SEIAA-TN/F.No.10458/SEAC/ToR-1627/2023 Dated: 12.12.2023

SCOPING-P2:

- The proposal was placed in 319th SEAC meeting held on 12.10.2022 and the committee recommended for issue of ToR.

- The proposal was considered in 564th and 679th and 713rd SEIAA meeting held on 28.10.2022 & 13.12.2023 and 23.04.2024 issued ToR vide Lr No.SEIAA-TN/F.No.9456/SEAC/1(a) ToR-1692/2024 Dated: 23.04.2024

PUBLIC CONSULTATION

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

APPRAISAL –

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

1.5 TERMS OF REFERENCE (ToR)

The ToR was issued by the SEIAA vide Lr No. SEIAA-TN/F.No.10458/SEAC/ToR-1627/2023 Dated: 12.12.2023 – P1 & Lr No. SEIAA-TN/F.No.9546/SEAC/ToR-1692/2024 Dated: 23.04.2024 – P2. The Details of the ToR Compliance is given in the Page No. 6-20.

1.6 POST ENVIRONMENT CLEARANCE MONITORING

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

1.7 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.

1.8 THE 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. 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 2023 to Feb 2024) for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project.

TABLE 1.3: ENVIRONMENT ATTRIBUTES

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂	Continuous 24-hourly samples twice a week for three months at 7 locations (1 Core & 6 Buffer)

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
3	Water quality	Physical, Chemical and Bacteriological parameters	Grab samples were collected at 6 locations – 1 Surface water and 5 Ground water samples; 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)	7 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 analysis done for the risk associated with mining.

Source: Field Monitoring Data

1.8.1 Regulatory Compliance & Applicable Laws/Regulations for all Proposed Quarries

- 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 has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959.
- ToR vide Lr No. SEIAA-TN/F.No.10458/ToR-1627/2023 Dated: 12.12.2023
- ToR vide Lr No. SEIAA- TN/F.No.9456/SEAC/1(a) ToR-1692/2024 Dated: 23.04.2024-P2

2. PROJECT DESCRIPTION

2.0 GENERAL

The Proposed Rough Stone and gravel quarries requires Environmental Clearance. There are 3 proposed and 1 existing quarry, 3 Expired 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 10.45.38ha.

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

2.1 DESCRIPTION OF THE PROJECT

The proposed project is site specific and there is no additional area required for this project. There is no effluent generation/discharge from this project. Method of mining is 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

- 24km Southeast of Tiruppur, 8km North of Kangayam and 1km Northeast side of Keeranur Village.

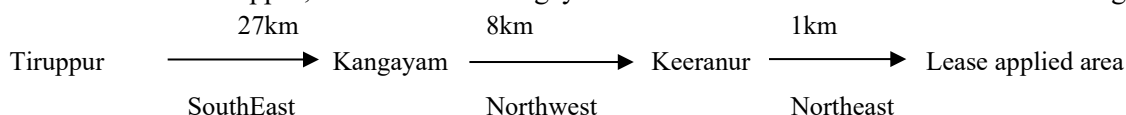


TABLE 2.1: SITE CONNECTIVITY

Nearest Roadway	NH81- Coimbatore – Trichy – 9.0km-S SH96- Chennimalai to Kangayam – 2.0km-E
Nearest Village	Keeranur – 630m- SW
Nearest Town	Kangayam - 9.0km-S
Nearest Railway Station	Tiruppur – 24.0km-NW
Nearest Airport	Coimbatore –66.0km –SW
Seaport	Kochi-191km – SW

Source: Survey of India Toposheet

TABLE 2.2: CO-ORDINATES – PROJECT BOUNDARY

Corner Nos.	Latitude	Longitude
1	11 ^o 04'56.20" N	77 ^o 33'28.88" E
2	11 ^o 05'01.34" N	77 ^o 33'27.55" E
3	11 ^o 05'02.05" N	77 ^o 33'32.34" E
4	11 ^o 04'58.03" N	77 ^o 33'33.06" E
5	11 ^o 04'57.66" N	77 ^o 33'32.32" E
Datum: UTM-WGS84, Zone 43 North		

Source: Approved Mining Plan

Corner Nos.	Latitude	Longitude
1	11°04'47.72" N	77°33'21.38" E
2	11°04'50.65" N	77°33'19.87" E
3	11°04'51.68" N	77°33'21.56" E
4	11°04'52.05" N	77°33'22.97" E
5	11°04'52.87" N	77°33'25.56" E
6	11°04'53.95" N	77°33'27.25" E
7	11°04'52.32" N	77°33'27.88" E
8	11°04'45.92" N	77°33'29.50" E
9	11°04'45.60" N	77°33'26.67" E
10	11°04'47.27" N	77°33'23.17" E
Datum: UTM-WGS84, Zone 43 North		

FIGURE 2.1: TOPOGRAPHICAL VIEW OF PROJECT AREA-P1**PROJECT SITE PHOTOGRAPHS**



FENCING & GREENBELT AT PROJECT SITE

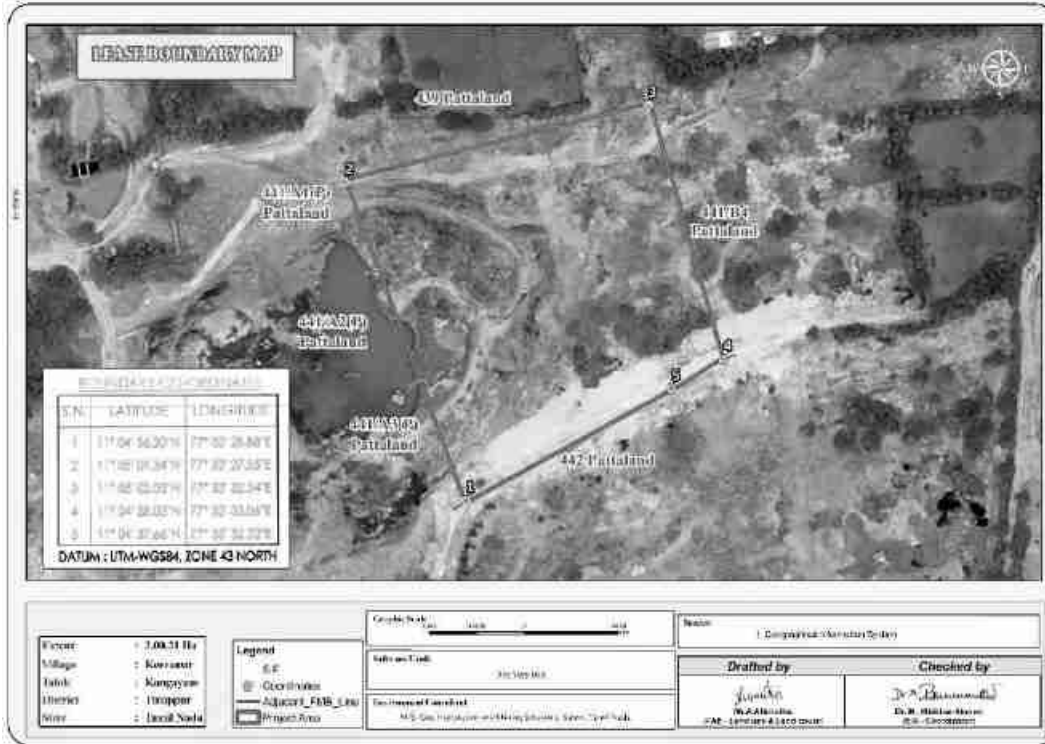
FIGURE 2.2: TOPOGRAPHICAL VIEW OF PROJECT AREA-P2





FENCING & GREENBELT AT PROJECT SITE – P2

FIGURE 2.3: GOOGLE IMAGE OF THE PROJECT AREA -P1



Source: Google Earth Imagery

FIGURE 2.4: GOOGLE IMAGE OF THE PROJECT AREA -P2



Source: Google Earth Imagery

FIGURE 2.5: QUARRY LEASE PLAN / SURFACE PLAN-P1

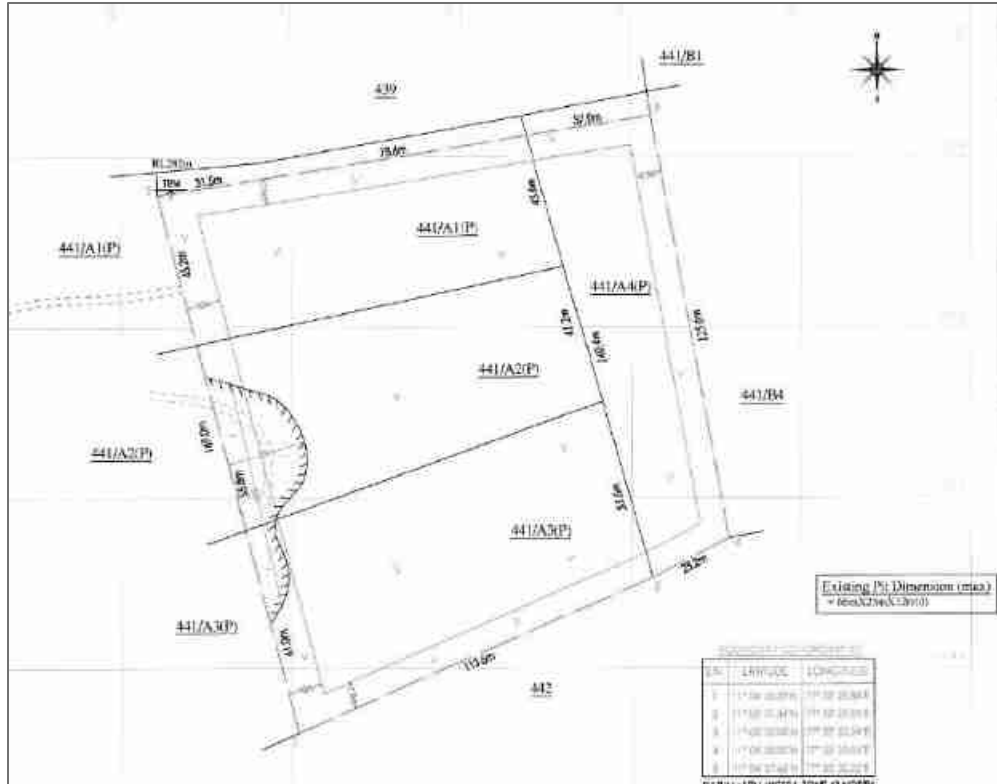
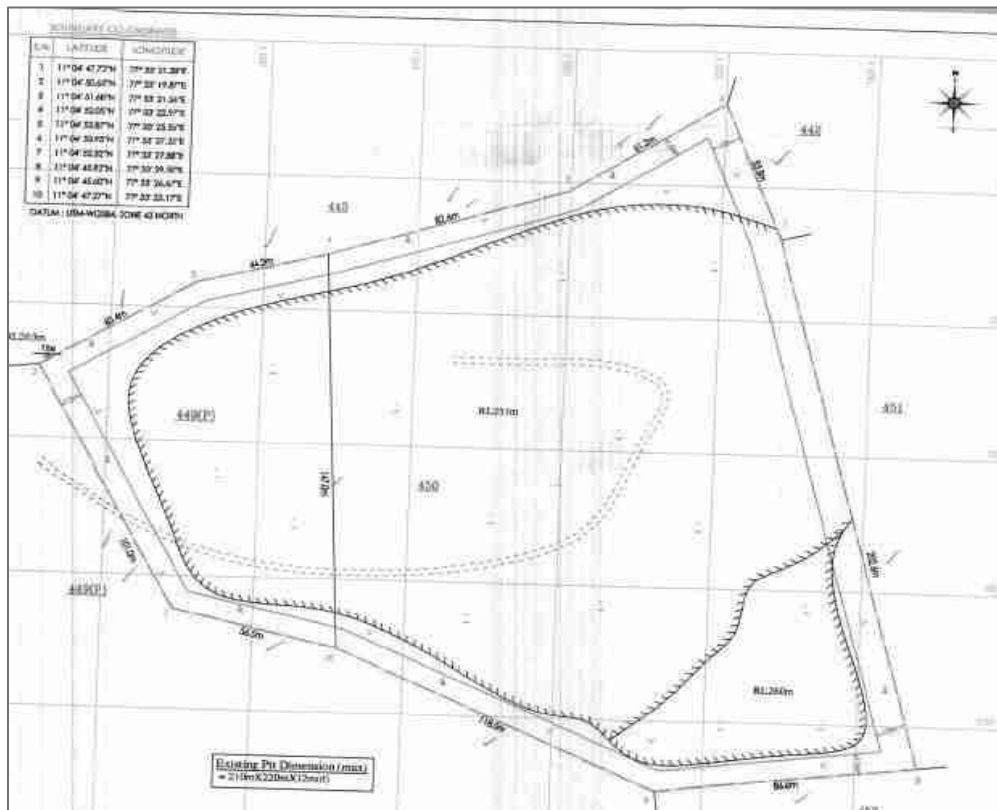


FIGURE 2.6: QUARRY LEASE PLAN / SURFACE PLAN-P2



Source: Approved Mining Plan

FIGURE 2.7: TOPOGRAPHY, GEOLOGICAL& YEARWISE-P1

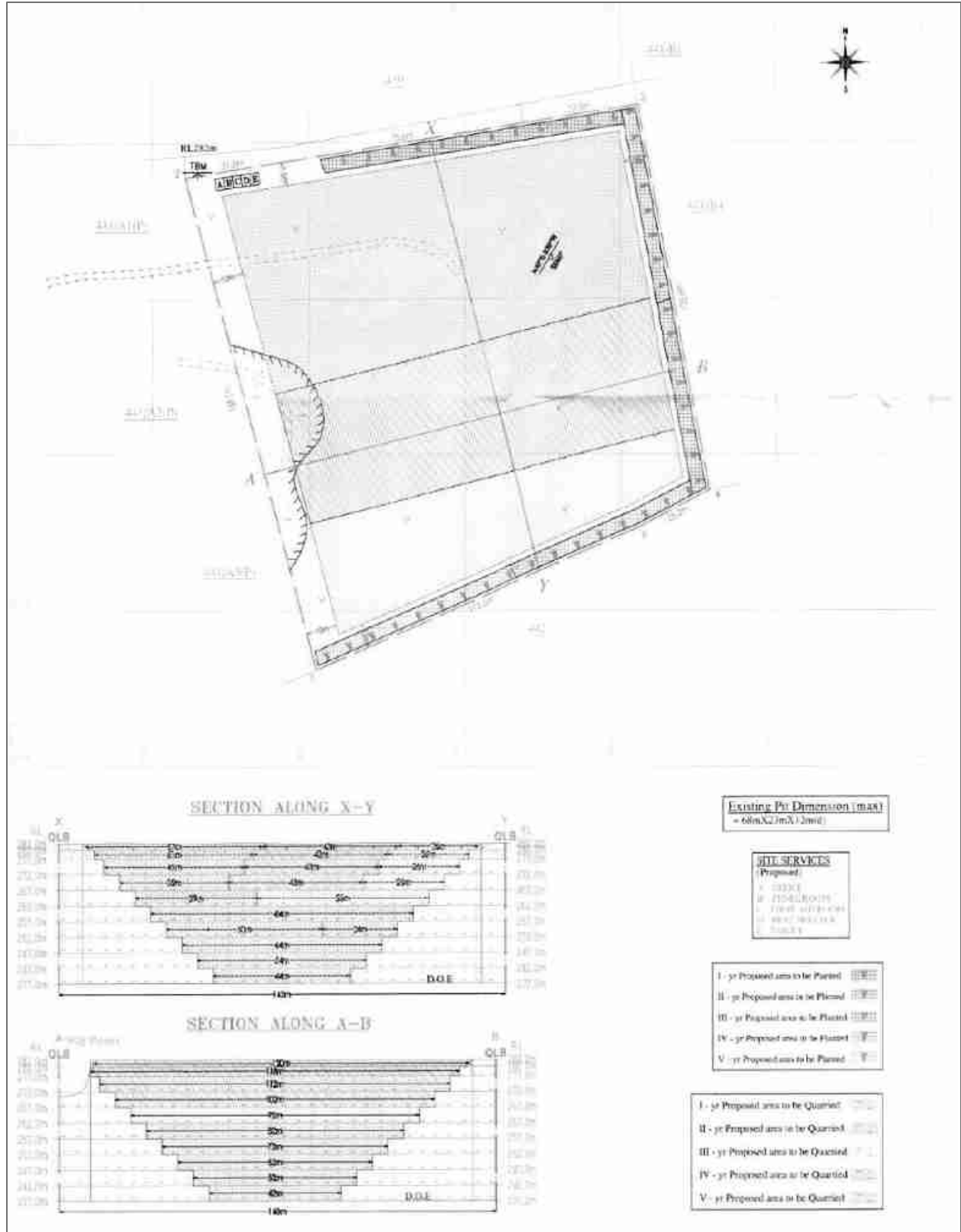


FIGURE 2.8: TOPOGRAPHY, GEOLOGICAL & YEARWISE-P2

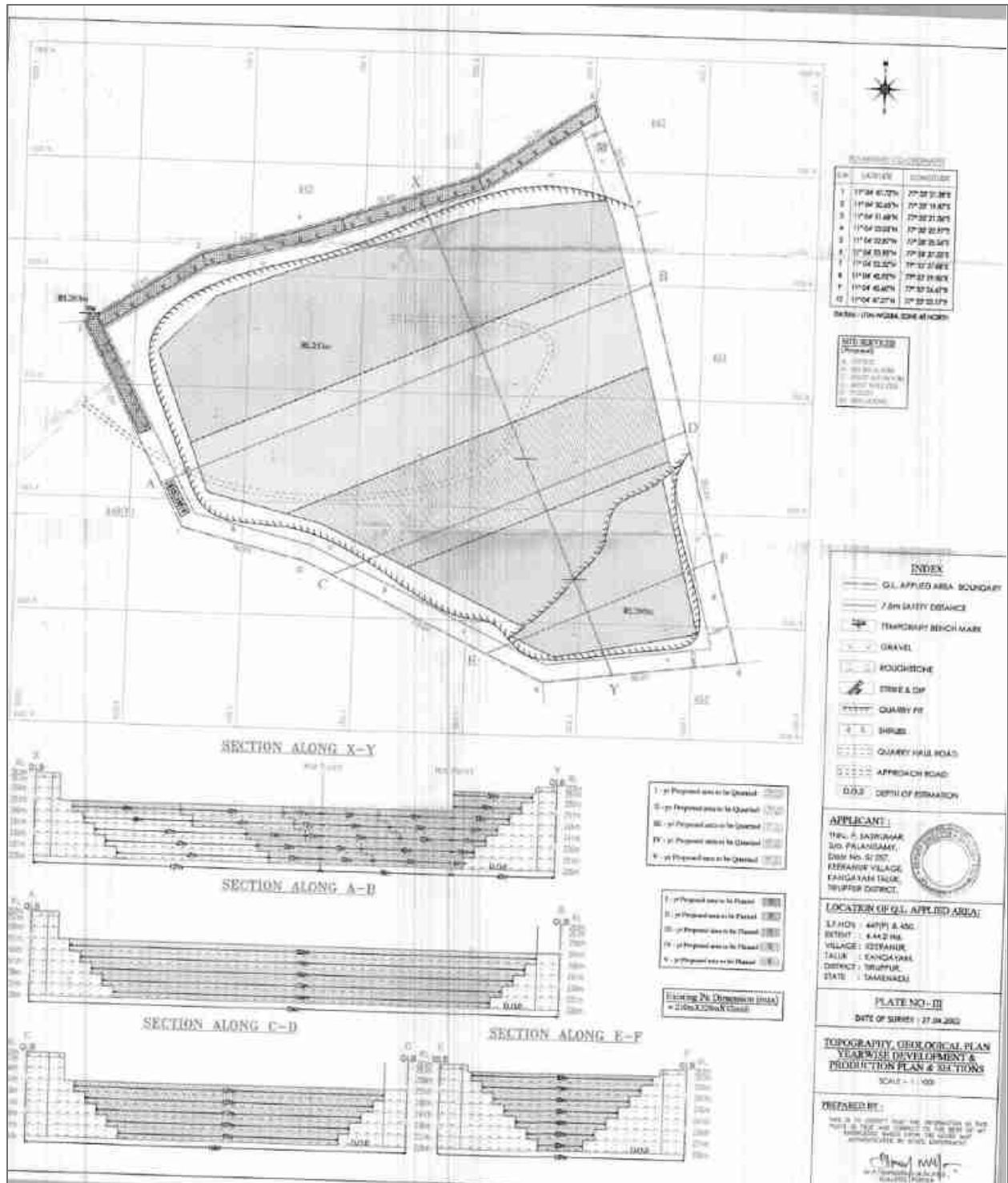


FIGURE 2.9: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE

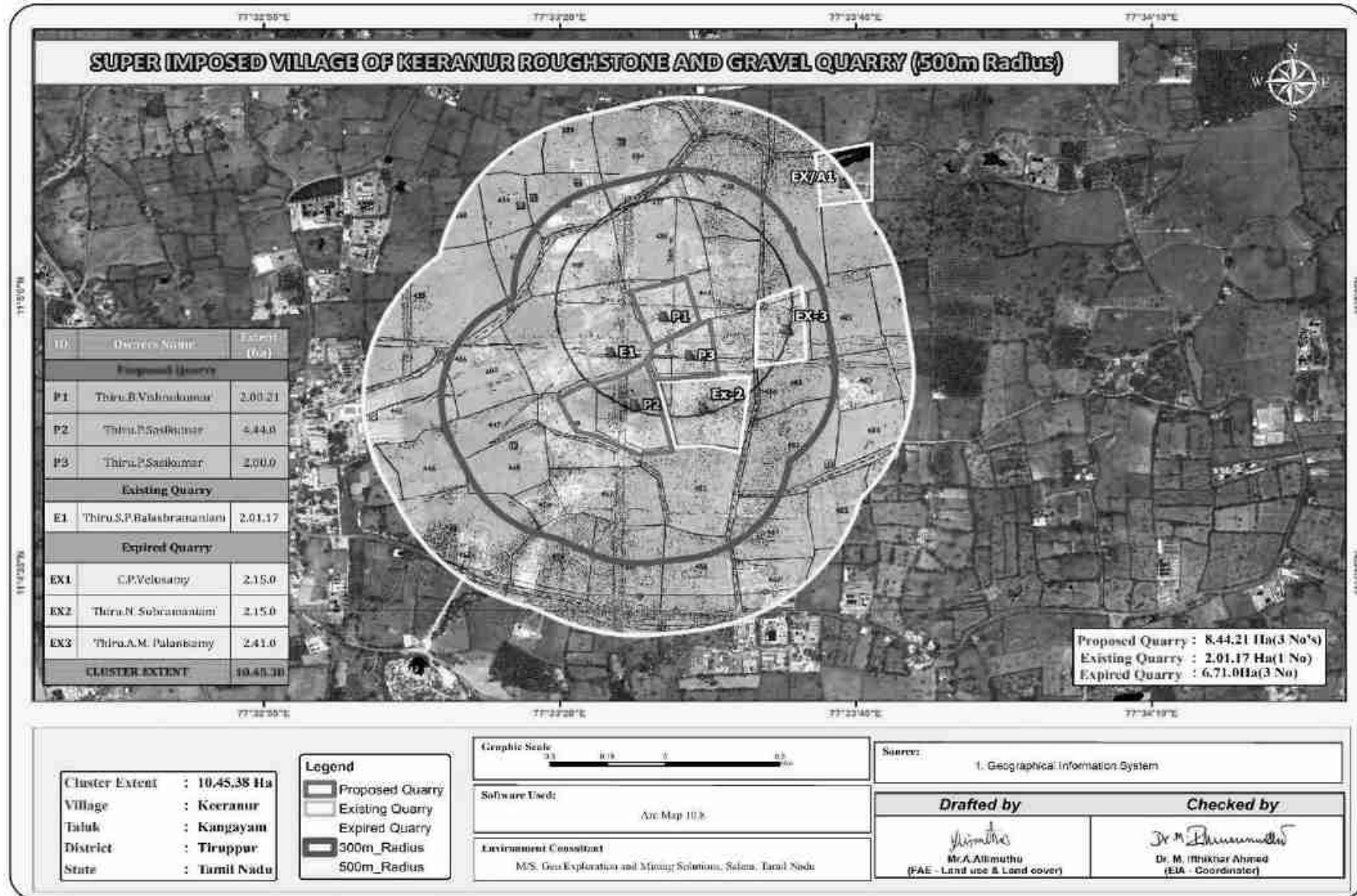


FIGURE 2.10: IMAGE SHOWING SURFACE FEATURES AROUND 10 KM RADIUS

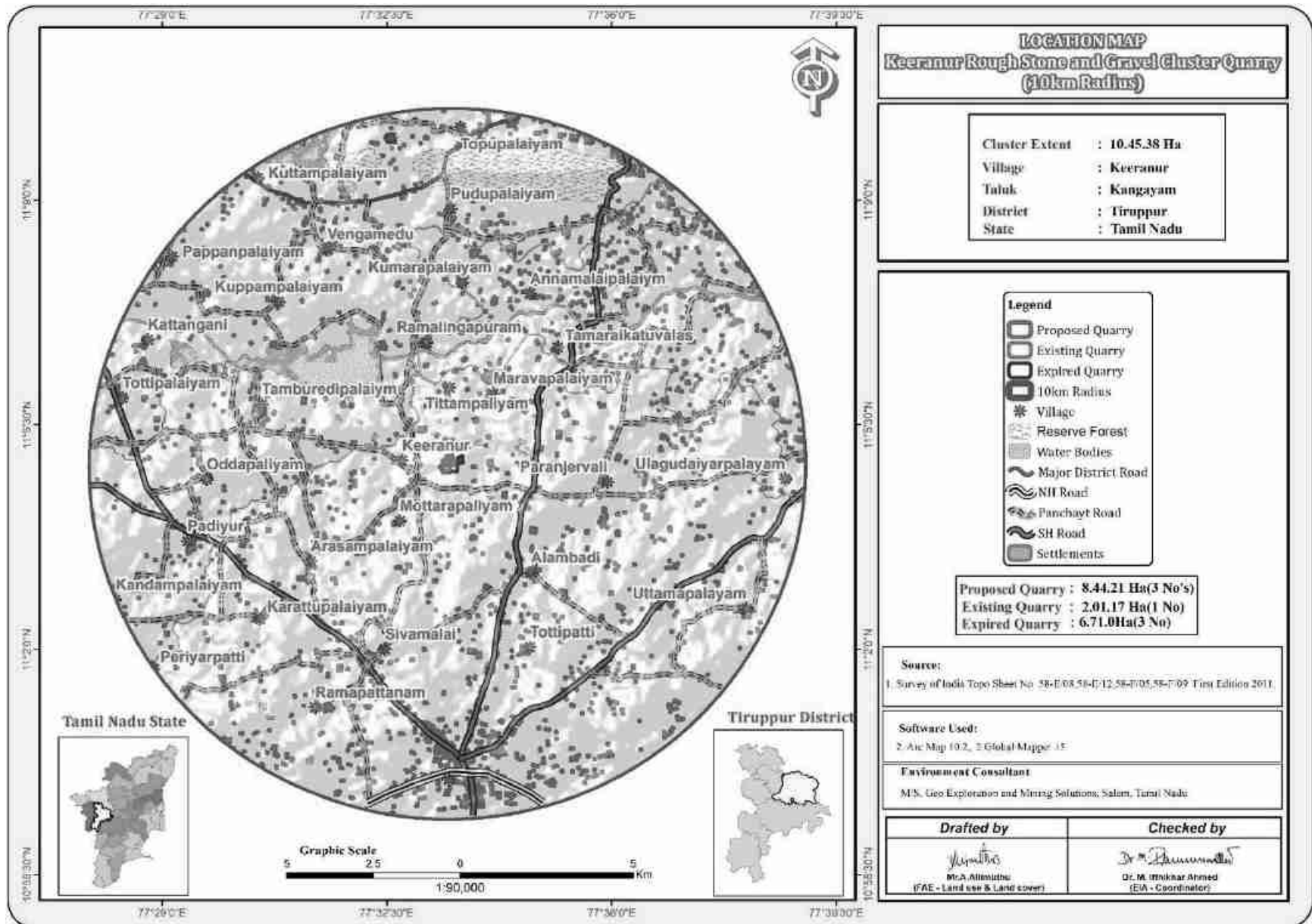
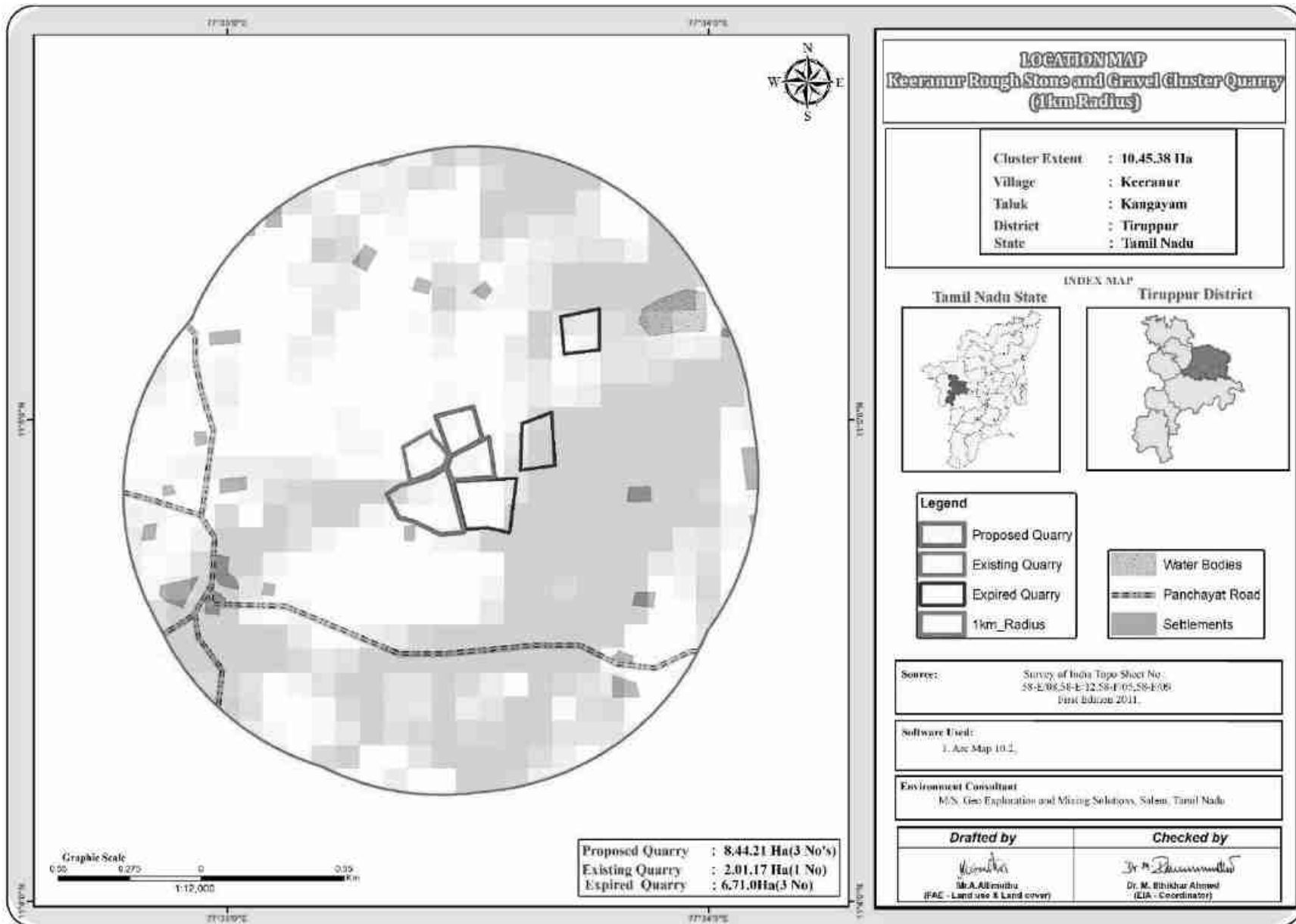


FIGURE 2.11: IMAGE SHOWING SURFACE FEATURES AROUND 1 KM RADIUS



2.2.1 Project Area

- The project is site specific & no beneficiation or processing in the project site.
- There is no forest land involved in the proposed projects and is devoid of major vegetation and trees.

TABLE 2.3: LAND USE PATTERN-P1

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area under quarrying	0.10.11	1.60.31
Infrastructure	Nil	0.01.0
Roads	0.02.00	0.02.0
Green Belt	Nil	0.16.00
Unutilized Area	1.88.10	0.20.90
Grand Total	2.00.21	2.00.21

Source: Approved Mining

TABLE 2.3A: LAND USE PATTERN-P2

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Area under quarrying	3.54.0	3.54.0
Infrastructure	Nil	0.01.0
Roads	0.02.00	0.02.0
Green Belt	Nil	0.16.00
Unutilized Area	0.88.0	0.71.00
Grand Total	4.44.0	4.44.0

2.2.2 Size or Magnitude of Operation

TABLE 2.4: RESOURCES AND RESERVES-P1

PARTICULARS	DETAILS		
	Rough Stone in m ³	Weathered Rock in m ³	Gravel in m ³
Geological Resources	7,94,365	55,770	36,894
Mineable Reserves	2,64,320	42,480	30,240
Production for five-year plan period	2,64,320	42,480	30,240
Peak Production	61,120	18054	13680
Mining Plan Period / Lease Applied Period	5 Years		
Number of Working Days	300 Days		
Production per day	204	60	46
No of Lorry loads (12m ³ per load)	17	5	4
Total Depth of Mining	45m (2m Gravel +3m Weathered ock+40m Rough stone) below ground level.		

Source: Approved mining plan.

TABLE 2.5: RESOURCES AND RESERVES-P2

PARTICULARS	DETAILS
	Rough Stone in m ³
Geological Resources	11,64,716
Mineable Reserves	6,76,350
Production for five-year plan period	4,52,430

Peak Production	92,430
Mining Plan Period / Lease Applied Period	5 Years
Number of Working Days	300 Days
Production per day	308
No of Lorry loads (12m ³ per load)	26
Total Depth of Mining	37m (2m Gravel +35m Rough stone) below ground level.

Source: Approved mining plan.

2.3 GEOLOGY

2.3.1 Regional Geology

Tiruppur district of Tamil Nadu forms a part of southern Granulitic terrain and is predominantly occupied by crystalline rocks of Archaean to late Proterozoic age. Regionally, the rocks can be grouped under five categories namely –

i.	Charnockite Group represented by Charnockite, Pyroxene Granulite and Magnetite Quartzite
ii	Peninsular Gneissic Complex (II) comprising hornblende-biotite gneiss
iii	Peninsular Gneissic Complex (II) comprising hornblende-biotite gneiss
iv	Younger intrusive comprising, Nepheline-Syenite, Pink Granite, Pegmatite and Quartz veins and
v	Younger intrusive comprising, Nepheline-Syenite, Pink Granite, Pegmatite and Quartz veins and
vi	Quaternary sediments of Kankar and soil

Stratigraphy of the area

Age	Group	Lithology
Holocene		Block cotton soil/clay ± gypsum
Cenozoic		Kankar/calc-tufa
Neoproterozoic	Acid intrusives	Quartz veins Pegmatite Pink Granite
	Sivamalai syenite Complex	Nepheline-syenite
	Chalk Hills (Basic Intrusives)	Pyroxenite/Dunite
Archaean - Palaeoproterozoic	Peninsular Gneissic Complex (II) PGC (II)	Pink Granite Gneiss Hornblende Biotite gneiss
Archaean	Charnockite Group	Charnockite (Unclassified) Pyroxene Granulite Banded Magnetite Quartzite

Tiruppur District is predominantly occupied by hornblende Biotite gneisses of PGC (II) with enclaves of Magnetite Quartzite, Pyroxene Granulite and Charnockite. The area exposes several bands of Pyroxene Granulite which is medium grained, medium to dark grey in colour and stand out prominently in the gneissic country generally parallel to regional foliation. Charnockite is coarse grained, massive, many places it is foliated, grey colored and greasy and exposed as boulder outcrops and small knolls. It is well exposed in Central, Western and Southern parts of the Tiruppur District. The general strike of foliation varies from ENE-WSW, E-W with dipping towards NW and N respectively.

Hornblende-Biotite gneiss is well foliated, medium to coarse grained, pale grey and exposed as sheets and small knolls. Pink Granite gneiss occurs as thin bands and lensoidal bodies. It is a medium grained rock composed of alternating bands of mafic (mainly of biotite and hornblende) and felsic (Feldspar and Quartz) minerals. It is well recognized in Avinasi area.

Basic intrusives such as pyroxinite/dunite occurs as Outcrop and lensoidal bodies in the country rock and mostly concordant to the regional foliation. Many basic intrusive are reported in south and south-east of Tiruppur town. The trend of these bodies is east-west.

Nepheline syenite is a leucocratic, coarse-grained rock and composed mainly of Feldspar with Nepheline and shows pitted appearance due to removal of Nepleline. This alkaline rock is available in and around Sivanmalai area only. Acid intrusives comprising pink granite, pegmatite and quartz veins are traversed country rocks in micro (cm wide-meter long) to meso-scale (few meters wide and several meter long) extend. Granite is exposed around 9 km SW of Avanashi. Small scale pegmatite and quartz veins are noticed almost in all the rock types. Acid intrusives are overlain by sediments of Quaternary age, represented by Kankar and black cotton soil with Gypsum. Most of the area is covered by brown and red brown soil. Some part of the area covered with black cotton soil contains Gypsum as lumps. Black cotton soil covers south-western part of the district.

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

<https://cdn.s3waas.gov.in/s3d1f255a373a3cef72e03aa9d980c7eca/uploads/2019/05/2019052585.pdf>

2.3.2 Local Geology: -

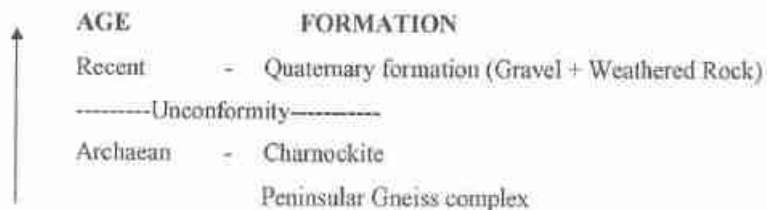
The study area follows the regional trend and mainly comprises of Hard Rock Formation as a homogeneous formation / Batholith formation of Charnockite. All the project areas are plain terrain, all the project areas are covered with gravel and weathered gravel formation of 1m - 2m thickness (2m gravel); Massive Charnockite formation is found after 1m-5m gravel and weathered gravel formation which is clearly inferred from the existing quarry pit.

Peninsular gneiss forms the oldest rock formation, in which the massive formation of Charnockite lies over the rich accumulation of recent quaternary formation. On regional scale of the Charnockite body is N30⁰E – S30⁰W and dipping towards SE60⁰.

Exploration:

No Exploration is required, the Rough stone and Gravel formation is clearly inferred from the existing quarry pit situated on the southwest and west side.

The General Geological sequence of the area is given below:



2.4 RESOURCES AND RESERVES

The Resources and Reserves of Rough Stone and Gravel were calculated based on Cross-Section Method by plotting sections to cover the maximum lease area. Based on the availability of Geological Resources the Mineable Reserves are calculated by considering excavation system of bench formation and leaving essential safety distance of 7.5 m (Safety Barrier all around the applied area) and safety distance as per precise area communication letter and deducting the locked up reserves during bench formation (Also called as Bench Loss) and the Mineable Reserves is calculated considering there is no waste / overburden / side burden (100% Recovery Anticipated).

TABLE 2.6: RESOURCES AND RESERVES-P1

Description	Rough Stone m ³	Weathered Rock m ³	Gravel m ³
Geological Resource	7,94,365	55,770	366,894
Mineable Resource	2,64,320	42,480	30,240
Year wise production for five-year plan period	2,64,320	42,480	30,240

Source: Approved Mining Plan

TABLE 2.7: YEAR-WISE PRODUCTION PLAN-P1

YEAR	ROUGH STONE (m ³)	Weathered Rock m ³	Gravel m ³
I	43,050	18,054	13,680
II	46,010	15,222	10,320
III	53,120	9,204	6,240
IV	61,020	-	-
V	61,120	-	-
TOTAL	2,64,320	42,480	30,240

Source: Approved Mining Plan

TABLE 2.8: RESOURCES AND RESERVES-P2

Description	Rough Stone m ³	Gravel m ³
Geological Resource	11,64,716	2,552
Mineable Resource	6,76,350	
Year wise production for five-year plan period	4,52,430	

Source: Approved Mining Plan

TABLE 2.9: YEAR-WISE PRODUCTION PLAN-P2

YEAR	ROUGH STONE (m ³)
I	91,040
II	92,430
III	90,450
IV	89,815
V	88,695
TOTAL	4,52,430

Source: Approved Mining Plan

Disposal of Waste

The overburden in the form of Gravel formation is about 72,720m³ up to depth 5m for during this period. the Weathered rock & 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.

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 DIMENSION-P1

Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max)
I	126	131	45m bgl

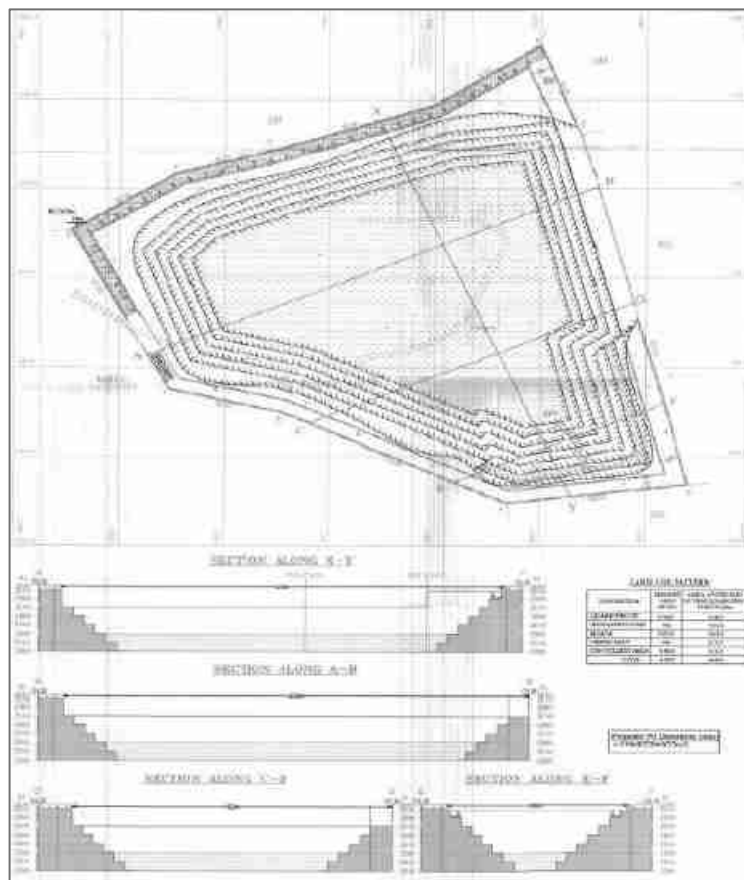
Source: Approved Mining Plan

TABLE 2.11: ULTIMATE PIT DIMENSION-P2

Pit	Length (Max) (m)	Width (Max) (m)	Depth (Max)
I	210	220	37m bgl

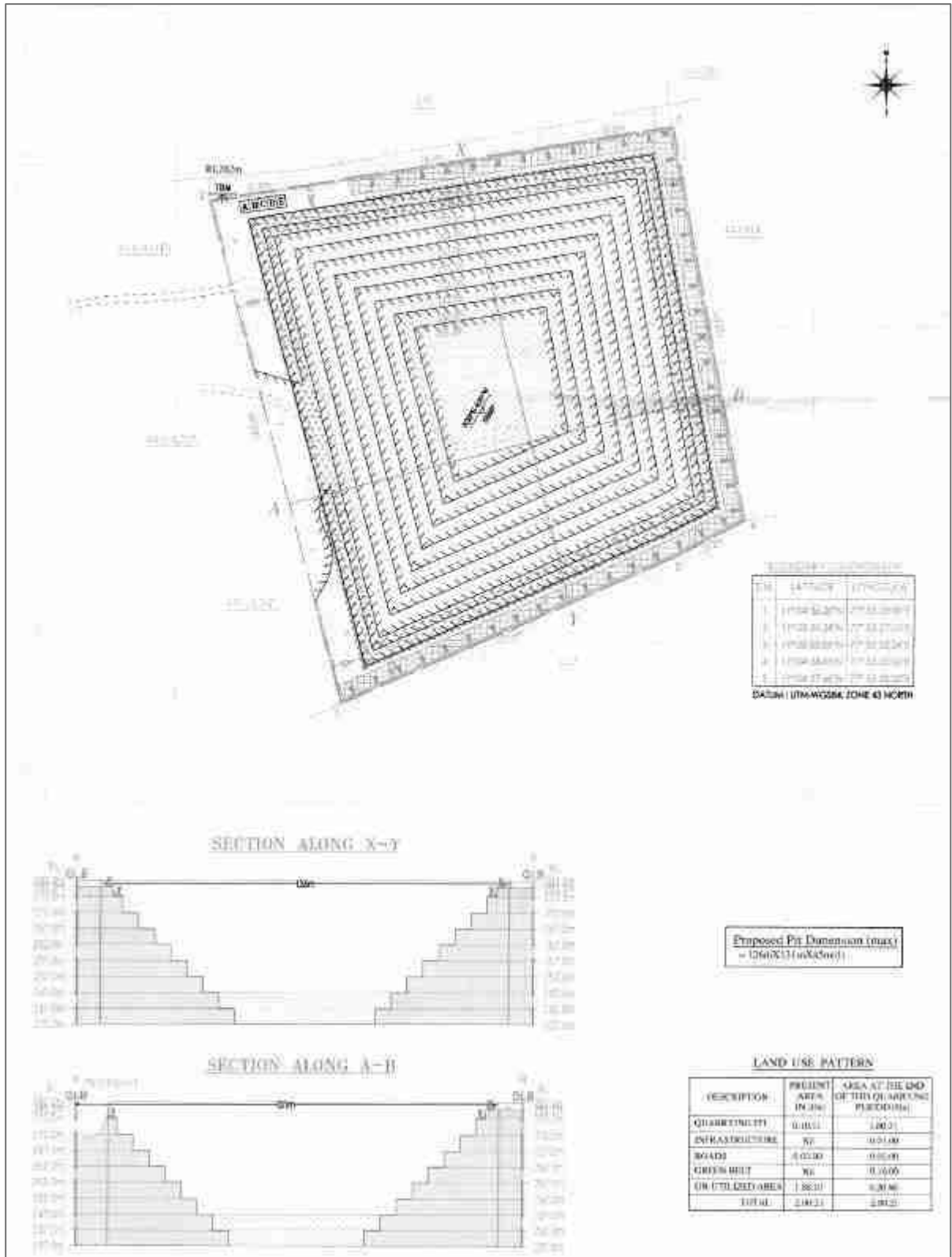
Source: Approved Mining Plan

FIGURE 2.14: CLOSURE PLAN AND SECTIONS-P1



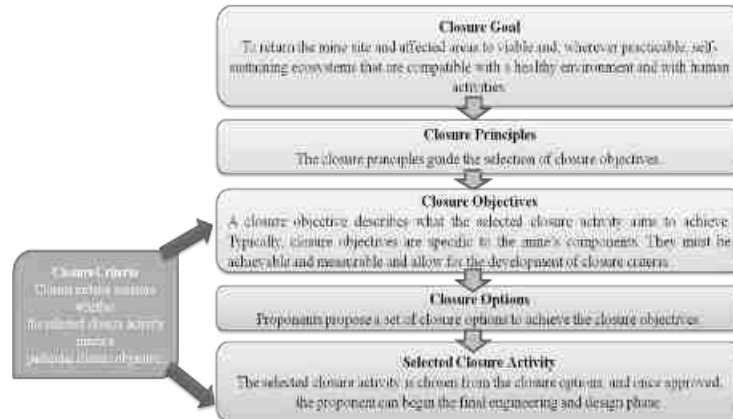
Source: Approved Mining Plan

FIGURE 2.15: CLOSURE PLAN AND SECTIONS-P2



- 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.

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
- 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

2.5 METHOD OF MINING

Opencast Mechanized Mining Method is proposed by formation of 5.0-meter height bench with a bench width not less than the bench height. Bench slope will be maintained as 60°.

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 Excavator attached with rock breaker/ bucket with tipper combination will be involved for the excavation/breaking of Rough stone after blasting. 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.

It is recommended to obtain necessary statutory permission from the Department of Geology and Mining for Using Heavy Earth Moving Machineries, Blasting and appointment of Mines Manager etc.,

2.5.1 Drilling & Blasting Parameters

Drilling will be carried out using Jack hammer and compressor, the depth of the hole will be maximum 1.5m
Drilling & Blasting will be carried out as per parameters given below: -

Spacing	–	1.2m
Burden	–	1.0 m
Depth of hole	–	1.5 m
Charge per hole	–	0.50 – 0.75kg
Powder factor	–	6.0 tonnes/kg
Diameter of hole	–	32 mm
Peak production Capacity	=	512m ³ of Rough stone per day
Spacing X Burden X Depth	=	1.2m X 1.0m X 1.5m = 1.8m ³
	=	1.8m ³ X 2.6 (Bulk Density) = 4.6Ts per hole

hence for the peak production of 512m³ (1331Ts) = 221 Nos of holes to be drilled per day

Explosives per hole = ½ kg hence 110 kg of Explosives will be utilized maximum considering the peak production for cluster

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.

Storage of Explosives –

No proposal for storage of explosives within the project area, the project proponent will made agreement with authorized explosives agencies for carrying out blasting activities and competent person as per DGMS guidelines will be employed for safety and supervision of overall quarrying activities.

The explosives will be sourced from the blasting agency on daily basis and the blasting will be carried out under the supervision of competent qualified Blaster and it will be ensured that there shall be no balance of explosive stock; any balance stock will be taken back by the supplier.

2.5.2 Extent of Mechanization

TABLE 2.12 PROPOSED MACHINERY DEPLOYMENT-P1

S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	6	1.2m to 2.0m	Compressed air
2	Compressor	2	400psi	Diesel Drive
3	Excavator with Bucket and Rock Breaker	2	300 HP	Diesel Drive
4	Tippers	4	20 Tonnes	Diesel Drive

Source: Approved Mining Plan

TABLE 2.13 PROPOSED MACHINERY DEPLOYMENT-P2

S.NO.	TYPE	NOS	SIZE/CAPACITY	MOTIVE POWER
1	Jack hammers	10	1.2m to 2.0m	Compressed air
2	Compressor	3	400psi	Diesel Drive
3	Excavator with Bucket and Rock Breaker	2	300 HP	Diesel Drive
4	Tippers	5	20 Tonnes	Diesel Drive

2.6 GENERAL FEATURES

2.6.1 Existing Infrastructures

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

2.6.2 Drainage Pattern

There are no streams, canals or water bodies crossing within the project area. The drainage pattern of the area is dendritic – sub dendritic.

2.6.3 Traffic Density

The traffic survey conducted based on the transportation route of material, the Rough Stone is proposed to be transported mainly through

Traffic density measurements were performed at two locations

1. Approach Road
2. Panchayat Road Keeranur Village Road

Traffic density measurement was 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 LOCATIONS

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Approach Road	180m-N	Approah Road
TS2	Panchayat Road Keeranur Village Road	2.2 km-SE	Panchayat Road

Source: On-site monitoring by GEMS FAE & TM

TABLE 2.15: EXISTING TRAFFIC VOLUME

Station code	HMV		LMV		2/3 Wheelers		Total PCU
	No	PCU	No	PCU	No	PCU	
TS1	50	150	75	75	50	25	250
TS2	100	300	50	50	100	50	400

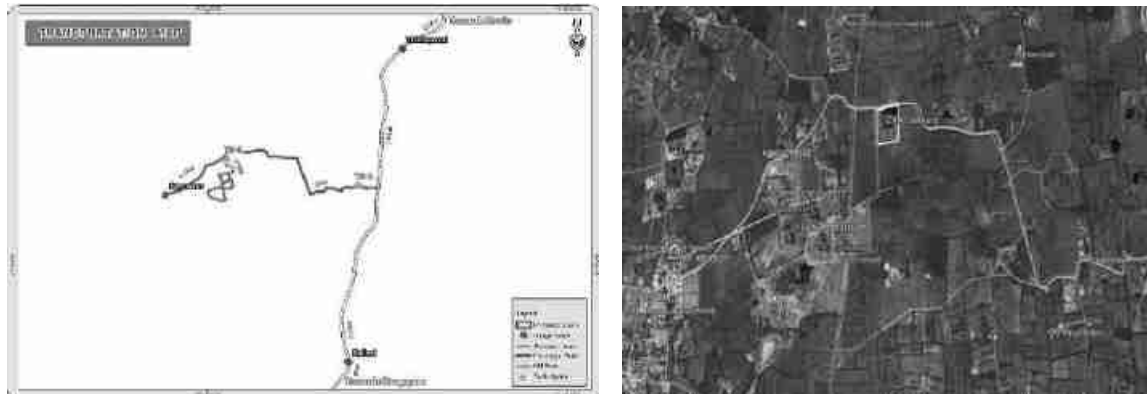
Source: On-site monitoring by GEMS FAE & TM

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

TABLE 2.16: ROUGH STONE & GRAVEL HOURLY TRANSPORTATION REQUIREMENT

Transportation of Rough Stone & Gravel per day		
Capacity of trucks	No. of Trips per day	Volume in PCU
20 tonnes	17	51

FIGURE.2.16: MINERAL TRANSPORTATION ROUTE MAP



Proposed Transportation Route:

1. The Rough stone will be transported to the Crusher which is located 160m North west side of the project site. And 300m southwest side located.
2. No Major Habitation, Schools in the proposed transportation route.

TABLE 2.17: SUMMARY OF TRAFFIC VOLUME

Route	Existing Traffic volume in PCU	Incremental traffic due to the project	Total traffic volume	Hourly Capacity in PCU as per IRC – 1960 guidelines
Approach Road	250	51	301	1500

Panchayat Road Keeranur Village Road	400	50	450	1200
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Source: On-site monitoring analysis summary by GEMS FAE & TM

- Due to these projects the existing traffic volume will not exceed
- As per the IRC 1960 this existing District Road can handle 1,200 PCU in hour and State Highway Road can handle 1500 PCU in hour hence there will not be any conjunction due to this proposed transportation.

2.6.4 Mineral Beneficiation and Processing

There is no proposal for the mineral processing or ore beneficiation in any of the proposed project.

2.7 PROJECT REQUIREMENT

2.7.1 Water Source & Requirement

Detail of water requirements in KLD as given below:

TABLE 2.18: WATER REQUIREMENT FOR THE PROJECT-P1

Purpose	Quantity	Source
Dust Suppression	0.5KLD	From Existing bore wells from nearby area
Green Belt	0.3KLD	From Existing bore wells from nearby area
Sanitation & Drinking	0.2KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	1.0 KLD	

TABLE 2.19: WATER REQUIREMENT FOR THE PROJECT-P2

Purpose	Quantity	Source
Dust Suppression	1.0KLD	From Existing bore wells from nearby area
Green Belt	0.4KLD	From Existing bore wells from nearby area
Sanitation & Drinking	0.6KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	2.0 KLD	

Source: Prefeasibility report

2.7.2 Power and Other Infrastructure Requirement

Power is not required for the mining operation; the mining operation will be carried out using Diesel Generator and Earth moving machineries using diesel. 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 by project proponent.

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 plant.

2.7.3 Fuel Requirement P1-P2

P-1

Weathered Rock:

Per hour Excavator will consume = 10 liters / hour

Per hour Excavator will excavate = 60m³ of Weathered Rock

Weathered Rock quantity	=	42,480/60 = 708hours
Diesel consume	=	708hours x 10 liters
Total diesel consumption	=	7,080Liters of HSD will be utilized for Weathered Rock

Gravel:

Per hour Excavator will consume	=	10 liters / hour
Per hour Excavator will excavate	=	60m ³ of Gravel
Gravel quantity	=	30,240/60 = 504hours
Diesel consume	=	504hours x 10 liters
Total diesel consumption	=	5,040Liters of HSD will be utilized for Gravel

Rough stone:

Per hour Excavator will consume	=	16 liters / hour
Per hour Excavator will excavate	=	20m ³ of Rough stone
Rough stone quantity	=	2,64,320/20 = 13,216hours
Diesel consume	=	13,216hours x 16 liters
Total diesel consumption	=	2,11,456 Liters of HSD will be utilized for rough stone
Total diesel consumption	=	2,23,576 Liters of HSD will be utilized for entire project life.

P-2: Rough stone:

Per hour Excavator will consume	=	16 liters / hour
Per hour Excavator will excavate	=	20m ³ of Rough Stone
Rough Stone quantity	=	4,52,430/20 = 22,626 hours
Diesel consume	=	22,626 hours X 16 liters
Total diesel consumption	=	3,62,016 Liters of HSD will be utilized for Rough Stone

2.7.4 Project Cost

The Environmental Management plan has been prepared considering the mode of working, Safety of the employees and Monitoring periods the total Cost is

Code	Project cost Rs
P1	77,28,000/-
P2	79,36,000/-

Source: Approved mining plan

2.8 EMPLOYMENT REQUIREMENT: P1-P2

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 mine's regulations, 1961.

TABLE 2.20: PROPOSED MANPOWER DEPLOYMENT-P1

Designation	No of persons
Mines Manager/Mines Foreman	1
Mate/Blaster	1
Jackhammer operator	12
Excavator Operator	2
Driver	4
Labour and Helper	5
Cleaner & Co-operator	6
Security	1
Total	32

TABLE 2.21: PROPOSED MANPOWER DEPLOYMENT-P2

Designation	No of persons
Mines Manager/Mines Foreman	1
Mate/Blaster	1
Jackhammer operator	20
Excavator Operator	2
Tipper Driver	5
Labour and Helper	3
Cleaner & Co-operator	7
Security	1
Total	40

Source: Approved Mining Plan & Pre-Feasibility report.

2.9 PROJECT IMPLEMENTATION SCHEDULE

The mining operation will commence after the grant of Environmental Clearance, Consent to operate (CTO), Execution of Lease Deed and Obtaining permission from the DGMS (Notice of Opening).

TABLE 2.22: EXPECTED TIME SCHEDULE

Sl.No.	Particulars	Time Schedule (In Month)					Remarks if any
		1 st	2 nd	3 rd	4 th	5 th	
1	Environmental Clearance						
2	Consent to Operate						
3	Execution of Lease deed						
4	Permission from DGMS						
Time line may vary; subjected to rules and regulations /& other unforeseen circumstances							

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

3. DESCRIPTION OF ENVIRONMENT

3.0 GENERAL

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 December 2023 to February 2024 with CPCB guidelines for the following attributes –

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

Environmental data has been collected with reference to cluster quarries by EHS360 Lab Private Limited, – An accredited by ISO/IEC 17025:2017 (NABL).

Study Area

An area of 10 km radius (aerial distance) from the periphery of the cluster is considered for EIA study. The study area has been divided into two zones viz **core zone** and **buffer zone**.

- Core zone is considered as cluster area
- 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., December 2023 to February 2024.

Study Methodology

- The project area was surveyed in detail with the help of Total Station Survey instruments and pillars were marked. The boundary coordinates were superimposed on the satellite imagery to understand the relief of the area, besides Land use pattern of the area was studied through the Bhuvan (ISRO)
- Soil samples were collected and analysed for relevant physio-chemical characteristics in order to assess the impact due to mining activities and to recommend saplings for Greenbelt development.
- Ground water samples were collected from the existing bore wells, Surface water was collected from water bodies in the buffer zone and analysed as per CPCB Guidelines.
- An onsite meteorological station was setup in cluster area, to collect data about wind speed, wind direction, temperature, relative humidity, rainfall and general weather conditions were recorded throughout the study period.
- Air quality Data's were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, PM₁₀ and SO₂, NO_x with gaseous attachments & Fine Dust Samplers (FDS) for PM_{2.5} and other parameters as per NAAQ norms and analysed for primary air pollutants to work out the existing status of air quality.
- The Noise level measurements were also made at various locations in different intervals of time with the help of sound level meter to establish the baseline noise levels in the impact zone.
- Baseline biological studies were carried out to assess the ecology of the study area to study the existing flora and fauna pattern of the area.

- Socio-Economic survey was conducted at village and household level in the study area to understand the present socio-economic conditions and assess the extent of impact due to the proposed mining project. The sampling methodologies for the various environmental parameters required for the study, frequency of sampling, method of samples analysis, etc., are given below Table 3.1.

TABLE 3.1: MONITORING ATTRIBUTES AND FREQUENCY OF MONITORING

Attribute	Parameters	Frequency of Monitoring	No. of Locations	Protocol
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
*Soil	Physio-Chemical Characteristics	Once during the study period	6 (1 core & 5 buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (2 surface water & 4 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Auto matic Weather Station	1	Site specific primary data& Secondary Data from IMD Station
*Ambient Air Quality	PM10 PM2.5 SO2 NOX Fugitive Dust	24 hourly twice a week (December 2023 – February 2024)	7 (2 core & 5 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	7 (2 core & 5 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrate & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio–Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.

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

* All monitoring and testing have 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

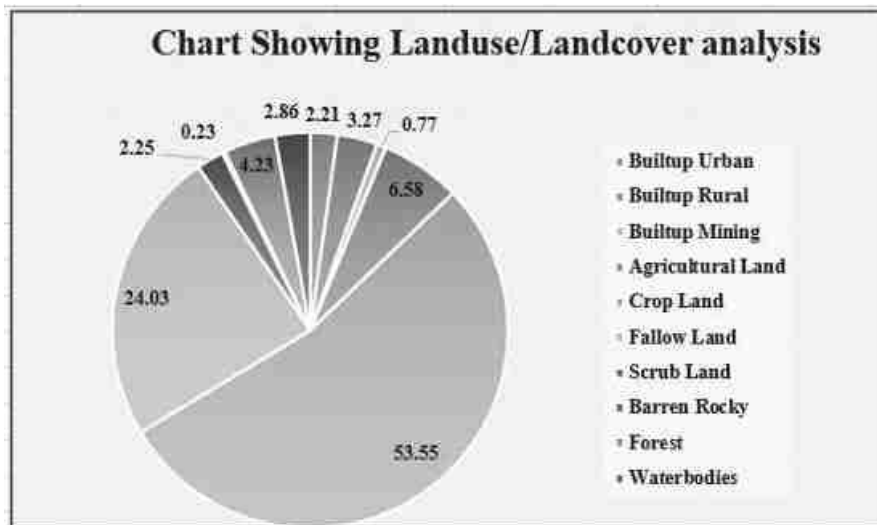
A visual interpretation technique has been adopted for land use classification based on the keys suggested in the chapter – V of the guidelines issued by NNRMS Bangalore & Level III classification with 1:50,000 scale for the preparation of land use mapping. Land use pattern of the area was studied through LISS III imagery of Bhuvan (ISRO). The 10 km radius map of study area was taken for analysis of Land use cover.

TABLE 3.2: LAND USE / LAND COVER TABLE 10 Km RADIUS

S.No	CLASSIFICATION	AREA_HA	AREA_%
BUILTUP			
1	Builtup Urban	704.18	2.21
2	Builtup Rural	1039.78	3.27
3	Builtup Mining	245.84	0.77
AGRICULTURAL LAND			
4	Agricultural Land	2093.39	6.58
5	Crop Land	17031.90	53.55
6	Fallow Land	7644.18	24.03
BARREN/WASTE LANDS			
7	Scrub Land	715.79	2.25
8	Barren Rocky	73.46	0.23
FOREST			
9	Forest	1345.22	4.23
WETLANDS/ WATER BODIES			
10	Waterbodies	910.93	2.86
TOTAL		31804.67	100.00

Source: Survey of India Toposheet and Landsat Satellite Imagery

FIGURE 3.1: PIE DIAGRAM OF LAND USE AND LAND COVER



From the above table, pie diagram and land use map it is inferred that the majority of the land in the study area is Agriculture and fallow land (includes crop land) 84.16% followed by Built-up Lands – 5.48%, Scrub land – 2.25%, and Water bodies 2.86%.

The total mining area within the study area is 245.84 ha i.e., 0.77%. The cluster area of 10.45.38 ha contributes about 0.04% of the total mining area within the study area. This small percentage of Mining Activities shall not have any significant impact on the environment.

3.1.2 Topography

The project area is almost plain terrain having gentle slope towards North-eastern side. The altitude of the area is 282m AMSL. The area is covered by 2m thickness of gravel & 3m of Weather rock. Massive charnockite is found after 5m(2m gravel+3m Weatherd rock) which is clearly from the existing quarry pit.

3.1.3 Drainage Pattern of the Area

The drainage pattern of the area is dendritic – sub dendritic. Drainage pattern is the pattern formed by the streams, rivers, and lakes in a particular drainage basin. They are governed by the topography of the land, whether a particular region is dominated by hard or soft rocks, and the gradient of the land. There are no streams, canals or water bodies crossing within the project area.

3.1.4 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.

3.1.5 Environmental Features in the Study Area

There is no Wildlife Sanctuaries, National Park and Archaeological monuments within project 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 proposed mine lease area i.e. 10 km radius, are given in the below Table 3.3.

FIGURE 3.2: PHYSIOGRAPHIC MAP 10KM RADIUS

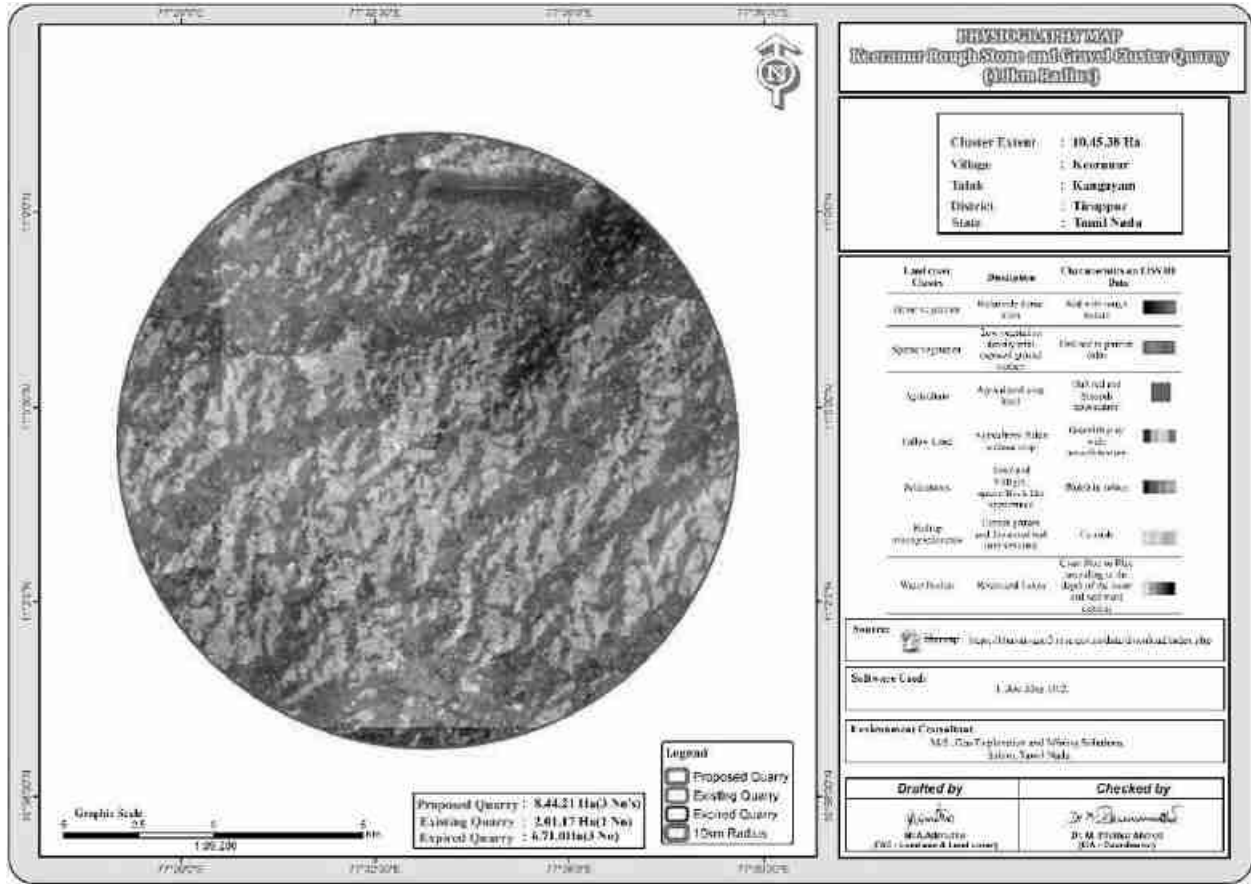


TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE CLUSTER

Sl.No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	Vellode Birds Sanctuary	20.5km-North East
2	Reserve Forest	Chennimalai R.F	- 7.43 km -North
3	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	None	Nil within 10Km Radius
4	Critically Polluted Areas	SIPCOT Estate office, Perundurai	17.0km- North
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	Industries/ Thermal Power Plants	None	Nil within 10km Radius
9	Defence Installation	None	Nil within 10km Radius

Source: Survey of India Toposheet

TABLE 3.4: NEARBY WATER BODIES FROM THE PROPOSED PROJECT SITE-P1

Sl.No	NAME	DISTANCE & DIRECTION
1	Noyyal River	3Km N
2	Karaikattupudur Eri	3.5km SW
3	Odai	4Km SE
4	Tank	7.5Km NW
5	Canal	6Km N
6	Palatholuvu Kulam	9Km NW

Source: Village Cadastral Map and Field Survey

TABLE 3.4A: NEARBY WATER BODIES FROM THE PROPOSED PROJECT SITE-P2

S.No	NAME	DISTANCE & DIRECTION
1	Noyyal River	3.1Km N
2	Karaikattupudur Eri	3.2Km W
3	Odai	3.9Km SE
4	Tank	7.5Km NW
5	Canal	6Km NE
6	Palatholuvu Kulam	9.1Km NW

3.1.6 Soil Environment

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

The objective of the soil sampling is -

To determine the baseline soil characteristics of the study area; study the impact of proposed activity on soil characteristics and study the impact on soil more importantly agriculture production point of view.

TABLE 3.5: SOIL SAMPLING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	S-1	Core Zone	Project Area	11° 5'0.96"N 77°33'28.84"E
2	S-2	Keeranur	920m SW	11° 4'37.90"N 77°33'0.14"E
3	S-3	Velayudhampalayam	6km SE	11° 4'29.91"N 77°36'46.09"E
4	S-4	Thammareddipalayam	5.5km NW	11° 5'36.63"N 77°30'32.79"E
5	S-5	Neikkaranpalayam	5.5km South	11° 1'57.51"N 77°33'44.83"E
6	S-6	Ayyampalayam	6.5km North	11° 8'32.53"N 77°33'24.63"E

Source: On-site monitoring/sampling by EHS360 Labs Private Limited in association with GEMS.

Methodology –

For studying soil quality, sampling locations were selected to assess the existing soil conditions in and around the project site representing various land use conditions. The samples were collected by auger boring into the soil up to 90-cm depth. Six (6) locations were selected for soil sampling on the basis of soil types, vegetative cover, industrial & residential activities including infrastructure facilities, which would accord an overall idea of the soil characteristics. The samples were analysed for physical and chemical characteristics. The samples were sent to laboratory for analysis. The samples were filled in Polythene bags, coded and sent to laboratory for analysis and the details of methodology in respect are given in below Table 3.6.

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 EHS360 Labs Private Limited in association with GEMS

Soil Testing Result –

The samples were analysed as per the standard methods prescribed in “Soil Chemical Analysis (M.L. Jackson, 1967) & Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India”. The important properties analysed for soil are bulk density, porosity, infiltration rate, pH and Organic matter, kjeldahi Nitrogen, Phosphorous and Potassium. The standard classifications of soil are presented below in Figure 3.4 and the physico-chemical characteristics of the soil & Test Results in Table 3.7.

FIGURE 3.5: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS

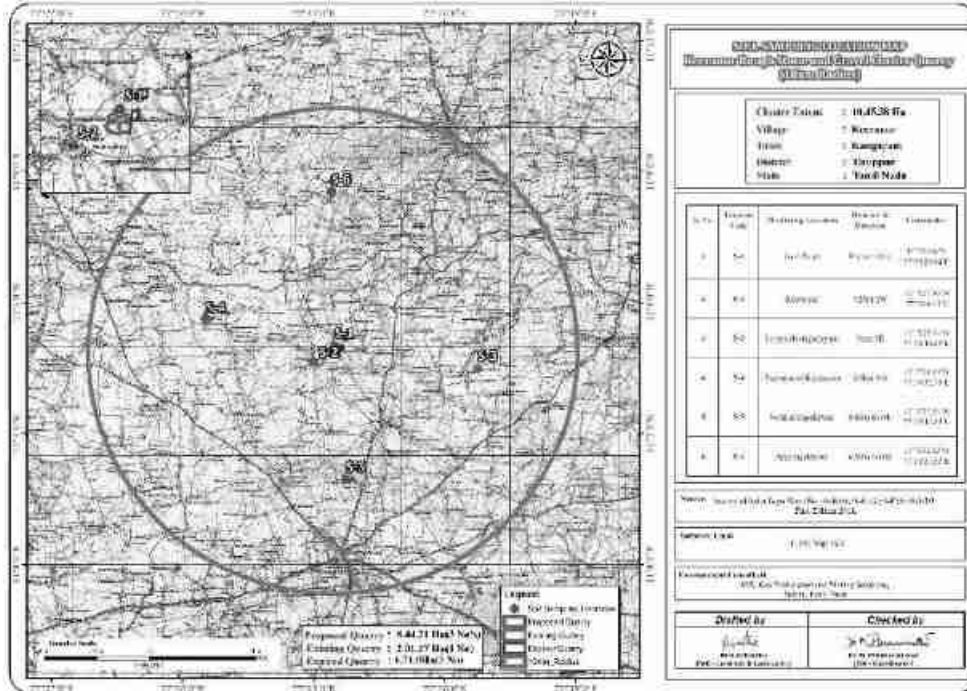


FIGURE 3.6: SOIL MAP

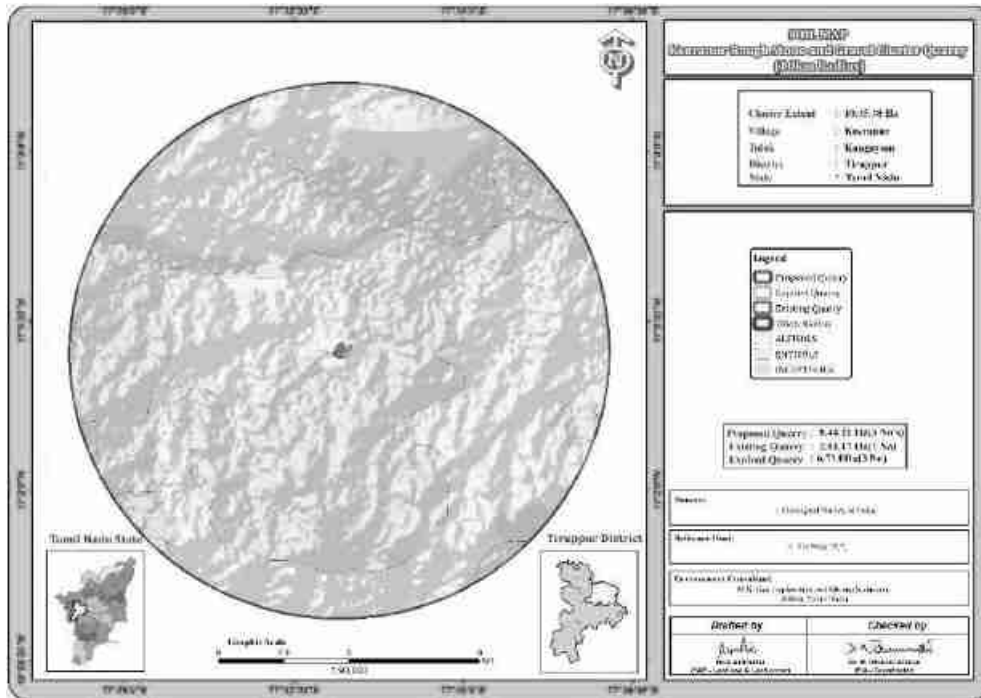


TABLE 3.7: SOIL QUALITY OF THE STUDY AREA

S.No	Test Parameters	Protocols	S1-Core zone	S2- Keeranur	S3- Velayudhampalayam	S4- Thammareddipalayam	S5- Neikkaranpalayam	S6- Ayyampalayam
1	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.56	8.24	8.17	8.57	8.74	8.19
2	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	461 µmhos/cm	500 µmhos/cm	430 µmhos/cm	456 µmhos/cm	485 µmhos/cm	467 µmhos/cm
3	Water Holding Capacity	By Gravimetric Method	47.5 %	47.6 %	49.4 %	46.3. %	46.7 %	46.14 %
4	Bulk Density	By Cylindrical Method	1.02 g/cm ³	1.05 g/cm ³	1.01 g/cm ³	0.99 g/cm ³	1.1 g/cm ³	1.08 g/cm ³
5	Porosity	By Gravimetric Method	45.6 %	48.8 %	48.8 %	46.6 %	46.5 %	47.1 %
6	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	51.6 mg/kg	56.7 mg/kg	49 mg/kg	76.5 mg/kg	74.5 mg/kg	64.4 mg/kg
7	Magnesium as Mg		35.5 mg/kg	41 mg/kg	35.5 mg/kg	61 mg/kg	52 mg/kg	28.6 mg/kg
8	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	60.8 mg/kg	25.6 mg/kg	42.3 mg/kg	52.6 mg/kg	31.1 mg/kg	61.4 mg/kg
9	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0014 %	0.0014 %	0.0025 %	0.0028 %	0.0019 %	0.0019 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	4.4 mg/kg	2.2 mg/kg	2.66 mg/kg	4.4 mg/kg	3.55 mg/kg	7.26 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	370.5 mg/kg	425 mg/kg	6.1 mg/kg	425.5 mg/kg	400 mg/kg	405.9 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.67 %	2.62 %	2.02 %	1.91 %	1.98 %	2.10 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.97 %	1.52 %	1.17 %	1.11 %	1.15 %	1.22 %
14	Texture :							
	Clay	Gravimetric Method	31.7 %	33.4 %	29.8 %	31.1 %	31.6 %	30.9 %
	Sand		32.5 %	31.6 %	33.6 %	32.4 %	32.8 %	34.6 %
	Silt		35.8 %	35.0 %	36.6 %	36.5 %	35.6 %	34.5 %
15	Manganese as Mn	USEPA 3050 B – 1996 &	17 mg/kg	22.4 mg/kg	25.8 mg/kg	20.5 mg/kg	27.1 mg/kg	30.2 mg/kg
16	Zinc as Zn	USEPA 6010 C - 2000	3.3 mg/kg	5.64 mg/kg	3.24 mg/kg	5.1 mg/kg	4.9 mg/kg	5.66 mg/kg
17	Boron as B		3.9 mg/kg	5.1 mg/kg	4.1 mg/kg	2.44 mg/kg	6.6 mg/kg	1.24 mg/kg
18	Potassium as K		31.7 mg/kg	42 mg/kg	6.5 mg/kg	30 mg/kg	17 mg/kg	20.4 mg/kg
19	Cadmium as Cd		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	Total Chromium as Cr		1.57	BDL (DL : 1.0 mg/kg)	2.02	3.54	5.2	7.12
21	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)
22	Lead as Pb		2.7 mg/kg	1.13 mg/kg	1.6 mg/kg	2.1 mg/kg	2.01 mg/kg	1.01 mg/kg
23	Iron as Fe		3.33 mg/kg	2.12 mg/kg	1.05 mg/kg	4.5 mg/kg	8.08 mg/kg	2.26 mg/kg
24	Cation Exchange Capacity	USEPA 9080 – 1986	38.21 meq/100g of soil	35.4 meq/100g of soil	42.2 meq/100g of soil	43.7 meq/100g of soil	43.51 meq/100g of soil	30.41 meq/100g of soil

Source: Sampling Results by EHS 360 Lab Private Limited.

FIGURE 3.7: SOIL SAMPLE COLLECTION**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 (29.8 % to 33.4 %) to Sandy Loam Soil and Bulk Density of Soils in the study area varied between 0.99– 1.08g/cc. The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e., ranging from 46.3 – 49.4 %. and 46.6-48.8 %.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline with pH range 8.17 to 8.74
- The available Nitrogen content range between 425.5 to 400 mg/kg
- The available Phosphorus content range between 2.2 to 7.26 mg/kg
- The available Potassium range between 17 mg/kg to 42 mg/kg

Observation:

The pH of the Soil indicates that the soil is Neutral and arid region and ideal for plant growth.

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.

WATER SAMPLING PHOTOS

3.2.1 Surface Water Resources:

Noyyal River is the major surface water body in the study area and the rainfall over the area is moderate, the rainwater storage in open wells and trenches are in practice over the area and the stored water acts as source of drinking water for few months after rainy season.

3.2.2 Ground Water Resources:

Groundwater occurs in all the crystalline formations of oldest Achaeans and Recent Alluvium. The occurrence and behaviour of groundwater are controlled by rainfall, topography, geomorphology, geology, structures etc., The weathering is controlled by the intensity of weathering and fracturing. Dug wells as wells as bore wells are more common ground water abstraction structures in the area. The diameter of the dug well is in the range of 7 to 10 m and depth of dug wells range from 7.2 to 13 m bgl. The dug wells yield up to 1 lps in summer months and few wells remains dry. The yield is adequate for irrigation for one or two crops in monsoon period.

3.2.3 Methodology

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

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

Two (2) surface water and Four (4) ground water samples were collected from the study area and were analysed for physio-chemical, heavy metals and bacteriological parameters in order to assess the effect of mining and other activities on surface and ground water. The samples were analysed as per the procedures specified by CPCB, IS-10500:2012 and 'Standard methods for the Examination of Water and Wastewater' published by American Public Health Association (APHA). The water sampling locations are given in Table 3.8 and shown as Figure 3.5.

TABLE 3.8: WATER SAMPLING LOCATIONS

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	SW-1	Noyyal River	2.8km North	11° 6'34.25"N 77°33'27.16"E
2	WW-1	Near Project Area	320m NW	11° 5'12.09"N 77°33'29.30"E
3	WW-2	Ayyampalayam	6.5km North	11° 8'34.01"N 77°33'33.50"E
4	WW-3	Velayudhampalayam	6km SE	11° 4'33.92"N 77°36'40.59"E
5	BW-1	Near Project Area	400m West	11° 4'55.71"N 77°33'13.18"E
6	BW-2	Neikkaranpalayam	5.5km South	11° 1'56.47"N 77°33'44.68"E

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

FIGURE 3.8: WATER SAMPLING LOCATIONS AROUND 10 KM RADIUS

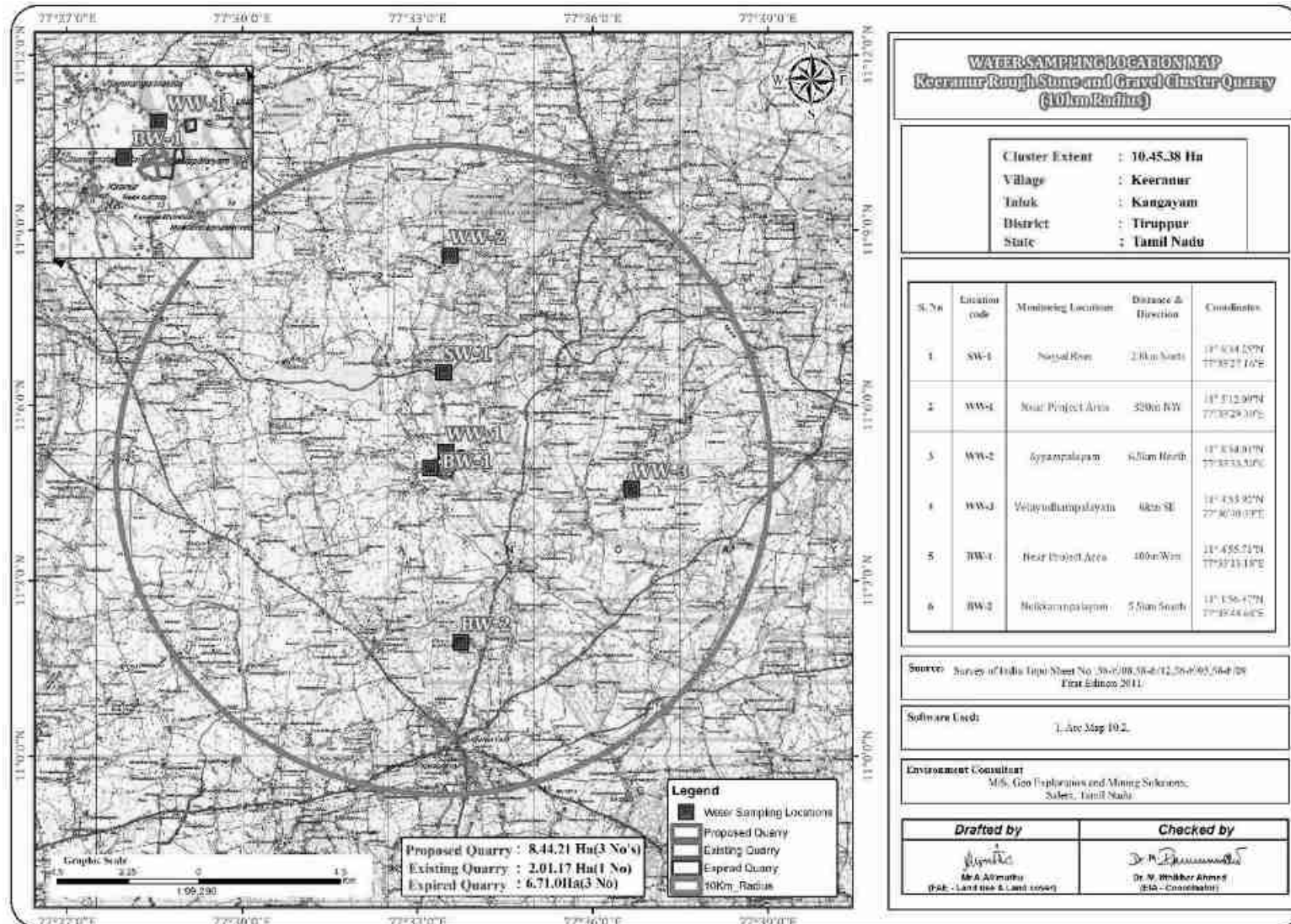


TABLE 3.9: GROUND WATER SAMPLING RESULTS

S.NO	Parameter	Unit	WW1- Near Project Area	WW2- Ayyampalayam	WW-3 Velayudhampalayam	BW1- Near Project Area	BW2- Neikkaranpalayam
1	Color	Hazen	5	5	5	5	5
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH@ 25°C	-	7.09	7.17	7.03	7.60	7.53
4	Electrical Conductivity	$\mu\text{s/cm}$	913 $\mu\text{mhos/cm}$	865 $\mu\text{mhos/cm}$	992 $\mu\text{mhos/cm}$	800 $\mu\text{mhos/cm}$	1006 $\mu\text{mhos/cm}$
5	Turbidity	NTU	1.1 NTU	1.0 NTU	1.0 NTU	1.0 NTU	1.0 NTU
6	Total Dissolved Solids	mg/l	539 mg/l	510 mg/l	585 mg/l	471 mg/l	593 mg/l
7	Total Hardness as CaCO ₃	mg/l	194.53 mg/l	188.66 mg/l	224.05 mg/l	185.18 mg/l	199.12 mg/l
8	Calcium as Ca	mg/l	36.6 mg/l	30.3 mg/l	39.7 mg/l	32.2 mg/l	33.5 mg/l
9	Magnesium as Mg	mg/l	25.1 mg/l	27.5 mg/l	30.4 mg/l	25.5 mg/l	28.1 mg/l
10	Total Alkalinity	mg/l	170 mg/l	157.6 mg/l	177 mg/l	140 mg/l	170 mg/l
11	Chloride as Cl ⁻	mg/l	102.2 mg/l	110 mg/l	124 mg/l	81 mg/l	149 mg/l
12	Sulphate as SO ₄ ⁻	mg/l	55.4 mg/l	41.7 mg/l	60 mg/l	52.4 mg/l	70.2 mg/l
13	Iron as Fe	mg/l	0.31 mg/l	0.37 mg/l	0.27 mg/l	0.37 mg/l	0.31 mg/l
14	Free Residual Chlorine	mg/l	BDL (DL:0.1 mg/l)	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	mg/l	0.22 mg/l	0.26 mg/l	0.26 mg/l	0.15 mg/l	0.22 mg/l
16	Nitrates as NO ₃	mg/l	7.7 mg/l	5.5 mg/l	5.1 mg/l	7.5 mg/l	6.3 mg/l
17	Copper as Cu	mg/l	BDL (DL:0.01 mg/l)	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	mg/l	BDL (DL:0.02 mg/l)	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	mg/l	BDL (DL:0.0005 mg/l)	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	mg/l	BDL (DL:0.001 mg/l)	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	mg/l	BDL (DL:0.005 mg/l)	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	mg/l	BDL (DL:0.005 mg/l)	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	mg/l	BDL (DL:0.005 mg/l)	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	mg/l	BDL(DL : 0.05 mg/l)	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	mg/l	BDL(DL : 0.02 mg/l)	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	mg/l	BDL(DL : 0.05 mg/l)	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	mg/l	BDL(DL : 0.01 mg/l)	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 Compunds	mg/l	BDL (DL:0.0005 mg/l)	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	mg/l	BDL (DL:0.01 mg/l)	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	Cynaide as CN	mg/l	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)

31	Total Coliform	<i>Per 100ml</i>	174 MPN/100ml	150 MPN/100ml	155 MPN/100ml	111 MPN/100ml	168 MPN/100ml
32	E-Coli	<i>Per 100ml</i>	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml
33	Barium as Ba	<i>mg/l</i>	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)	BDL(DL:0.05 mg/l)
34	Ammonia (as Total)	<i>mg/l</i>	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
35	Sulphide as H ₂ S	<i>mg/l</i>	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)	BDL (DL:0.01 mg/l)
36	Molybdenum as Mo	<i>mg/l</i>	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)	BDL (DL:0.02 mg/l)
37	Total Arsenic as	<i>mg/l</i>	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)	BDL (DL:0.005 mg/l)
38	Total Suspended Solids	<i>mg/l</i>	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)	BDL (DL:1.0 mg/l)

* 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: EHS 360 Lab Private Limited in association with GEMS

TABLE 3.10: SURFACE WATER SAMPLING RESULTS

S.NO	Parameter	UNIT	SW1 - Noyyal River
1	Color	Hazen	10 Hazen
2	Odour	-	Agreeable
3	pH@ 25°C	-	7.66
4	Electrical Conductivity @ 25°C	µs/cm	994 µmhos/cm
5	Turbidity	NTU	5.2 NTU
6	Total Dissolved Solids	mg/l	586 mg/l
7	Total Hardness as CaCO ₃	mg/l	209.99 mg/l
8	Calcium as Ca	mg/l	37.2 mg/l
9	Magnesium as Mg	mg/l	28.5 mg/l
10	Total Alkalinity as CaCO ₃	mg/l	191 mg/l
11	Chloride as Cl ⁻	mg/l	102 mg/l
12	Sulphate as SO ₄ ⁻	mg/l	62.7 mg/l
13	Iron as Fe	mg/l	0.22 mg/l
14	Free Residual Chlorine	mg/l	BDL (DL:0.1 mg/l)
15	Fluoride as F	mg/l	0.21 mg/l
16	Nitrates as NO ₃	mg/l	11.2 mg/l
17	Copper as Cu	mg/l	BDL (DL:0.01 mg/l)
18	Manganese as Mn	mg/l	BDL (DL:0.02 mg/l)
19	Mercury as Hg	mg/l	BDL (DL:0.0005 mg/l)
20	Cadmium as Cd	mg/l	BDL (DL:0.001 mg/l)
21	Selenium as Se	mg/l	BDL (DL:0.005 mg/l)
22	Aluminium as Al	mg/l	BDL (DL:0.005 mg/l)
23	Lead as Pb	mg/l	BDL (DL:0.005 mg/l)
24	Zinc as Zn	mg/l	BDL(DL : 0.05 mg/l)
25	Total Chromium	mg/l	BDL(DL : 0.02 mg/l)
26	Boron as B	mg/l	BDL(DL : 0.05 mg/l)
27	Mineral Oil	mg/l	BDL(DL : 0.01 mg/l)
28	Phenolic Compunds as	mg/l	BDL (DL:0.0005 mg/l)
29	Anionic Detergents as	mg/l	BDL (DL:0.01 mg/l)
30	Cynaide as CN	mg/l	BDL (DL:0.01 mg/l)
31	Biological Oxygen	mg/l	8.4 mg/l
32	Chemical Oxygen	mg/l	40 mg/l
33	Dissolved Oxygen	mg/l	5.6 mg/l
34	Total Coliform	Per 100ml	510 MPN/100ml
35	E-Coli	Per 100ml	142 MPN/100ml
36	Barium as Ba	mg/l	BDL(DL:0.05 mg/l)
37	Ammonia-n (as Total	mg/l	1.5 mg/l
38	Sulphide as H ₂ S	mg/l	BDL (DL:0.01 mg/l)
39	Molybdenum as Mo	mg/l	BDL (DL:0.02 mg/l)
40	Total Arsenic as As	mg/l	BDL (DL:0.005 mg/l)
41	Total Suspended Solids	mg/l	15.1 mg/l

Note : APHA – American Public Health Association, BDL – Below Detection Limit, DL – Detection Limit, MPN – Most Probable Number.

Source: EHS 360 Lab Private Limited in association with GEMS

3.2.4 Interpretation & Conclusion

Surface Water

Ph:

The pH varied from 7.66 while turbidity found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH).

Total Dissolved Solids:

Total Dissolved Solids varied from 586 mg/l the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter.

Other parameters:

Chloride varied between 102.0 mg/l, Nitrates varied from 11.2 mg/l, while sulphates varied from 62.7 mg/l.

Ground Water

The pH of the water samples collected ranged from 7.03 to 7.60 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. The Total Dissolved Solids were found in the range of 471-593 mg/l in all samples. The Total hardness varied between 185.18–199.12 mg/l

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

3.2.5 Hydrology and Hydrogeological studies

The district is underlain by hard rock formation fissured and fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-ATS Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 65m bgl. The maximum depth proposed out of proposed projects is 45m (2m Gravel + 3m weathered rock+ 40m Rough stone) below ground level.

Ground water levels and Flow Direction based on the Bore well and open well Data's

In general, the ground water movement is based on the gradient i.e., water moves from the highest static ground water elevation to lowest static ground water elevation point. The ground water movement is important aspect to locating the recharge and discharge areas. Therefore, the data has been collected in the study area. Water level measured in the seven open well and six borewells.

The average water level in the open well is varies from = 11.3m to 11.9m bgl

The water level in the bore well is varies from = 56.4 to 57.06m bgl

Based on the water level contour map of the open well and bore well the water flow direction in the particular region is towards North side.

The water level in the area is above 56m 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.

TABLE 3.11: WINTER SEASON WATER LEVEL OF OPEN WELLS 1 KM RADIUS

S.NO	LABEL	LONGITUDE	LATITUDE	Dec-23	Jan-24	Feb-24
1	OW1	11° 05' 14.62"N	77° 33' 25.02"E	11	11.6	12.2
2	OW2	11° 05' 02.14"N	77° 33' 46.81"E	11.2	11.8	12.4
3	OW3	11° 04' 43.65"N	77° 33' 52.28"E	11.3	11.9	12.5

TABLE 3.12: WINTER SEASON WATER LEVEL OF BOREWELLS 1 KM RADIUS

S.NO	LABEL	LONGITUDE	LATITUDE	Dec-23	Jan-24	Feb-24
1	BW1	11° 05' 04.19"N	77° 33' 03.95"E	56	56.6	57.2
2	BW2	11° 05' 19.01"N	77° 33' 32.10"E	56.2	56.8	57.4
3	BW3	11° 05' 09.89"N	77° 34' 01.20"E	56.3	56.9	57.5
4	BW4	11° 04' 50.84"N	77° 33' 52.05"E	56.7	57.3	57.9
5	BW5	11° 04' 28.80"N	77° 33' 50.14"E	56.1	56.7	57.3
6	BW6	11° 04' 29.38"N	77° 33' 35.20"E	56.5	57.1	57.7
7	BW7	11° 04' 32.95"N	77° 32' 57.82"E	57	57.6	58.2
8	BW8	11° 04' 42.55"N	77° 32' 57.24"E	56.9	57.5	58.1

Source: Onsite monitoring data

FIGURE 3.10: BOREWELL CONTOUR MAP – Dec 2023 to Feb 2024

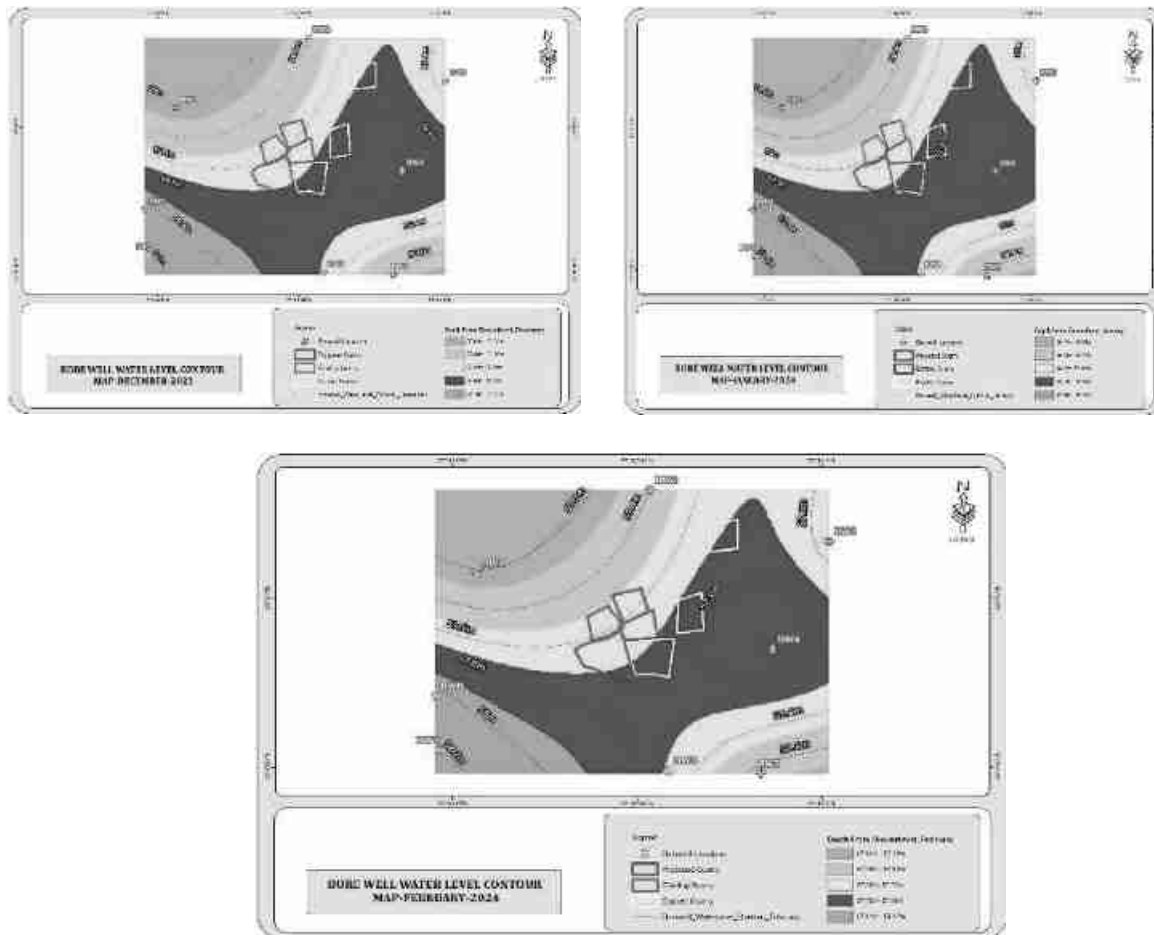
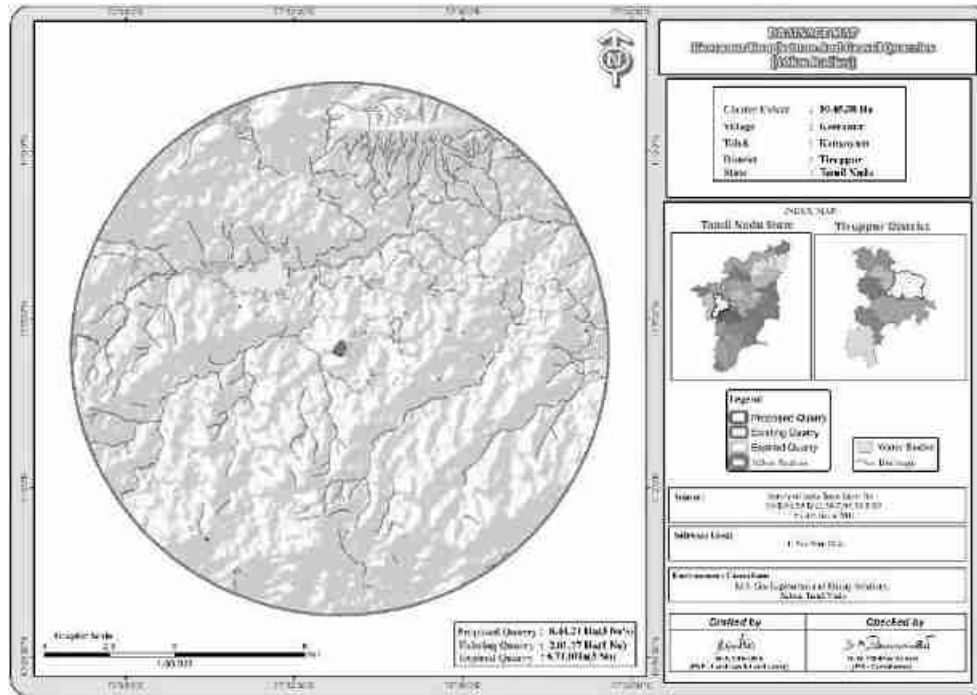
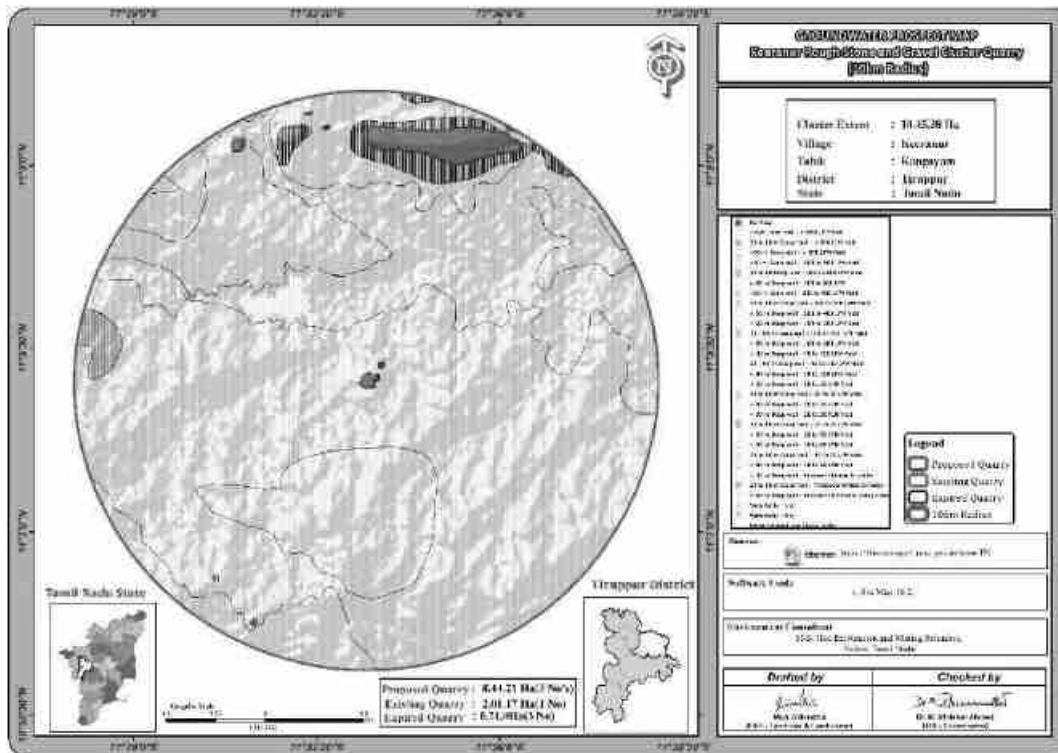


FIGURE 3.11: DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE



Remarks : it is inferred that the area is dendritic to sub dendritic pattern

FIGURE 3.12: GROUND WATER PROSPECT MAP



Geophysical Resistivity Survey

3.2.5.1 Methodology and Data Acquisition

The Geophysical Electrical Resistivity survey conducted in the area Schlumberger configuration, Vertical Electrical Sounding (VES) method. 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 form of Pseudo-section that gives an approximate of the subsurface resistivity. This technique is used for the inversion of Schlumberger VES data to predict the layer parameter namely layer resistivity and Geo electric layer thickness. The main goal of the present study is to search the vertical 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,

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

ρ_r = Resistivity of Rocks

ρ_w = Resistivity of water in pores of rock

F = Formation Factor

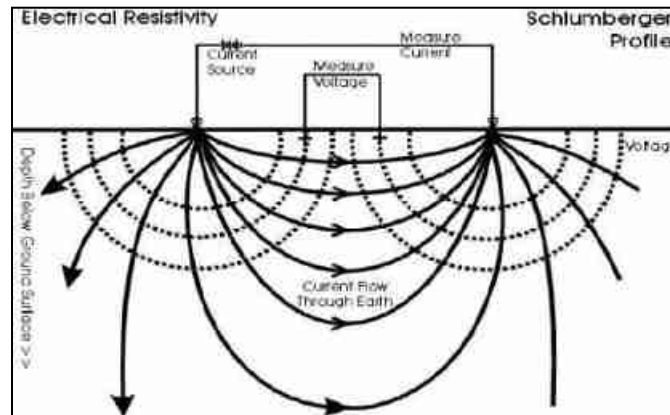
\emptyset = Fractional pore volume

a = Constants with values ranging from 0.5 to 2.5

3.2.5.2 Survey Layout

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

RESISTIVITY SURVEY PROFILE



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

3.2.5.3 Data Presentation

It was inferred that the low resistance encountered at the depth between 58m. The maximum depth proposed out of proposed projects 45m 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.

It is inferred that the existing quarries in the surrounding area reaches maximum of 45m and the water table is not intersected, only the seepage water during rainy season encountered from the upper layer and it will be used for the Greenbelt development, Dust suppression and quarrying operation.

3.3 AIR ENVIRONMENT

The existing ambient air quality of the area is important for evaluating the impact of mining activities on the ambient air quality.

The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 10 km radius around the cluster forms the baseline information. The prime objective of the baseline air quality study was to establish the existing ambient air quality of the study area. These will also be useful for assessing the conformity to standards of the ambient air quality during the operation of proposed projects in cluster.

3.3.1 Meteorology & Climate

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

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

Climate

- The atmospheric conditions prevailing in this region are of a tropical nature. In Tiruppur, the precipitation during summers is significantly higher in comparison to winters. This location is classified as Aw by Köppen and Geiger. In Tiruppur, the average annual temperature is 26.4 °C | 79.6 °F. Approximately 943 mm | 37.1 inch of rainfall occurs on a yearly basis.
- Due to its proximity to the equator, it is quite challenging to precisely delineate summers in Tiruppur. The period of January, February, March, June, July, August, September, October, November, December is widely regarded as the peak season for visitation.
- The month with the least amount of precipitation is January exhibiting a mere 13 mm | 0.5 inch rainfall. The maximum quantity of rainfall is observed during the month of October, exhibiting an average value of 209 mm | 8.2 inch.
- The month of April boasts the highest average temperature, with a recorded maximum of 30.0 °C | 86.0 °F. During the month of December, there is a notable drop in temperature, with an average low of approximately 23.7 °C | 74.7 °F.

<https://en.climate-data.org/asia/india/tamil-nadu/tiruppur-2789/https://en.climate->

Rainfall

TABLE 3.13: RAINFALL DATA

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
679.8	716.2	488.1	748.8	845.1	606.8

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

TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE

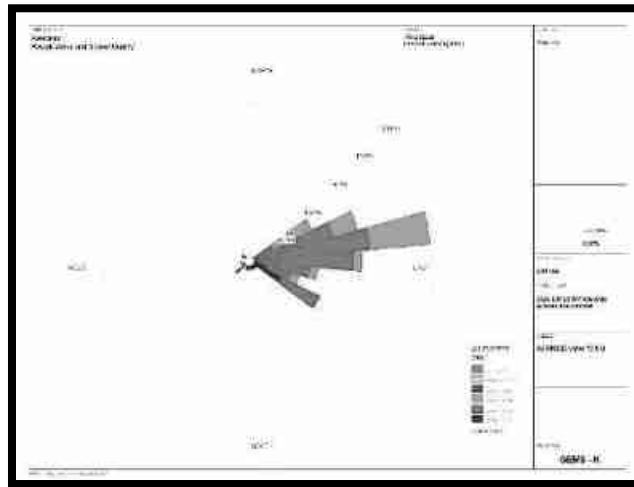
S.No	Parameters		Dec-2023	Jan-2024	Feb-2024
1	Temperature (°C)	Max	27.27	26.36	30.29
		Min	22.97	23.54	25.3
		Avg	25.12	24.95	27.79
2	Relative Humidity (%)	Avg	83	74.43	60.40
3	Wind Speed (m/s)	Max	4.02	4.2	4.48
		Min	1.28	1.59	1.16
		Avg	2.65	2.89	2.82
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ENE,E	ENE,E	E,ESE

Source: EHS 360 Lab Private Limited in association with GEMS

Correlation between Secondary and Primary Data

The average rain fall over the period of five years is 606.8mm. The meteorological data collected at the site is almost similar to that of secondary data collected from IMD Tiruppur. A comparison of site data generated during the three months with that of IMD, Tiruppur. Wind rose diagram of the study site is depicted in Figure. 3.13 Predominant downwind direction of the area during study season is -South East to North East.

FIGURE 3.13: WINDROSE DIAGRAM



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, E, ESE
2. Wind velocity readings were recorded between 0.50 to 5.70m/s
3. Calm conditions prevail of about 0% of the monitoring period

4. Temperature readings ranging from 23.09 to 29.65 °C
5. Relative humidity ranging from 69.56 to 85.53 %
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 AAQ ANALYSIS

Parameter	Method	Instrument
PM2.5	Gravimetric Method Beta attenuation Method	Fine Particulate Sampler Make – Thermo Environmental Instruments – TEI 121
PM10	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 with gaseous attachment
NO _x	IS-5182 Part II (Jacob & Hochheiser modified method)	Respirable Dust Sampler with gaseous attachment
Free Silica	NIOSH – 7601	Visible Spectrophotometry

Source: Sampling Methodology followed by EHS360 Lab Private Limited in association with GEMS & 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 ($\mu\text{g}/\text{m}^3$)	Annual Avg.* 24 hours**	50.0 80.0	20.0 80.0
2	Nitrogen Dioxide ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0 80.0	30.0 80.0
3	Particulate matter (size less than $10\mu\text{m}$) PM10 ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	60.0 100.0	60.0 100.0
4	Particulate matter (size less than $2.5\mu\text{m}$) PM2.5 ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0 60.0	40.0 60.0

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

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

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

3.3.4 Frequency & Parameters for Sampling

Ambient air quality monitoring has been carried out with a frequency of two samples per week at eight (8) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period Dec 2023 – Feb 2024. The baseline data of ambient air has been generated for PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂) & Nitrogen Dioxide (NO₂) Monitoring has been carried out as per the CPCB, MoEF guidelines and notifications.

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

3.3.5 Ambient Air Quality Monitoring Stations

Seven (7) monitoring stations were set up in the study area as depicted in Figure 3.15 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	11° 5'0.39"N 77°33'27.58"E
2	AAQ-2	Near Existing Quarry	120m West	11° 4'58.06"N 77°33'22.31"E
3	AAQ-3	Keeranur	920m SW	11° 4'38.19"N 77°33'1.60"E
4	AAQ-4	Velayudhampalayam	6km SE	11° 4'29.05"N 77°36'43.26"E
5	AAQ-5	Thammareddipalayam	5.5km NW	11° 5'36.66"N 77°30'29.39"E
6	AAQ-6	Neikkaranpalayam	5.5km South	11° 1'57.13"N 77°33'45.38"E
7	AAQ-7	Ayyampalayam	6.5km North	11° 8'33.48"N 77°33'24.98"E

Source: On-site monitoring/sampling by EHS360 Lab Private Limited in association with GEMS.

TABLE 3.18: SUMMARY OF AAQ 1 to AAQ 7

PM10	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	45.8	45.2	45.3	44.4	44.0	44.0	44.9
Minimum	44.1	43.1	43.6	42.1	42.1	41.5	41.6
Maximum	46.9	46.7	46.7	46.1	46.2	46.7	46.7
NAAQ Norms	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PM2.5	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	21.6	20.7	21.3	19.0	44.0	44.3	20.4
Minimum	20.6	19.5	19.4	18.2	18.3	18.2	18.6
Maximum	22.9	22.3	22.5	20.1	21.5	21.5	21.8
NAAQ Norms	60.0	60.0	60.0	60.0	60.0	60.0	60.0
SO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	5.8	5.8	4.7	5.1	4.7	4.7	4.8
Minimum	4.3	4.5	4.1	4.1	4.1	4.1	4.1
Maximum	6.9	6.8	5.7	6.1	5.6	5.9	5.7
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0
NO2	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7
Arithmetic Mean	22.4	23.3	24.1	22.4	23.2	23.2	23.0
Minimum	20.7	21.6	23.1	20.3	21.6	21.5	21.4
Maximum	23.8	24.8	25.1	23.8	24.5	24.6	24.4
NAAQ Norms	80.0	80.0	80.0	80.0	80.0	80.0	80.0

Source: On-site monitoring/sampling by EHS360 Lab Private Limited in association with GEMS

TABLE 3.19: ABSTRACT OF AMBIENT AIR QUALITY DATA

1	Parameter	PM10	PM2.5	SO ₂	NO ₂
2	No. of Observations	260	260	260	260
3	98 th Percentile Value	46.8	22.5	6.7	24.8
4	Arithmetic Mean	45.2	20.7	5.3	23.4
5	Geometric Mean	45.2	20.7	5.2	23.4
6	Standard Deviation	1.2	1.3	0.9	1.0
7	Minimum	43.4	18.6	4.2	21.6
8	Maximum	46.8	22.5	6.7	24.8
9	NAAQ Norms*	100.0	60.0	80.0	80.0
	% Values exceeding Norms*	0.0	0.0	0.0	0.0

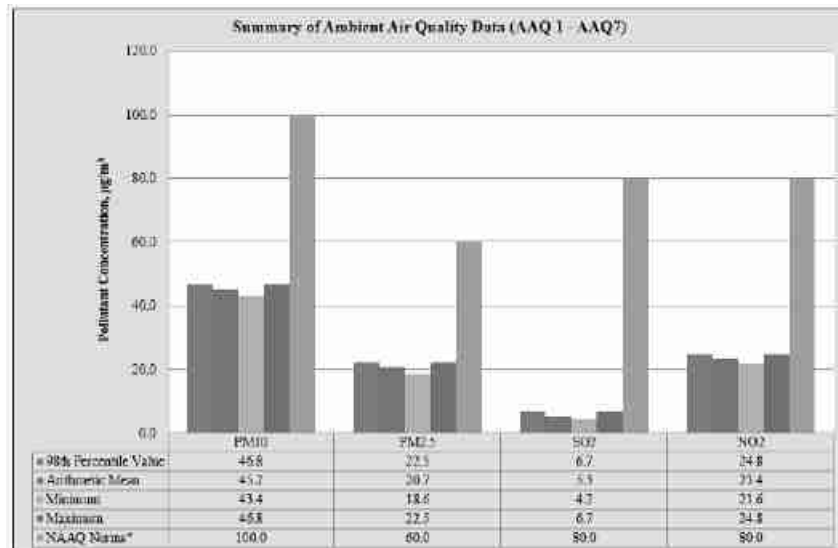
FIGURE 3.16: BAR DIAGRAM OF SUMMARY OF AAQ 1 – AAQ7

FIGURE 3.17: BAR DIAGRAM OF PARTICULATE MATTER PM_{2.5}

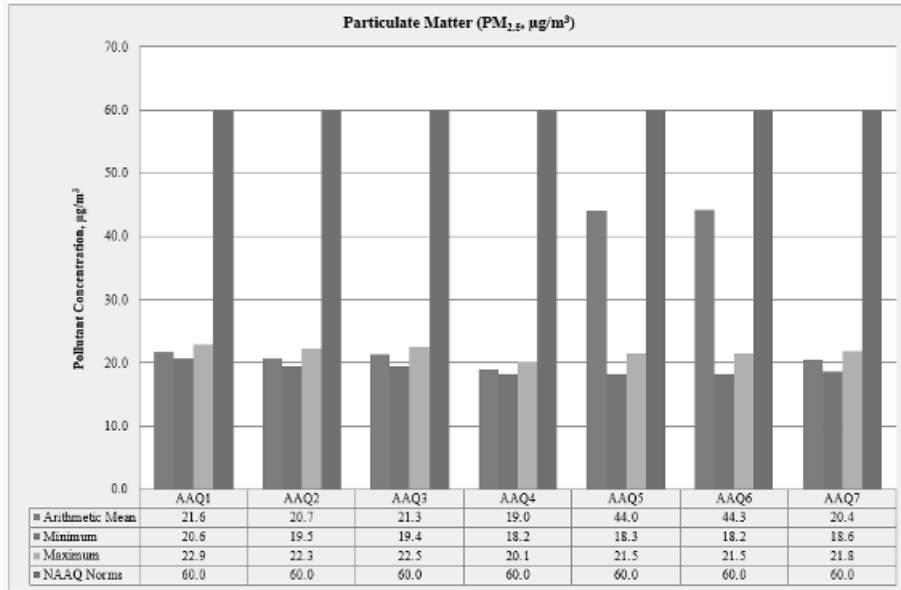


FIGURE 3.18: BAR DIAGRAM OF PARTICULATE MATTER PM₁₀

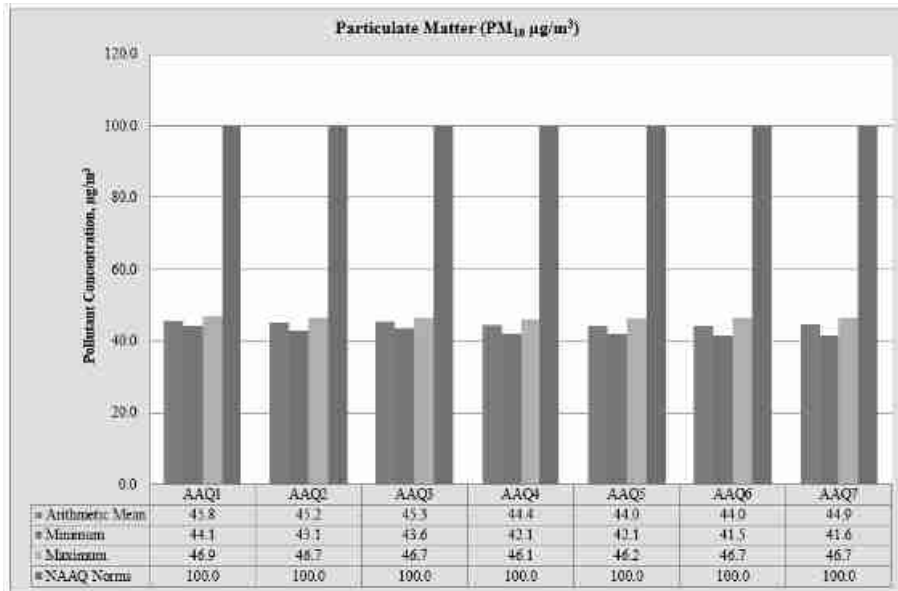
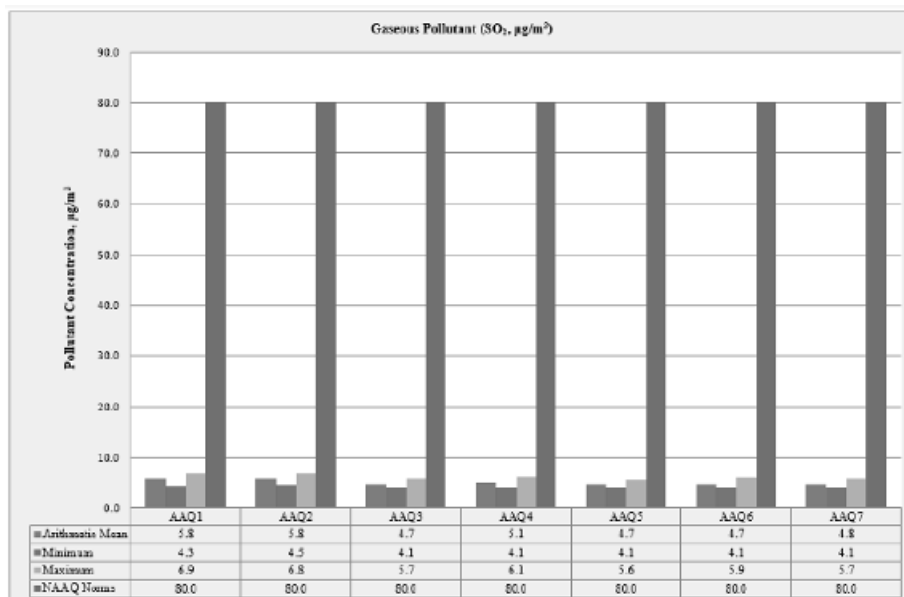
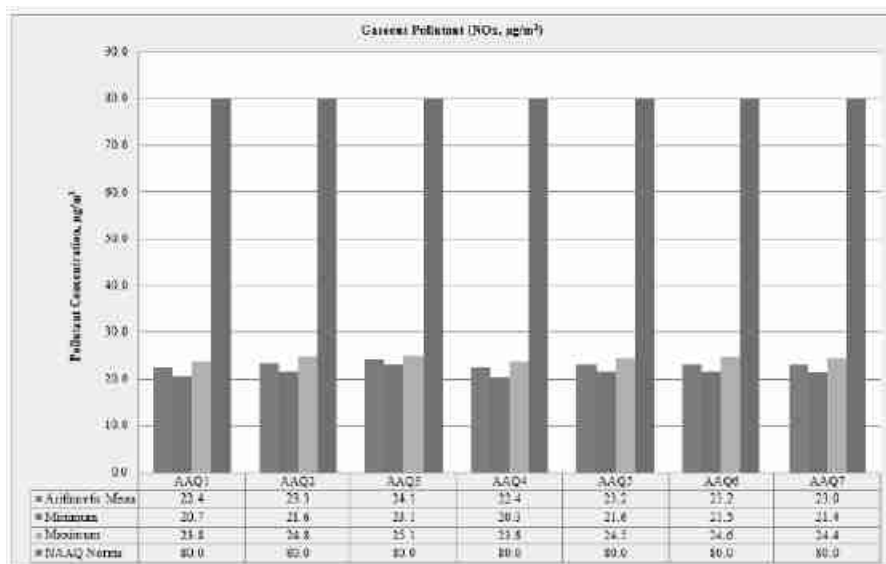


FIGURE 3.19: BAR DIAGRAM OF GASEOUS POLLUTANT SO₂**FIGURE 3.20: BAR DIAGRAM OF GASEOUS POLLUTANT NO_x**

3.3.6 Interpretations & Conclusion

From the above data's, the concentration of main criteria pollutants has been observed that maximum concentration of PM10 is 46.9 $\mu\text{g}/\text{m}^3$ recorded at Core area and minimum is 41.5 $\mu\text{g}/\text{m}^3$ recorded at Neikkarapalayam Village. The concentration of PM2.5 varies from 18.2 – 22.9 $\mu\text{g}/\text{m}^3$ Minimum concentration was recorded at Neikkarapalayam Village and Maximum concentration of PM_{2.5} recorded at Core zone. SO₂ concentration level ranged from 4.1 – 6.9 $\mu\text{g}/\text{m}^3$ and NO₂ concentration ranged from 20.3– 25.1 $\mu\text{g}/\text{m}^3$ in the study area. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

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

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

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

3.4 NOISE ENVIRONMENT

The vehicular movement on road and mining activities is the major sources of noise in study area, the environmental assessment of noise from the mining activity and vehicular traffic can be undertaken by taking into consideration various factors like potential damage to hearing, physiological responses, and annoyance and general community responses. The main objective of noise monitoring in the study area is to establish the baseline noise level and assess the impact of the total noise expected to be generated during the project operations around the project site.

3.4.1 Identification of Sampling Locations

In order to assess the ambient noise levels within the study area, noise monitoring was carried out at Seven (7) locations. The noise level measurement was carried out at each ambient air quality station. The main aim of the noise level monitoring is

- To assess the ambient Noise level in the study area
- Type of noise pollution generated in the core zone
- To predict the temporal changes in the ambient noise level in the area

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 3.20: DETAILS OF SURFACE NOISE MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	N1	Core Zone	Project Area	11° 4'57.50"N 77°33'30.76"E
2	N2	Near Existing Quarry	120m West	11° 4'58.54"N 77°33'22.67"E
3	N3	Keeranur	920m SW	11° 4'38.11"N 77°33'0.67"E
4	N4	Velayudhampalayam	6km SE	11° 4'28.03"N 77°36'43.76"E
5	N5	Thammareddipalayam	5.5km NW	11° 5'37.40"N 77°30'34.05"E
6	N6	Neikkarapalayam	5.5km South	11° 1'57.06"N 77°33'46.81"E
7	N7	Ayyampalayam	6.5km North	11° 8'33.20"N 77°33'24.99"E

Source: On-site monitoring/sampling by EHS360 Lab Private Limited in association with GEMS.

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. The equivalent noise level is defined mathematically as,

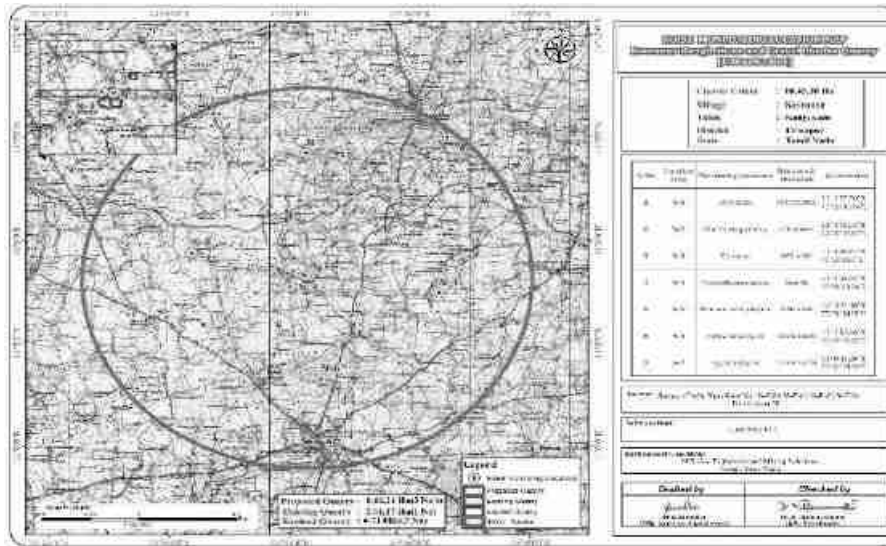
$$Leq = 10 \text{ Log } L / T \sum (10L_n/10)$$

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

T = Time interval of observation

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

FIGURE 3.23: NOISE MONITORING STATIONS AROUND 10 KM RADIUS



3.4.3 Analysis of Ambient Noise Level in the Study Area

The Digital Sound pressure level has been measured by a sound level meter (Model: HTC SL-1352)

An analysis of the different Leq data obtained during the study period has been made. Variation was noted during the day-time as well as night-time. The results are presented in below Table 3.32.

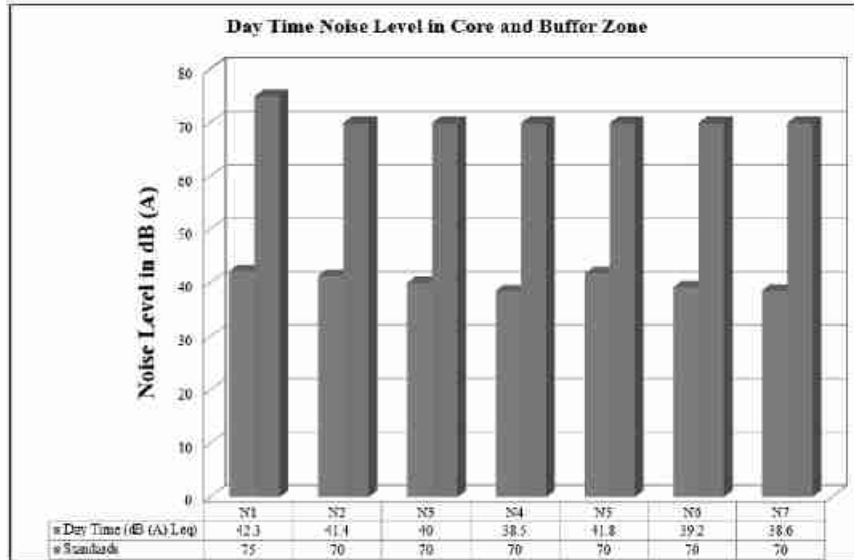
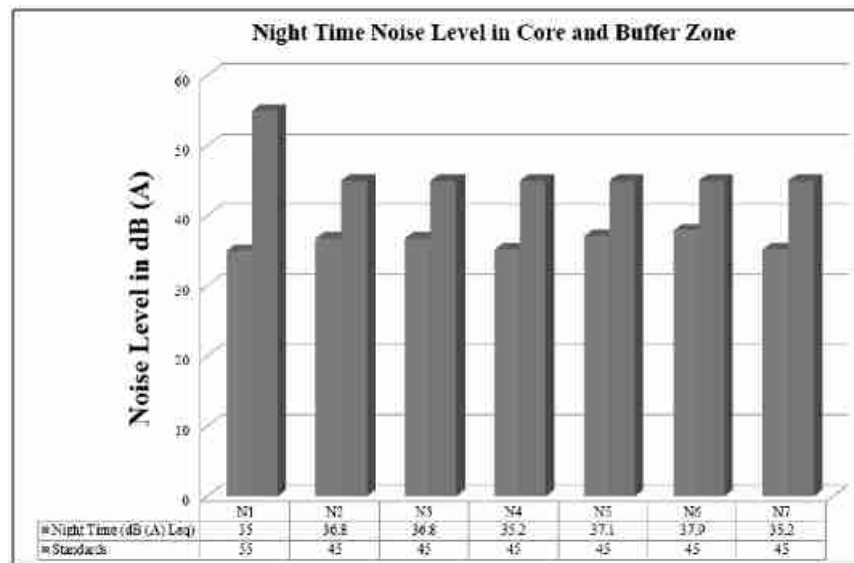
Day time: 6:00 hours to 22.00 hours.

Night time: 22:00 hours to 6.00 hours.

TABLE 3.21: AMBIENT NOISE QUALITY RESULT

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Core Zone	42.3	35.0	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Near Existing Quarry	41.4	36.8	
3	Keeranur	40.0	36.8	
4	Velayudhampalayam	38.5	35.2	
5	Thammareddipalayam	41.8	37.1	Residential Day Time- 55 dB (A) Night Time- 45 dB (A)
6	Neikkaranalayam	39.2	37.9	
7	Ayyampalayam	38.6	35.2	

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

FIGURE 3.24: DAY TIME NOISE LEVELS IN CORE AND BUFFER ZONE**FIGURE 3.25: NIGHT TIME NOISE LEVELS IN CORE AND BUFFER ZONE**

3.4.4 Interpretation & Conclusion:

Ambient noise levels were measured at 7 (Seven) locations around the proposed project area. Noise levels recorded in core zone during day time were from 42.3 dB (A) Leq and during night time were from 35 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 38.5 to 41.8 dB (A) Leq and during night time were from 35.2 to 37.9 dB (A) Leq. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.5. Biological Environment

3.5.1. Study area Ecology

The core area extent of 6.44.21 Ha of 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 quarries on the ecology and biodiversity of the core lease area with the proper mitigation and sustainable management plan. The proposed mine lease area is situated on a plain terrain. 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.

1.5. Methodology of Sampling

Primary survey was conducted with established and accepted ecological methods in different habitats of study area. The field data collection mainly included biodiversity status assessment of different life forms habit of flora elements such as Trees, Shrubs, Climbers Herbs and Grass. Faunal diversity was assessed by inventorying the taxonomical groups like Mammals, Herpetofauna, birds and butterflies.

Nocturnal faunal species were searched by locating their calls during night time and by searching along the forest shrubs areas, dense dry bushes, below the stones, water bodies. During the study, to know more about the seasonal presence of flora and faunal species, information was obtained from local people and forest department.

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.

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 ordimates. 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).

The secondary baseline data of flora and fauna has been complied through the following data sources:

1. Forest working plan
2. Schedule I to V: Indian Wildlife (Protection) Act, 1972
3. Vivek Menon, Indian Mammals: A Field Guide. Hachette Book publishing India Pvt. Ltd., India.
4. Daniel J.C. The Book of Indian Reptiles and Amphibians, Bombay Natural History Society., India.
5. Ali, S and Ripley. handbook of the Birds of India and Pakistan together with those of Nepal, Sikkim and Bhutan, Oxford University Press, Bombay.
6. ENVIS Centre on Wildlife and Protected Area.
7. Birds Life Data Zone
8. Ebird.org
9. Global Biodiversity Information Facility

1.5.1. Sampling

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

1.5.2. Sampling Size

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

1.5.3. Timing of Study

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

1.5.4. Observations from Sampling

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

1.5.5. Field Equipment's/ References

Following tools/equipment were used for conducting phytosociological study.

- Ballpoint pen, Field bags, Field notebooks, field shoes, gloves, GPS, Measuring tapes and scales, Plant cutters, packet lens, ropes etc.
- 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.

1.5.6. Part I Field Sampling Techniques (Fauna Sampling)

1.5.6.1. 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.

1.5.6.2. 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.

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

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

1.5.6.4. 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 Quadrats – 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

3.5.5.1. Quadrat Sampling Method

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 for trees, Shrubs, and herbs respectively.

3.5.5.1. Flora Composition in the Core Zone (Primary data)

Core zone flora samplings were conducted between 8.30 pm to 10.00 pm in three locations. The applied area is a plain terrain, so we used quadrat sampling methods. Taxonomically a total of 13 species belonging to 7 families have been recorded from the core mining lease area based on habitat classification of the enumerated plants the majority of species were Herbs 6 (46%) followed by Trees 3 (23%), Shrubs 2 (16%), and Grasses 2 (15%). Details of flora with the scientific name were mentioned in Table No. 3.53. The result of the core zone of flora studies shows that Fabaceae and Lamiaceae are the main dominating species in the study area mentioned in Table No.3.53. No species were found as a threatened category Table No.3.53. The percentage distribution of floral life forms in Core Zone is given in Fig No.3.35.

Table No: 3.22. Flora in the Core zone of Keeranur Village, Rough Stone and gravel quarries, Kangayum Taluk, Tiruppur District (Primary data)

Sl. No	English Name	Vernacular Name	Scientific Name	Family Name
Trees				
1.	Neem	Vembu	<i>Azadirachta indica</i>	Meliaceae

2.	Mesquite	Mullu maram	<i>Prosopis juliflora</i>	Fabaceae
3.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	Fabaceae
Shrubs				
1.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	Apocynaceae
2.	Avaram	Avaram	<i>Senna auriculata</i>	Fabaceae
Herbs				
1.	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae
2.	Fish poison	Kolinchi	<i>Tephrosia purpurea</i>	Fabaceae
3.	Pignut	Nattapoochedi	<i>Hyptis suaveolens</i>	Lamiaceae
4.	Indian Catmint Plant	Pei viratti	<i>Anisomeles malabarica</i>	Lamiaceae
5.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae
6.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	Asteraceae
Grasses				
1.	Great brome	Thodappam	<i>Bromus diandrus</i>	Poaceae
2.	Nut grass	Korai	<i>Cyperus rotandus</i>	Poaceae

Sources: Species observation in the field study



a. *Azadirachta indica*



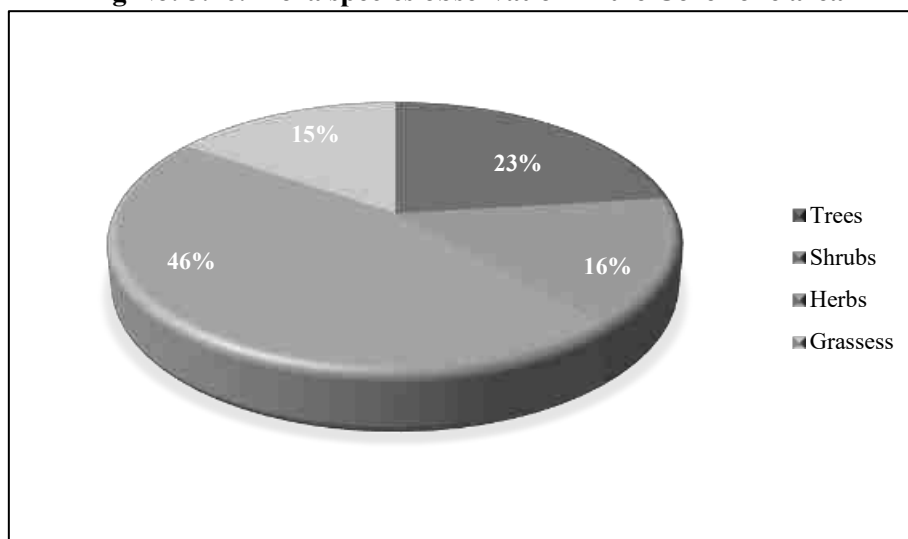
b. *Hyptis suaveolens*



c. *Calotropis gigantea*



d. *Vachellia leucophloea*

e. *Prosopis juliflora*f. *Anisomeles malabarica***Fig No: 3.26. Flora species observation in the Core zone area****Fig No. 3.27. Graph Showing % Distribution of Floral Life Forms (Core Zone)**

The trees surveys were conducted around 300m radius from the proposed project site cluster are of Keeranur village. This is the standard scientific method followed by various workers in respect of phytosociological studies (Cottom and Curtis 1956; Ralhan et al. 1982; Saxena and Sing 1982; Nayak et al. 2000; Lu et al. 2004; Nautiyal 2008). While sampling, circumference at breast Height (CBH) of tree species was measured at 1.26m from ground level, along with the name of the species, phenology (flowering, fruiting, and flushes), and uses. After surveying areas, a detailed trees inventory has been compiled. A list of all plants from the study area was prepared and their habitats were recorded. The species of trees were documented during this base line survey. The dominant plant species growing in this area were *Cocos nucifera* *Prosopis juliflora*, etc. Please refer the Table No.3.23.

Table No: 3.23. Tree survey around 300m radius from the proposed project site (Primary data)

S.No	English Name	Vernacular Name	Scientific Name	No of trees
Trees				
1.	Acacia Nilotica	Karuvelammaram	<i>Vachellianilotica</i>	4
2.	Mesquite	Mullumaram	<i>Prosopis juliflora</i>	11
3.	Neem	Vembu	<i>Azadirachta indica</i>	15
4.	Coconut	Thennai maram	<i>Cocos nucifera</i>	40
5.	River tamarind	Savundal	<i>Leucaenaleucocephala</i>	2

6.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	27
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(Sources: Species observation in the field study)

Table No: 3.24. Flora in the Buffer zone Keeranur Village, Rough Stone and gravel quarries, Kangayam Taluk, Tiruppur District (Primary data and Secondary data)

Sl.No.	English Name	Vernacular Name	Scientific Name	Resource use type *(E,M,EM)
Trees				
1.	White Bark Acacia	Vela maram	<i>Vachellia leucophloea</i>	E
2.	Coconut	Thennai maram	<i>Cocos nucifera</i>	EM
3.	Asian Palmyra palm	Panai maram	<i>Borassus flabellifer</i>	E
4.	Neem or Indian lilac	Vembu	<i>Azadirachta indica</i>	M
5.	Madras Thorn	Kodukapuli	<i>Pithecellobium dulce</i>	E
6.	Acacia Nilotica	Karuvelam maram	<i>Vachellia nilotica</i>	M
7.	River tamarind	Savundal	<i>Leucaenaleucocephala</i>	E
8.	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	EM
9.	Mango	Manga	<i>Mangifera indica</i>	E
10.	Banyan tree	Alamaram	<i>Ficus benghalensis</i>	E
11.	Gum arabic tree	Karuvelam	<i>Acacia nilotica</i>	NE
12.	Mesquite	Sema Karuvelam	<i>Prosopis juliflora</i>	E
13.	Beauty leaf	Punnai	<i>Calophyllu inophyllum</i>	M
14.	Peepal	Arasanmaram	<i>Ficus religiosa</i>	M
15.	Castor oil plant	Amanakku	<i>Ricinus communis</i>	M
16.	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	EM
17.	False ashoka	Asoka maram	<i>Polyalthia longifolia</i>	E
18.	Monkey pod tree	Thungumoonchi	<i>Samanea saman</i>	E
19.	Bitter Albizia	Arappu	<i>Albizia amara</i>	M
20.	Giant thorny bamboo	Perumungil	<i>Bambusa bambos</i>	M
21.	Wild Date Palm	Pericham	<i>Phoenix sylvestris</i>	E
22.	Eucalyptus	Eucalyptus	<i>Eucalyptus globules</i>	EM
23.	Custard apple	Seethapazham	<i>Annona reticulata</i>	E
24.	Copperpod	Iyal Vaagai	<i>copperpod</i>	E
25.	Black plum	Navalmaram	<i>Sygygium cumini</i>	EM
26.	Indian gooseberry	Nelli	<i>Emblica officinalis</i>	EM
27.	Henna	Marudaani	<i>Lawsonia inermis</i>	EM
28.	Sacred fig	Arasan	<i>Ficus religiosa</i>	E
29.	Indian mulberry	Nuna	<i>Morinda tinctoria</i>	E
30.	Teak	Thekku	<i>Tectona grandis</i>	E

31.	Papaya	Pappali maram	<i>Carica papaya</i>	EM
32.	Banana Tress	Vazhaimaram	<i>Musa paradisiaca</i>	EM
33.	Millettia pinnata	Pongam oiltree	<i>Pongamia pinnata</i>	E
34.	Guava	Koyya	<i>Psidium guajava</i>	EM
35.	Curry tree	Karuveppilai	<i>Murraya koenigii</i>	EM
36.	Bamboo	Moonghil	<i>Bambusa bambo</i>	E
37.	Drumstick tree	Murunga maram	<i>Moringa oleifera</i>	EM
38.	Indian almond	Padam maram	<i>Terminalia catappa</i>	EM
39.	Mesquite	Velikathan maram	<i>Prosopis juliflora</i>	M
40.	Portia tree	Poovarasam	<i>Thespesia populnea</i>	E
Shrubs				
1.	Indian jujube	Elanthai	<i>Ziziphus mauritiana</i>	M
2.	Night shade plan	Sundaika	<i>Solanum torvum</i>	EM
3.	Castor oil plant	Amanakku	<i>Ricinus communis</i>	M
4.	Thorn apple	Oomathai	<i>Datura stramonium</i>	E
5.	Rough cocklebu	Ottarachedi	<i>Xanthium strumarium</i>	M
6.	Triangular spruge	Chaturakalli	<i>Euphorbia antiquorum</i>	NE
7.	Lantana	Unnchedi	<i>Lantana camara</i>	M
8.	Coffee senna	Kattuttakarai	<i>Senna occidentalis</i>	M
9.	Rosy Periwinkle	Nithyakalyani	<i>Cathranthus roseus</i>	M
10.	Milk Weed	Erukku	<i>Calotropis gigantea</i>	M
11.	Avaram	Avarai	<i>Senna auriculata</i>	M
12.	Indian mallow	Thuthi	<i>Abutilon indicum</i>	M
13.	Indian Oleander	Arali	<i>Nerium indicum</i>	M
14.	Shoe flower	Chemparuthi	<i>Hibiscu rosa-sinensis</i>	EM
15.	Puriging nut	Kattamanakku	<i>Jatropha curcas</i>	EM
16.	Columnar Cactus	Sappathikalli	<i>Cereus pterogonus</i>	M
17.	Bush Morning Glory	Neyvelik Kattamanakku	<i>Ipomoea carnea</i>	E
18.	Century plant	Anaikathalai	<i>Agave americana</i>	M
19.	Jackal jujube	Soorai pazham	<i>Ziziphus oenopolia</i>	M
20.	Tiger nail	Eli verandi	<i>Martynia annua</i>	M
21.	Flame of the Woods	Idlipoo	<i>Xoracoc cineo</i>	M
22.	Peacock Flower	Mayil Kontai	<i>Caesalpinia pulcherrima</i>	M
23.	Water spinach	Nalikam	<i>Ipomoea aquatica</i>	E
24.	Cassava	Maravalli kizhangu	<i>Manihot esculenta</i>	EM
25.	Hopbush	Virali	<i>Dodonaea viscosa</i>	E
26.	Paper flower	Kahitha poo	<i>Bougainvillea glabra</i>	M

27.	Datura metel	Uumaththai	<i>Datura metel</i>	NE
Herbs				
1.	Indian Catmint Plant	Pei viratti	<i>Anisomeles malabarica</i>	M
2.	Tridax daisy	Veetukaayapoondu	<i>Tridax procumbens</i>	M
3.	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	M
4.	Indian Copperleaf	Kuppaimeni	<i>Acalypha indica</i>	M
5.	Fish poison	Kolinchi	<i>Tephrosia purpurea</i>	M
6.	Indian doab	Arugampul	<i>Cynodon dactylon</i>	E
7.	Asthma-plant	Ammanpacharisi	<i>Euphorbia hirta</i>	M
8.	Common Wireweed	Arivalmanai poondu	<i>Sida acuta</i>	M
9.	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	NE
10.	Mexican prickly poppy	Kudiyotti	<i>Argemone mexicana</i>	M
11.	Common leucas	Thumbai	<i>Leucas aspera</i>	M
12.	Prickly chaff flower	Nayuruv	<i>Achyranthes aspera</i>	M
13.	Spiny amaranth	Mullu keerai	<i>Amaranthus spinosus</i>	M
14.	Flannel Weed	Sida mutti	<i>Sida cordifolia</i>	M
15.	Green amaranth	Mulai keerai	<i>Amaranthus viridis</i>	M
16.	Marsh barbel	Neermulli	<i>Hygrophila auriculata</i>	M
17.	Yellow-fruit nightshade	Kandakathirika	<i>Solanum surattense</i>	M
18.	Common Purslane	Paruppu keerai	<i>Portulaca oleracea</i>	M
19.	Water willow	Kodakasalai	<i>Justicia procumbens</i>	M
20.	Threadstem carpetweed	Parpatakam	<i>Mollugo cerviana</i>	M
21.	Node Flower	Kumattikkirai	<i>Allmania nodiflora</i>	M
22.	Sessile Joyweed	Ponnankanni	<i>Alternanthera sessilis</i>	M
23.	Fish poison	Kolinchi	<i>Tephrosia purpurea</i>	M
24.	Pignut	Nattapoochedi	<i>Hyptis suaveolens</i>	M
25.	Aloe barbadensis	Katrazhai	<i>Aloe vera</i>	EM
26.	Madagascar Periwinkle	Nithykalyani Podi	<i>Catharanthus roseus</i>	E
27.	Asian spiderflower	Naaikaduku	<i>Cleome viscosa L</i>	M
28.	Coat buttons	Thatha poo	<i>Tridax procumbens</i>	M
29.	Mountain knotgrass	Thengaipoo kirai	<i>Aerva lanata</i>	M
30.	Bindii	Nerunchi	<i>Tribulus terrestris</i>	M
31.	Shameplant	Thottachenunki	<i>Mimosa pudica</i>	M
32.	Tomato	Thakkali	<i>Solanum lycopersicum</i>	EM
33.	False daisy	Karisalankanni	<i>Eclipta alba</i>	M
34.	Chilli	Milakai	<i>Capsicum annum</i>	EM
35.	Red Spiderling	Mukirattai	<i>Boerhavia diffusa</i>	M

36.	Eggplant	Kathrikkai	<i>Solanum melongena</i>	EM
37.	Indian mint	Karpura valli	<i>Coleus amboinicus</i>	EM
Climber/ Creepers				
1.	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	M
2.	Wild bitter	Pavarkai	<i>Momordica charantia</i>	EM
3.	Balloon plant	Mudakathan	<i>Cardiospermum halicacabum</i>	M
4.	Pointed gourd	Kovakkai	<i>Trichosanthes dioica</i>	EM
5.	Ivy gourd	Kovai	<i>Coccinia grandis</i>	M
6.	Butterfly pea	Sangu poo	<i>Clitoria ternatea</i>	M
7.	Wild jasmine	Malli	<i>Jasminum augustifolium</i>	EM
8.	Rosary Pea	Gundumani	<i>Abrus precatorius</i>	M
9.	Cucumis maderaspatanus	Musumusukkai	<i>Mukia maderaspatana</i>	M
10.	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	EM
11.	Betal	Veththalai	<i>Piper betle</i>	EM
Grass				
1.	Jungle rice	Kozhikalpul	<i>Echinochloa colona</i>	NE
2.	Mauritian Grass	Moongil pul	<i>Apluda mutica</i>	NE
3.	Swollen Windmill Grass	Kondai Pul	<i>Chloris barbata</i>	NE
4.	Needle Grass	Thodappam	<i>Aristida adscensionis</i>	E
5.	Eragrostis	Pullu	<i>Eragrostis ferruginea</i>	E
6.	Windmill grass	Chevvarakupul	<i>Chloris barbata</i>	NE

Sources: Species observation in the field study and secondary data



a. *Azadirachta indica*



b. *Psidium guajava*



c. *Cocos nucifera*



d. *Vachellia leucophloea*



e. *Jatropha curcas*



f. *Musa paradisiaca*



G. Abutilon indicum

h. Cardiospermum halicacabum

Fig No: 3.28. Flora species observation in the Buffer zone area**3.5.6. Flora Composition in the Buffer Zone (Primary data & Secondary data)**

Buffer zone flora sampling was conducted between 10.30 am to 12.30 pm in eight different locations in 10 km radius as per the ToR. The most important and widely used methods for a general assessment is belt transect/quadrant methods. The study area was divided according to habitat types followed the random sampling methods in the selected area. For plant biodiversity study in the ecosystems, the quadrat methods were followed. The proposed project site there are 121 species in the buffer zone study area in total, based on records. The floral (121) varieties among them Trees 40, Herbs 37, Shrubs 27, Climbers/ Creepers 11 and Grasses 6 were identified. The result of the buffer zone of flora studies shows that Fabaceae and Cucurbitaceae, Euphorbiaceae is the main dominating species in the study area mentioned in Table No.3.55. There are no impacts due to this mining activity. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. Apart from the proposed project area, there is agricultural land. Horticulture and agricultural land are untouched. There are no Rare, Endangered, and Threatened Flora species in the mining area and their surrounding study area. A list of floral species has been prepared based on primary survey (site observations) and discussion with local people. The total number of different plant life forms under trees, shrubs, herbs, and climbers is shown in Table No 3.25 and their % distribution is shown in Figure No 3.37.

Table 3.25: Number of floral life forms in the Study Area

S. No	Plant Life Form	Number of Species
1	Trees	40
2	Shrubs	27
3	Herbs	37
4	Climber/Creepers	11
6	Grasses	6
Total No. of Species		121

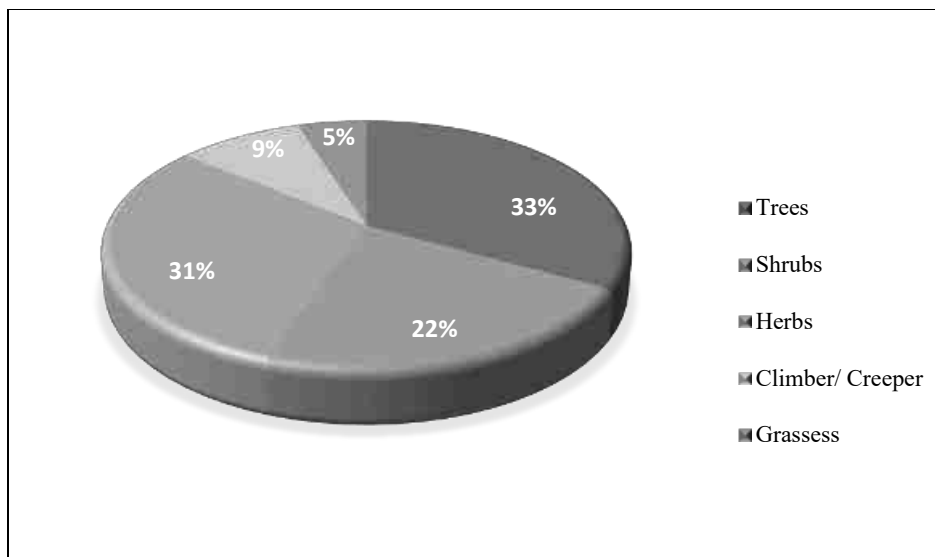


Fig No. 3.29: Diagram showing % Distribution of Floral Species

3.5.6.1. Major Agricultural Crops

Tiruppur district though an industrial district plays important role in Agriculture also. The food production required to be enhanced to provide food and nutritional security to the growing district population. In Tiruppur more than 80% of the farmers belong to small and marginal category and they play a key role in overall development in Agriculture. The total area of cultivation is around 2,28,556 hectares, mainly food and commercial crops. The chief food crops are paddy, millets and pulses. The non-food or commercial crops in the district are cotton, oil seeds and coconut. Details of the major crops are given in Table No: 3.57.

Table No: 3.26. Major crops in Tiruppur District

S.No	Major crops	Scientific name	Families
1	Paddy	<i>Oryza sativa</i>	Grasses
2	Sorghum	<i>Sorghum bicolor</i>	Grasses
3	Maize	<i>Zea mays</i>	Grasses

(Source: Agriculture Contingency Plan– Tiruppur-2013)

3.5.6.2. Horticulture

Major horticulture crops cultivated in this district are fruits crops like mango, banana, aonla, sapota and papaya, vegetables like bhendi, tomato, brinjal, onion, tapioca, moringa, spices and condiments like chillies and turmeric, plantation crops like cocoa, flower crops like jasmine, tube rose, marigold, cock's comb and medicinal plants like gloriosa and coleus. Details of major field crops and horticulture in Tiruppur district is given in Table No: 3.27

Table No: 3.27. Major Field crops & horticulture in Tiruppur District.

Sl. No	Common Name	Scientific Name	Family
Major Horticultural Crops			
1	Banana	<i>Musa</i>	Musaceae
2	Mango	<i>Mangifera indica</i>	Anacardiaceae
3	Jack	<i>Artocarpus heterophyllus</i>	Mulberry
4	Guava	<i>Psidium guajava</i>	Myrtle

5	Sapota	<i>Manilkara zapota</i>	Sapotaceae
6	Lemon	<i>Citrus × limon</i>	Rutaceae
Vegetables			
7	Onion	<i>Allium cepa</i>	Amaryllidaceae
8	Tapioca	<i>Manihot esculenta</i>	Spurges
9	Brinjal	<i>Solanum melongena</i>	Nightshade
10	Tomato	<i>Solanum lycopersicum</i>	Nightshade
11	Gourds	<i>Lagenaria siceraria</i>	Cucurbits
12	Bhendi	<i>Abelmoschus esculentus</i>	Mallows
13	Moringa	<i>Moringa oleifera</i>	Moringaceae
Medicinal and Aromatic Plants			
14	Gloriosa superba	<i>Colchicaceae</i>	Colchicaceae
15	Coleus	<i>Plectranthus scutellarioides</i>	Mints
Flowers			
16	Jasmine	<i>Jasminum</i>	Jasminaceae
17	Crossandra	<i>Crossandra infundibuliformis</i>	
18	Crysanthimum	<i>Asteraceae</i>	Asteraceae
19	Rose & Jathi	<i>Rosa</i>	Rosaceae
20	Tuberose	<i>Polianthes tuberosa</i>	Asparagus
Spices and Condiments			
21	Chillies	<i>Capsicum frutescens</i>	Solanaceae
22	Turmeric	<i>Curcuma longa</i>	Zingiberaceae
23	Tamarind	<i>Tamarindus indica</i>	Legumes
24	Curry leaf	<i>Murraya koenigii</i>	Rutaceae
Plantation Crops			
25	Cashew	<i>Anacardium occidentale</i>	Cashews
26	Cocoa	<i>Theobroma cacao</i>	Mallows

(Source: Statistical handbook of Tamil Nadu-2013)

3.5.6.3. Types of Irrigation

Irrigation is the artificial application of water to the soil for normal growth of plants. Water is an important determinant factor for production of crops in agriculture sector. Intensive and extensive cultivation of land depends mainly on the availability of water. Medium and minor irrigation schemes are implemented in the state for augmenting the water supply for agriculture. The various sources of irrigation are canals, tanks, tube wells, ordinary wells, springs and channels. The Following Table No: 3.59. Shows the area irrigated in Tiruppur District.

Table No: 3.28. Area irrigated in the district

S.No	Irrigation	Area ('000 ha)
1	Net irrigated area	119.3
2	Gross irrigated area	123.1
3	Rain fed area	72.9

(Source: Statistical handbook of Tamil Nadu-2013)

Dug wells are the major source of water for irrigation in Tiruppur district, accounting for about 59.97 percent of the total area irrigated in this district. Tube wells accounting for about 9.48 percent of the total area irrigated in this district. Of the net area irrigated, the canal irrigated area is only 29.45 percent. The area irrigated under tank is 1.10 percent.

(Source: Statistical handbook of Tamil Nadu-2013)

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

There are neither reserved (RF) nor protected (PF) forests either in the mine lease area or in the buffer zone. Thus, no forest land is involved in any manner. Hence, no certificate from the Forest department is required. There are no impacts due to this mining activity.

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. There are neither forests nor forest dwellers nor forest-dependent communities in the mine lease area. There shall be no forest-impacted families (PF) or people (PP). Thus, the rights of Traditional Forest Dwellers will not be compromised on account of the project.

3.6. Fauna

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

3.6.1. Fauna Composition in the Core Zone (Primary Data)

Core zone fauna samplings were conducted between 12.30 pm to 1.30 pm in two locations. A total of 17 varieties of species were observed in the Core zone of Keeranur Village, Rough Stone and gravel quarries (Table No.3.60) among them numbers of Insects 5 (29%), Reptiles 2 (12%), Mammals 2 (12%) and Avian 7 (47%). A total of 17 species belonging to 13 families have been recorded from the core mining lease area. The percentage of distribution of fauna life forms in Core Zone is given in Fig No.3.38. None of these species are threatened or endemic in the study area and surroundings. There is no Schedule I species and six species are under schedule IV according to the Indian wild life Act 1972. A total of 8 species of bird were sighted in the mining lease area.

There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of fauna in core zone with the scientific name were mentioned in Table No. 3.29.

Table No: 3.29. Fauna in the Core zone of Keeranur Village, Rough Stone and gravel quarries, Kangayum Taluk, Tiruppur District (Primary data)

SI. No	Common name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
Insects/Butterflies			
1.	Common Tiger	<i>Danaus genutia</i>	Schedule IV
2.	Mottled emigrant	<i>Catopsilia pyranthe</i>	NL
3.	Striped tiger	<i>Danaus plexippus</i>	Schedule IV
4.	Danaid egg fly	<i>Hypolimnasmisippus</i>	Schedule IV
5.	Red-veined darter	<i>Sympetrum fonscolombii</i>	NL
Reptiles			
1.	Garden lizard	<i>Calotes versicolor</i>	Schedule IV
2.	Common skink	<i>Mabuya carinatus</i>	Schedule IV
Mammals			
1.	Indian Field Mouse	<i>Mus booduga</i>	Schedule IV
2.	Common rat	<i>Rattus rattus</i>	Schedule IV
Aves			

1.	Common myna	<i>Acridotheres tristis</i>	Schedule IV
2.	Asian green bee-eater	<i>Meropsorientalis</i>	Schedule IV
3.	Black drongo	<i>Dicrurus macrocercus</i>	Schedule IV
4.	Koel	<i>Eudynamys</i>	Schedule IV
5.	House crow	<i>Corvussplendens</i>	Schedule IV
6.	Cattle egret	<i>Bubulcus ibis</i>	Schedule IV
7.	Common quail	<i>Coturnix coturnix</i>	Schedule IV
8.	Sunbird	<i>Cinnyrisasiaticus</i>	Schedule IV

(Sources: Species observation in the field study)

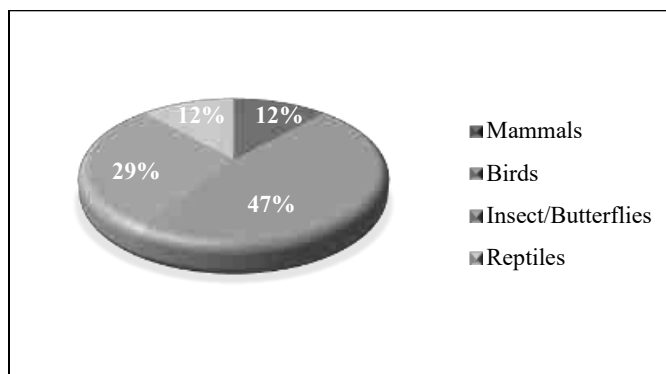


Fig No. 3.30. Graph Showing % Distribution of Fauna Life Forms (Core Zone)

3.6.2. Fauna Composition in the Buffer Zone

The Buffer zone fauna samplings were conducted between 3.00 pm to 6.00 pm in different locations. As animals, especially vertebrates move from place to place in search of food, shelter, mate or other biological needs, separate lists for core and buffer areas are not feasible however, a separate list of fauna pertaining to core and buffer zone are listed separately. Though there are no reserved 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 Red-whiskered Bulbul, Asian Koel, House crow, Black drangos, Crows etc.

The list of Mammals (*directly sighted animals & Secondary data) is given in table No.3.61. The list of bird species recorded during the field survey and literature from the study area are given in Table 3.62. The list of reptilian species recorded during the field survey and literature from the study area is given in Table 3.63. The list of insect species recorded during the field survey and literature from the study area are given in Table 3.64. The list of Butterflies species recorded during the field survey and literature from the study area are given in Table 3.65. 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 58 species recorded were from the buffer zone area. Based on habitat classification the majority of species were birds 26, followed by Butterflies 12, Reptiles 6, Insects 5, Mammals 5, and Amphibians 4. There are two Schedule II species, two species are under the schedule III and forty-six species are under Schedule

IV according to the Indian Wildlife Act 1972. A total of 26 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 four amphibian was observed during the extensive field visit Sphaerotheca breviceps, Euphylyctis 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 No: 3.30. List of Fauna & Their Conservation Status,

Mammals: (*directly sighted animals & Secondary data)

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

Table No: 3.31. Listed birds (Primary & Secondary data)

SI. No	Common Name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
1.	Indian robin	<i>Saxicoloides fulicatus</i>	Schedule IV
2.	Asian Koel	<i>Eudynamis</i>	Schedule IV
3.	Cattle egret	<i>Bubulcus ibis</i>	Schedule IV
4.	Rock pigeon	<i>Columbidae</i>	Schedule IV
5.	Common myna	<i>Acridotheres tristis</i>	Schedule IV
6.	House crow	<i>Corvus splendens</i>	Schedule V
7.	Red Vented Bulbul	<i>Pycnonotus cafer</i>	Schedule IV
8.	Small Bee Eater	<i>Merops orientalis</i>	Schedule IV
9.	Purple sunbird	<i>Cinnyris asiaticus</i>	Schedule IV
10.	House sparrow	<i>Passer domesticus</i>	Schedule IV
11.	Brahman myna	<i>Temenuchus pagodarum</i>	Schedule IV
12.	Small blue Kingfisher	<i>Alcedo atthis</i>	Schedule IV
13.	Rose-ringed parakeet	<i>Psittacula krameri</i>	Schedule IV
14.	Common quail	<i>Coturnix coturnix</i>	Schedule IV
15.	Pond herons	<i>Ardeola grayii</i>	Schedule IV
16.	Black drongo	<i>Dicrurus macrocercus</i>	Schedule IV
17.	Woodpecker bird	<i>Picidae</i>	Schedule IV
18.	Weaver bird	<i>Ploceus philippines</i>	Schedule IV
19.	Two-tailed Sparrow	<i>Dicrurus macrocercus</i>	Schedule IV
20.	Grey drongo	<i>Dicrurus longicaudatus</i>	Schedule IV
21.	Wood Sandpiper	<i>Tringa glareola</i>	Schedule IV
22.	Blue-Tailed Bee Eater	<i>Merops philippinus</i>	Schedule IV
23.	Indian Roller	<i>Coracias benghalensis</i>	Schedule IV
24.	Common Swallow	<i>Hirundo rustica</i>	Schedule IV
25.	Purple Rumped Sunbird	<i>Leptocoma zeylonica</i>	Schedule IV
26.	Purple Sunbird	<i>Cinnyris asiaticus</i>	NL

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

Table No: 3.32. List of Reptiles either spotted or reported from the study area

(*indicates direct observations & Secondary data)

Sl. No	Common Name	Scientific Name	Schedule list wildlife Protection act 1972
1.	Oriental garden lizard	<i>Calotes versicolor</i>	III
2.	House lizards	<i>Hemidactylus flaviviridis</i>	Schedule IV
3.	Green vine snake	<i>Ahaetulla nasuta</i>	Schedule IV
4.	Rat snake	<i>Ptyas mucosa</i>	III
5.	Common krait	<i>Bungarus caeruleus</i>	Schedule IV
6.	Common skink	<i>Mabuya carinatus</i>	NL

Table No: 3.33. List of insects either spotted or reported from the study area

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

Table No: 3.34. List of Butterflies reported from the study area and Secondary data

Sl. No	Common Name	Scientific Name	Schedule
1.	Indian palm bob	<i>Suastusgremius</i>	Schedule IV
2.	Common Mormon	<i>Papilio polytes</i>	Schedule IV
3.	Common rose	<i>Pachlioptaaristolochiaee</i>	Schedule IV
4.	Spotless grass yellow	<i>Eurema laeta</i>	Schedule IV
5.	Common Tiger	<i>Danaus genutia</i>	Schedule IV
6.	Common emigrant	<i>Catopsiliapomona</i>	Schedule IV
7.	Crimson tip	<i>Colotisdanae</i>	Schedule IV
8.	Common Indian crow	<i>Euploea core</i>	Schedule IV
9.	Lime Butterfly	<i>Papilio demoleus</i>	Schedule IV
10.	Yellow Pansy	<i>Junonia hierta</i>	Schedule IV
11.	Chocolate Pansy	<i>Junonia iphita</i>	Schedule IV
12.	Double-branded Black Crow	<i>Euploea sylvester</i>	Schedule IV

Sources: <https://www.ifoundbutterflies.org/taxonomy/term/6734><https://www.inaturalist.org/places/tiruppur>

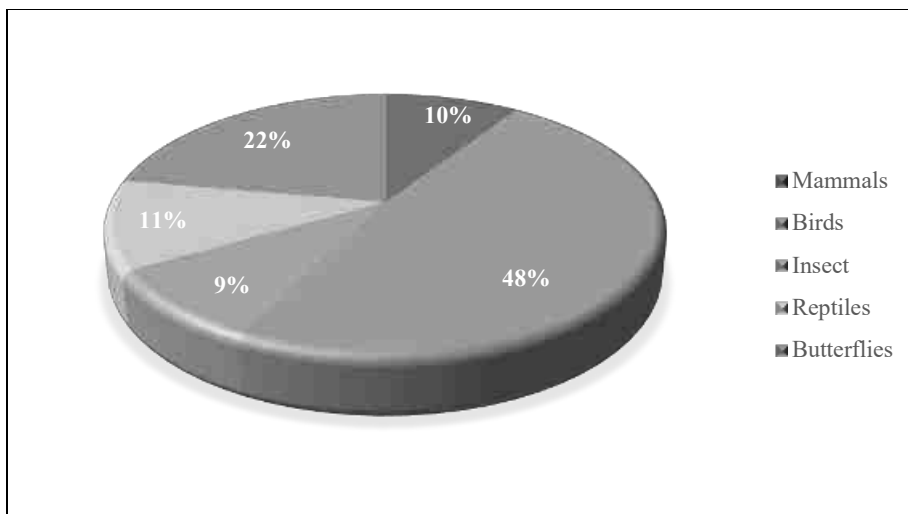


Fig No. 3.31: Diagram showing % Distribution of Faunal Communities

Livestock like cattle, buffalo, goat, poultry, duck and pig are reared for dairy products, meat, and egg and for agriculture purpose. Majority of cattle and buffalo are of local variety. Backyard poultry farms are mostly common in this area; however, some commercial poultry farms are also recorded in the study area. The study area is marked with moderate population of flora and fauna. With reference to the Wildlife Protection Act 1972 total number of wildlife tabulated in this study can be characterized as given in the Table No 3.66.

Table No: 3.35. Characterization of Fauna in the Study Area (As Per W.P Act, 1972)

S.No	Schedule of Wildlife Protection Act 1972	No. of species	Remark
1.	Schedule I	0	-
2.	Schedule II	2	-
3.	Schedule III	2	-
4.	Schedule IV	46	-
5.	Schedule V	1	-
6.	Schedule VI	0	-

Fig No: 3.32. Schedule Of Wildlife Protection Act 1972

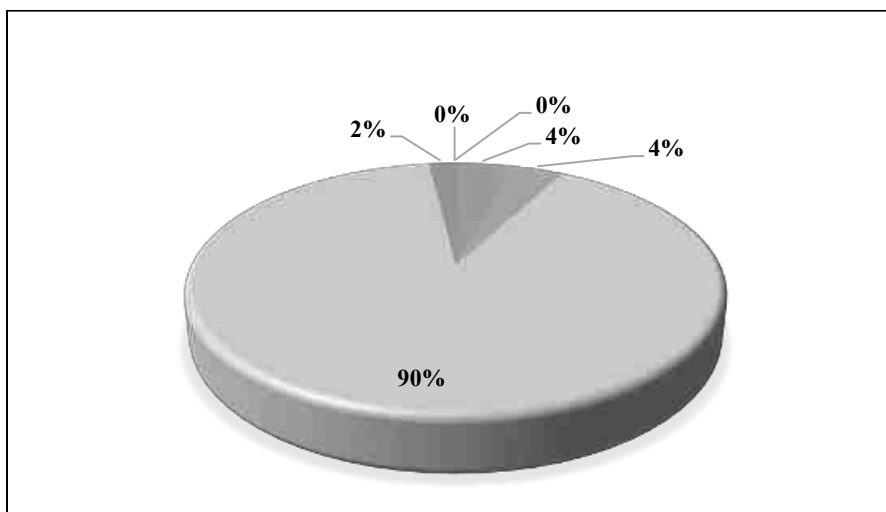


Table No: 3.36. Description of Flora & Fauna

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

A comprehensive Central Legislation namely Wild Life (Protection) Act was enforced in 1972 to provide protection to wild animals. Schedule-I of this act contains the list of rare and endangered species, which are completely protected throughout the country. The list of wild animals and their conservation status as per Wild Life Act (1972) presented in Table 3.67 are the species recorded/reported from the study area, out of which 2 species belongs to schedule-II, 2 species belong to schedule-III, 1 species belongs to schedule-V and rest of the species belongs to schedule-IV of Wildlife protection Act, 1972.

3.6.3. Aquatic Ecology

The study area has seasonal water bodies (lake and river) is located away from the proposed project site. Mining activities will not have an impact on aquatic ecosystems because no effluent discharge from the Rough Stone and gravel quarries is planned. There are no natural perennial surface water bodies, such as marshes, rivers, streams, lakes or agricultural sites, inside the mining lease area. There is no aquatic flora and, aquatic fauna. Hence, it does not harbour any significant aquatic life. Therefore, the project is not likely to affect the aquatic ecology. Aquatic weeds are found to be growing everywhere in 10 km radius area, in every water bog, pond, etc. *Typha angustifolia* 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.

3.6.3.1. Objectives of Aquatic Studies

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

3.6.3.2. Macrophytes

The macrophytes observed within the study area are tabulated in Table 3.68

Table No.3.37 Description of Macrophytes (Primary data & Secondary data)

Sl.No	Common Name	Scientific name	Vernacular Name (Tamil)	IUCN Red List of Threatened Species
1.	Water hyacinth	<i>Eichornia crassipe</i>	Agayatamarai	NA
2.	Floating lace plant	<i>Aponogeton natans</i>	Kottikizhnagu	NA
3.	Blue water lily	<i>Nymphaea nouchali</i>	Nellambal	LC
4.	Sambu	<i>Typha angustifolia</i>	Narrowleaf cattail	LC

5.	Cross Grass	<i>Carex cruciata</i>	Koraipullu	NA
6.	Tall Flat Sedge	<i>Cyperus exaltatus</i>	Koraikizhangu	LC

Sources: Species observation in the field study

3.6.3.3. Aquatic Faunal Diversity

Amphibian species like the common Indian Burrowing frog, and Green pond frog, and etc. were sighted near the water bodies located in the study area.

Table No. 3.38. Amphibians Observed/Recorded from the Study Area& Secondary data

SI. No	Common Name/English Name	Scientific Name	Schedule list wildlife Protection act 1972
1.	Indian Burrowing frog	<i>Sphaerotheca breviceps</i>	Schedule IV
2.	Green pond frog	<i>Euphlyctis hexadactylus</i>	Schedule IV
3.	Indian Toad	<i>Bufo melanostictus</i>	Schedule IV
4.	Skipper	<i>Euphlyctis cynophlyctis</i>	Schedule IV

3.6.3.4. Other Aquatic Fauna

3.6.3.5. Fishes

The study area has low aquatic diversity, with few types of fish living. The species of fish reported during the primary visit are Rohu, Catla, Catfish, etc. Species of fish reported in the study area are given in Table No 3.70.

Table No 3.39. Based on Actual Sighting, based on inputs from locals and Perused from Secondary Data

S.No	Common name	Scientific name	Family
1.	Ponthia	<i>Puntius sophore</i>	Cyprinidae
2.	Catla	<i>Catla Catla</i>	Cyprinidae
3.	Catfish	<i>Siluriformes</i>	-
4.	Rohu	<i>Labeo rohita</i>	Cyprinidae
5.	Eel fish	<i>Electrophorus electricus</i>	Gymnotidae

6.8. Findings/Results

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

S. No	Ecological sensitive habitat	Direction and Distance from the project site
1.	National Parks/ Wildlife Sanctuary/ Biosphere reserves/ Elephant Reserve/ Any Other Reserve	Nil.
2.	Reserved Forests	Nil
3.	Wildlife Corridors & Routes	No notified wildlife corridors are present in 10 km vicinity.
4.	Wetlands / Water bodies	-
5.	Ramsar Site	Nil
6.	Important Bird Habitats	Nil
7.	Breeding/nesting areas of endangered species	Not present
8.	Mangroves	None

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.

3.9. 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.

Sources:

[A survey on the floral diversity of rural areas in Udumalpet Taluk Tiruppur District Tamil Nadu India](https://www.academia.edu/49349854/Avenue_Trees_of_Urban_Landscape_Tiruppur_City_Tamil_Nadu)
https://www.academia.edu/49349854/Avenue_Trees_of_Urban_Landscape_Tiruppur_City_Tamil_Nadu
<https://tnmines.tn.gov.in/pdf/dsr/22.pdf>
<https://www.sciencedirect.com/science/article/abs/pii/S1872203221001359>
https://www.psgcas.ac.in/journals/search/issues/Volume-III-Issue_I/8.pdf
<https://typeset.io/pdf/survey-of-wetlands-in-and-around-tiruppur-district-tamil-244pav3mvl.pdf>
[Invasive Alien Species | IUCN](#)
https://ebird.org/region/IN-TN-TP/bird-list?rank=lrec&hs_sortBy=count
https://uk.inaturalist.org/check_lists/316687-Tiruppur-Check-List
[Ali, S. \(2002\). The Book of Indian Birds \(13th revised edition\). Oxford University Press, New Delhi. 326pp.](#)
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3.6 SOCIO ECONOMIC ENVIRONMENT

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

3.6.1 Objectives of the Study

The objective of this socio-economic study is:

- To know the current socio-economic situation in the study area covering the sub factors of education, health, sanitation, water, employment and business
- To recommend practical strategic interventions to improve the area
- To help in providing better living standards
- To help in providing better employment opportunities for locals in the study area.

3.6.2 Scope of Work

- ❖ To study the socio-economic environment of the study area
- ❖ Data collection during primary field survey and collate it with the secondary sources
- ❖ Identification of possible impacts from the project
- ❖ Prediction of probable impact due to the project
- ❖ Mitigation measures
- ❖ Action plan for the implementation of mitigation measures.

3.6.3 Methodology

Collection of Data

Data for this project was collected from primary sources like Field survey, Interviews of locals and secondary sources like Government department, Maps, Literature research etc. GEMS conducted the socio-economic **baseline survey using a survey team of Field Assistants and a Supervisor apprising them about the project area and relevant documents**. The Survey was conducted **using Simple Random Sampling method** with a well-structured questionnaire prepared enabling subjects to reply appropriately. The questionnaires were designed to suit the subjects considering their rural background enabling them to furnish correct information and data to the extent possible. Primary data has been collected at village level, 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).

Radius	No of Village	%of Respondents
0-3km	2	6
3-7km	3	16
7-10km	11	78
total	16	100

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

Presentation of Data 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.

A detailed socio-economic survey was conducted in the buffer zone 10 km radius of the Rough Stone and gravel quarries at village: Keeranur Taluk: Kangeyam District: Tiruppur, Tamil Nadu to identify the social and economic impacts. To get an overview of the villager's views and preferences about the plant, socio-economic parameters i.e., population growth, density, literacy etc. were taken to determine the impact of the quarry production on the human population of the study area.

3.6.4 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 – Tiruppur, Namakkal, Perambalur, Tiruppur, 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

3.6.5 Tiruppur District

Tiruppur District is one of the 38 districts of the Indian state of Tamil Nadu, formed in 22 February 2009. Dharapuram was the largest taluk by area in the district. The district is well-developed and industrialized. The Tiruppur banian industry, the cotton market, Kangeyam bull and Uthukkuli butter, among other things, provide for a vibrant economy.[1] The city of Tiruppur is the administrative headquarters for the district. As of 2011, the district had a population of 2,479,052 with a sex-ratio of 989 females for every 1,000 males.

The district has an area of 5187 sq.km. The southern and south western parts of the district (Dharapuram and Udumalpet) maximum rainfall, due to the surrounding of western ghats. The rest of the district lies in the rain shadow region of the Western Ghats and experiences salubrious climate most parts of the year, except the extreme east part of the district.

3.6.7 Study Area

Detailed socio-economic survey was conducted in the study area (Core and buffer zone) within 10 km radius of the Roughstone and gravel quarry at village: Keeranur Taluk: Kangeyam District: Tiruppur, Tamil Nadu. 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.

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

Table 3.40 Shows the socio-economic profile of the study area as compared to district, state and national level socio-economic profile

Particular	India	Tamil Nadu	Tiruppur District	Study Area (10km Radius)
Area (in sq. km.)	3,287,263	130058	5187	318
Population Density/ sq. Km.	368	554	478	300
No. of Households	249454252	13357027	712210	28934
Population	1210569573	72147030	2479052	95480
Male	623121843	36137975	1246159	47957
Female	587447730	36009055	1232893	47523
Scheduled Tribes	104281034	794697	5458	44
Scheduled Castes	201378086	14438445	395876	16499
Literacy Rate in %	73%	80%	71%	75%
Sex Ratio (Females per 1000 Males)	943	996	989	991

Source: Census of India, 2011

Rough Stone and gravel quarries is located in the Tiruppur district of the State of Tamil Nadu. The total no. of villages observed within the 10 km radius from the project area is 16. Two districts Erode district in Perundurai taluk and Tiruppur district in Kangeyam Taluk falls within the 10 km buffer area. The population as per 2011 Census records is 95,480 (for 10 km radius) and there is total 28,934 households residing within the studied area. Average household size is 3 which is the standard family size in India. Sex ratio of the study area is 991 (females per 1000 males). Total SC and ST population distribution is 16,499 and 44 respectively. The literacy rate in the Study area is observed to be 75.16% The village - wise demographic features of the study area as per area classification are given in Table 3.2 below:

3.6.8 Population Distribution

Total number of males in the study area is **47,957** and females are **47,523**. The sex ratio was calculated to be 991 females per 1000 males within the 10 km buffer area which is not very poor compared to the national sex ratio.

Within the study area, it was observed child population is increasing as per census 2011 participation increase in current scenario due to proper treatment provided to infants this is because of the awareness of the family.

Table 3.41 Zone wise Demographic Profile of Study Area

Zone	No. of Villages	Total Household	Total Population	Male Population	%	Female Population	%
Primary Zone (0 - 3 Km)	2	1683	5375	2728	50.75	2647	49.25
Secondary Zone (3 - 7 Km)	3	4699	15361	7708	50.18	7653	49.82
Tertiary Zone (7 - 10 km)	11	22552	74744	37521	50.20	37223	49.80
Study Area (0-10 km)	16	28934	95480	47957	50.23	47523	49.77

Source: Census of India, 2011

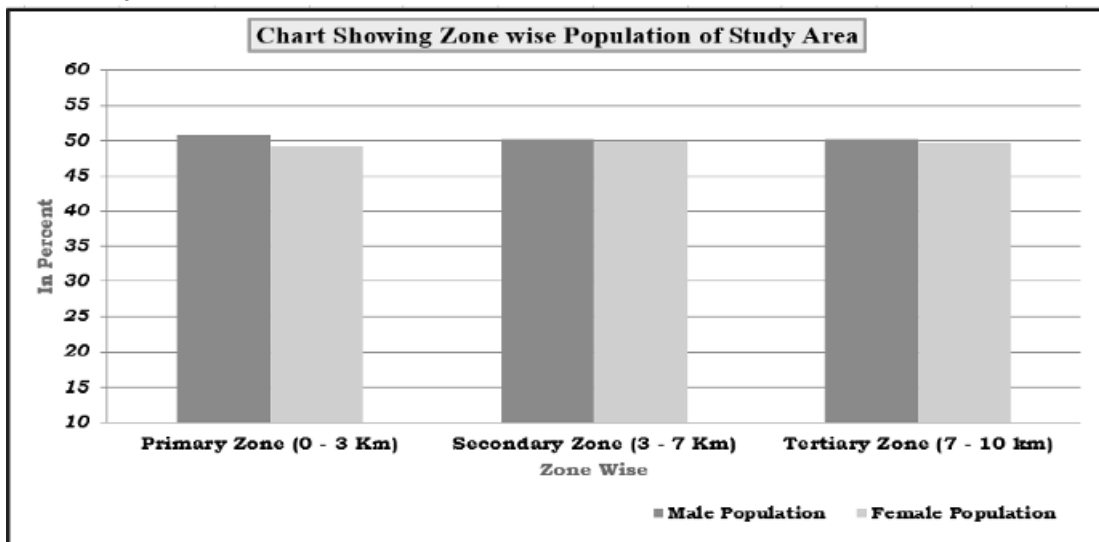


Figure 3.33 Population of study area

- ✓ Above table identifies the presence of villages and their subsequent population divided under three zones from plant boundary (i.e., Primary, secondary and tertiary zone).
- ✓ Primary zone has 2 villages where as much as 1,683 households with 95,480 population are located. Mostly lying on Built-up land for their livelihood and substance.
- ✓ Secondary and tertiary zone both comprise of 3 and 11 Villages having a total population of 15,361 and 74,744 respectively.

Table 3.42 Village wise Demographic Profile of the Study Area (Core and Buffer Zone)

Sno	Name	TRU	No_HH	TOT_P	TOT_M	TOT_F	P_06	M_06	F_06	P_SC	M_SC	F_SC	P_ST	M_ST	F_ST	P_LIT	M_LIT	F_LIT	TOT_WORK_P	MAINWORK_P	MARGWORK_P	NON_WORK_P
0-3km																						
1	Naalroad	Rural	810	2695	1364	1331	212	120	92	765	395	370	5	3	2	1543	872	671	1700	1447	253	995
2	Keeranur	Rural	873	2680	1364	1316	198	103	95	647	331	316	0	0	0	1571	939	632	1732	1677	55	948
			1683	5375	2728	2647	410	223	187	1412	726	686	5	3	2	3114	1811	1303	3432	3124	308	1943
3-7km																						
1	Alambadi	Rural	816	2714	1376	1338	198	114	84	731	370	361	1	0	1	1726	980	746	1663	1365	298	1051
2	Sivanmalai	Rural	2377	7927	3972	3955	646	350	296	2010	994	1016	7	4	3	5078	2852	2226	4681	4211	470	3246
3	Ekkattampalayam	Rural	1506	4720	2360	2360	346	184	162	1268	647	621	0	0	0	2818	1606	1212	2984	2936	48	1736
			4699	15361	7708	7653	1190	648	542	4009	2011	1998	8	4	4	9622	5438	4184	9328	8512	816	6033
7-10km																						
1	Padiyur	Rural	759	2628	1315	1313	236	126	110	855	432	423	0	0	0	1750	952	798	1436	1234	202	1192
2	Kurukkpalayam	Rural	400	1216	639	577	82	45	37	346	182	164	0	0	0	729	440	289	804	492	312	412
3	Kangeyam (TP)	Urban	9449	32147	16181	15966	2811	1485	1326	3000	1518	1482	23	11	12	24977	13405	11572	15720	14108	1612	16427
4	Karattupalayam	Rural	2419	7835	3935	3900	660	330	330	2314	1142	1172	0	0	0	4362	2507	1855	4891	4691	200	2944
5	Ingur	Rural	1850	5986	3005	2981	512	262	250	1039	529	510	3	1	2	3970	2272	1698	3174	3110	64	2812
6	Kuthampalayam	Rural	414	1364	692	672	118	65	53	702	359	343	0	0	0	698	403	295	789	675	114	575
7	Chennimalai	Rural	820	2604	1298	1306	201	104	97	415	216	199	0	0	0	1636	946	690	1494	1471	23	1110
8	Nanjai Palatholuvu	Rural	74	179	86	93	9	5	4	94	41	53	0	0	0	102	60	42	123	122	1	56
9	Punjai Palatholuvu	Rural	604	1879	944	935	134	76	58	555	289	266	0	0	0	1098	663	435	1176	1174	2	703
10	Basuvapatti	Rural	1081	3406	1715	1691	282	142	140	1255	630	625	0	0	0	2037	1186	851	2090	2052	38	1316
11	Chennimalai (TP)	Urban	4682	15500	7711	7789	1275	663	612	503	255	248	5	4	1	11716	6321	5395	7791	7366	425	7709
		Total	22552	74744	37521	37223	6320	3303	3017	11078	5593	5485	31	16	15	53075	29155	23920	39488	29129	2993	35256
		G.Total	28934	95480	47957	47523	7920	4174	3746	16499	8330	8169	44	23	21	65811	36404	29407	52248	40765	4117	43232

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

Figure 3.34 Sex Ratio within 10 Km study area

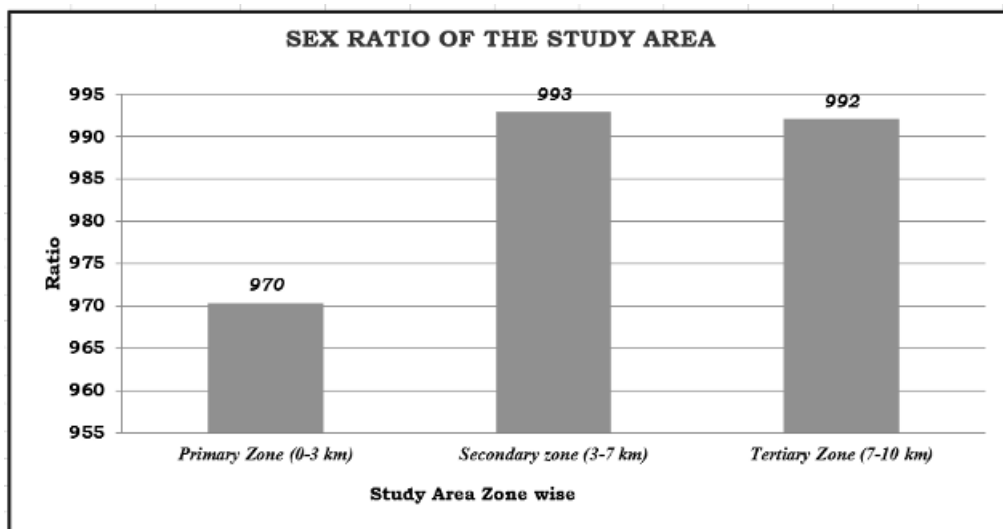


Table 3.44 Child Sex ratio of the study area

S. No.	Buffer Zone	Sex Ratio of Study area Female/ 1000 Male
1	Primary Zone (0-3 km)	839
2	Secondary zone (3-7 km)	836
3	Tertiary Zone (7-10 km)	913

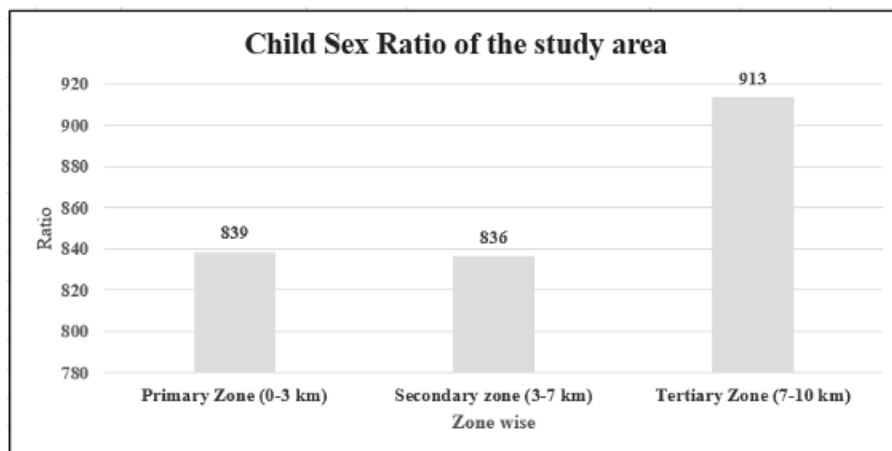


Figure 3.35 Child Sex Ratio within 10 Km study area

3.6.10 Literacy Rate in Study Area

Literacy is the ability to read and write one’s own name and further for knowledge and interest, write coherently, and think critically about the written word. The analysis of the literacy levels is done in the study area. The 10 km radius study area demonstrates a literacy rate of 75.16% as per census 2011. The male literacy rate works out to

be 83.15% whereas the female literacy rate, which is an important factor for social change, is observed to be 67.17% in the study area. This indicates that the education facilities in the villages are not up to the mark and there is need to be aware as the female literacy as it is very important for our society and from the survey it is clear that the literacy rate of female is far low comparison to male.

Table 3.45 Literacy Rate of the Study Area

Zone	No. of Villages	Male Literacy Population	Male literacy Rate	Female Literacy Population	Female literacy Rate	Total Literacy	Total Literacy Rate
Primary Zone (0 - 3 Km)	2	1811	72.30	1303	52.97	2892	62.72
Secondary Zone (3 - 7 Km)	3	5438	77.03	4184	58.84	7844	67.90
Tertiary Zone (7 - 10 Km)	11	29155	85.20	23920	69.93	12661	77.57
Study Area (0-10km)	16	36404	83.15	29407	67.17	23397	75.16

Source: Census of India, 2011

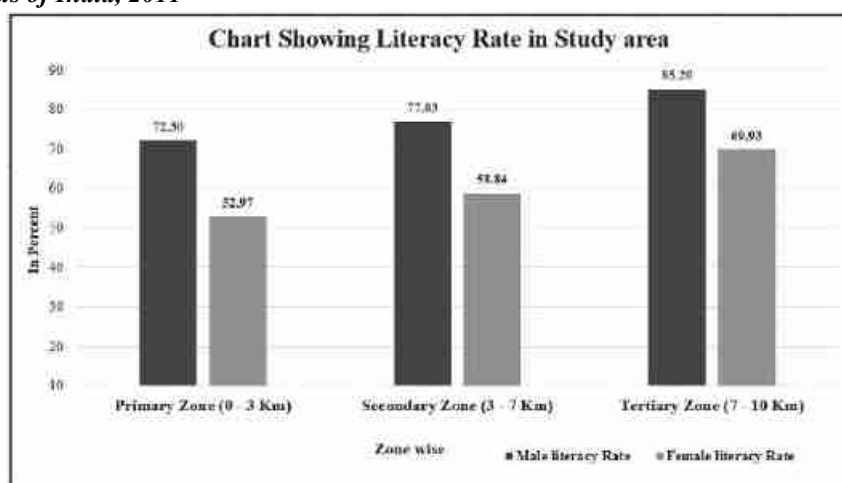


Figure 3.36 Gender wise Literacy Rate in the study area

3.6.11 Vulnerable Group

While developing an action plan, it is very important to identify the population that falls under the marginalized and vulnerable groups and special attention should be given towards these groups while making action plans. In the observed villages schedule caste (SC) population is ~14% and Schedule Tribe population ~3% in study area. 83% population observed as other.

Table 3.46 vulnerable groups of the study area

Zone	No. of Villages	Vulnerable Groups					
		SC Population	%	ST Population	%	Other Population	%
Primary Zone (0 - 3 Km)	2	1412	26.27	5	0.09	3958	73.64
Secondary Zone (3 - 7 Km)	3	4009	26.10	8	0.05	11344	73.85

Tertiary Zone (7 - 10 Km)	11	11078	14.82	31	0.04	63635	85.14
Total area (10km)	16	16499	17.28	44	0.05	78937	82.67

Source: Census of India, 2011

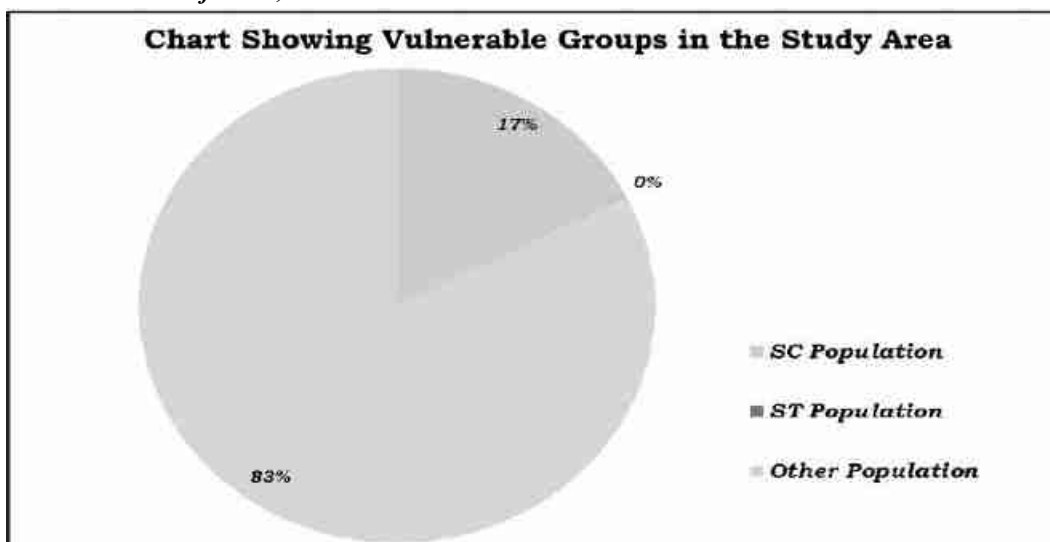


Figure 3.37 vulnerable groups

3.6.12 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 labourers, 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 3.47 Shows the work force of the study area

Zone	No. of Villages	Total Workers	%	Main Workers	%	Marginal Workers	%	Non-Workers	%
Primary Zone (0 - 3 Km)	2	3432	63.85	3124	58.12	308	5.73	1943	36.15
Secondary Zone (3 - 7 Km)	3	9328	60.73	8512	55.41	816	5.31	6033	39.27
Tertiary Zone (7 - 10 Km)	11	39488	52.83	29129	38.97	2993	4.00	35256	47.17
Study Area (10 Km)	16	52248	54.72	40765	42.69	4117	4.31	43232	45.28

Source: Census of India, 2011

Total working population within the 10 km study area are 55%, where 43% are main workers and 4.31% of the total working population are marginal worker 45% of the total population are non-Workers.

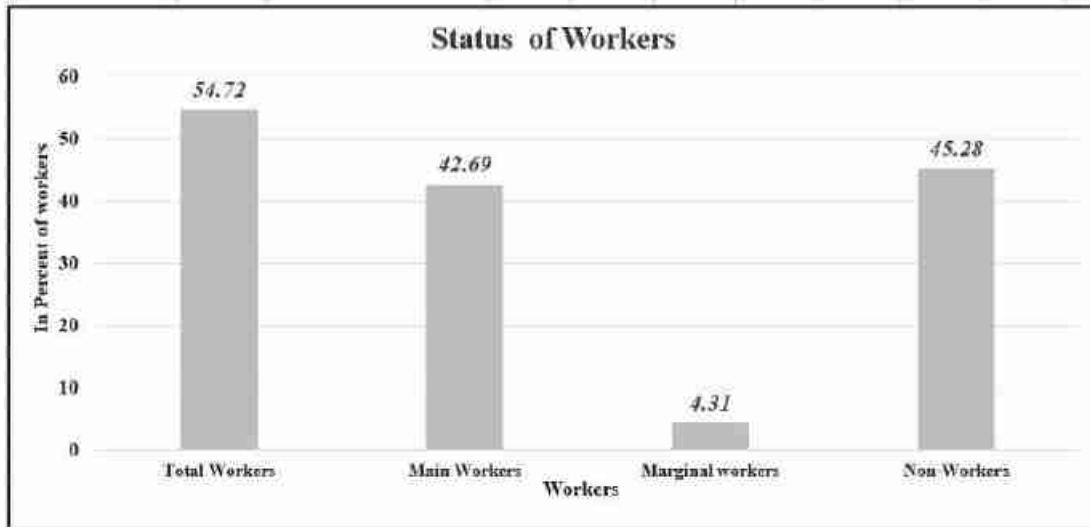


Figure 3.38 Working population in the study area

3.6.13 Population Projection of the Study Area

Tiruppur Population 2022 – 2023

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

Year	Projected Population (Estimated)	
	2011	2,479,052
2021	3,090,000	30.92 Lakhs
2022	3,150,000	31.57 Lakhs
2023	3,210,000	32.14 Lakhs
2024	3,260,000	32.63 Lakhs
2025	3,300,000	33.05 Lakhs
2026	3,340,000	33.41 Lakhs
2027	3,370,000	33.72 Lakhs
2028	3,390,000	33.99 Lakhs
2029	3,420,000	34.22 Lakhs
2030	3,440,000	34.42 Lakhs
2031	3,450,000	34.58 Lakhs

Source: <https://www.census2011.co.in/census/district/33-tiruppur.html>

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

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

Table 3.48 Total Population of Study Area

Sl No.	Population in 2001	Population in 2011
1	81,884	95,480

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

Table 3.49 Population Projection of Study Area

S. No	Year	Projected Population (Approximately)
1.	2021	109076
2.	2031	122672
3.	2041	136268
4.	2051	149864

Source: Calculated by SPSS V23 Linear Regression Method.

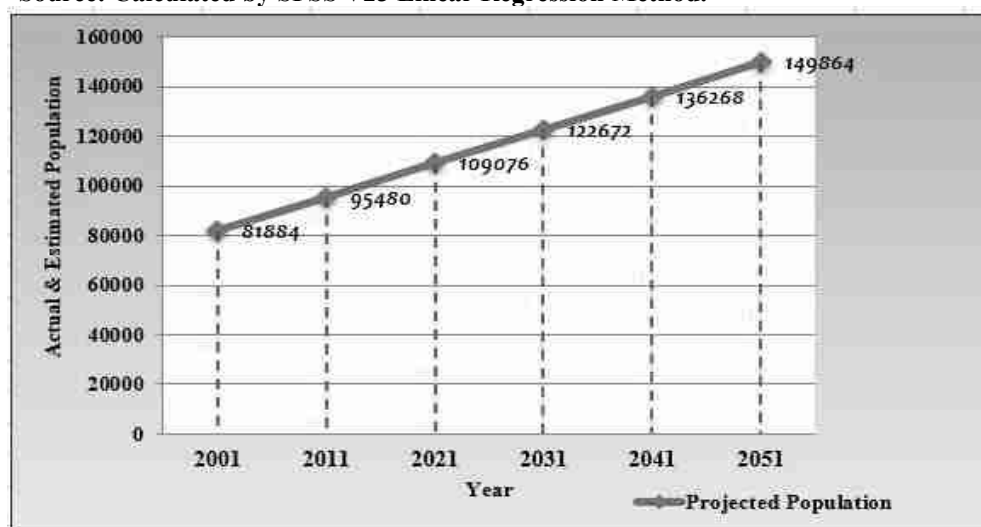


Fig 3.39 Graph Showing Population Projection

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>

3.6.14 Population Growth of the Study Area

Table 3.50 Population Growth rate in Study area

Year	Actual Population	Growth Rate %
2001	81,884	-
2011	95,480	11.66
2021	1,09,076	11.42
2031	1,22,672	11.25
2041	1,36,268	11.11
2051	1,49,864	11.00

Source: Compiled by Author-2024

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 81884 and 2011 it was 95480 if the population growth rate is 11.66%, it will approximately gradually an increase about 109076 in year 2021 and 149864 in the year of 2051. It has approximately population growth rate decline will be 11%.

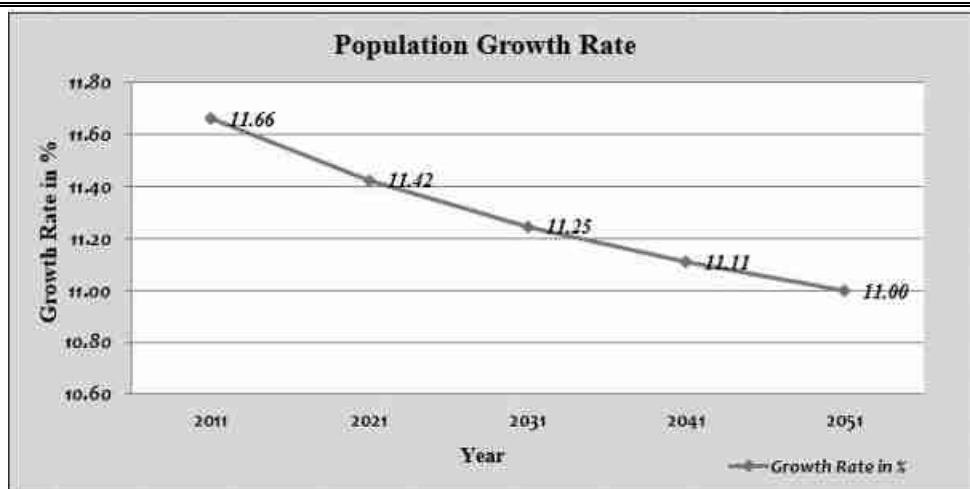


Fig.3.40 Graph Showing Population Growth Rate

Planning Analysis:

Calculating Growth Rates

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

Where:

PR=Percent Rate

$V_{Present}$ =Present or Future Value

V_{Past} = Past or Present Value

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

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>

3.6.15 Infrastructure Base

A. EDUCATION FACILITIES

Education and learning are one of the most important processes in today's society. Education is not just restricted to teaching a person the basic academics, say computers, mathematics, geography or history, education is a much larger term. It is really a means to discover new things which we don't know about and increase our knowledge. Government has provided educational facilities in each village instead some villages do not have school facility. According to census India handbook 2011, Primary Schools are nil every village and Middle, Secondary and Senior Secondary School (depend on population size) are available in some of the villages. It can be concluded from the available census data that people have to go far away from the villages for colleges and schooling. For higher education people have to migrate to the bigger cities. literacy details were collected from census India handbook 2011 and we observed. lack of Education. After analysing the literacy rate from census data, we found that literacy rate is good. The available educational structure for the population in the case study area is mentioned in the table below.

Table 3.51 Educational facilities in the study area

Zone	No. of Villages	Primary School	Middle School	Higher Secondary School	Govt.College
Primary Zone (0 - 3 Km)	2	1	0	0	-

Secondary Zone (3 - 7 Km)	3	3	1	2	-
Tertiary Zone (7 - 10 Km)	11	4	0	3	1
Study Area (10 Km)	16	8	1	5	1

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

B. HEALTH FACILITIES

Health is a premier asset of human capital which is an important factor for growth of any economy. It is a source of human welfare. Health and nutrition play a major role for developing a healthy society as it impacts the productivity of a person. The healthcare facilities in the study area consisted of Primary Health Centre (PHC), Primary Health Sub-Centre's (PHSC); Maternity and Child Welfare Centre (MCWS); Dispensaries and TB Clinic, Veterinary hospitals (VH), Non-Govt. medical facilities Medicine shops (MS), sub-centres and Primary Health Centres. As per the data of 10 km radius study area collected from Census India Handbook 2011, medical facilities are far below the basic need and patients have to move to Cities for any serious illness. So, the action plan which is to be prepared should focus on the more improvement of health facilities.

Table 3.52 Health/ Medical Facilities in the study area

Health/ Medical Facilities in the Surveyed Area										
Zone	No. of Villages	Community Health Centre	PHC/GH	Primary Health Sub Centre	Maternity Child welfare Centre	Hospital Allopathic	Dispensary/Health centres	Veterinary Hospital	Family welfare centres	Non-Government Medical Shop
Primary Zone (0 - 3Km)	2	0	-	0	0	0	0	0	0	1
Secondary Zone (3-7Km)	3	0	1	0	0	0	0	0	0	1
Tertiary Zone (7-10km)	11	1	1	0	1	1	1	1	1	5
Study Area (10 Km)	16	1	2	0	1	1	1	1	1	7

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

Electrification in the Area

The source of electricity is fulfilled by the Government. Most of the villages are electrified and power supply is good in the study area.

Drinking Water Facilities:

As per the data collected from census India handbook 2011, it has been noticed that the requirement of drinking water is being fulfilled by Well and handpumps and lakes. All villagers are availing drinking water facilities from Hand pumps. The drinking and domestic water sources are open wells and hand pumps, tanks.

Transport and Road Infrastructure Facilities

Villages have fare road connectivity and Private bus operators operate transport service in the villages. Road condition of the villages is fairly good and the area is well connected with state highways such as SH-96 located at 2km in Eastern direction connecting Chennimalai –Kankeyam Road. As per the survey, in some villages, there are proper roads with the bus stops available for the people convenience.

Electrification

All the villages surveyed in the study area were electrified. Electricity is available for the various domestic, non-domestic, industrial, agricultural and public lighting purposes. But being a rural area, the electric supply is discontinuous most of the times and is supplied in shifts (eight hours in the morning or evening).

ECONOMIC EXPOSURE AND DEVELOPMENT

Implementation of the project will make financial institutions as well as related economic facilities, infrastructure and services available to the people. This will expose and introduce the local population to factors of economic development including the banking system, financial services, and credit and investment schemes. The exposure will enable community members to invest their income and prevent dependency or living a life of “tomorrow will take care of itself”.

3.6.18 ADVERSE SOCIAL IMPACTS

▮ Health Impacts

The project has the potential for triggering health impacts through increased dust, creation of breeding grounds for disease vectors, population influx which might introduce new diseases in the area and inadequate sanitation facilities.

▮ Noise and Vibration

The mining activity is carrying out by eco-friendly surface miner without drilling & blasting. The noise & vibration is generated only for short time due to transportation of vehicles thus there is no major adverse impact has seen.

▮ Livelihood change

Due to the labour intensity of the mining sector, the project will attract the more able-bodied persons from the community which in turn will lead to low labour availability in other sectors of the economy including agricultural, education and health skilled workers. Local employment opportunities to be created by the project. This impact will not be significant due to low level of education and skills in the area which will result in sourcing skilled workforce from outside the immediate area. But the magnitude of this impact will be high due to high number of dependents in a household.

▮ Managing Loss of Livelihood and Income

To cushion the population against impacts of mine closure, comprehensive retrenchment packages that include adequate advance warning to employees and contractors to allow them to source alternative opportunities should be undertaken. Skills development programmes should also be undertaken well before the closure of the mines. However, adequate protection measures will be taken by the mine management to take care of environment and to guard against adverse environmental impact.

3.6.19 Inference of the Socio-economic Study

- The Socio-Economic study provides the clear picture of demographic as well as economic attributes such as population, average household size, working, non-working population, literacy rate, sex ratio, occupation etc.
 - Percentage of the male population is observed to be higher than women population with the study area. As observed, the majority of the villages are spatially distributed with the secondary zone of the study area. The sex ratio is 927 females of every 1000 males in the study area which is not very poor compared to the national sex ratio.
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- As far as the literacy rate is concerned, the study area has an average level as the literacy rate of people is growing.
- Vulnerable people are very low in the buffer zone area.

Morbidity Pattern

Morbidity rate refers to the rate at which a disease or illness occurs in a population and can be used to determine the health of a population and its healthcare needs. Illnesses can range from acute to chronic, long-lasting conditions. There is no such major morbidity pattern has been found in the area as per the data sources of the health department. Some minor morbidity may be seen like respiratory diseases were commonest morbidity followed by cataract, cardiovascular. As the age increases chances of getting morbidities were more. Also, water quality results of some of the villages indicates that there is fluoride content in the ground water which may lead to fluorosis disease among the population.

Recommendation and Suggestion

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

- Women empowerment– Home based income generation activities, vocational training programme, Common education centre for increase the literacy.
- Education – free uniform, construction of common rooms, secondary schools, colleges and library, computer education and physical education, additional schools for girls, furniture and equipment in schools to promote education.
- Vocational Trainings – establishment of a vocational training center within the villages with a curriculum designed to suit market demands. Vocational training for disability persons.
- Agriculture/livestock –infrastructure such as agriculture electric connections, assistance with buying improved tools and equipment, capacity building, supply and/or knowledge of better variety of seeds, pasture land development and trainings on animal husbandry& facility of veterinary doctor.
- Health – improvement in sanitary conditions of the villages, assistance with construction of latrines, improvement in drainage system, health camps and awareness campaigns for diseases like malaria, typhoid, tuberculosis, yellow fever and pneumonia. Repairing of PHCs and Aanganbadi centers, Provision of water tanks at discreet village locations for sanitation, extending health facility to needy amongst surrounding villages, ambulances to local health centres in improving facility to public health. Establishment of new PHCs and medicinal shops.
- Persons with disability: Establishment of center for special education, sensitization of the community towards disabled and awareness on Govt.
- Roads-- Laying of new roads and pucca roads in the study area which can increase in the transportation facilities.

3.6.20 CONCLUSION

The environment baseline study was conducted in the project area by both secondary data and primary data collections. Abiotic factors including air, water and soil were studied for the core and buffer zone. It was found that most of the parameters were within the limits as per the Standards. Similarly, the study for the biotic factors was conducted. It can be concluded that the present environment status of the study area is good enough for the project activity. Adoption of adequate pollution control measures will protect the surrounding environment.

Social Impact assessment study was also conducted during the study period which revealed that area further require improvement in the Economy, Employment 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 project Proponent will adopt adequate control measures to protect the surrounding environment and will contribute in social & economic development of the areas in vicinity & study area

3.6.20 Structure studies 300m radius



Fig.3.41 Structure map around 30m Radius

Table No 3.53 Structures details in the study area around 300m Radius

STRUCTURE ENUMURATION 0 - 50m							
Number of Structures - 1 No							
Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building/ Structure	Structure belongs to owner	Structure Not belongs to owner	Remarks
1	Mines Shed – 50m – NE	Used to store Mine equipment's and materials	Commercial	Nil	No	Yes	Used to Store

50 -100m radius
Number of Structures – Nil

STRUCTURE ENUMURATION 100-200m							
Number of Structures - 4 Nos							
Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building/ Structure	Structure belongs to owner	Structure Not belongs to owner	Remarks
1	Coconut Godown – 130m NE	Used to store coconuts	Commercial	Nil	No	Yes	Used to Store
2	Crusher Shed – 140m South	Used to store crusher materials and conveyors	Commercial	Nil	No	Yes	Used to Store
3	Crusher – 160m & 180m – SE & NW	Used to produce M-sand, P – Sand & Jelly	Industry	Nil	No	Yes	Working Time: 8 AM – 5 PM 6 Nos of Employees

STRUCTURE ENUMURATION 200 -300m							
Number of Structures - 4 Nos							
Structure Numbers	Type of Structure	Usage Purpose	Commercial / industry / residential / farm house / Govt. building	Occupants of Building/ Structure	Structure belongs to owner	Structure Not belongs to owner	Remarks
1	Shed – 200m & 250m – NW	Used to store agriculture goods and materials	Commercial	Nil	No	Yes	Used as store Room
2	Coir Factory– 230m NW	Used to manufacture Ropes & Flooring Material	Commercial	Nil	No	Yes	Persons Working: 8 Nos Working Time: 9 AM – 6 PM
3	Coconut Godown – 230m North	Used to store coconuts	Commercial	Nil	No	Yes	Used as store Room

4	Farmhouse – 270m North	Used to store agriculture materials	Commercial	Nil	No	Yes	Used to store materials
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Source: Primary data site visit, Tiruppur

3.6.20 CONCLUSION

The environment baseline study was conducted in the project area by both secondary data and primary data collections. Abiotic factors including air, water and soil were studied for the core and buffer zone. It was found that most of the parameters were within the limits as per the Standards. Similarly, the study for the biotic factors was conducted. It can be concluded that the present environment status of the study area is good enough for the project activity. Adoption of adequate pollution control measures will protect the surrounding environment.

Social Impact assessment study was also conducted during the study period which revealed that area further require improvement in the Economy, Employment 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 project Proponent will adopt adequate control measures to protect the surrounding environment and will contribute in social & economic development of the areas in vicinity & study area.

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.0 GENERAL

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

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

Several scientific techniques and methodologies are available to predict impacts of physical environment. Mathematical models are the best tools to quantitatively describe the cause-and-effect relationships between sources of pollution and different components of environment. In cases where it is not possible to identify and validate a model for a particular situation, predictions have been arrived at based on logical reasoning / consultation / extrapolation.

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

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

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

4.1 LAND ENVIRONMENT:

4.1.2 Anticipated Impact

- 0.10.11 Ha of the land will be under mining since the Permanent or temporary change on land use and land cover will occur
- 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 Mitigation Measures

- The 1.60.31Ha of the land will be converted into temporary reservoir which will full fill the water scarcity in the drought season and the nearby agriculture land will benefitted by the supply of water
- About 1000 Nos of trees will be planted in the lease area and approach road will retain the eco system
- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development in the production
- Construction of garland drains all around the quarry pits and construction of silt trap 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.,
- Fencing will be constructed before starting the mining operation and it will be maintained in 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

- Removal of vegetation cover
- Soil Erosion in the project site during rainy season due to quarry operation

4.1.5 Mitigation Measures

- Garland drains will be constructed all around the project boundary to prevent surface flows from entering the quarry. 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 (Silt pond). 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 is no waste anticipated in this Rough Stone and gravel quarriesing operation. The entire quarried out materials will be utilized (100%).

4.2 WATER ENVIRONMENT

4.2.1 Anticipated Impact

- The major sources of water pollution normally associated due to mining and allied operations are:
 - Generation of waste water from vehicle washing.
 - Washouts from surface exposure or working areas
 - Domestic sewage
 - Disturbance to drainage course in the project area
 - Mine Pit water discharge
- Increase in sediment load during monsoon in downstream of lease area
- This being a mining project, there will be no process effluent. Waste from washing of machinery may result in discharge of Oil & grease, suspended solids.

- The sewage from soak pit may percolate to the ground water table and contaminate it.
- Surface drainage may be affected due to Mining
- Abstraction of water may lead to depletion of water table
- 1.5 KLD water will be utilized for the quarrying operation

4.2.2 Mitigation Measures

- Water for the quarrying operation such as sprinkling on haul roads, Greenbelt development will be sourced from the lower part of the mine pit which is specifically allotted to collect the rain water.
- Garland drain, settling tank will be constructed along the proposed mining lease area. The Garland drain will be connected to settling tank and sediments will be trapped in the settling traps and only clear water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judiciously utilize the rainwater as part of rainwater harvesting system.
- 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.

4.3 AIR ENVIRONMENT

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 PM₁₀ & PM_{2.5} and emissions of Sulphur dioxide (SO₂) & Oxides of Nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

Similarly, loading - unloading and transportation of Rough Stone, 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.

Prediction of impacts on air environment has been carried out taking into consideration cumulative production all the quarries fall in the Cluster. Air environment and net increase in emissions by Open pit source modelling in AERMOD Software.

4.3.2.1 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 Rough Stone. 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.

4.3.2 Frame work of Computation & Model details

Suspended Particulate Matter (SPM) is the major pollutant occurred during quarrying activities. The prediction included the impact of Excavation, Drilling, Blasting (Occasionally), loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

Impact was predicted over the distance of 10 km around the source to assess the impact at each receptor separately at the various locations and maximum incremental GLC value at the project site. Maximum impact of PM₁₀ was observed close to the source due to low to moderate wind speeds. Incremental value of PM₁₀ was superimposed on the base line data monitored at the proposed site to predict total GLC of PM₁₀ due to combined impacts

TABLE 4.1: ESTIMATED EMISSION RATE -P1

PM ₁₀			
Activity	Source type	Value	Unit
Drilling	Point Source	0.089139295	g/s
Blasting	Point Source	0.001361321	g/s
Mineral Loading	Point Source	0.043114817	g/s
Haul Road	Line Source	0.002493768	g/s/m
Overall Mine	Area Source	0.052473310	g/s
SO ₂			
Activity	Source type	Value	Unit
Overall Mine	Area Source	0.00077658	g/s
NO _x			
Overall Mine	Area Source	0.000035516	g/s

TABLE 4.2: ESTIMATED EMISSION RATE -P2

PM ₁₀			
Activity	Source type	Value	Unit
Drilling	Point Source	0.100915546	g/s
Blasting	Point Source	0.002531657	g/s
Mineral Loading	Point Source	0.044036996	g/s
Haul Road	Line Source	0.002496504	g/s/m
Overall Mine	Area Source	0.073039058	g/s
SO ₂			
Activity	Source type	Value	Unit
Overall Mine	Area Source	0.001070069	g/s
NO _x			
Overall Mine	Area Source	0.000101021	g/s

FIGURE 4.1: AERMOD TERRAIN MAP

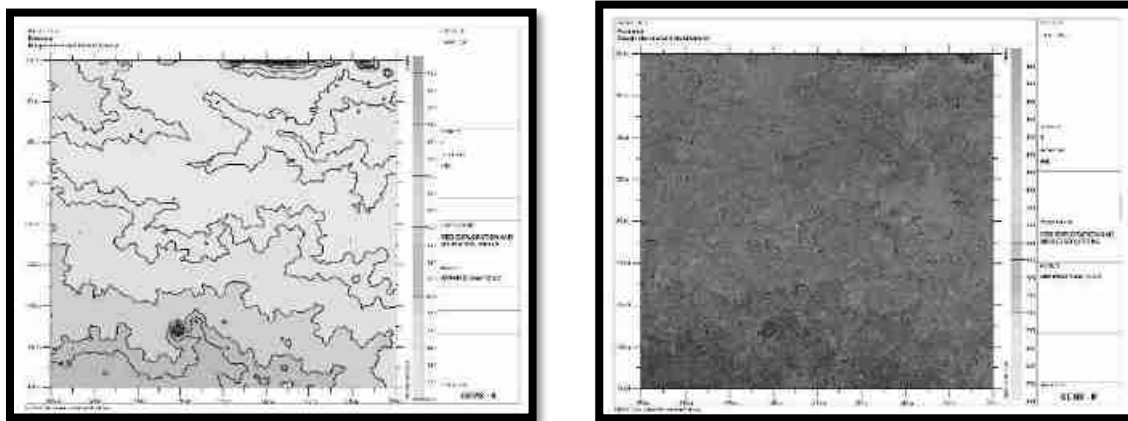


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀

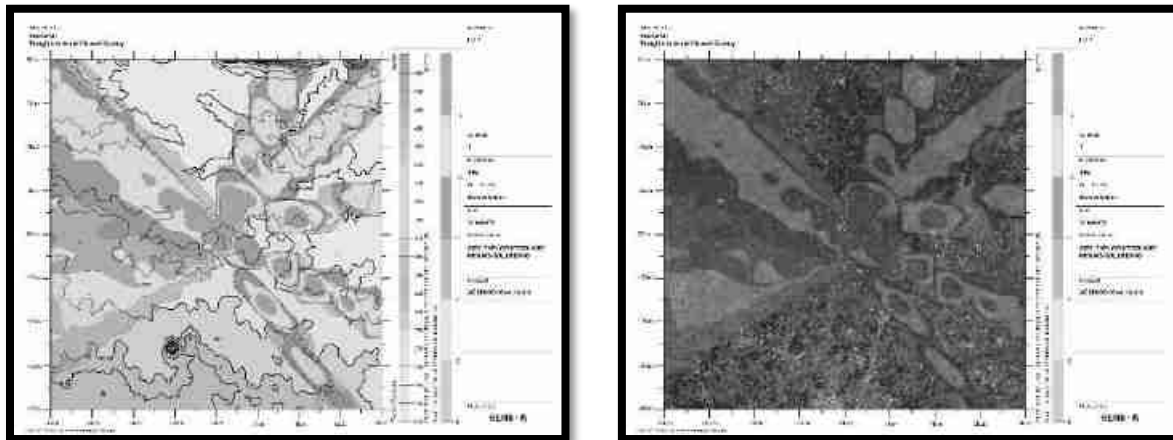


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM_{2.5}

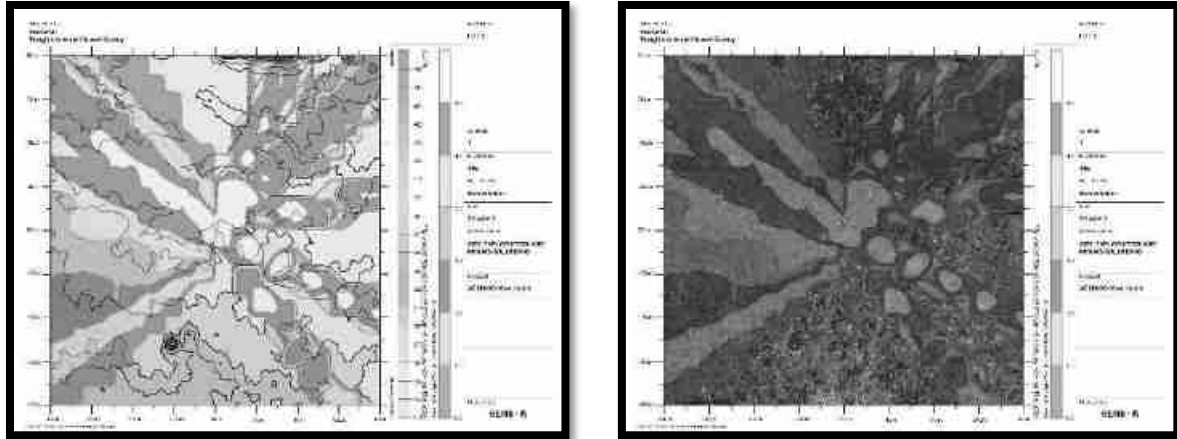


FIGURE 4.4: PREDICTED INCREMENTAL CONCENTRATION OF NOX

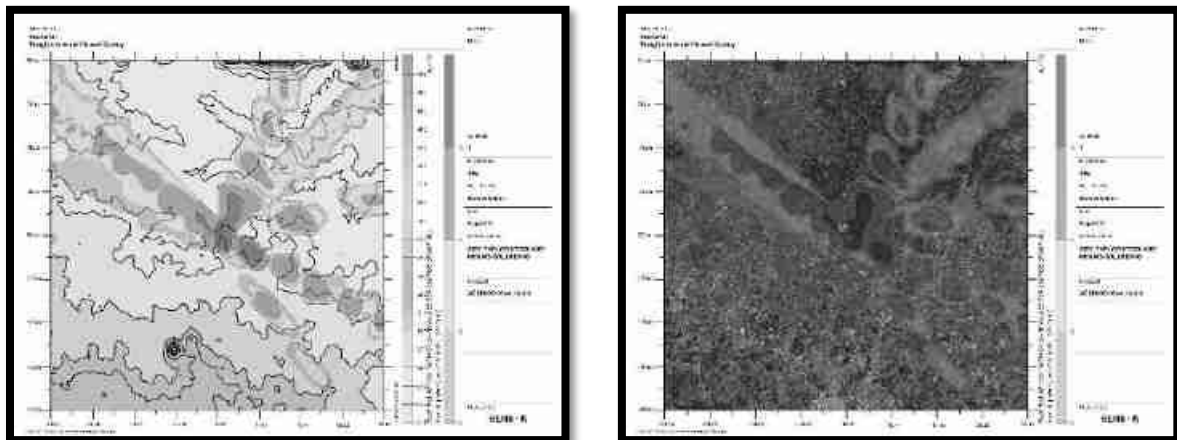


FIGURE 4.5: PREDICTED INCREMENTAL CONCENTRATION OF SO₂

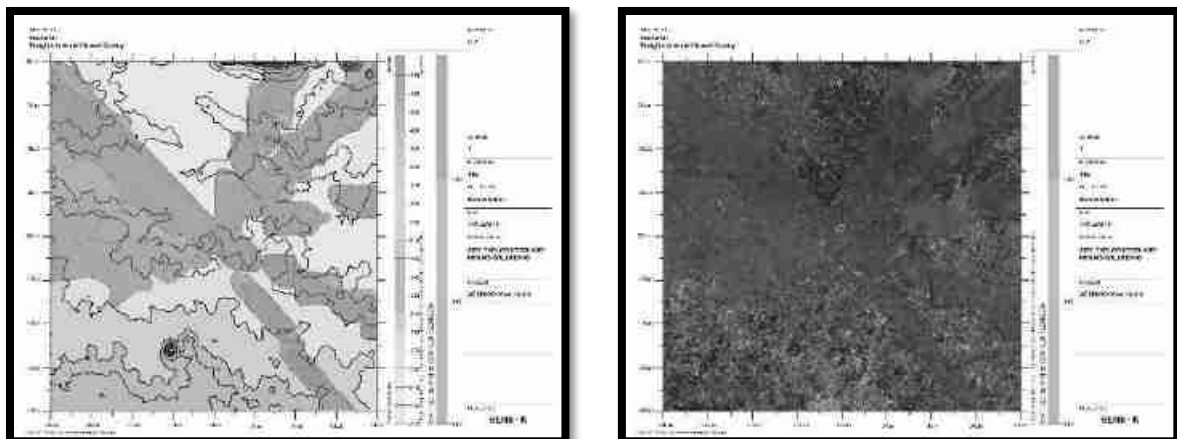
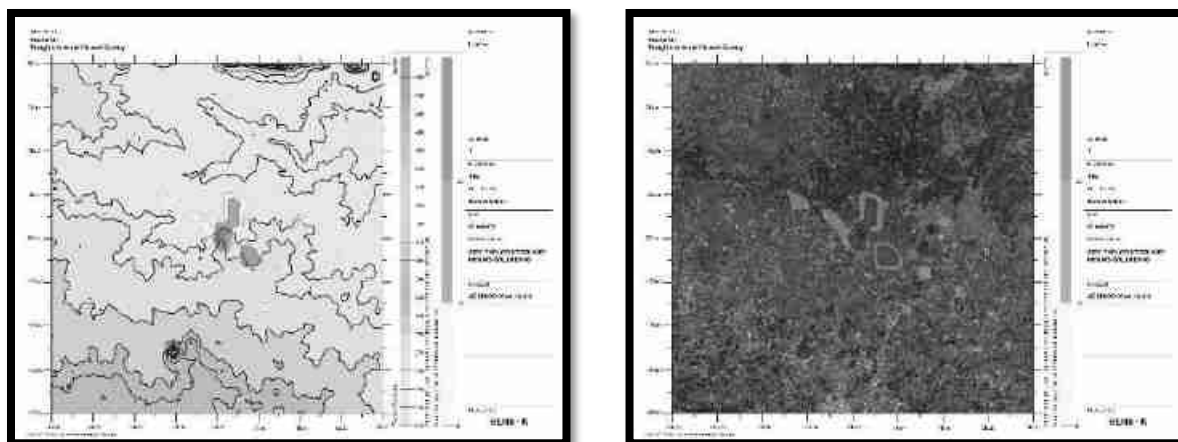


FIGURE 4.6: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST

4.3.2.1 Model Results

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

TABLE 4.3: INCREMENTAL & RESULTANT GLC OF PM₁₀

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM ₁₀ (µg/m ³)	Incremental value of PM ₁₀ due to mining (µg/m ³)	Total PM ₁₀ (µg/m ³)
AAQ1	11° 5'0.39"N 77°33'27.58"E	-50	58	45.8	13.87	59.7
AAQ2	11° 4'58.06"N 77°33'22.31"E	-212	-17	45.2	13.29	58.5
AAQ3	11° 4'38.19"N 77°33'1.60"E	-847	-631	45.3	9	54.3
AAQ4	11° 4'29.05"N 77°36'43.26"E	5945	-915	44.4	0	44.4
AAQ5	11° 5'36.66"N 77°30'29.39"E	-5506	1179	44.0	6.1	50.1
AAQ6	11° 1'57.13"N 77°33'45.38"E	498	-5616	44.0	0	44.0
AAQ7	11° 8'33.48"N 77°33'24.98"E	-127	6656	44.9	0	44.9

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

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline PM _{2.5} (µg/m ³)	Incremental value of PM _{2.5} due to mining (µg/m ³)	Total PM _{2.5} (µg/m ³)
AAQ1	11° 5'0.39"N 77°33'27.58"E	-50	58	21.6	5.73	27.4
AAQ2	11° 4'58.06"N 77°33'22.31"E	-212	-17	20.7	5.18	25.9
AAQ3	11° 4'38.19"N 77°33'1.60"E	-847	-631	21.3	4.22	25.6
AAQ4	11° 4'29.05"N 77°36'43.26"E	5945	-915	19.0	0	19.0
AAQ5	11° 5'36.66"N 77°30'29.39"E	-5506	1179	44.0	3.76	47.8
AAQ6	11° 1'57.13"N 77°33'45.38"E	498	-5616	44.3	0	44.3
AAQ7	11° 8'33.48"N 77°33'24.98"E	-127	6656	20.4	0	20.4

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF SO₂

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline SO ₂	Incremental value due to mining (µg/m ³)	Total SO ₂ (µg/m ³)
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				($\mu\text{g}/\text{m}^3$)		
AAQ1	11° 5'0.39"N 77°33'27.58"E	-50	58	5.8	1.64	7.4
AAQ2	11° 4'58.06"N 77°33'22.31"E	-212	-17	5.8	1.6	7.4
AAQ3	11° 4'38.19"N 77°33'1.60"E	-847	-631	4.7	1.3	6.0
AAQ4	11° 4'29.05"N 77°36'43.26"E	5945	-915	5.1	0	5.1
AAQ5	11° 5'36.66"N 77°30'29.39"E	-5506	1179	4.7	0.67	5.4
AAQ6	11° 1'57.13"N 77°33'45.38"E	498	-5616	4.7	0	4.7
AAQ7	11° 8'33.48"N 77°33'24.98"E	-127	6656	4.8	0	4.8

TABLE 4.6: INCREMENTAL & RESULTANT GLC OF NOX

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline NOx ($\mu\text{g}/\text{m}^3$)	Incremental value due to mining ($\mu\text{g}/\text{m}^3$)	Total NOx ($\mu\text{g}/\text{m}^3$)
AAQ1	11° 5'0.39"N 77°33'27.58"E	-50	58	22.4	8.5	30.9
AAQ2	11° 4'58.06"N 77°33'22.31"E	-212	-17	23.3	7.82	31.2
AAQ3	11° 4'38.19"N 77°33'1.60"E	-847	-631	24.1	1.39	25.5
AAQ4	11° 4'29.05"N 77°36'43.26"E	5945	-915	22.4	0	22.4
AAQ5	11° 5'36.66"N 77°30'29.39"E	-5506	1179	23.2	0	23.2
AAQ6	11° 1'57.13"N 77°33'45.38"E	498	-5616	23.2	0	23.2
AAQ7	11° 8'33.48"N 77°33'24.98"E	-127	6656	23.0	0	23.0

TABLE 4.7: INCREMENTAL & RESULTANT GLC OF PREDICTED GLC OF FUGITIVE AT RECEPTOR

Station Code	Location	X Coordinate (m)	Y Coordinate (m)	Average Baseline Fugitive ($\mu\text{g}/\text{m}^3$)	Incremental value of Fugitive due to mining ($\mu\text{g}/\text{m}^3$)	Total Fugitive ($\mu\text{g}/\text{m}^3$) (5+6)
AAQ1	11° 5'0.39"N 77°33'27.58"E	-50	58	68.08	25	93.1
AAQ2	11° 4'58.06"N 77°33'22.31"E	-212	-17	68.07	11	79.1
AAQ3	11° 4'38.19"N 77°33'1.60"E	-847	-631	66.00	0	66.0
AAQ4	11° 4'29.05"N 77°36'43.26"E	5945	-915	67.17	0	67.2
AAQ5	11° 5'36.66"N 77°30'29.39"E	-5506	1179	68.22	0	68.2
AAQ6	11° 1'57.13"N 77°33'45.38"E	498	-5616	67.67	0	67.7
AAQ7	11° 8'33.48"N 77°33'24.98"E	-127	6656	66.49	0	66.5

From the resultant of cumulative concentration i.e., Background + Incremental Concentration of pollutant in all the receptor locations without effective mitigation measures are still within the prescribed NAAQ limits of 100, 80 & 80 $\mu\text{g}/\text{m}^3$ for PM10, SO2 & NOX respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

4.3.4. Mitigation Measures

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

Advantages of Wet Drilling: -

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

Blasting –

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

Haul Road & Transportation –

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

Green Belt –

- 1210 Nos of trees will be planted through this project in the lease area and village roads (Approach road) 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

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 within 300m radius from the project site. Noise modelling has been carried out considering blasting and compressor operation (drilling) and transportation activities.

Predictions have been carried out to compute the noise level at various distances around the working pit due to these major noise-generating sources. Noise modelling has been carried out to assess the impact on surrounding ambient noise levels.

Basic phenomenon of the model is the geometric attenuation of sound. Noise at a point generates spherical waves, which are propagated outwards from the source through the air at a speed of 1,100 ft/sec, with the first wave making an ever-increasing sphere with time. As the wave spreads the intensity of noise diminishes as the fixed amount of energy is spread over an increasing surface area of the sphere. The assumption of the model is based on point source relationship i.e., for every doubling of the distance the noise levels are decreased by 6 dB (A).

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

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

Where:

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

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

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

4.4.1 Anticipated Impact

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

- Source data
- Receptor data
- Attenuation factor

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

TABLE 4.8: ACTIVITY AND NOISE LEVEL PRODUCED BY MACHINERY

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

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

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

TABLE 4.9: PREDICTED NOISE INCREMENTAL VALUES

Location ID	N1	N2	N3	N4	N5	N6	N7
Maximum Monitored Value (Day) dB(A)	48.3	49.7	45.9	43.2	49.5	47.10	44.90
Incremental Value dB(A)	60.1	58.5	40.8	24.5	25.3	25.3	23.8
Total Predicted Noise level dB(A)	60.4	59.1	47.1	43.3	49.5	47.1	44.9

The incremental noise level is found within the range of 66.1dB (A) in Core Zone and 23.8 – 58.5 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 are within permissible limits of Industrial area (core zone) & Residential area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.).

4.4.2 Mitigation Measures

The following noise mitigation measures are proposed for control of Noise

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

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 proposed project areas is listed in below table. The ground vibrations due to the blasting in the quarry are calculated using the empirical equation.

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

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

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	76	790-SW	0.369
P2	126	610-SW	0.837

FIGURE 4.7: GROUND VIBRATION PREDICTION-P1

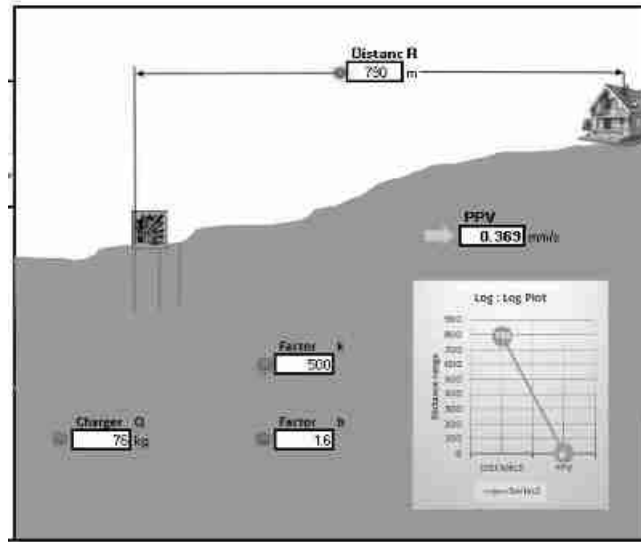
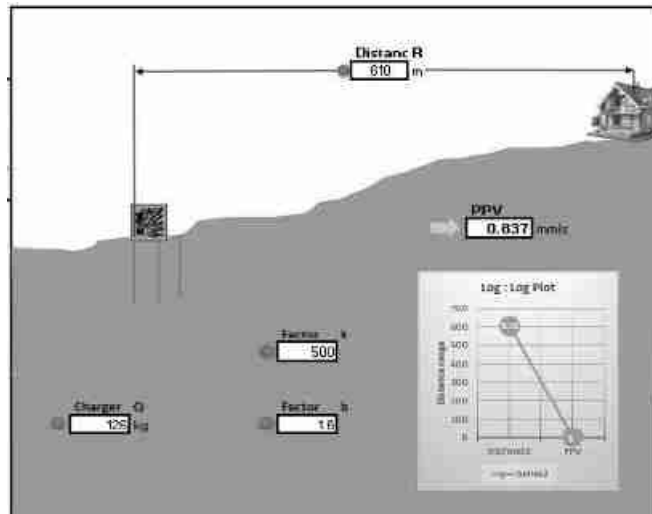


FIGURE 4.8: GROUND VIBRATION PREDICTION-P2



From the above graph, the charge per blast of 126kg 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. But the all the project proponents ensure that the charge per blast shall be less than 85 kg and carry out blasting twice or thrice a day based on the onsite conditions under the supervision of competent person employed. However, as per statutory

requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting.

4.4.3.1 Mitigation Measures

- It is proposed to carry out blasting operation 20kg per round so that the vibration will be minimal
- The mining operation will be carried out without deep hole drilling, 25mm small dia cartridge will be utilized for the blasting
- The blasting operations in the project site 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.
- 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 mm/s.
- Vibration monitoring will be carried out every 6 months to check the efficacy of blasting practices

4.5 Impact on the Biological Environment

4.5.1. Anticipated Impact on agricultural land associated with flora

1. Dust particle settle on neighbouring agricultural land & coconut farms it is located about 150m on the west side. Mostly dust emission from nearby crusher unit and during operation and minerals are transported in approach roads.
2. Dust deposition on leaf observed on nearby lease boundary local plant species which may result in decline the rate of photosynthesis and retards the plant growth.

4.5.2 Mitigation Measures

4.5.2.1. General Guidelines for Green Belt Development

Drone survey was covered the green belt and fencing as per the terms of references. The green belt and plantation purposes in and around the proposed mine lease area native species, fruit-bearing trees, medicinal plants, and dense canopy trees should be selected. These species should be tolerant to pollution levels as per Bio- Geography zones of India.

After the operation of mining production capacity, Green belt and Plantation species should be in accordance with the Terms and Conditions of the Environmental Clearance Green belt is created not only for the purpose of protecting sensitive areas or maintaining the ecological balance but because they also act as efficient biological filters or sinks for particulate and gaseous emissions, generated by vehicular movements and various industrial and mining activities. Optimally designed green belts can be effective in reducing the impact of fugitive emissions and pollutants accidentally or otherwise released at ground levels.

4.5.3.2. Proposed Green Belt

Extensive green belt development will be started during the construction phase, which will continue till the operation of the plant. About 1500-2000 trees will be planted per hectare all around the plant, approach roads, and township premises. Locally available types of trees that are resistant to pollutants will be planted. In addition to the above, all open spaces available within the premises will be developed as nurseries, parks, gardens, and other forms of greenery. 5 m wide greenbelt will be developed along the plant premises, as per land available.

4.5.3.3. Development of Green Belt

The plantation matrix adopted for the green belt development includes pit of 0.3 m x 0.3 m in size with a spacing of 2 m x 2 m. In addition, earth filling and manure may also be required for the proper nutritional balance and nourishment of the sapling. It is also recommended that the plantation has to be taken up randomly and the landscaping aspects could be taken into consideration. Multi-layered plantations comprising of medium height trees (7 m to 10 m) and shrubs (5 m height) are proposed for the green belt.

4.5.3.4. Selection of Plant Species for Green Belt Development

It is also recommended that the plantation has to be taken up randomly and the landscaping aspects could be taken into consideration. Multi-layered plantations comprising of medium height trees (7 m to 10 m) and shrubs (5 m height) are proposed for the green belt. Green belt is plantation of trees for reducing the air pollution as they absorb both gaseous and particulate pollutant, thus removing them from atmosphere. Green plants form a surface capable of absorbing air pollutants and forming sinks for pollutants. It improves the aesthetic value of local environment. Under present project, green belts have been planned with emphasis on creating biodiversity; enhance natural surroundings and mitigating pollution. Regional tree saplings in eco-friendly bags like *Pterocarpus marsupium*, *Pongamia pinnata*, *Limonia acidis sima*, and *Cassia roxburghii* will be planted along the Lease boundary and avenues as well as over non-active dumps with intervals 3m in between with the GPS Coordinates. The greenbelt development plan aims to overall improvement in the environmental conditions of the region Native plant species will be preferred.

- The species should be wind-firm and deep-rooted.
 - The species should form a dense canopy.
 - Fast-growing plants will be planted
 - Species tolerance to air pollution like SO₂ and NO₂ should be preferred.
 - Plants having large leaf area index will be considered
 - Soil improving plants (Nitrogen fixing rapidly decomposable leaf litter).
 - Attractive appearance with good flowering and fruit-bearing.
 - Birds and insects attract tree species.
 - Roadsides will be planted with local vegetation.
-

Table No 4.11. 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
10	Madhuca longifolia	Illupai maram

(*Source: Term of Reference-ToR)

Table No 4.12 Species suitable for abatement of noise and dust pollution

S. No	Botanical name	Common name
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
9	Delonix regia	Neruppu Kondrai
10	Cassia Fistula	Sara Kondrai

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

The above-suggested list covers species with thick canopy cover, perennial green nature, native origin, and a large leaf area index. The proposed species will help in forming an effective barrier between the mine site area and the surroundings.

These species need to be planted along the periphery of the lease area for absorb fugitive emissions and noise levels which is generated during mining activities. All the open spaces, where tree plantation may not be possible, should be covered with shrubs and grass to prevent erosion of topsoil.

4.5.4. Anticipated Impact on Fauna

- Noise generation due to vehicle may affect avifauna.
- The lease area is not inhabited by any wild life, as there is no forest cover, hence there will not be any effect on migration or extinction of wildlife.

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

4.5.4.1. 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. Impact on Aquatic Biodiversity

- The major lake along the project sites doesn't have a rich biodiversity and almost all the species of both fauna and flora listed are either least concerned or not evaluated.
- There is no impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.

Table No. 4.13. Overall Ecological impact assessments of Keeranur Village, Rough Stone and gravel quarries, Kangayam Taluk, Tiruppur District and Tamil Nadu.

S.No	Attributes	Assessment
	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	Nil
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.

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

TABLE 4.14: RECOMMENDED SPECIES FOR GREENBELT DEVELOPMENT PLAN

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

The 7.5m Safety distance along the boundary has been identified to be utilized for subsequent Afforestation. However, the afforestation should always be carried out in a systematic and scientific manner. Regional trees like Neem, Pongamia, Pinnata will be planted along the Lease boundary and avenue plantation will be carried out in the project site. The rate of survival expected to be 80% in this area. Greenbelt development Plan is given in

TABLE 4.15: GREENBELT DEVELOPMENT PLAN-P1

Year	No. of tress proposed to be planted	Considering survival rate of 80% additionally 20% of plantation is proposed	Area to be covered in m ²	Name of the species
I	1000	800	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development.	Neem, Pongamia Pinnata etc.,

TABLE 4.16: GREENBELT DEVELOPMENT PLAN-P2

Year	No. of tress proposed to be planted	Considering survival rate of 80% additionally 20% of plantation is proposed	Area to be covered in m ²	Name of the species
I	2220	1780	The safety zone along the boundary barrier has been identified to	Neem, Pongamia Pinnata etc.,

			be utilized for Greenbelt development.	
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4.6 Anticipated Impact on Socio-Economic Environment and Mitigation Measures

4.1 Construction Phase

Anticipated Impacts:

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

Mitigation measures:

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

4.2 Operation Phase:

Anticipated Impacts:

- ♣ Long term exposure to the pollutants such as PM, SO₂ and NO₂ Quarry dust have a potential to create health impacts such as risk of cardiovascular and respiratory disease, eye irritation, bronchitis, lung damage, increased heart ailments, etc.
- ♣ Other impacts, associated with the applied for Rough Stone and gravel quarries Project will create a positive impact as it will result in the overall development of the area in respect to the infrastructure development, educational growth, health facilities etc., as a part of the CSR activity.

Mitigation Measures:

- ♣ In order to mitigate the long-term health impacts, efficient Air Pollution Control Equipment (APCE) like Bag House / Bag Filter / ESP will be installed at all major stacks to keep the emissions within the permissible limits. To reduce

the gaseous emission, Pyro-process itself acts as a long SO₂ scrubber and De-NO_x system will be installed for fuel burning along with calciner for low NO_x formation. To reduce fugitive emission from vehicles and machineries will be regularly monitored and maintained.

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

4.3 Impact Evaluation:

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

Impact Evaluation Element	Impact on Socio economics due to the applied for Keeranur rough stone quarries over an extent of 10.45.38ha of Patta land of Keeranur Village, Kangeyam Taluk, Tiruppur District, Tamil Nadu State.			
Potential Effect/ Concern	Proposed project will provide direct & indirect employment opportunities to the local residents, which will help to increase their earning and better living standard as well as further up-liftment of socio-economic status of the area.			
Characteristics of Impacts				
Nature	Positive		Negative	Netural
	✓			
Type	Direct	Indirect	Cumulative	
			✓	
Extent	Project area	Local	Zonal	Regional
		✓		
Duration	Short time		Long term	
			✓	
Intensity	Low		Medium	High
			✓	
Frequency	Remote (R)	Occasional (O)	Periodic (P)	Continuous (C)
			✓	
Significance of Impact				
Significance	Insignificant	Minor	Moderate	Major
			✓	

4.7 OCCUPATIONAL HEALTH AND SAFETY

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

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

4.7.1 Respiratory Hazards

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

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

4.7.2 Noise

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

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

4.7.3 Physical Hazards

The following measures are proposed for control of physical hazards

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

4.7.4 Occupational Health Survey

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

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

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

4.8 MINE WASTE MANAGEMENT

No waste is anticipated, the entire mined out material will be sold to needy crushers and customers.

4.9 MINE CLOSURE-P1-P2

The ultimate depth of the mine is 45m bgl and the life of the mine is 5 years, after completion of mining operation the following action will be taken in the project site as a part of Mine closure plan -P1

- The total Mined out land would be around 0.10.11 Ha this land will be converted into temporary water reservoir which will facilitate to collect the rain water -P1
- The stagnant water will be supplied to the nearby agriculture land during drought seasons

- Fencing will be re constructed around the pit after closure, the warning/ danger display board will be placed on all the sides of the project site
- The un utilized area and haul roads will be converted as plantation area, fruit bearing trees will be planted to retain the eco system of the area
- Final Mine closure plan will be prepared and submitted to the concerned authority

The ultimate depth of the mine is 37m bgl and the life of the mine is 5 years, after completion of mining operation the following action will be taken in the project site as a part of Mine closure plan -P2

- The total Mined out land would be around 3.54.0 Ha this land will be converted into temporary water reservoir which will facilitate to collect the rain water -P2
- The stagnant water will be supplied to the nearby agriculture land during drought seasons
- Fencing will be re constructed around the pit after closure, the warning/ danger display board will be placed on all the sides of the project site
- The un utilized area and haul roads will be converted as plantation area, fruit bearing trees will be planted to retain the eco system of the area
- Final Mine closure plan will be prepared and submitted to the concerned authority

Mine closure plan is the most important environmental requirement in mining project. The mine closure plan should cover technical, environmental, social, legal and financial aspects dealing with progressive and post closure activities. The closure operation is a continuous series of activities starting from the decommissioning of the project.

As progressive mine closure is a continuous series of activities, it is obvious that the proposals of scientific mining have included most of the activities to be included in the closure plan. While formulating the closure objectives for the site, it is important to consider the existing or the pre-mining land use of the site; and how the operation will affect this activity.

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

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

4.9.1 Mine Closure Criteria

The criteria involved in mine closure are discussed below:

4.9.1.1 Physical Stability

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

4.9.1.2 Chemical Stability

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

pollutant concentrations exceeding the statutory limits for the water, soil and air qualities in the area around the closed mine.

4.9.1.3 Biological Stability

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

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

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

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

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.0 INTRODUCTION

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

5.1 FACTORS BEHIND THE SELECTION OF PROJECT SITE

The surrounding areas already undergone quarrying operation, there are 4-5 Crushers within the radius of 1km. Most of the quarries in the regions are abandoned and lease expired quarries. Hence this quarry will feed the Rough stone material to the crushing units.

The Rough Stone and gravel quarries Project for excavation of Rough Stone, which is site specific. The proposed mining lease areas have 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 areas.
- Availability of skilled, semi-skilled and unskilled workers in this region.
- All the basic amenities such as medical, firefighting, education, transportation, communication and infrastructural facilities are well connected and accessible.
- The mining operations will not intersect the ground water level. Hence, no impact on ground water environment.
- Study area falls in seismic zone – II, there is no major history of landslides, earthquake, subsidence etc., recorded in the past history.

5.2 ANALYSIS OF ALTERNATIVE SITE

No alternatives are suggested as all the mine sites are mineral specific

5.3 FACTORS BEHIND SELECTION OF PROPOSED TECHNOLOGY

The existing quarries in the area operated by Opencast Mechanised Mining operation with drilling and blasting method will be used to extract Rough Stone in the area. All the applied mining lease areas have following advantages –

- As the mineral deposition is homogeneous and batholith formation, therefore opencast method of working is preferred over underground method
- The material will be loaded 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 these projects. 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.

6. ENVIRONMENTAL MONITORING PROGRAMME

6.0 GENERAL

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

6.1 METHODOLOGY OF MONITORING MECHANISM

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

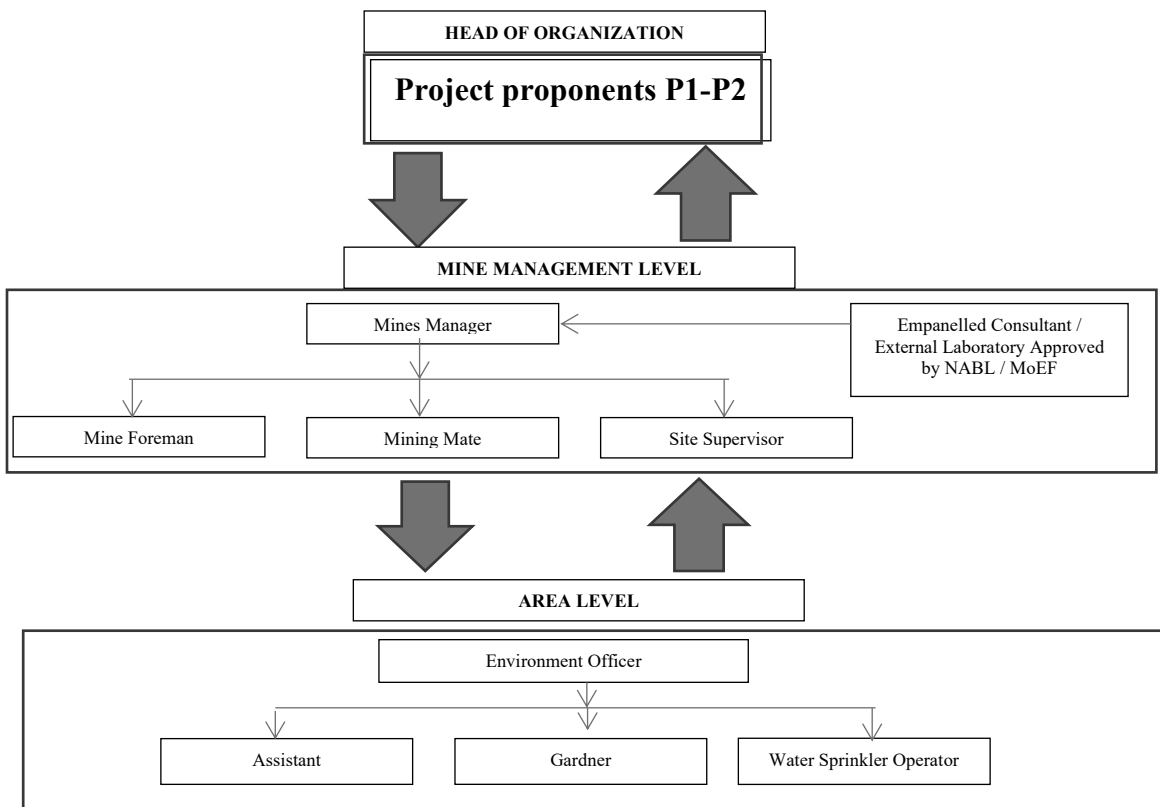
An Environment monitoring cell (EMC) will be constituted to monitor the implementation of EMP and other environmental protection measures in all the proposed quarries.

The responsibilities of this cell will be:

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

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

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

FIGURE 6.1: PROPOSED ENVIRONMENTAL MONITORING CELL P1

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

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

6.3 MONITORING SCHEDULE AND FREQUENCY

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 -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 BUDGETARY PROVISION FOR EMP

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

The proposed capital cost for Environmental Monitoring Programme is Rs 76,000/- and the recurring cost is Rs 3,80,000/- per annum for each Proposed Project.

TABLE 6.3 ENVIRONMENT MONITORING PROGRAM BUDGET

PROPOSAL – P1			
Sl.No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	Rs. 76,000/-	Rs. 76,000/-
2	Meteorology		
3	Water Quality		

4	Hydrology		
5	Soil Quality		
6	Noise Quality		
7	Vibration Study		
Total		Rs 76,000/-	Rs 76,000/-

Source: Approved Mining Plan

PROPOSAL – P2			
Sl.No.	Parameter	Capital Cost	Recurring Cost per annum
1	Air Quality	Rs. 76,000/-	Rs. 76,000/-
2	Meteorology		
3	Water Quality		
4	Hydrology		
5	Soil Quality		
6	Noise Quality		
7	Vibration Study		
Total		Rs 76,000/-	Rs 76,000/-

Source: Approved Mining Plan

6.5 REPORTING SCHEDULES OF MONITORED DATA

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

Periodical reports to be submitted to: -

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

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

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

7. ADDITIONAL STUDIES

7.0 GENERAL

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

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

7.1. PUBLIC CONSULTATION

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

7.2 RISK ASSESSMENT

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

The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad for all proposed projects. 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 these proposed 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, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations; Workers will be sent to the Training in the nearby Group Vocational Training Centre Entry of unauthorized persons will be prohibited; Fire-fighting and first-aid provisions in the mine office complex and mining area; Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use

			<p>Working of quarry, as per approved plans and regularly updating the mine plans;</p> <p>Cleaning of mine faces on daily basis shall be daily done in order to avoid any overhang or undercut;</p> <p>Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager;</p> <p>Maintenance and testing of all mining equipment as per manufacturer 's guidelines.</p>
2	Drilling	<p>Improper and unsafe practices</p> <p>Due to high pressure of compressed air, hoses may burst</p> <p>Drill Rod may break</p>	<p>Safe operating procedure established for drilling (SOP) will be strictly followed.</p> <p>Only trained operators will be deployed.</p> <p>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,</p> <p>Drilling shall not be carried on simultaneously on the benches at places directly one above the other.</p> <p>Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment as per operator manual.</p> <p>All drills unit shall be provided with wet drilling shall be maintained in efficient working in condition.</p> <p>Operator shall regularly use all the personal protective equipment.</p>
4	Blasting	<p>Fly rock, ground vibration, Noise and dust.</p> <p>Improper charging, stemming & Blasting/fining of blast holes</p> <p>Vibration due to movement of vehicles</p>	<p>Restrict maximum charge per delay as per regulations and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blasting can be conducted safely.</p> <p>SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation</p> <p>Shots are fired during daytime only.</p> <p>All holes charged on any one day shall be fired on the same day.</p> <p>The danger zone will be distinctly demarcated (by means of red flags)</p>
5	Transportation	<p>Potential hazards and unsafe workings contributing to accident and injuries</p> <p>Overloading of material</p> <p>While reversal & overtaking of vehicle</p>	<p>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.</p> <p>Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle.</p> <p>Concave mirrors should be kept at all corners</p> <p>All vehicles should be fitted with reverse horn with one spotter at every tipping point</p> <p>Loading according to the vehicle capacity</p> <p>Periodical maintenance of vehicles as per operator manual</p>

		Operator of truck leaving his cabin when it is loaded.	
6	Natural calamities	Unexpected happenings	Escape Routes will be provided to prevent inundation of storm water Fire Extinguishers & Sand Buckets
7	Failure of Mine Benches and Pit Slope	Slope geometry, Geological structure	Ultimate or over all pit slope shall be below 60° and each bench height shall be 5m height.

Source: Analysed and Proposed by FAE & EC

7.3 DISASTER MANAGEMENT PLAN

Natural disasters like Earthquake, Landslides have not been recorded in the past history as the terrain is categorized under seismic zone II. The area is far away from the sea hence the disaster due to heavy floods and tsunamis are not anticipated

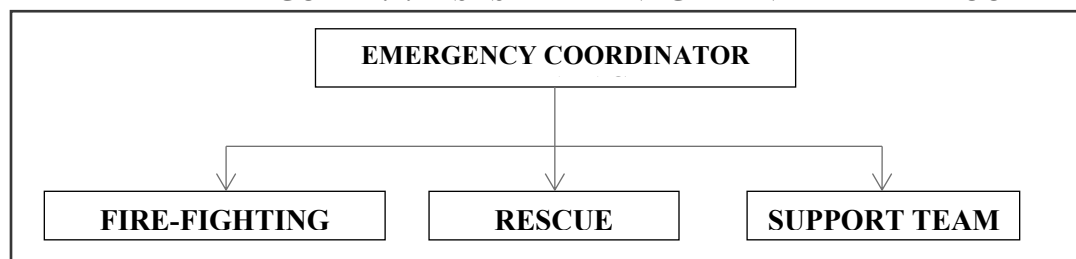
The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

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

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

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

FIGURE 7.1: DISASTER MANAGEMENT TEAM LAYOUT



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

TABLE 7.2: PROPOSED TEAMS TO DEAL WITH EMERGENCY SITUATION

DESIGNATION	QUALIFICATION
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 and shall be located at MECR.

(b) Incident controller (IC)

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

(c) Communication and advisory team

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

(d) Roll call coordinator

The Mine Foreman shall be 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 has been proposed at strategic locations within the mine.

TABLE 7.3: PROPOSED FIRE EXTINGUISHERS AT DIFFERENT LOCATIONS

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.

7.4 CUMULATIVE IMPACT STUDY

For easy representation of Proposed and Existing Quarries in the Cluster are given unique codes and identifies and studied in this EIA /EMP Report.

TABLE 7.4: LIST OF QUARRIES WITHIN 500 METER RADIUS

PROPOSED QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
P1	Thiru.B. Vishnu Kumar, S/o. Balasubramaniam, No.4/114-G, Sedarpalayam, Vavipalayam, Tiruppur District – 641 666	Keeranur	441/A1 (P), A2 (P), A3 (P) & A4 (P)	2.00.21	Lr.No.SEIAA- TN/F.No.10458/ToR- 1627/2023 Dated: 12.12.2023.
P2	Thiru.P.Sasikumar, S/o. Palanisamy, No. 5/257, Keeranur Village, Kangayam Taluk, Tiruppur District – 638 701	Keeranur	449 (P) & 450	4.44.0	Lr No.SEIAA- TN/F.No.9456/SEAC/ 1(a) ToR-1692/2024 Dated: 23.04.2024
P3	Thiru.P. Sasikumar, S/o. Palanisamy, No. 5/257, Keeranur Village, Kangayam Taluk, Tiruppur District – 638 701	Keeranur	442(P)	2.00.0	File No.: 8549 EC Granted on 25.03.2024
TOTAL EXTENT				8.44.21	
EXISTING QUARRIES					
CODE	Name of the Owner	Village	S.F. Nos	Extent in Ha	Status
E-1	S.P.Balasubramaniam	Keeranur	603/3 (P), 603/4(P)	2.01.17	01.10.2018 to 30.09.2023
TOTAL EXTENT				2.01.17	
EXPIRED QUARRIES					
Ex-1	C.P.Velusamy			2.15.0	
Ex-2	Thiru.N.Subramaniam			2.15.0	
Ex-3	Thiru.A.M.Palanisamy			2.41.0	
TOTAL EXTENT				6.71.0	
TOTAL CLUSTER EXTENT				10.45.38ha	

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

TABLE 7.5: SALIENT FEATURES OF PROPOSAL "P1"

Name of the Project	Thiru. B. Vishnu Kumar Rough Stone and gravel quarries		
S.F. No.	441/A1 (P), A2 (P), A3 (P) & A4 (P)		
Extent	2.00.21 ha		
Village Taluk and District	Keeranur Village, Kangayam Taluk, Tiruppur District.		
Land Type	It is a patta lands, registered in the name of the applicant (Thiru.B. Vishnu Kumar) vide patta no. 3902 and Tmt B. Vijay Lakshmi, vide patta no.556,508 & 518. The applicant has obtained consent from the pattadhars.		
Previous history	The lease was previously operated by Tmt. B. Vijaylakshmi vide proceeding No.Rc.No.166/Mines/2011, dated:03.07.2012 and lease period from 03.07.2012 to 02.07.2017 at S.F.Nos. 441/A1,441/A2 & 441/A3 (Extent :2.78.0 ha. A penalty of Rs.32,86,890/- has been levied and amount paid by Tmt. B. Vijaylakshmi		
Existing Pit Dimensions	68m (L)*23m (W)*12m (D) bgl		
Toposheet No	58-E/12		
Latitude between	11° 04' 56.20"N to 11° 05' 02.05"N		
Longitude between	77° 33' 27.55"E to 77° 33' 33.06"E		
Elevation of the area	282m AMSL		
Lease period/Mining Plan period	5 years		
Proposed Depth of Mining	45m bgl (2m Gravel + 3m weathered rock+ 40m Rough stone)		
Geological Resources	Rough Stone in m ³	Weathered Rock m ³	Gravel m ³
	7,94,365	55,770	36,894
Mineable Reserves	2,64,320	42,480	30,240
Year wise Production	2,64,320	42,480	30,240
Peak Production	61,120	18,054	13,680
Ultimate Pit Dimension	126m (L) x 131 (W) x 45m(D) bgl		
Water Level in the region	58 m bgl		
Method of Mining	Opencast Mechanized Mining Method involving drilling and Controlled blasting using Slurry Explosives		
Topography	The lease applied area is plain terrain. The area has gentle sloping towards Northeastern side and altitude of the area is 282m above from Mean sea level. The area is covered by 2m thickness of Gravel,3m of weathered rock and followed by Massive Charnockite is found after 5m(2m Gravel + 3m weathered rock)which is clearly inferred from existing quarry pit.		
Machinery proposed	Jack Hammer	6 Nos	
	Compressor	2 No	
	Excavator with Bucket and Rock Breaker	2No	
	Tippers	4 Nos	
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.		
Proposed Manpower Deployment	32 Nos		
Project Cost	Rs. 73,48,000/-		
EMP Cost	Rs. 3,80,000/-		
Total Project cost	Rs. 77,28,000/-		
CER Cost	Rs. 5,00,000/-		
Nearby Water Bodies	Noyyal River	3Km N	
	Karaikattupudur Eri	3.5km SW	
	Odai	4Km SE	
	Tank	7.5Km NW	
	Canal	6Km N	
	Palatholuvu Kulam	9Km NW	

Greenbelt Development Plan	Proposed to plant 1000 Nos of trees considering 500 Nos of trees/ Ha criteria. The plantation will be developed around the project site and nearby village roads
Proposed Water Requirement	1.0 KLD
Nearest Habitation	790m – S.West
Nearest Reserve Forest	Chennimalai – 7.43 km –North (Source - TNGIS)
Nearest Wild Life Sanctuary	Vellode Birds Sanctuary -20.5km-North East

Source: Approved Mining Plan

TABLE 7.6: SALIENT FEATURES OF PROPOSAL “P2”

Name of the Project	Thiru. P. Sasi Kumar Rough Stone Quarry	
S.F. No.	449(P) & 450	
Extent	4.44.0 ha	
Village Taluk and District	Keeranur Village, Kangayam Taluk, Tiruppur District.	
Land Type	It is a patta lands, registered in the name of the applicant (Thiru.P. Sasi Kumar).	
Previous history	The lease was previously operated by Tmt. B. Vijaylakshmi vide proceeding No.Rc.No.166/Mines/2011, dated:03.07.2012 and lease period from 03.07.2012 to 02.07.2017 at S.F.Nos. 441/A1,441/A2 & 441/A3 (Extent :2.78.0 ha. A penalty of Rs.32,86,890/- has been levied and amount paid by Tmt. B. Vijaylakshmi	
Existing Pit Dimensions	210m (L)*220m (W)*12m (D) bgl	
Toposheet No	58-E/12	
Latitude between	11° 04' 45.60"N to 11° 04' 53.95"N	
Longitude between	77° 33' 19.87"E to 77° 33' 29.50"E	
Elevation of the area	273m AMSL	
Lease period/Mining Plan period	5 years	
Proposed Depth of Mining	37m bgl (2m Gravel + 35m Rough stone)	
Geological Resources	Rough Stone in m ³	Gravel m ³
	11,64,716	2,552
Mineable Reserves	6,76,350	-
Year wise Production	4,52,430	-
Peak Production	92,430	-
Ultimate Pit Dimension	210m (L) x 220 (W) x 37m(D) bgl	
Water Level in the region	65 m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is flat terrain. The area has gentle sloping towards West side and altitude of the area is 273m above from Mean sea level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite is found after 2m Gravel which is clearly inferred from existing quarry pit.	
Machinery proposed	Jack Hammer	10 Nos
	Compressor	3 No
	Excavator with Bucket and Rock Breaker	2 No
	Tippers	5 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	40 Nos	
Project Cost	Rs. 75,56,000/-	

EMP Cost	Rs. 3,80,000/-	
Total Project cost	Rs. 79,36,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Noyyal River	3.1Km N
	Karaikattupudur Eri	3.2Km W
	Odai	3.9Km SE
	Tank	7.5Km NW
	Canal	6Km NE
	Palatholuvu Kulam	9.1Km NW
Greenbelt Development Plan	Proposed to plant 2,220 Nos of trees considering 500 Nos of trees/ Ha criteria. The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	2.0 KLD	
Nearest Habitation	610m – SW	
Nearest Reserve Forest	Chennimalai – 7.65 km –North (Source - TNGIS)	
Nearest Wild Life Sanctuary	Vellode Birds Sanctuary -21 km-North East	

Source: Approved Mining Plan

TABLE 7.7: SALIENT FEATURES OF PROPOSAL “P3”

Name of the Project	Thiru. P. Sasikumar Rough Stone Quarry	
S.F. No.	442 (P)	
Extent	2.00.0 ha	
Village Taluk and District	Keeranur Village, Kangayam Taluk, Tiruppur District.	
Land Type	It is a Patta land. S.F.No.442 is registered in the name of the applicant (Thiru.P.Sasikumar), vide Patta No.1341. Refer Annexure No. IV.	
Existing Quarry details	It is a fresh lease application of Rough Stone and gravel quarries Project in Keeranur village.	
Toposheet No	58-E/12	
Latitude between	11°04'52.40"N to 11°04'57.75"N	
Longitude between	77°33'27.41"E to 77°33'33.38"E	
Elevation of the area	273m AMSL	
Lease period/Mining Plan period	10 years	
Proposed Depth of Mining	42m (2m Gravel + 40m Rough stone)	
Geological Resources	Rough Stone in m ³	Gravel m ³
	39,904	-
Mineable Reserves	30,888	-
Year wise Production	2,87,800	30,888
Peak Production	29,290	15,642
Ultimate Pit Dimension	210m (L) x 220 (W) x 37m(D) bgl	
Water Level in the region	62-58m bgl	
Method of Mining	Opencast Mechanized Mining Method involving drilling and Controlled blasting using Slurry Explosives	
Topography	The lease applied area is flat terrain. The area has gentle sloping towards West side and altitude of the area is 273m above from Mean sea level. The area is covered by 2m thickness of Gravel and followed by Massive Charnockite is found after 2m Gravel which is clearly inferred from existing quarry pit.	
Machinery proposed	Jack Hammer	10 Nos
	Compressor	3 No
	Excavator with Bucket and Rock Breaker	2 No

	Tippers	5 Nos
Blasting Method	Controlled Blasting Method by shot hole drilling and small dia of 25mm slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling is proposed.	
Proposed Manpower Deployment	24Nos	
Total Project cost	Rs. 74,25,000/-	
CER Cost	Rs. 5,00,000/-	
Nearby Water Bodies	Noyyal River	3.0Km N
	Orathuppalayam Reservoir	2.5km NW
Greenbelt Development Plan	Proposed to plant 1000 Nos of trees considering 500 Nos of trees/ Ha criteria. The plantation will be developed around the project site and nearby village roads	
Proposed Water Requirement	4.3 KLD	
Nearest Habitation	960m – SW	

TABLE 7.8: SALIENT FEATURES OF PROPOSAL “E1”

Name of the Quarry	S.P.Balasubramaniam Rough Stone & Gravel Quarry	
Toposheet No	58- F/01	
Latitude between	11° 4'52.58"N to 11° 4'58.46"N	
Longitude between	77°33'22.90"E to 77°33'25.25"E	
Method of Mining	Opencast Mechanized Mining Method involving drilling and blasting	
Machinery proposed	Jack Hammer	5 Nos
	Compressor	1 No
	Hydraulic Excavator	1 No
	Tippers	1Nos
Proposed Manpower Deployment	15	
Nearest Habitation	610m-W	

Source: Draft EIA Report

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.

Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.16 & 7.17.

TABLE 7.9: CUMULATIVE PRODUCTION LOAD OF ROUGH STONE

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
P1	2,64,320	52,864	176	15
P2	4,52,430	90,486	302	25
P3	2,87,800	57,560	192	16
Total	10,04,550	2,00,910	670	56
E1	96,560	19,312	64	5
Total	96,560	19,312	64	5
Grand Total	11,01,110	22,0222	734	61

TABLE 7.10: CUMULATIVE PRODUCTION LOAD OF GRAVEL

Quarry	Production for three-year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1	30,240	10,080	34	3
P2	-	-	-	-
P3	30,888	10,296	34	3
Total	61,128	20,376	68	6
PROPOSED PRODUCTION OF GRAVEL				
E1	9,656	3,219	11	1
Total	9,656	3,219	11	1
Grand Total	70,784	23,595	79	7

TABLE 7.11: CUMULATIVE PRODUCTION LOAD OF WEATHERED ROCK

Quarry	Production during three-year plan period	Per Year Production in m ³	Per Day Production in m ³	Number of Lorry Load Per Day
P1	42,480	14,160	47	4
P2	-	-	-	-
P3	-	-	-	-
Total	42,480	14,160	47	4

On a cumulative basis considering the proposed quarries, it can be seen that the overall production of Rough Stone is 670m³ per day and overall production of Gravel is 68 m³ per day with a capacity of 56trips of Rough Stone per day and 6 Trips per day of Gravel and weathered rock 4Trips per day from the cluster.

Note: Per day production of Rough Stone is calculated for 5 Years Lease Period and for Gravel production with 3 years, Weathered rock 3 years of production period. And the load of existing quarries is covered under existing environment of the cluster.

Based on the above production quantities the emissions due to various activities in all the 2 mines includes various activities like ground preparation, excavation, handling and transport of ore. These activities have been analysed systematically basing on USEPA-Emission Estimation Technique Manual, for Mining AP-42, to arrive at possible emissions to the atmosphere and estimated emissions are given in Table 7.18.

TABLE 7.12: EMISSION ESTIMATION FROM QUARRIES WITHIN 500 METER RADIUS

EMISSION ESTIMATION FOR QUARRY "P1"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.089139295	g/s
	Blasting	Point Source	0.001361321	g/s
	Mineral Loading	Point Source	0.043114817	g/s
	Haul Road	Line Source	0.002493768	g/s/m
	Overall Mine	Area Source	0.052473310	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.00077658	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000035516	g/s
EMISSION ESTIMATION FOR QUARRY "P2"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.100915546	g/s
	Blasting	Point Source	0.002531657	g/s
	Mineral Loading	Point Source	0.044036996	g/s
	Haul Road	Line Source	0.002496504	g/s/m
	Overall Mine	Area Source	0.073039058	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.001070069	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000101021	g/s
EMISSION ESTIMATION FOR QUARRY "P3"				
	Activity	Source type	Value	Unit
Estimated Emission Rate for PM ₁₀	Drilling	Point Source	0.071487482	g/s
	Blasting	Point Source	0.000451611	g/s
	Mineral Loading	Point Source	0.040972453	g/s
	Haul Road	Line Source	0.002489133	g/s/m
	Overall Mine	Area Source	0.051502043	g/s
Estimated Emission Rate for SO ₂	Overall Mine	Area Source	0.000455855	g/s
Estimated Emission Rate for NO _x	Overall Mine	Area Source	0.000020581	g/s

Source: Emission Calculation

TABLE 7.13: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM₁₀ in µg/m³	
Background	45.8
Incremental	13.87
Resultant	59.7
NAAQ Norms	100 µg/m³
PM_{2.5} in µg/m³	
Background	21.6
Incremental	5.73
Resultant	27.4
NAAQ Norms	60 µg/ m³
So₂ in µg/m³	
Background	5.8
Incremental	1.64
Resultant	7.4
NAAQ Norms	80 µg/ m³
No₂ in µg/m³	
Background	22.4

Incremental	8.5
Resultant	30.9
NAAQ Norms	80 µg/ m³

Noise Environment –

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

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

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

Where:

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

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

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

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

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

TABLE 7.14: PREDICTED NOISE INCREMENTAL VALUES FROM CLUSTER

Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Habitation Near P1	48.3	42.1	49.2	55
Habitation Near P2	49.7	44.4	50.8	
Habitation Near P3	41.70	37.5	43.1	

Source: Lab Monitoring Data

The incremental noise level is found within the range of 37.5 – 44.4 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 3 Mines 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 3 mines 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 nearby the

mining areas and may cause injury to persons or damage to the structures. Nearest Habitations from 6 mines respectively are as in below Table 7.21.

TABLE 7.15: NEAREST HABITATION FROM EACH MINE

Location ID	Distance & Direction
Habitation Near P1	790m-SW
Habitation Near P2	610m-SW
Habitation Near P3	960m-SW
Habitation Near E1	610m West

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 7.16: GROUND VIBRATIONS AT 3 MINES

Location ID	Maximum Charge in kgs	Nearest Habitation in m	PPV in m/ms
P1	76	790-SW	0.369
P2	126	610-SW	0.837
P3	83	960m-SW	0.290

Source: Blasting Calculations

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 6 mines shall contribute towards CER and the community shall develop.

TABLE 7.17: SOCIO ECONOMIC BENEFITS FROM 3 MINES

Location ID	Project Cost	CER
P1	Rs. 77,28,000/-	Rs.5,00,000
P2	Rs. 79,36,000/-	Rs.5,00,000
P3	Rs. 74,25,000/-	Rs. 5,00,000
Total	Rs. 2,30,89,000/-	Rs.15,00,000

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.

- Proposed Projects shall fund towards CER – **Rs 15,00,000/-**

TABLE 7.18: EMPLOYMENT BENEFITS FROM 3MINES

Description	Employment
P1	32
P2	40

P3	24
Total	96

A total of 96 people will get employment due to 3 proposed mines

TABLE 7.19: GREENBELT DEVELOPMENT BENEFITS FROM 6 MINES

CODE	No of Trees proposed to be planted	Survival %	Area Covered Sq.m	Name of the Species
P1	1,000	80%	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development	Neem, Casuarina, etc
P2	2,220			
P3	1,000			
Total	4,220			

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 4,220 Trees Planted over a period of 5 Years with Survival Rate of 80%.

7.5 PLASTIC WASTE MANAGEMENT PLAN

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 7.20: 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

8.PROJECT BENEFITS

8.0 GENERAL

The Proposed Project for Quarrying Rough Stone and gravel at Keeranur Village aims to produce Cumulatively 7,16,750 m³ Rough Stone over a period of 5 Years and Gravel 30,240 m³ and weathered rock 42,480 m³ for 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 72 persons for carrying out mining operations and give preference to the local people in providing employment in the three proposed quarries in the cluster. 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 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 quarries are located in Keeranur Village, Kangeyam Taluk and Tiruppur District of Tamil Nadu and the area have communications, roads and other facilities already well established. The following physical infrastructure facilities will further improve due to proposed mine.

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

8.4 IMPROVEMENT IN SOCIAL INFRASTRUCTURE

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

8.5 OTHER TANGIBLE BENEFITS

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

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

CORPORATE SOCIAL RESPONSIBILITY

The Project Proponent 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.

CSR Cost Estimation

- CSR activities will be taken up in the Keeranur 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

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

Proponent intends to spent Rs 5,00,000/- towards CER for the Government School near the project site the details are given below:

TABLE 8.1 CER – ACTION PLAN

Activity	CER
<ul style="list-style-type: none"> • Renovation/ Construction of Existing Toilet • Providing Environmental Related books to the school Library • Carrying out plantation and maintenance in the school Ground • Any other requirements in consultation with the school Head master 	Rs 5,00,000/-

9. ENVIRONMENTAL COST BENEFIT ANALYSIS

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

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 B. Vishnu Kumar will –

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

Landscape of the area will be changed due to the quarrying operation, restoration of the land by converting the quarry pit into temporary reservoir and the remaining part of the area (un utilized areas, infrastructure, haul Roads) will be utilized for greenbelt development. There is no major vegetation in the project area during the course of quarrying operation and after completion of the quarrying operation thick plantation will be developed under greenbelt development programme.

TABLE 10.1. PROPOSED CONTROLS FOR LAND ENVIRONMENT

CONTROL	RESPONSIBILITY
Design vehicle wash-down areas so that all runoff water is captured and passed through oil water separators and sediment catchment devices.	Mines Manager
Refueling to be undertaken in a safe location, away from vehicle movement pathways & 100 m away of any watercourse Refueling activity to be under visual observation at all times. Drainage of refueling areas to sumps with oil/water separation	Mine Foreman & Mining Mate
Soil and groundwater testing as required following up a particular incident of contamination.	Mines Manager
At conceptual stage, the mining pits will be converted into Rain Water Harvesting. Remaining area will be converted into greenbelt area	Mines Manager
No external dumping i.e., outside the project area	Mine Foreman
Garland drains with catch pits / settlement traps to be provided all around the project area to prevent run off affecting the surrounding lands.	Mines Manager
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

Source: Proposed by FAE's & EIA Coordinator

10.3. SOIL MANAGEMENT

There overburden in the form of Gravel which will directly loaded into tippers for the filling and levelling of low-lying areas.

TABLE 10.2. PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Surface run-off from the project boundary 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	Mines Manager
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Mines Manager
Test soils for pH, EC, chloride, size & water holding capacity	Manager Mines

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 mines office. The quarrying operation is proposed upto a depth of 45m BGL, the water table in the area is 58m below ground level, hence the proposed project 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 proposed quarrying activity would result in the increase of particulate matter concentrations due to fugitive dust. Daily water sprinkling on the haul roads, approach roads in the vicinity would be undertaken and will be continued as there is possibility for dust generation due to truck mobility. It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements

TABLE 10.4. PROPOSED CONTROLS FOR AIR ENVIRONMENT

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 POLLUTION CONTROL

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and cutting 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 are carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.7. GROUND VIBRATION AND FLY ROCK CONTROL

The Rough stone quarry operation creates vibration due to the blasting and movement of Heavy Earth moving machineries, fly rocks due to the blasting.

TABLE 10.6.: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK – P1

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 1000 nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

TABLE 10.7: PROPOSED GREENBELT ACTIVITIES

Year	No. of trees proposed to be planted	Area to be covered	Name of the species
I	1000	The plantation is along the safety distance, village road etc..	Neem, Casuarina, etc

Source: Approved Mining plan

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 FOR THE PLANTSATION

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

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10.9. OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

Occupational safety and health are very closely related to productivity and good employer-employee relationship. The main factors of occupational health 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 –

The health status of workers in the mine will be regularly monitored under an occupational surveillance program. Under this program, all the employees are subjected to a detailed 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
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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.

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Sl.No	Activities	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year
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B	Psychological Test					
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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.
- At noisy working activity, exposure time will be minimized.
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- Periodic medical examinations will be provided for all workers.
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- Celebration of annual mines safety week and environmental week in order to develop safety awareness and harmony amongst employees and co quarry owners.

FIGURE 10.1.: PERSONAL PROTECTIVE EQUIPMENT TO THE MINE WORKERS



10.9.3: Health and Safety Training Programme

The Proponent 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 an eco-friendly manner as per Metalliferous Mines Regulation, 1961.

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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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	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	20021	20021
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 3 Units	150000	15000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 4Units	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	40042
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0

	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	687232
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 management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	20021	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	400420	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 1000Trees - (390Inside Lease Area & 610Outside 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)	78000	11700
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	183000	18300
	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	46800	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	1559488	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) -32Employees	128000	32000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	32000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	4004.2
	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	100105	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			2559567	1843299.2

*Marked cost is already discussed in the mining plan hence that is not included in the total Environmental Management plan cost Total Cost for the five years. The EMP has been prepared for the entire **lease period of 5 years** for the peak production capacity of **61,120m³ of Rough stone**.

Year	Total Cost
1st	Rs.44,02,866.2
2nd	Rs.19,35,464.2
3rd	Rs.20,32,237.4
4th	Rs.21,33,849.2
5th	Rs.22,87,341.7
Total	Rs.128 Lakhs

Cost inflation 5% per annum

Note: This Environmental Management plan cost will vary according to the public consultation comments

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.

10. ENVIRONMENTAL MANAGEMENT PLAN -P2

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 Thiru. P. Sasi Kumar will –

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

Landscape of the area will be changed due to the quarrying operation, restoration of the land by converting the quarry pit into temporary reservoir and the remaining part of the area (un utilized areas, infrastructure, haul Roads) will be utilized for greenbelt development. There is no major vegetation in the project area during the course of quarrying operation and after completion of the quarrying operation thick plantation will be developed under greenbelt development programme.

TABLE 10.1. PROPOSED CONTROLS FOR LAND ENVIRONMENT

CONTROL	RESPONSIBILITY
Design vehicle wash-down areas so that all runoff water is captured and passed through oil water separators and sediment catchment devices.	Mines Manager
Refueling to be undertaken in a safe location, away from vehicle movement pathways & 100 m away of any watercourse Refueling activity to be under visual observation at all times. Drainage of refueling areas to sumps with oil/water separation	Mine Foreman & Mining Mate
Soil and groundwater testing as required following up a particular incident of contamination.	Mines Manager
At conceptual stage, the mining pits will be converted into Rain Water Harvesting. Remaining area will be converted into greenbelt area	Mines Manager
No external dumping i.e., outside the project area	Mine Foreman
Garland drains with catch pits / settlement traps to be provided all around the project area to prevent run off affecting the surrounding lands.	Mines Manager
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

Source: Proposed by FAE's & EIA Coordinator

10.3. SOIL MANAGEMENT

There overburden in the form of Gravel which will directly loaded into tippers for the filling and levelling of low-lying areas.

TABLE 10.2. PROPOSED CONTROLS FOR SOIL MANAGEMENT

CONTROL	RESPONSIBILITY
Surface run-off from the project boundary 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	Mines Manager
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Mines Manager
Test soils for pH, EC, chloride, size & water holding capacity	Manager Mines

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 mines office. The quarrying operation is proposed upto a depth of 37m BGL, the water table in the area is 65m below ground level, hence the proposed project 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 proposed quarrying activity would result in the increase of particulate matter concentrations due to fugitive dust. Daily water sprinkling on the haul roads, approach roads in the vicinity would be undertaken and will be continued as there is possibility for dust generation due to truck mobility. It will be ensured that vehicles are properly maintained to comply with exhaust emission requirements

TABLE 10.4. PROPOSED CONTROLS FOR AIR ENVIRONMENT

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 POLLUTION CONTROL

There will be intermittent noise levels due to vehicular movement, trucks loading, drilling and blasting and cutting 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 are carried out in the project area and in surrounding villages to assess the impact due to the mining activities and the efficacy of the adopted noise control measures. Additional noise control measures will be adopted if required as per the observations during monitoring	Mines Manager
Reduce maximum instantaneous charge using delays while blasting	Mining Mate
Change the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination	Mines Manager
Undertake noise or vibration monitoring	Mines Manager

Source: Proposed by FAE's & EIA Coordinator

10.7. GROUND VIBRATION AND FLY ROCK CONTROL

The Rough stone quarry operation creates vibration due to the blasting and movement of Heavy Earth moving machineries, fly rocks due to the blasting.

TABLE 10.6.: PROPOSED CONTROLS FOR GROUND VIBRATIONS & FLY ROCK – P1

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
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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.

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About 2,220 nos. of saplings is proposed to be planted for the Mining plan period in safety barrier of applied mine lease area with survival rate 80%. The greenbelt development plan has been prepared keeping in view the land use changes that will occur due to mining operation in the area.

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Year	No. of trees proposed to be planted	Area to be covered	Name of the species
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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	44400	44400
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	5000
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance - 3 Units	250000	25000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 4Units	25000	1250
	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	88800
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0

	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	1176318
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	5000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	1. Progressive Closure Activity - Surface Runoff managment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	44400	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	888000	10000
	3. Progressive Closure Activity Green belt development - 500trees per one hectare - Proposal for 2200Trees - (700Inside Lease Area &1300Outside 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)	140000	21000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	390000	39000

	4. Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year	Few activities already covered as progressive closure activities as greenbelt development, wire fencing, garland drain. *For Final Closure Activities 15% of the proposed closure cost will be spent during the final mine closure stage - Last Year	37500	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	2669337	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) -40Employees	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	8880
	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	222000	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			3623800	2466648

*Marked cost is already discussed in the mining plan hence that is not included in the total Environmental Management plan cost Total Cost for the five years. The EMP has been prepared for the entire **lease period of 5 years** for the peak production capacity of **92,430m³ of Rough stone**.

Year	Total Cost
1st	Rs.60,90,448
2nd	Rs.25,89,980.4
3rd	Rs.27,19,479.4
4th	Rs.28,55,453.4
5th	Rs.30,35,726.1
Total	Rs.173 Lakhs

Cost inflation 5% per annum

Note: This Environmental Management plan cost will vary according to the public consultation comments

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.

11. SUMMARY AND CONCLUSION

This EIA & EMP report prepared for the proposed Rough Stone and gravel Cluster quarries project located Keeranur Village, Kangeyam Taluk and Tiruppur District belongs to B. Vishnu Kumar and Thiru.P.Sasikumar the Project falls in the Cluster category consist of 3 Proposed, 1 Existing Quarries 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.

The proposed project is 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”.

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 2023 – February 2024 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

The project proponent ensures to obtain necessary clearances and quarrying will be carried out as per rules and regulations. The Mining Activity will be carried out in a phased manner as per the approved mining plan after obtaining EC, CTO from TNPCB, execution of lease deed and obtaining DGMS Permission and working will be carried out under the supervision of Competent Persons employed. Overall, the EIA report has predicted that the project will comply with all environment standards and legislation after commencement of the project and operational stage mitigation measures are implemented.

Mining operations has positive impact on environment and socio economy such as landscape improvement, water as by-product, economy development and better public services, providing and supply of Rough Stone as per market demand. Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 72 people directly in the proposed projects and indirectly around 100 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 Keeranur Rough Stone and gravel quarries Cluster Extent (10.45.38Ha).

12. DISCLOSURE OF CONSULTANT

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 for the proposed project.

Name and address of the consultancy:

GEO EXPLORATION AND MINING SOLUTIONS

No 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004

Tamil Nadu, India

Email: infogeoexploration@gmail.com

Web: www.gemssalem.com

Phone: 0427 2431989.

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

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

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

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

This EIA/EMP for Keeranur Rough Stone & Gravel Cluster Quarries Extent of 10.45.38 ha in Keeranur Village of Kangeyam Taluk, Tiruppur District of Tamil Nadu is prepared as per the Generic Structure of EIA Guidelines manual. 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:




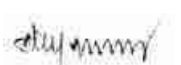

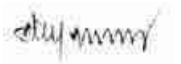







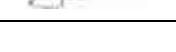






Period of Involvement: **January 2019 to till date**

Associated Team Member with EIA Coordinator:


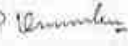

1. Mr. S. Nagamani
2. Mr.P. Viswanathan
3. Mr. M. Santhoshkumar
4. Mr. S. Ilavarasan

FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

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

6	EB	<ul style="list-style-type: none"> ▪ Collection of Baseline data of Flora and Fauna. ▪ Identification of species labelled as Rare, Endangered and threatened as per IUCN list. ▪ Impact of the project on flora and fauna. ▪ Suggesting species for greenbelt development. 	Mrs. Amirtham	
			Mr. Alagappa Moses	
7	RH	<ul style="list-style-type: none"> ▪ Identification of hazards and hazardous substances ▪ Risks and consequences analysis ▪ Vulnerability assessment ▪ Preparation of Emergency Preparedness Plan ▪ Management plan for safety. 	Mr. N. Senthilkumar	
			Mr. S. Pavel	
			Mr. J. R. Vikram Krishna	
8	LU	<ul style="list-style-type: none"> ▪ Construction of Land use Map ▪ Impact of project on surrounding land use ▪ Suggesting post closure sustainable land use and mitigative measures. 	Mr. A. Allimuthu	
9	NV	<ul style="list-style-type: none"> ▪ Identify impacts due to noise and vibrations ▪ Suggesting appropriate mitigation measures for EMP. 	Mr. A. Jagannathan	
10	AQ	<ul style="list-style-type: none"> ▪ Identifying different source of emissions and propose predictions of incremental GLC using AERMOD. ▪ Recommending mitigations measures for EMP 	Mr. N. Senthilkumar	
11	SC	<ul style="list-style-type: none"> ▪ Assessing the impact on soil environment and proposed mitigation measures for soil conservation 	Dr. M. Iftikhar Ahmed	
12	SHW	<ul style="list-style-type: none"> ▪ Identify source of generation of non-hazardous solid waste and hazardous waste. ▪ Suggesting measures for minimization of generation of waste and how it can be reused or recycled. 	Mr. A. Jagannathan	
			Mr. J. R. Vikram Krishna	

LIST OF TEAM MEMBERS ENGAGED IN THIS PROJECT

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

4	Mr. Umamahesvaran	GEO	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs on Geological Aspects ▪ Assist in Resources & Reserve Calculation and preparation of Production Plan & Conceptual Plan 	<i>S. Chandrasekhar</i>
5	Mr. A. Allimuthu	SE	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of data's ▪ Provide inputs by analysing primary and secondary data 	<i>allimuthu</i>
6	Mr. S. Ilavarasan	LU; SC	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assisting FAE in preparation of land use maps ▪ Provide inputs & Assisting FAE with soil conservation methods and identifying impacts 	<i>S. Ilavarasan</i>
7	Mr. E. Vadivel	HG	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE & provide inputs on aquifer characteristics, ground water level/table ▪ Assist with methods of ground water recharge and conduct pump test, flow rate 	<i>E. Vadivel</i>
8	Mr. D. Dinesh	NV	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE and provide inputs on impacts due to proposed mine activity and suggest mitigation measures ▪ Assist FAE with prediction modelling 	<i>D. Dinesh</i>
9	Mr. Panneer Selvam	EB	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna 	<i>P. Panneer Selvam</i>
10	Mrs. Nathiya	EB	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Assist FAE with collection of baseline data ▪ Provide inputs and assist with labelling of Flora and Fauna 	<i>T. Ganapathy</i>

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 Cluster EIA/EMP for Keeranur Rough Stone & Gravel Cluster Quarries Extent of 10.45.38ha in Keeranur Village of Kangeyam Taluk, Tiruppur 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

KEERANUR ROUGH STONE AND GRAVELCLUSTER QUARRIES

Keeranur Village,
Kangayam Taluk,
Tiruppur District.

CLUSTER EXTENT: 10.45.38ha

ToR obtained

Lr No.SEIAA-TN/F.No.10458/SEAC/ToR-1627/2023 Dated: 12.12.2023-P1

Lr No.SEIAA-TN/F.No.9456/SEAC/1(a) ToR-1692/2024 Dated: 23.04.2024-P2

Code	P1	P2
Project Location	Thiru. B. Vishnu Kumar, S.F.No. 441/A1 (P), A2 (P), A3 (P) & A4 (P), Extent: 2.00.21 ha Keeranur Village, Kangayam Taluk, Tiruppur District.	Thiru. P.Sasikumar, S.F. No. 449 (P) & 450, Extent: 4.44.0 ha Keeranur Village, Kangayam Taluk, Tiruppur District.

LIST OF ANNEXURES

ANNEXURES	DESCRIPTION	PAGE NOS
P1- THIRU. B. VISHNU KUMAR	COPY OF TERMS OF REFERENCE	1A-23A
	COPY OF 500M RADIUS QUARRIES DETAILS AND MINING PLAN APPROVAL LETTER	24A-27A
	COPY OF APPROVED MINING PLAN WITH PLATES	31A-106A
	COPY OF HYDROGEOLOGICAL REPORT	107A-116A
	COPY OF EXPLOSIVES	117A-118A
	COPY OF 300m & VAO ATTESTATION LETTER	119A-120A
	COPY OF ADDITIONAL DOCUMENTS	121A-122A
P2 - THIRU. P.SASIKUMAR	COPY OF TERMS OF REFERENCE	123A-143A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	144A-145A
	COPY OF MINING PLAN APPROVAL LETTER	146A-148A
	COPY OF APPROVED MINING PLAN WITH PLATES	149A-214A
	COPY OF HYDROGEOLOGICAL REPORT	215A-224A
	COPY OF EXPLOSIVE LETTER	225A-227A
	COPY OF INSPECTION REPORT	228A-242A
	COPY 300m AND VAO ATTESTATION LETTER	243A-244A
	COPY OF EXISTING ENVIRONMENTAL CLEARANCE LETTER	245A-252A
P3 - THIRU. P. SASIKUMAR,	COPY OF MINING PLAN APPROVAL LETTER	253A-254A
	COPY OF BASE LINE MONITORING DATA	255A-296A
	COPY OF CONSULTANT ACCREDITATION CERTIFICATE	297A



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.10458/SEAC/ToR-1627/2023 Dated:12.12.2023

To

Thiru.B. Vishnu Kumar
No. 4/114-G, Sedarpalayam,
vavipalalyam,
Tiruppur District

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone quarry lease over an extent of 2.00.21 Ha of Patta land in S.F.Nos. 441/A1(P), A2(P), A3(P) & A4(P) Keeranur Village, Kangatam Taluk, Tiruppur District, Tamil Nadu by Thiru. B. Vishnu Kumar - 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/446654/2023, dated:06/10/2023
2. Your application submitted for Terms of Reference dated: 10.10.2023.
3. Minutes of the 423rd SEAC meeting held on 15.11.2023.
4. Minutes of the 678th SEIAA meeting held on 11.12.2023 & 12.12.2023.

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

The proponent, Thiru. B. Vishnu Kumar has submitted application for Terms of Reference (ToR), in Form-I, Pre-Feasibility report for the Proposed Rough Stone quarry lease over an extent of 2.00.21 Ha


MEMBER SECRETARY
SEIAA-TN

of Patta land in S.F.Nos. 441/A1(P), A2(P), A3(P) & A4(P) Keeranur Village, Kangatam Taluk, Tiruppur District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Existing Rough Stone and Gravel quarry over an extent of 2.00.21 Ha of Patta land in S.F.Nos. 441/A1(P), A2(P), A3(P) & A4(P) Keeranur Village, Kangatam Taluk, Tiruppur District, Tamil Nadu by Thiru. B. Vishnu Kumar- For Terms of Reference. (SIA/TN/MIN/446654/2023, 06.10.2023)

The proposal was placed in this 423rd meeting of SEAC held on 15.11.2023. The Project Proponent made a detailed presentation on the proposed project. The details of the project furnished by the proponent are available on the PARIVESH web portal (parivesh.nic.in). **The SEAC noted the following among other things:**

The Project Proponent, Thiru. B. Vishnu Kumar has applied seeking Terms of Reference for EIA study for the proposed Rough Stone and Gravel quarry over an extent of 2.00.21 Ha of Patta land in S.F.Nos. 441/A1(P), A2(P), A3(P) & A4(P) Keeranur Village, Kangatam Taluk, Tiruppur District, Tamil Nadu. The proposed quarry/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006 as amended.

Mine plan period is approved for 5 years. The approved production is 264320m³ of Rough stone and 30240 m³ of Gravel and the ultimate depth is 45m BGL. The annual peak production shall not exceed 61120m³ of Rough stone and 13680 m³ of Gravel.

The AD/Mines vide letter dated 04.09.2023 has reported that,

The mine lease was previously issued to Tmt. B. Vijayalakshmi (previous lessee) vide Proceeding No: Rc.No.166/Mines/2011, Dated: 03.07.2012 and the lease period is from 03.07.2012 to 02.07.2017 at S.F.Nos 441/A1, 441/A2 & 441/A3 (Extent : 2.78.0 Ha). A penalty of Rs. 32,86,890/- has been levied and Tmt. B. Vijayalakshmi has remitted the penalty amount to the Government as detailed below:

Sl.No	Date	Amount Remitted (Rs.)
	27.09.2022	Rs. 2,00,000/-
	14.02.2023	Rs. 3,00,000/-
	11.08.2023	Rs. 31,82,890/-

There is an existing pit with dimensions of L68m x W23m x D12m reported in the approved mine plan.

Based on the document 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 (i) the standard


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terms of reference for EIA study shown in Annexure-I and (ii) the Standard ToR for non-coal mining projects and details issued by the MoEF&CC to be included in EIA/EMP Report:

1. The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.
2. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
3. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc located within 1 km of the proposed quarry.
4. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
5. The Proponent shall carry out Bio diversity study through Department of Ecology and Environmental Sciences, Pondicherry University and the same shall be included in EIA Report.
6. 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.

ANNEXURE-I

1. The PP shall furnish the letter obtained from the AD (Mines) indicating the existing pit dimensions and pit conditions showing the details on mine having worked during the earlier lease period.
2. The PP shall furnish DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
3. The PP shall provide individual notice regarding the Public Hearing to the nearby house owners located in the vicinity of the project site.
4. The Proponent shall justify the selection of the site for carrying out the stone quarrying with the total volume arrived for the excavation & production adequate details such as lithology


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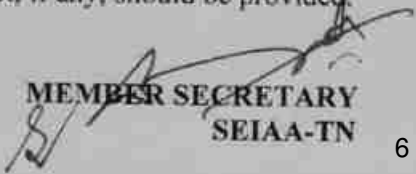
- of the deposit, reserve estimation, place for waste dump/mined mineral storage, end-use of mined materials, identified potential customers/end-users and travel path.
5. The PP shall also justify the selection of mining methodology (conventional or non-conventional) adopting blasting techniques/non-explosive techniques with proper ground reality & laboratory testing.
 6. The proponent shall submit the "Blast Design Parameters for controlling the vibration and fly rock from the quarry blasting" considering the existence of sensitive structures including habitations within 500 m from the lease boundary.
 7. The PP shall justify the estimation of HEMM population for excavation and transportation in the proposed quarries with proper calculation methodology adopted.
 8. The PP shall enumerate the environmental settings situated within a radial distance of 1 km such rivers/water bodies/reserve forests/ grazing land/existence of the hospitals and educational institutions/structures.
 9. The PP shall provide the details of the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
 10. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
 11. The PP shall submit a 'Slope Stability Action Plan' for the proposed quarry where the proposed depth exceeds 30 m and it shall cover the aspects of stability of quarry walls including the access ramp keeping the benches intact.
 12. If the blasting operation is to be carried out, the PP shall present a conceptual design for carrying out the NONEL initiation based controlled blasting operation including the line drilling & muffle blasting techniques and a Simulation Model indicating the anticipated Blast-induced Ground Vibration levels in the proposed quarry as stipulated by the DGMS Circular No.7 of 1997, during the EIA Proposal.
 13. 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.
 14. The PP shall give an affidavit stating that no contractual persons provided by the explosive suppliers will be employed for carrying out the blasting operations in the proposed quarry.


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15. The PP shall also give an affidavit that no highly sensitive structure such as fire-cracker manufacturing units, Gas godown/explosive Magazine, LPG Bottling Units, etc are located within a radial distance of 300 m from the lease boundary of the proposed quarry.
16. 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 20 m from the blast site.
17. 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.
18. The PP shall provide the environmental mitigation measures implemented for the crusher(s) located within the mining lease.
19. 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.
20. 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.
21. 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).
22. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
23. The proponent shall furnish photographs of adequate fencing, green belt along the periphery


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- including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
24. 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.
 25. 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.
 26. 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.
 27. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
 28. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
 29. 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.
 30. 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.
 31. 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.


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32. If the Village road/State highway/National highway are located within a radial distance of 500 m from the lease boundary of the quarry proposal, the PP shall carry out traffic studies to indicate impact on local transport infrastructure due to the Project and mitigation measures.
33. 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.
34. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
35. 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.
36. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
37. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
38. 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.
39. 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.
40. 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
41. 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.


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42. 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.
43. 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.
44. 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.
45. 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.
46. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
47. 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.
48. 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.
49. 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.
50. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix

List of Native Trees Suggested for Planting

1. *Aegle marmelos* – Vilvam
2. *Adenaanthera pavonina* - Manjadi
3. *Albizia lebbbeck* – Vaagai
4. *Albizia amara* - Usil


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5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa* - Iruvathi
8. *Buchanania axillaris* - Kattuma
9. *Borassus flabellifer* - Panai
10. *Butea monosperma* - Murukka maram
11. *Bobax ceiba* - Ilavu, Sevvilavu
12. *Calophyllum inophyllum* - Punnai
13. *Cassia fistula* - Sarakondrai
14. *Cassia roxburghii* - Sengondrai
15. *Chloroxylon sweitenia* - Purasa maram
16. *Cochlospermum religiosum* - Kongu, Manjal Ilavu
17. *Cordia dichotoma* - Mookuchali maram
18. *Creteva adansonii* - Mavalingum
19. *Dillenia indica* - Uva, Uzha
20. *Dillenia pentagyna* - Siru Uva, Sitruzha
21. *Diospyros ebenum* - Karungali
22. *Diospyros chloroxylon* - Vaganai
23. *Ficus amplissima* - Kal Itchi
24. *Hibiscus tiliaceus* - Aatru poovarasu
25. *Hardwickia binata* - Aacha
26. *Holoptelia integrifolia* - Aayili
27. *Lannea coromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthus tetraphylla* - Neikottai maram
30. *Limonia acidissima* - Vila maram
31. *Litsea glutinosa* - Pisin pattai
32. *Madhuca longifolia* - Iluppai
33. *Manilkara hexandra* - Ulakkai Paalai
34. *Mimusops elengi* - Magizha maram
35. *Mitragyna parvifolia* - Kadambu
36. *Morinda pubescens* - Nuna
37. *Morinda citrifolia* - Vellai Nuna


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38. *Phoenix sylvestre* - Eachai
39. *Pongamia pinnata* - Pungam
40. *Premna mollissima* - Munnai
41. *Premna serratifolia* - Narumunai
42. *Premna tomentosa* - Purangai Naari, Pudanga Naari
43. *Prosopis cinerea* - Vanni maram
44. *Pterocarpus marsupium* - Vengai
45. *Pterospermum canescens* - Vennangu, Tada
46. *Pterospermum xylocarpum* - Polavu
47. *Puthranjiva roxburghii* - Puthranjivi
48. *Salvadora persica* - Uгаа Maram
49. *Sapindus emarginatus* - Manipungan, Soapu kai
50. *Saraca asoca* - Asoca
51. *Streblus asper* - Piraya maram
52. *Strychnos nuxvomica* - Yetti
53. *Strychnos potatorum* - Therthang Kottai
54. *Syzygium cumini* - Naval
55. *Terminalia bellerica* - Thandri
56. *Terminalia arjuna* - Ven marudhu
57. *Toona ciliate* - Sandhana vembu
58. *Thespesia populnea* - Puvarasu
59. *Walsuratrifoliata* - valsura
60. *Wrightia tinctoria* - Veppalai
61. *Pithecellobium dulce* - Kodukkapuli

Discussion by SEIAA and the Remarks:-

Existing Rough Stone and Gravel quarry over an extent of 2.00.21 Ha of Patta land in S.F.Nos. 441/A1(P), A2(P), A3(P) & A4(P) Keeranur Village, Kangatam Taluk, Tiruppur District, Tamil Nadu by Thiru. B. Vishnu Kumar- For Terms of Reference.

The subject was placed in this 678th meeting of Authority held on 11.12.2023 & 12.12.2023. The Authority noted that the subject was placed in the 423rd meeting of SEAC held on 15.11.2023 and the SEAC has furnished its recommendations for the grant of Terms of Reference (ToR) with Public Hearing for EIA study subject to the conditions stated therein.


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After detailed discussions, the Authority accepted the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** based on studies, assessments and records to be produced as sought by the SEAC and SEIAA, under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions and conditions in **Annexure 'B'** of this minutes.

Annexure 'B'

Cluster Management Committee

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


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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
- Soil health & soil biological, physical land chemical features .
 - Climate change leading to Droughts, Floods etc.
 - Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
 - Possibilities of water contamination and impact on aquatic ecosystem health.
 - Agriculture, Forestry & Traditional practices.
 - Hydrothermal/Geothermal effect due to destruction in the Environment.
 - Bio-geochemical processes and its foot prints including environmental stress.
 - Sediment geochemistry in the surface streams.

Agriculture & Agro-Biodiversity

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

Forests

19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.


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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.
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.


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33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

Mine Closure Plan

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

EMP

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

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.


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A. STANDARD TERMS OF REFERENCE

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and 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


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data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.

- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site 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


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

- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be 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


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- be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
 - 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
 - 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
 - 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 - 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
 - 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the 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


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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.
- 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


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implementation of EMP should be clearly spelt out.

- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
 - g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
 - h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
 - i) As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the 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.


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

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

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


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

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

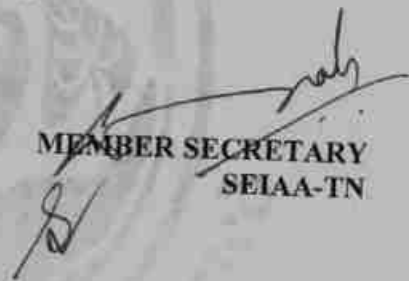
- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables,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


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

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


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Copy to:

1. The Additional Chief Secretary to Government, Environment, Climate Change and Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
3. The Chairman, 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, Tiruppur District.
7. Stock File.

From

Dr. K.L.K. Vallal,
Assistant Director,
Dept. of Geology and Mining,
Tiruppur.

To

Thiru. B. Vishnu Kumar,
S/o. Balasubramaniyam,
No. 4/114-G, Sedarpalayam,
Vavipalayam,
Tiruppur District - 641 666.

R.c. No. 685/Mines/2022, Dated : 03.04.2023.

Sub: Mines and Minerals - Minor Mineral - Rough Stone
- Tiruppur District - Kangayam Taluk - Keeranur
village - S.F. No. 441/A1 (P) (0.44.10), 441/A2 (P)
(0.53.21), 441/A3 (P) (0.63.30) and 441/A4 (P)
(0.39.60) - over an extent of 2.00.21 Hectares -
Quarry lease application preferred by Thiru. B.
Vishnu Kumar, S/o. Balasubramaniyam - Precise
area communicated - Draft mining plan submitted
- Approval of mining plan - Regarding

- Ref: 1. Thiru. B. Vishnu Kumar, S/o. Bala
subramaniyam, No. 4/114-G, Sedarpalayam,
Vavipalayam, Tiruppur District quarry lease
application dated: 10.10.2022.
2. The Assistant Director, Geology and Mining,
Tiruppur letter R.C. No. 685/Mines/2022,
dated 21.03.2023.
3. Mining Plan submitted by Thiru. B. Vishnu
Kumar, S/o. Bala subramaniyam letter dated
03.04.2023.

Thiru. B. Vishnu Kumar, S/o. Balasubramaniyam has preferred an application for the grant of Rough Stone and Gravel quarry lease in Patta land, over an extent of 2.00.21 Hect. in S.F.No. 441/A1 (P) (0.44.10), 441/A2 (P) (0.53.21), 441/A3 (P) (0.63.30) and 441/A4 (P) (0.39.60) in Keeranur Village, Kangayam Taluk, Tiruppur District.

2. Based on recommendations of the Tahsildar, Palladam, Revenue Divisional Officer, Dharapuram and the Assistant Director, Geology and Mining, Tiruppur and records available, precise area has been communicated to the applicant with a direction to submit mining plan and also to submit environmental clearance as stipulated under rule 41 and 42

of Tamil Nadu Minor Mineral Concession Rules, 1959 vide memo dated 21.03.2023.

3. Accordingly, Thiru. B. Vishnu Kumar, S/o. Balasubramaniam submitted the Draft Mining Plan and the same has been examined in detail and it is found correct. Therefore, in exercise of the powers delegated under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959, and as per the guidelines / instructions issued by the Commissioner of Geology and Mining, Chennai vide letter Roc.No.3868/LC/2012 dated 19.11.2012, the mining plan submitted by Thiru. B. Vishnu Kumar, S/o. Balasubramaniam in respect of the subject area is hereby approved subject to the following conditions:

- (i). That the mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.
- (ii). This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884(Central Act IV of 1884) and the rules made there under the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iii). That the mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv). 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.
- (v). If anything is found to be concealed as required by the Mines Act in the contents of the Mining Plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- (vi). Safety distances mentioned in the precise area has to be maintained for the entire duration of the lease period.

- (vii). Waste material should be dumped within the lease granted area as earmarked in the Mining Plan.
- (viii). Necessary Environmental Clearance has to be obtained by the applicant from the competent authority before the grant of quarry lease as per the rules.
- (ix). Quarrying operations and production shall be carried out as per the approved Mining Plan and the applicant shall be liable to pay the cost of mineral if there is any deviation in the quantum indicated in the approved year wise quantum of production and any such cases as on date are to be dealt with as per Court direction.
- (x). If any violation is found during quarrying operation, the penal provisions of Tamil Nadu Minor Mineral Concession Rules shall attract.
- (xi). The applicant should strictly adhere to the statutory and safety requirements.

The details of quarry leases located within 500 meter radius from the proposed Rough Stone and Gravel is given as follows.

a. Existing quarries

S. No	Name of the lessee	Village	S.F. No	Extent Hect.	Collector's proceedings No. & Date	Lease period
1	S.P. Bala subramaniam	Keeranur	603/3 (P), 603/4 (P)	2.01.17	R.C. 125 / Mines / 2017 dated 1.10.2018	1.10.2018 - 30.9.2023

b. Abandoned / expired quarries

S. No	Name of the lessee	Village	S.F. No	Extent Hect.	Collector's proceedings No. & Date	Lease period
1.	C.P. Velusamy, C.M. Shanmuga sundaram	Keeranur	493/A1, 493/A2	2.15.0	84 / MINES / 2012 DATED 5.3.2019	(5.3.2019 - 4.3.2024) Pre-mature termination

c. Present proposed quarries

S. No	Name of the lessee	Village	S.F. No	Extent Hect.	Collector's proceedings No. & Date	Lease period
1	B. Vishnu kumar	Keeranur	441/A1 (P), 441/A2 (P), 441/A3 (P), 441/A4 (P)	2.00.21	--	Proposed quarry
2	P. Sasikumar	Keeranur	449 Part, 450	4.44.0	--	Nearby applied area.

Encl: Approved Mining Plan.

Uclp 2/4/23
Assistant Director,
Geology and Mining,
Tiruppur.

Copy to

1. The Commissioner,
Department of Geology and Mining,
Guindy, Chennai - 600 032.
2. The Chairman ,
State Level Environment Impact Assessment Authority,
Panagal park Building, Saidapet, Chennai -600 015.
3. Dr. P. Thangaraju, RQP
17, Advaita Ashram road,
Alagapuram, Salem - 4.

**MINING PLAN AND PROGRESSIVE QUARRY
CLOSURE PLAN FOR KEERANUR
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 : 2.00.21ha
S.F.NOS : 441/A1 (P), A2 (P), A3 (P) & A4 (P)
VILLAGE : KEERANUR
TALUK : KANGAYAM
DISTRICT : TIRUPPUR
STATE : TAMIL NADU

FOR

APPLICANT

Thiru. B. Vishnu Kumar,

S/o. Balasubramaniam,
No.4/114-G, Sedarpalayam,
Vavipalayam,
Tiruppur District,
Tamil Nadu State – 641 666.

PREPARED BY

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

Qualified Person

(As per Rule 15(1)(a) and (1)(b) of MCR, 2016)

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



B. Vishnu Kumar,
S/o. Balasubramaniam,
No.4/114-G, Sedarpalayam,
Vavipalayam,
Tiruppur District,
Tamil Nadu State – 641 666.

CONSENT LETTER FROM APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Keeranur Rough stone and Gravel Quarry in S.F.Nos.441/A1 (P), A2 (P), A3 (P) & A4 (P) over an extent of 2.00.21ha of Patta lands in Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared by

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

Qualified Person

I request to the Assistant Director, Department of Geology and Mining, Tiruppur District to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

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

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

Alagapuram, Salem District – 636 004.

Cell: +91 94422 78601 & 94433 56539

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

Signature of the Applicant


B. Vishnu Kumar

Place: Tiruppur

Date: 23.03.2023

B. Vishnu Kumar,
S/o. Balasubramaniam,
No.4/114-G, Sedarpalayam,
Vavipalayam,
Tiruppur District,
Tamil Nadu State – 641 666.




DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Keeranur Rough stone and Gravel Quarry in S.F.Nos.441/A1 (P), A2 (P), A3 (P) & A4 (P) over an extent of 2.00.21ha of Patta land in Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared in full consultation with me.

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

Signature of the Applicant


B. Vishnu Kumar

Place: Tiruppur

Date: 23.03.2023



CERTIFICATE

Certified that I am, **Dr. P. THANGARAJU**, M.Sc., Ph.D., having an office at Regd. Off. No. 17, Advaita Ashram Road, Alagapuram, Salem – 636 004, holding a Post Graduate Degree in Geology (M.Sc. Geology) from Madras University, Chennai and I worked in the field of Geology in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 stipulates the eligibility for preparing Revised Mining Plans as “(I)(a) a post graduate degree in Geology granted by a university established” and (I)(b) “Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree”. Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Revised Mining Plans for both Major and Minor Minerals.

Accordingly, I am preparing this Mining Plan and Progressive Quarry Closure Plan in Respect of Keeranur Rough stone and Gravel Quarry in S.F.Nos.441/A1 (P), A2 (P), A3 (P) & A4 (P) over an extent of 2.00.21ha of Patta land in Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State for **Thiru. B. Vishnu Kumar**, S/o. Balasubramaniam, No.4/114-G, Sedarpalayam, Vavipalayam, Tiruppur District, Tamil Nadu State – 641 666. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person


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

Place: Salem

Date: 25.03.2023

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

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

Alagapuram, Salem District – 636 004.

Cell: +91 94422 78601 & 94433 56539



CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan and Progressive Quarry Closure Plan for Keeranur Rough stone and Gravel Quarry in S.F.Nos.441/A1 (P), A2 (P), A3 (P) & A4 (P) over an extent of 2.00.21ha of Patta land in Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared for

Thiru. B. Vishnu Kumar,

S/o. Balasubramaniam,

No.4/114-G, Sedarpalayam,

Vavipalayam,


Tiruppur District,

Tamil Nadu State – 641 666.

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, Tiruppur District, Tamil Nadu State for such permissions/ exemptions/ relaxations and approvals.

It is also certified that information furnished in the above Mining Plan are true and correct to the best of my knowledge.

Signature of the Qualified Person


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

Place: Salem

Date: 25.03.2023



Dr. P. Thangaraju, M.Sc., Ph.D.,
Regd. Off. No. 17, Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
Cell: +91 94422 78601 & 94433 56539

CERTIFICATE FROM THE QUALIFIED PERSON

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 Keeranur Rough stone and Gravel Quarry in S.F.Nos.441/A1 (P), A2 (P), A3 (P) & A4 (P) over an extent of 2.00.21ha of Patta land in Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared for

Thiru. B. Vishnu Kumar,
S/o. Balasubramaniam,
No.4/114-G, Sedarpalayam,
Vavipalayam,
Tiruppur District,
Tamil Nadu State – 641 666.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of Director General of Mines Safety (DGMS), No.5, II Street, Block-AA, Anna Nagar, Chennai-40, Tamil Nadu State for such permissions / exemptions / relaxations and approvals.

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

Signature of the Qualified Person


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

Place: Salem

Date: 25.03.2023



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**MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR
KEERANUR ROUGH STONE AND GRAVEL QUARRY OVER AN EXTENT
OF 2.00.21HA OF PATTALANDS IN KEERANUR VILLAGE, KANGAYAM
TALUK, TIRUPPUR 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 **Thiru. B. Vishnu Kumar**, S/o. Balasubramaniam, No.4/114-G, Sedarpalayam, Vavipalayam, Tiruppur District, Tamil Nadu State – 641 666.

The applicant applied for Keeranur Rough stone and Gravel Quarry in S.F.Nos.441/A1 (P), A2 (P), A3 (P) & A4 (P) over an extent of 2.00.21ha of Patta lands in Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State under Rule 19 (1) (b), 20 & 33 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the Assistant Director, Department of Geology and Mining, Tiruppur District and passed a Precise Area Communication letter vide **Rc.No.685/Mines/2022**, **Dated: 21.03.2023** to submit Mining Plan for the approval in Department of Geology and Mining, Tiruppur District and obtain Environmental Clearance from the State Level Environmental Impact Assessment Authority (SEIAA), Chennai, Tamil Nadu State, with the conditions to provide (Please refer Annexure No – I):


1. While quarrying operation carried out, the applicant should provide a safety distance of 7.5m to the adjacent patta lands.
2. While quarrying operation carried out, the applicant should provide a safety distance of 10m to the adjacent quarry in the Western side of the applied area.

In order to ensure compliance of the order of the Honourable Supreme Court Dated: 27.02.2012 in I.A.No.12.13.2011 in Special Leave Petition SLP (C) No 19628-19629/2009, it has been now decided that all mining projects of minor minerals including their renewal irrespective of sizes of the lease would hence forth require prior environmental clearance mining project within the lease applied area up to less than 100ha including projects or minor mineral with lease applied area less than 5ha would be treated as category B as defined in the EIA notification 2006 and will be considered by the state notified by MoEF as prescribed procedure under EIA notification 2006

to the Conditions indicated in the Mining Plan approved Letter

No. 685 / Mines / 2022
Dated 5.4.2023

This Mining Plan is approved as per the procedure under EIA notification 2006
Nadu Minor Mineral Concession Rules, 1959


ASSISTANT DIRECTOR
Geology and Mining
TIRUPPUR

In the above circumstances the applicant through his consultant is hereby preparing the Mining Plan, Environmental Management Plan and Progressive Quarry Closure Plan for approval and subsequent submission of Form-I, Form-IM and Pre-feasibility report to obtain environmental clearance from the SEIAA, Chennai, Tamil Nadu State, Rough Stone and Gravel quarry. This mining plan is prepared by considering the Rules 41 & 42 as Amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the EIA Notification 2006 and its subsequent Amendment and judgments till 2023.

Short Notes of Mining Plan:

- a. Village Panchayat - Keeranur
- b. Panchayat Union - Kangayam
- c. The Geological Resources are **7,94,365m³** of Rough Stone, **55,770m³** of Weathered Rock and **36,894m³** of Gravel formation in the entire area.
- d. The Total Mineable Reserves are **2,64,320m³** of Rough Stone, **42,480m³** of Weathered Rock and **30,240m³** of Gravel in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are **2,64,320m³** of Rough Stone for five years, **42,480m³** of Weathered Rock and **30,240m³** of Gravel in the entire area.
- f. Total extent of the lease applied area = 2.00.21ha
- g. Topography of the area = The area exhibits plain topography
- h. Proposed Depth of mining = 45m (2m Gravel + 3m Weathered Rock + 40m 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. B. Vijayalakshmi, Tiruppur District**, over an extent of 2.78.0hectares of Patta lands in S.F.Nos.441/A1, A2 & A3 of Keeranur Village, Kangayam Taluk, Tiruppur District vide **Rc.No.166/Mines/2011, Dated: 03.07.2012** (Please refer Annexure No. IA) for the period of five years from 03.07.2012 to 02.07.2017 for quarrying of Rough Stone and Gravel. As the lease granted vide **Rc.No.166/Mines/2011, Dated: 03.07.2012** was expired, the applicant has applied a quarry lease on 10.10.2022, over an extent of 2.00.21ha in S.F.Nos.441/A1 (P), A2 (P), A3 (P) & A4 (P) of Patta land of Keeranur Village, Kangayam Taluk, Tiruppur District for the period of five years. The application was meritoriously processed by the Assistant Director, Department of Geology and Mining, Tiruppur 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)
68	23	12

- 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 2.00.21ha bounded by five corners; the corners are designated as 1-5 Clockwise from the Southern 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 32 employees are deploying in the quarrying operation.
- v. Total Cost of the project is about **Rs.78,83,000/-**.

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	Alambadi	4km – SE
Nearest School	Keeranur	1km – SW
Nearest Dispensary	Kangayam	9km – S
Nearest Town	Kangayam	9km – S
Nearest Police Station	Kangayam	9km – S
Nearest Hospital	Kangayam	9km – S
Nearest D.S.P. Office	Kangayam	9km – S
Nearest Railway Station	Sanarpalayam	13km – NW
Nearest Airport	Coimbatore	66km – SW
Nearest Seaport	Kochi	191km – SW
District Head quarters	Tiruppur	24km – NW

**2.0 GENERAL INFORMATION**

- 2.1 a) Name of the Applicant :** **Thiru. B. Vishnu Kumar,**
S/o. Balasubramaniam,
- b) Address of the Applicant (With Phone No and Aadhaar No)**
- Address : No.4/114-G, Sedarpalayam,
Vavipalayam,
Tiruppur District.
- Pin Code : 641 666
- Mobile No : +91 96888 54077
- Aadhaar No : 7931 2047 6111 (Annexure No. VIII)
- Email ID : vish.kum19@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, Tiruppur District vide **Rc.No.685/Mines/2022, Dated: 21.03.2023** to submit approved mining plan and to obtain Environmental Clearance from the State Level Environmental Impact Assessment Authority (SEIAA), Chennai, Tamil Nadu State.

c) Period of permission / lease to be granted:

Five Years.

d) Name and address of the Qualified Person who preparing the Mining Plan:

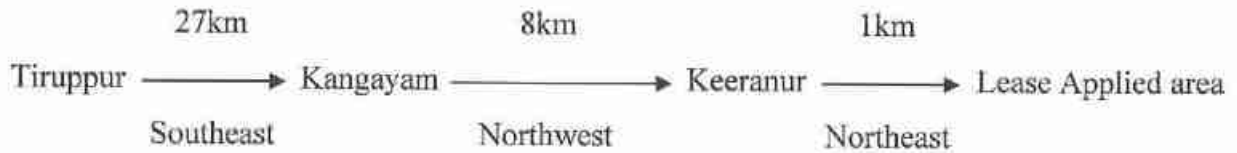
- Name : **Dr. P. Thangaraju, M.Sc., Ph.D.,**
Qualified Person
(As per Rule 15(I)(a) and (I)(b) of MCR, 2016)
- Address : Reg. No.17, Advaita Ashram Road,
Alagapuram, Salem District – 636 004.
- Telephone : 0427- 2431989 (Office)
- Cell No : +91 94422 78601 & 94433 56539
- Email : infogcoexploration@gmail.com

(Refer Annexure Nos. IX & X).

3.0 LOCATION

a) Details of the area with location map:

The lease applied area is about 24km Southeastern side of Tiruppur town and 9km Northern side of Kangayam town, the lease applied area located along Keeranur Village at a distance of 1km Northeastern side.



Location Map of the Lease Applied Area

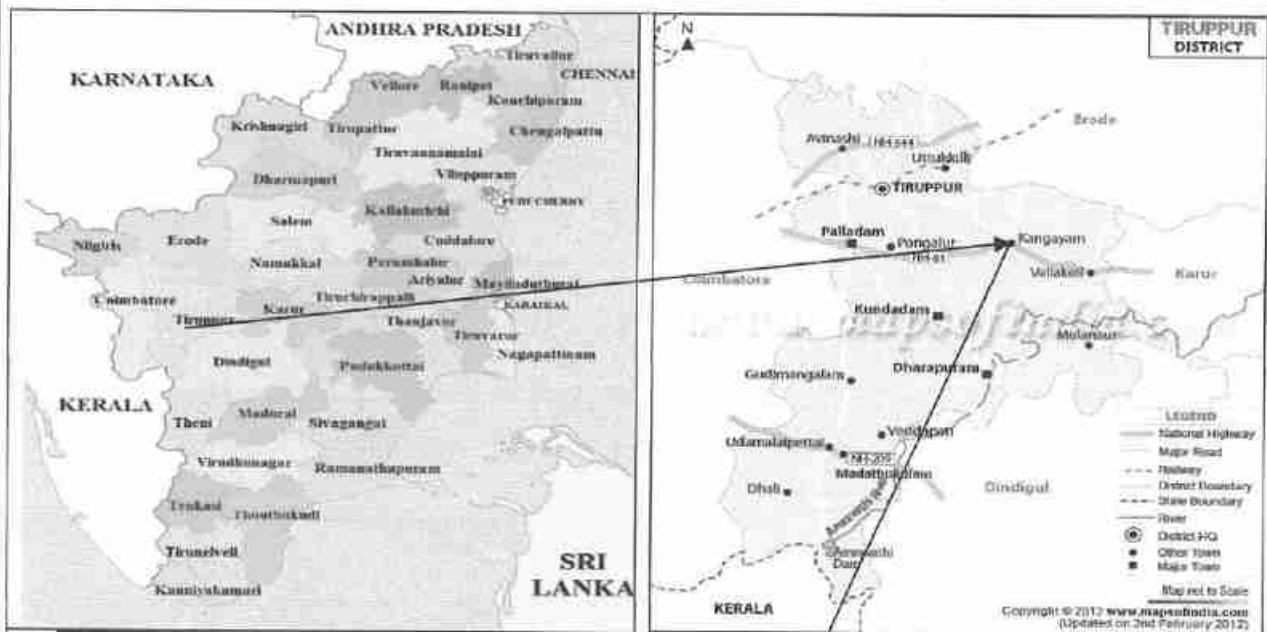


TABLE-2

District	Taluk	Village	S.F. Nos.	Lease Applied Area in ha.	Patta Nos.
Tiruppur	Kangayam	Keeranur	441/A1 (P)	0.44.10	556
			441/A2 (P)	0.53.21	508
			441/A3 (P)	0.63.30	518
			441/A4 (P)	0.39.60	3902
Total Extent				2.00.21ha	

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

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

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

It is a Patta lands. Registered in the name of the applicant (**Thiru. B. Vishnu Kumar**), vide Patta No. 3902 and Tmt. B. Vijayalakshmi, vide Patta Nos. 556, 508 & 518. The applicant has obtained consent from the Pattadar. Refer Annexure Nos. IV & VIII.

d) Topo sheet No. with latitude and longitude:

The lease applied area falls in the Topo sheet No: **58 – E/12** Latitude between: **11°04'56.20"N to 11°05'02.05"N** and Longitude between: **77°33'27.55"E to 77°33'33.06"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 Western side which connects the Panchayat Road at a distance of 330m on the Northwestern side from the lease applied area.

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

The approach road from the quarry is already in existence, the same will be utilized for haulage and maintained during the entire lease period, tree sapling will be planted on the either side of the road to prevent dust and noise propagation to the nearby areas.

The Nearest Railway line is Coimbatore – Erode which is about 13km on the Northwestern side of the lease applied area.

PART – A**4.0 GEOLOGY AND MINERAL RESERVES****4.1 Brief description of the Topography and general Geology of the area (with plans):**

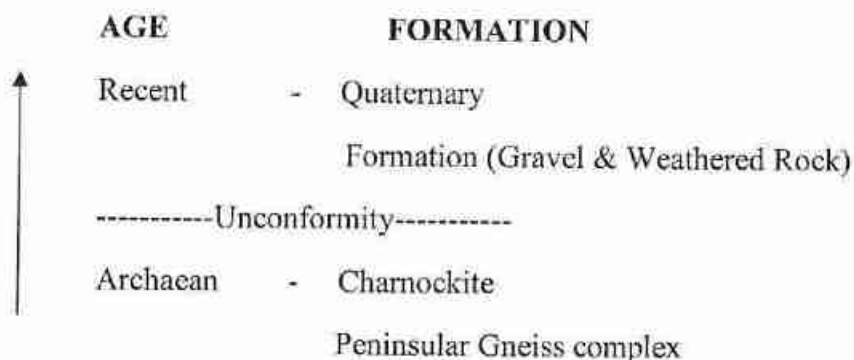
The lease applied area exhibits plain topography. The area has gentle sloping towards Northeastern side. The altitude of the area is 282m (max) above Mean Sea level. The area is covered by 2m thickness of Gravel formation and 3m of Weathered Rock. Massive Charnockite is found after 5m (2m Gravel + 3m Weathered Rock) which is clearly inferred from the existing quarry pit.

The Water table is found at a depth of 62m in summer and at 58m in rainy seasons. Average annual rainfall is about 607mm.

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 $N30^{\circ}E - S30^{\circ}W$ with dipping towards $SE60^{\circ}$.

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



4.2 Details of exploration already carried out if any:

State Geology and Mining Dept, Govt. of Tamil Nadu, has carried out the Regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping in Tiruppur District. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area. The Rough Stone formation is clearly inferred from the existing quarry pit.

4.3 Estimation of Reserves:

a) Geological reserves with geological sections on a scale of 1:1000 / 1:2000

As far as Rough Stone (Charnockite) is concerned, the only practical method is the systematic geological mapping and delineation of Rough Stone within the field and careful evaluation of body luster, physical properties, engineering properties and commercial aspects etc.,

Totally two sections have been drawn, one section is drawn Length wise as (X-Y) and other one section is drawn Width wise as (A-B) 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 45m (2m Gravel + 3m Weathered Rock + 40m Rough Stone) below ground level. **The total Geological resources are calculated by sectional method and the resources are estimated after depletion of existing quarry pits.** The total available geological resources are given below:

TABLE-3

GEOLOGICAL RESOURCES							
Section	Bench	Length 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	143	129	2	-	-	36894
	II	143	130	3	-	55770	-
	III	143	131	5	93665	-	-
	IV	143	140	5	100100	-	-
	V	143	140	5	100100	-	-
	VI	143	140	5	100100	-	-
	VII	143	140	5	100100	-	-
	VIII	143	140	5	100100	-	-
	IX	143	140	5	100100	-	-
	X	143	140	5	100100	-	-
	Total					794365	55770

Total Geological Resources of Gravel Formation	:	36,894m³
Total Geological Resources of Weathered Rock	:	55,770m³
Total Geological Resources of Rough Stone	:	7,94,365m³

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)
68	23	12

Available Mineable Reserves:

The available Mineable reserves are calculated after leaving the safety distance and bench loss to a maximum depth of 45m 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	126	120	2	-	-	30240
	II	120	118	3	-	42480	-
	III	114	112	5	63840	-	-
	IV	104	102	5	53040	-	-
	V	94	92	5	43240	-	-
	VI	84	82	5	34440	-	-
	VII	74	72	5	26640	-	-
	VIII	64	62	5	19840	-	-
	IX	54	52	5	14040	-	-
	X	44	42	5	9240	-	-
Total					264320	42480	30240

The mineable reserves have been computed as **2,64,320m³** of Rough Stone at the rate of 100% recovery, **42,480m³** of Weathered Rock and **30,240m³** of Gravel upto a maximum depth of 45m below ground level for a period of five years.

5.0 MINING**5.1 Method of mining (opencast / underground):**

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

However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106 (2) (b) is available with Director General of Mines Safety. If the applicant/lessee intends to modify the dimensions of benches, relaxation and permission are available with Director General of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961. In such a scenario if there is any drastic change in the Resources and Reserves a modified plan will be submitted to the concerned authority for necessary relaxation, clearance and permission. The relaxation will be applied and obtained after the execution of lease deed / commencement of quarry operation.

5.2 Mode of working (mechanized, semi mechanized, manual):

The Rough Stone is proposed to quarry at 5m bench height & width with conventional Opencast Mechanized Method.

The quarry operation involves shallow jack hammer drilling, slurry explosives in blasting, excavation, loading and transportation of Rough Stone to the needy crusher.

The production of Rough Stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and slurry explosives blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crushers.

Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by rock breakers attached in excavators. It is a conventional opencast mechanized method of mining.

5.3 Proposed Bench Height and Width:

The Charnockite is hard and compact rock, the bench height is proposed 5.0 meter vertical bench the width of the bench is not less than the Height.

5.4 Indicate the overburden / mineral production expected pit wise as detailed below (composite plan and section showing pit layout, dumps, disposal of waste if any etc.):

The overburden in the form of Gravel and Weathered Rock, the Gravel and Weathered Rock will be directly loaded into Tippers for the filling and levelling of low lying areas, this will be done only after obtaining permission and paying necessary seigniorage fees to the Government. The excavated Rough stone will be directly loaded into Tippers to the needy customers. The Composite year wise Development and production plan and sections indicating the Pit lay out, Greenbelt development are shown in Plate No. III.

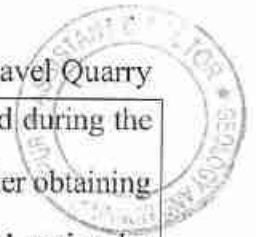
Year wise development and Production

TABLE-6

YEARWISE PRODUCTION DETAILS

Years	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Recoverable Reserves in Rough stone (m ³)	Weathered Rock (m ³)	Gravel (m ³)
I	XY-AB	I	57	120	2	-	-	13680
		II	51	118	3	-	18054	-
		III	45	112	5	25200	-	-
		IV	35	102	5	17850	-	-
		Total					43050	18054
II	XY-AB	I	43	120	2	-	-	10320
		II	43	118	3	-	15222	-
		III	43	112	5	24080	-	-
		IV	43	102	5	21930	-	-
		Total					46010	15222
III	XY-AB	I	26	120	2	-	-	6240
		II	26	118	3	-	9204	-
		III	26	112	5	14560	-	-
		IV	26	102	5	13260	-	-
		V	55	92	5	25300	-	-
		Total					53120	9204
IV	XY-AB	V	39	92	5	17940	-	-
		VI	84	82	5	34440	-	-
		VII	24	72	5	8640	-	-
		Total					61020	-
V	XY-AB	VII	50	72	5	18000	-	-
		VIII	64	62	5	19840	-	-
		IX	54	52	5	14040	-	-
		X	44	42	5	9240	-	-
		Total					61120	-
Grand Total						264320	42480	30240

The Recoverable reserves have been computed as **2,64,320m³** of Rough Stone at the rate of 100% recovery for five years, **42,480m³** of Weathered Rock and **30,240m³** of Gravel for three years upto depth of 45m below ground level for a mining period.



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

One lorry load	=	6m ³ (approx.)
Total No of Working days	=	300 Days per year
Total quantity to be removed in this five years plan period	=	2,64,320m ³
Hence total lorry loads per day	=	2,64,320m ³ /6m ³
	=	44053 lorry loads
	=	44053/5 years
	=	8811/300 Days
Rough Stone	=	29 lorry loads per day
Total quantity to be removed in this three years plan period	=	42,480m ³
Hence total lorry loads per day	=	42,480m ³ /6m ³
	=	7080 lorry loads
	=	7080/3 years
	=	2360/300 Days
Weathered Rock	=	7-8 lorry loads per day
Total quantity to be removed in this three years plan period	=	30,240m ³
Hence total lorry loads per day	=	30,240m ³ /6m ³
	=	5040 lorry loads
	=	5040/3 years
	=	1680/300 Days
Gravel	=	5-6 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	6	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 and Weathered Rock, the Gravel and Weathered Rock will be directly loaded into Tippers for the filling and levelling of low lying areas. The excavated Rough Stone (100%) will be directly loaded into Tippers to the needy customers. There is no Waste anticipated during this plan period hence, disposal of waste does not arise.

5.7 Brief note on conceptual mining plan for the entire lease period base on the geological, mining and Environment considerations:

Conceptual mining plan is prepared with an object of long term systematic development of benches, layouts, selection of permanent structures, depth of quarrying and ultimate pit dimensions, selection of sites for construction of infrastructure, etc.,

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

As the applicant has applied quarry lease for five years, the ultimate pit limit (dimension) at the end of this mining plan period is given below:

TABLE-8

Length (m) (max)	Width (m) (max)	Depth (m) (max)
126	131	45m 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).

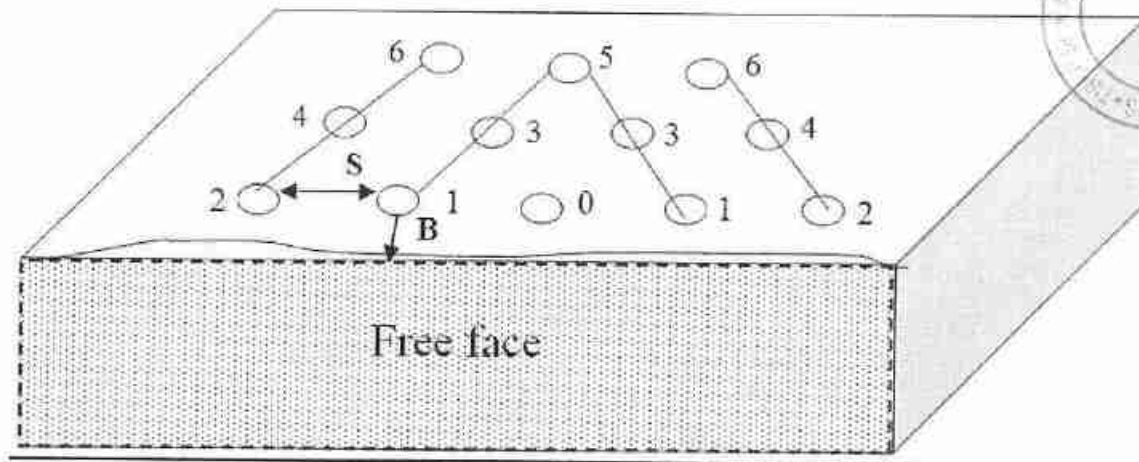
6.0 BLASTING

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	=	152 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	= 152 Holes
Yield	= 458 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 76 Kg-Slurry explosives
Charge/ hole	= 0.5 Kg
Blasting at day time only	= 12.00 – 12.30p.m (whenever required)

6.4 Storage and safety measures to be taken while blasting:

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

7.0 MINE DRAINAGE**7.1 Depth of water table (based on nearby wells and water bodies):**

The Water Table in the area is 62m in summer season and 58m 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	310m Northwestern side	11°05'07.15"N 77°33'19.55"E

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

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


8.0 OTHER PERMANENT STRUCTURES (also shown in the map)

S. No.	Salient Features Present around site	Prescribed safety distance	If any present within Prescribed distance it's actual distance and direction from the area															
8.1	Railways, Highways	50m	None of the above situated within 50m radius. Nearest National Highway – Coimbatore to Trichy (NH-81) – 9km – S Nearest State Highway – Chennimalai to Kangayam Road (SH-96) – 2km – E Nearest Major District Road – Uthukuli to Chennimalai Road (MD-71) – 8km – NW															
8.2	Water Bodies (River, Pond, Lake, Odai, Canal)	50m	There is no River, Pond, Lake, Odai, Canal located within 50m radius of the lease applied area.															
8.3	Village Road	10m	No village road is passing within 10m radius on the lease applied area.															
8.4	Habitation / Village	300m	There is no approved habitation within 300m radius from the lease applied area (Refer Plate No I-B).															
8.5	Archaeological / historical monuments	500m	There is no Archaeological / historical monuments within 500m radius from the lease applied area.															
8.6	Places of worships	300m	There is no place of worships within the radius of 300m from the lease applied area.															
8.7	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.															
8.8	Adjacent Patta lands / Govt. Land	7.5m/10m	<table border="1"> <thead> <tr> <th>Direction</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>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>Patta land</td> <td>7.5m</td> </tr> <tr> <td>West</td> <td>Patta land / Adjacent Quarry</td> <td>10m</td> </tr> </tbody> </table> (Refer Plate No. II).	Direction	Classification	Safety Distance	North	Patta land	7.5m	East	Patta land	7.5m	South	Patta land	7.5m	West	Patta land / Adjacent Quarry	10m
Direction	Classification	Safety Distance																
North	Patta land	7.5m																
East	Patta land	7.5m																
South	Patta land	7.5m																
West	Patta land / Adjacent Quarry	10m																

8.9	Boundaries of the permitted area	7.5m/10m	The boundaries of the lease applied area are as follows: North - S.F.No.439 East - S.F.No.441/B4 South - S.F.No.442 West - S.F.Nos.441/A1(P), A2(P) & A3(P) (Refer Plate No. II).
8.10	Reserve forest	60m	There is no reserve forest / forest / social forest / wild life sanctuary etc., within radius of 60m of the lease applied area. (Refer Plate No. IA and IB).
8.11	Protected area / ECO sensitive area/ Wild Life Sanctuary	10km	There is no other 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	:	2
Driver	:	4
Jack hammer operator	:	12

b. Semi-skilled:

Security	:	1
----------	---	---

c. Unskilled:

Labour & Helper	:	5
Co-operator and Cleaner	:	6
Total	:	32



The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations. It is been ensured that the labour will not be employed less than 18 years, **No child labour** will engaged or entertained for any kind of quarrying operations. All the labours engaged for quarrying operations will be insured during the quarry lease period.

9.2 Welfare Measures:

a. Drinking Water:

Packaged drinking water is available from the nearby approved water vendors in Keeranur which is about 1km on the Southwestern side of the lease applied area.

b. Sanitary Facilities:

Hygienic modern Sanitary Facilities will be constructed as semi-permanent structure and it will be maintained periodically as hygienic.

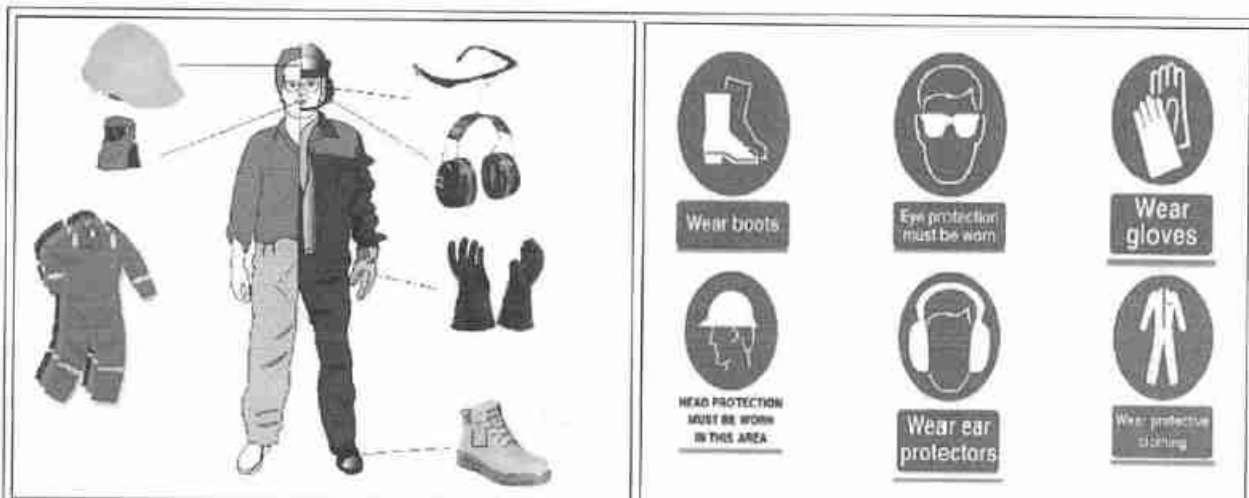
c. First aid facility:

First aid kits are kept in Mines office room, in case of such eventuality is the victim will be given first aid immediately at the site by the competent and statutory foreman/permit manager/mate will be in charge of first aid and injured person will be taken to the hospital by the applicant vehicle. Hospital is available in Kangayam located at a distance of 9km on the Southern 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)
Quarrying Pit	0.10.11
Infrastructure	Nil
Roads	0.02.00
Green Belt	Nil
Unutilized Area	1.88.10
Grand Total	2.00.21

10.2 Water Regime:






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

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







10.3 Flora and Fauna:

TABLE-11

List of Flora

S. No.	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Thespesia populnea</i>	Indian Tulip Tree	Poovarasu	Tree	
2.	<i>Tamarindus indica</i>	Caesalpinaceae	Puli	Tree	
3.	<i>Pongamia pinnata</i>	Fabaceae	Pungai	Tree	
4.	<i>Cassia auriculata</i>	Fabaceae	Aavarampoo	Shurb	
5.	<i>Ziziphus oenoplia</i>	Rhamnaceae	Suraimullu, Surai ilantai	Shurb	

List of Fauna

S. No.	Scientific Name	Common Name	Picture
1.	<i>Capra hircus</i>	Goat	
2.	<i>Boigaspp</i>	Cat snake	
3.	<i>Athene brama</i>	Spotted owlet	
4.	<i>Passer domesticus</i>	House sparrow	
5.	<i>Precis hierta</i>	Yellow pansy	
6.	<i>Funambuluspalmarum</i>	Indian palm squirrel	

10.4 Climatic Conditions:

The area receives rainfall of about 607mm/annum and the rainy season is mainly from Oct - Dec during monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 21°C.

10.5 Human settlement:

There are few villages located in this area within 5km radius; the approximate distance and population are given below:

TABLE-12

S. No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Maravapalayam	2km – NE	2,700
2.	Naalroad	2km – SE	2,800
3.	Keeranur	1km – SW	2,800

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Kangayam located at a distance of 9km on the Southern 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.

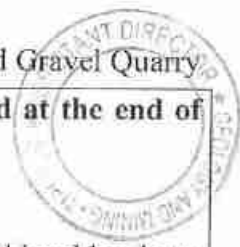
Noise level monitoring and other Mitigation measures will be carried out to reduce Noise and Vibration. The estimated budget for Noise level monitoring would be around **Rs.2,000/Year**.

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 45m below ground level has been envisaged as workable depth for safe & economic mining during entire lease applied area. There is no waste generated hence, backfilling is not possible. Hence, the quarry area will be fenced with Barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle. The barbed wire fencing cost would be around **Rs.1,38,000/-**.

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

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

TABLE-13

Year	No. of trees proposed to be planted	Survival %	Area to be covered sq.m	Name of the species	No. of trees expected to be grown
I	40	80	320	Neem, Pongamia Pinnata, Casuarina, etc.,	32
II	40	80	320		32
III	40	80	320		32
IV	40	80	320		32
V	40	80	320		32

Nearly 1,600sq.m area is proposed to use under Greenbelt by planting 40 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.20,000/-** for the period of five years.

The Greenbelt Development will be formed in around the quarried out top benches, approach road and nearby panchayat road from the lease applied area. The cost would be around **Rs.40,000/-**.

**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, Rs.16,56,000/ha, hence the total land cost is calculated about 2.00.21ha X Rs.16,56,000/- = Rs.33,15,477.6/-, i.e., Rs.33,16,000/- (Source: https://turinget.gov.in/portal/)	Rs.33,16,000/-
ii)	Machinery to be used	The following machineries are proposed to meet out the productions. Excavator attached with rock breaker, Tippers, Tractor mounted compressor with jack hammer and loose tools (Rental Basis)	Rs.30,00,000/-
iii)	Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattles cost would be around	Rs.1,38,000/-
iv)	Labourers shed	Labour sheds will be constructed as semi-permanent structure. The cost would be around	Rs.1,00,000/-



v) Sanitary facility	Adequate latrine and urinal accommodation shall be provided at conveniently accessible places the cost would be around	Rs.80,000/-
vi) Others items	First aid room & accessories	Rs.60,000/-
vii) Drinking water facility for the labourers	Packaged drinking water will be provided for all the Labours. Drinking water will be readily available at conveniently accessible points during the whole of the working shift the cost would be around	Rs.1,50,000/-
viii) Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around	Rs.80,000/-
ix) Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around	Rs.70,000/-
x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	Rs.1,80,000/-
xi) Garland drains Construction	Construction of garland drains to divert surface runoff from virgin area away from mining area	Rs.1,14,000/-
xii) Greenbelt etc.	Greenbelt program will be carried out in the boundary barriers the cost would be around	Rs.20,000/-
	Greenbelt program will be carried out in the quarried out top benches, approach road and nearby panchayat road	Rs.40,000/-
Total Operational Cost		Rs.73,48,000/-



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	Rs.73,48,000/-
B. EMP Cost	Rs.3,80,000/-
Total Project Cost (A+ B)	Rs.77,28,000/-
The applicant indents to involve corporate environment responsibilities (CER) activity like Medicine Racks, Water Purifier and Green Belt Development to the nearby Dispensary at 2.0% from the total project cost. The Cost would be around Rs.1,55,000/- .	Rs.1,55,000/-
Total Cost	Rs.78,83,000/-
The Total cost would be around seventy-eight lakhs and eighty-three thousand only.	

11.0 PROGRESSIVE QUARRY CLOSURE PLAN**11.1 Introduction:**

The Progressive Quarry Closure Plan for Rough Stone and Gravel quarry over an extent of 2.00.21ha of Patta lands in S.F.Nos.441/A1 (P), A2 (P), A3 (P) & A4 (P) of Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared for **Thiru. B. Vishnu Kumar**, S/o. Balasubramaniam, No.4/114-G, Sedarpalayam, Vavipalayam, Tiruppur District, Tamil Nadu State – 641 666.

11.2 Present Land use pattern:LAND USE TABLE-15

Description	Present area in (ha)
Quarrying Pit	0.10.11
Infrastructure	Nil
Roads	0.02.00
Green Belt	Nil
Unutilized Area	1.88.10
Grand Total	2.00.21

11.3 Method of Mining:

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

However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106 (2) (b) is available with Director General of Mines Safety. If the applicant/lessee intends to modify the dimensions of benches, relaxation and permission are available with Director General of Mines Safety under 106 (2) (b) of Metalliferous Mines Regulations, 1961. In such a scenario if there is any drastic change in the Resources and Reserves a modified plan will be submitted to the concerned authority for necessary relaxation, clearance and permission. The relaxation will be applied and obtained after the execution of lease deed / commencement of quarry operation.

11.4 Mineral Processing Operations:

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

11.5 Reasons for closure:

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

11.6 Statutory obligations:

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

11.7 Progressive quarry closure plan preparation:

Name and address of the Qualified Person who prepared the progressive closure plan and name and address of the executing agency who is involved in the Preparation of progressive quarry closure plan.

Name	:	Dr. P. Thangaraju, M.Sc., Ph.D., Qualified Person (As per Rule 15(I)(a) and (I)(b) of MCR, 2016)
Address	:	Reg. No.17, Advaita Ashram Road, Alagapuram, Salem District – 636 004.
Telephone	:	0427- 2431989 (Office)
Cell No	:	+91 94422 78601 & 94433 56539

Applicant will himself implement the closure plan; no outside agency will be involved.

11.8 Review of Implementation of Mining Plan including Progressive Closure Plan upto the Final Closure Plan:

There is no waste generated during entire life of quarry, hence backfilling is not possible in the quarried out pit. The entire quarry area is an active also no proposal given for Progressive quarry closure plan in the previous mining plan hence, the applicant has not taken any action for progressive quarry closure. Hence, review of implementation of progressive quarry closure does not arise at present. However, if any work done for progressive quarry closure plan during this plan period, it will be discuss in the ensuing Mining Plan.

11.9 Closure Plan:**(i) Mined Out Land:**

At the end of mining plan period, about 1.60.31ha of area will be mined out. Land use at various stages is given in the table below:

LAND USE TABLE-16

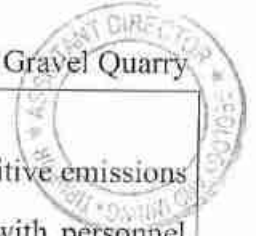
Description	Present area in (ha)	Area at the end of this quarrying period (ha)
Quarrying Pit	0.10.11	1.60.31
Infrastructure	Nil	0.01.00
Roads	0.02.00	0.02.00
Green Belt	Nil	0.16.00
Unutilized Area	1.88.10	0.20.90
Grand Total	2.00.21	2.00.21

The Greenbelt Development will be formed in around the quarried out top benches, approach road and nearby panchayat road from the lease applied area.

(ii) Water quality management:

Following control measures will be adopted for controlling water pollution:

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

**(iii) Air Quality Management:**

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

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

(iv) Top Soil and Waste Management:

There is no topsoil or waste generated during the proposed plan period. The entire quarried out Rough Stone and Gravel is utilized (100%). Hence, waste management does not arise.

(v) Disposal of mining machinery:

All the machineries will be engaged on rental basis. Hence, disposal or decommissioning of mining machinery does not arise.

(vi) Safety & Security:

Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the work persons.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
- Danger signs shall be displayed near the excavations and proper signal by siren alarm will be provide before blasting time to prevent any accident.
- Security guards will be posted.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

(vii) Disaster Management and Risk Assessment:

This should deal with action plan for high-risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high-risk accident due to side falls/collapse, flying stones due to blasting etc.
- The complete quarrying operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.
- The Greenbelt Development will be formed in around the quarried out top benches, approach road and nearby panchayat road from the lease applied area.

(viii) Care and Maintenance during Temporary Discontinuance:

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

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.



- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:
 - Quarry roads and approach roads,
 - Fencing on approach roads,
 - Checking and maintenance of machines and equipment,
 - Drinking water arrangements,
 - Quarry office, first aid stations etc.
- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

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

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

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

(x) Time Scheduling for Abandonment:

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

(xi) Abandonment Cost:

As at present mining is not going to be closed so abandonment cost could not be assessed.

However, based on the progressive quarry closure activities during the plan period, cost is assessed as given below:


LAND USE TABLE-17

ACTIVITY		YEARS					RATE	COST (Rs.)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	40	40	40	40	40		20,000/-
	Cost	4000	4000	4000	4000	4000		
Plantation in the quarried out top benches, approach road and nearby panchayat road	Nos.	80	80	80	80	80	@100 Rs Per sapling	40,000/-
	Cost	8000	8000	8000	8000	8000		
Wire Fencing (In Mtrs) 460 Mtrs		138000	-	-	-	-	@300 Rs Per Meter	1,38,000/-
Garland Drain (In Mtrs) 380 Mtrs		114000	-	-	-	-	@300 Rs Per Meter	1,14,000/-
TOTAL								3,12,000/-

12.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

This Mining Plan for Rough Stone (Charnockite) and Gravel are under Rules 41 & 42 as per the Amended under Tamil Nadu Minor Mineral Concession Rules, 1959. The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied within the quarrying operation, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. As per amendment notification in the EIA notification 2006 is given by Ministry of Environment, Forest and Climate Change vide S.O.1807(E), dated:12.04.2022, the validity of environmental clearance is throughout the entire lease period. Any violation pointed out by the inspecting authorities shall be rectified and modified after scrutiny comments as per the guidelines of the Concerned Department and Authorities.

Prepared by


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

Qualified Person

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

Place: Salem

Date: 25.03.2023

DONATE RED


SPREAD GREEN

SAVE BLUE

This Mining Plan is approved subject
to the Conditions indicated in the
Mining Plan approved Letter

No. 685/Mines/2022
Dated 3.4.2023

This Mining Plan is approved as per the
Powers conferred under rule 41(2) of Tamil
Nadu Minor Mineral Concession Rules, 1959


 ASSISTANT DIRECTOR
 Geology and Mining
 TIRUPPUR



உதவி இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருப்பூர்.



ந.க. 685/கனிமம்/2022

நாள்: 21 .03.2023.

குறிப்பாணை

பொருள் : கனிமங்களும் சுரங்கங்களும் - சிறு கனிமம் - திருப்பூர் மாவட்டம் - காங்கயம் வட்டம் - கீர்னூர் கிராமம் - புல எண். 441/A1 (P), 441/A2 (P), 441/A3 (P), 441/A4 (P) ஆகியவற்றில் மொத்தம் 2.00.21 ஹெக்டர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் குவாரி குத்தகை உரிமம் கோரி திரு. பி. விஸ்ணுகுமார், த/பெ. பாலசுப்பிரமணியம், என்பவர் விண்ணப்பம் அளித்தது - அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம் மற்றும் சுற்றுச் சூழல் ஒப்புதல் பெற்று அளிக்க கோருதல் - தொடர்பாக.

- பார்வை :
1. திரு. பி. விஸ்ணுகுமார், த/பெ. பாலசுப்பிரமணியம், எண். 4/114-ஜி, சேடர்பாளையம், வாவிபாளையம், திருப்பூர் என்பவரின் மனு நாள்: 10.10.2022.
 2. இவ்வலுவலக ந.க.எண். 685/கனிமம்/2022, நாள்: 11.10.2022.
 3. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை ந.க. 1870/எம்.எம்.1/2020 நாள்: 10.08.2020 கடிதத்துடன் அரசாணை (பல்வகை) எண். 169, தொழில் (எம்எம்.சி-1) துறை நாள்: 04.08.2020 இணைத்து வரப்பெற்றுள்ளது. (தமிழ்நாடு அரசிதழ் சிறப்பு வெளியீடு எண். 315 நாள்: 04.08.2020).
 4. வட்டார வளர்ச்சி அலுவலர், காங்கயம் கடிதம் ந.க. 1025/2021/ஆ4 நாள்: 29.12.2022.
 5. வட்டாட்சியர், காங்கயம் கடிதம் ந.க. 4450/2022/அ2, நாள்: 22.12.2022.
 6. வருவாய் கோட்டாட்சியர், தாராபுரம் கடிதம் ந.க. 5773/2022/இ, நாள்: 02.01.2023.
 7. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, திருப்பூர் புலத்தணிக்கை அறிக்கை நாள்: 20.03.2023.
 8. மற்றும் உரிய ஆவணங்கள்

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திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீர்னூர் கிராமம், புல எண். 441/A1 (P) (0.44.10), 441/A2 (P) (0.53.21), 441/A3 (P) (0.63.30), 441/A4 (P) (0.39.60) ஆகியவற்றில் மொத்தம் 2.00.21 ஹெக்டர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் குவாரிக் குத்தகை உரிமம் வழங்க கோரி திரு. பி. விஸ்ணுகுமார், த/பெ. பாலசுப்பிரமணியம், எண். 4/114-ஜி, சேடர்பாளையம், வாவிபாளையம், திருப்பூர் என்பவர் பார்வை 1-ல் கண்டுள்ளபடி உரிய ஆவணங்களுடன் விண்ணப்பம் அளித்துள்ளார்.



2. மேற்படி விண்ணப்பம் தொடர்பாக, காங்கயம் வட்டார வளர்ச்சி அலுவலர், காங்கயம் வட்டாட்சியர், தாராபுரம் வருவாய் கோட்டாட்சியர் மற்றும் திருப்பூர், புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரனூர் கிராமம், புல எண். 441/A1 (P) (0.44.10), 441/A2 (P) (0.53.21), 441/A3 (P) (0.63.30), 441/A4 (P) (0.39.60) ஆகியவற்றில் மொத்தம் 2.00.21 ஹெக்டர் பரப்பில் திரு. பி. விஸ்ணுகுமார், த/பெ. பாலசுப்பிரமணியம், என்பவருக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் குவாரி உரிமம் வழங்க கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

- பிரஸ்தாப புலத்தை சுற்றி அமைந்துள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரி பணிபுரிய வேண்டும்.
- பிரஸ்தாப புலத்தின் மேற்குப் பகுதியில் அமைந்துள்ள குவாரிக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி அளித்து குவாரி பணிபுரிய வேண்டும்.

எனவே, காங்கயம் வட்டார வளர்ச்சி அலுவலர், காங்கயம் வட்டாட்சியர், தாராபுரம் வருவாய் கோட்டாட்சியர் மற்றும் திருப்பூர், புவியியல் மற்றும் சுரங்கத்துறை, உதவி இயக்குநர் ஆகியோர்களின் பரிந்துரைகளின் அடிப்படையில் திரு. பி. விஸ்ணுகுமார், த/பெ. பாலசுப்பிரமணியம், என்பவருக்கு திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரனூர் கிராமம், புல எண். 441/A1 (P) (0.44.10), 441/A2 (P) (0.53.21), 441/A3 (P) (0.63.30), 441/A4 (P) (0.39.60) ஆகியவற்றில் மொத்தம் 2.00.21 ஹெக்டர் பரப்பில் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959-இன் விதி எண். 19 (1) (b), 20 மற்றும் 33-ன்படி குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றப்பட்ட நாளிலிருந்து 5 ஆண்டுகளுக்கு சாதாரண கற்கள் மற்றும் கிராவல் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக மேற்காணும் நிபந்தனைகளுக்கு உட்பட்டு திருப்பூர், உதவி இயக்குநரால் ஏற்பளிக்கப்பட்ட சுரங்கத் திட்டம் மற்றும் மாநில சுற்றுச் சூழல் அமைப்பிடம் இருந்து பெறப்பட்ட சுற்றுச்சூழல் ஒப்புதல் ஆகியன உரிய காலத்திற்குள் விண்ணப்பதாரால் பெற்றளிக்கப்பட வேண்டும் என தெரிவிக்கப்படுகிறது.

பெறுநர்

திரு. பி. விஸ்ணுகுமார்,
த/பெ. பாலசுப்பிரமணியம்,
எண். 4/114-ஜி, சேடர்பாளையம்,
வாவிபாளையம், திருப்பூர்

உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருப்பூர்.

21/12/23



திருப்பூர் மாவட்ட ஆட்சியர் அவர்களின் செயல்முறை ஆணை

முன்னிலை:- திரு.எம். மதிவாணன், இ-ஆ.ப.,

ந.க. 166 / கனிமம் / 2011

நாள்: 03 .07.2012

பொருள்: கனிமங்களும் குவாரிகளும் - சாதாரண கற்கள் மற்றும் கிராவல் - திருப்பூர் மாவட்டம் - காங்கயம் வட்டம் - கீரனூர் கிராமம் - புல எண். 441/ஏ1, 441/ஏ2 மற்றும் 441/ஏ3 ஆய்வற்றில் மொத்தம் 278.0 ஹெக்டர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க ஐந்து ஆண்டுகளுக்கு திருமதி. பி. விஜயலக்ஷ்மி, க/பெ. எஸ்.பி. பாலகப்பிரமணியம், என்பவருக்கு குவாரி குத்தகை உரிமம் வழங்கி ஆணையிடப்படுகிறது.

- பார்வை:
1. திருமதி. பி. விஜயலக்ஷ்மி, க/பெ. எஸ்.பி. பாலகப்பிரமணியம், 3/109, தொடியவல்லடி, மொரட்டுப் பாளையம், அவினாசி வட்டம் என்பவர் மனு நாள்: 20.4.2011.
 2. தாராபுரம் வருவாய் கோட்டாட்சியர் அவர்களின் அறிக்கை ந.க. 1278 / 2011 / ஆ நாள்: 19.4.2012
 3. திருப்பூர், புனியியல் மற்றும் கரங்கத்துறை, உதவி இயக்குநரின் இடப்பார்வை அறிக்கை நாள்: 22.6.2012

உத்தரவு:-

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரனூர் கிராமம், புல எண்கள். 441/ஏ1 (0.96.0), 441/ஏ2 (0.97.0) மற்றும் 441/ஏ3 (0.85.0) ஆய்வற்றில் மொத்தம் 278.0 ஹெக்டர் பரப்பில் சாதாரண கற்கள் வெட்டியெடுக்க ஐந்து ஆண்டுகளுக்கு பி. விஜயலக்ஷ்மி, க/பெ. எஸ்.பி. பாலகப்பிரமணியம், 3/109, தொடியவல்லடி, மொரட்டுப் பாளையம், அவினாசி வட்டம் என்பவர் குவாரி குத்தகை உரிமம் கோரி பார்வை 1-ல் கண்ட விண்ணப்பத்தில் மனு செய்துள்ளார்.

2. மனுதாரர் உரிய பாடிவத்தில் மனு செய்திருப்பதுடன், விண்ணப்பக் கட்டணம் மற்றும் அடிப்படை செலவினங்களுக்காக ரூ. 1500/- ஐ சலான் எண். 123, நாள்: 24.1.2011-ல் திருப்பூர் பாரத மாநில வங்கியில் செலுத்தியுள்ளார். மேலும், மனுதாரர் அரசுக்கு செலுத்த வேண்டிய வருவாய் வரி மற்றும் கனிம வரி எதுவும் நிலுவை இல்லை என்பதற்கான சான்றாறுதி ஆவணம் மற்றும் கிராம கணக்கு நகல்களையும் சமர்ப்பித்துள்ளார்.

3. மனுதாரர் சாதாரண கற்கள் வெட்டி எடுக்க உரிமம் கோரிய பிரஸ்தாப புலத்தை தாராபுரம் வருவாய் கோட்டாட்சியர் மற்றும் திருப்பூர் புனியியல் மற்றும் கரங்கத்துறை உதவி இயக்குநர் ஆயிப்பார் இடப்பார்வை செய்து அறிக்கை சமர்ப்பித்துள்ளார்.



பாரத மாநில வங்கி, திருப்பூர், சலான் எண். 200, நாள்: 3.7.2012-ன்படி செலுத்தி ஆசல் சலானையும், 1959-ம் தமிழ்நாடு சிறுகனிம சலுகை விதிகளின் பின் இணைப்பு IV கண்டுள்ள படிவத்தில் உரிய முத்திரைத்தாளில் குத்தகை ஒப்பந்தப் பத்திரம் தயார் செய்து அளித்துள்ளார்.

திருமதி பி. விஜயலட்சுமி, க/பெ எஸ்பி பாவகப்பிரமணியம், 3/109, தொட்டியவல்லு, மொரட்டுப் பாளையம், அவினாசி வட்டம் என்பவருக்கு, திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரணூர் கிராமம், புல எண்கள். 441/ஏ1 (0.96.0), 441/ஏ2 (0.97.0) மற்றும் 441/ஏ3 (0.85.0) ஆகியவற்றில் மொத்தம் 278.0 ஹெக்டர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க குத்தகை ஒப்பந்தப் பத்திரம் நிறைவேற்றிய நாளான 03.07.2012 முதல் 02.07.2017 வரை ஐந்து ஆண்டுகளுக்கு 1959-ம் ஆண்டு, தமிழ்நாடு சிறுகனிம சலுகை விதி 19 (1) மற்றும் 20-ன்படி குத்தகை ஒப்பந்தப் பத்திரத்தில் கண்டுள்ள நிபந்தனைகள் மற்றும் தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் கண்டுள்ள நிபந்தனைகளின் பேரிலும் குவாரி குத்தகை உரிமம் வழங்கி ஆணையிடப்படுகிறது.

சிறப்பு நிபந்தனைகள்:-

1. குத்தகை காலத்தில் அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் இடைவெளி அளித்து குவாரிப்பணி புரிய வேண்டும்.
2. குத்தகைக் காலத்தில் பொதுமக்களுக்கோ, பொது சொத்துக்களுக்கோ எவ்வித சேதமும் இன்றி குவாரிப்பணி செய்ய வேண்டும். தவறும் பட்சத்தில் ஏற்படும் சேதங்களுக்கு குத்தகைதாரரே பொறுப்பேற்க வேண்டும்.
3. மெட்டாலிபரஸ் கனிம விதிகளின்படி தகுந்த பாதுகாப்பானதும், தகுந்த இடைவெளியும் உள்ளதுமான Benches அமைத்து குவாரிப்பணி செய்ய வேண்டும்.

நிபந்தனைகள்:-

1. குத்தகைதாரர் தனக்கு அளிக்கப்பட்ட குத்தகை பகுதியின் எல்லைகளை தெளிவாக காட்டும் வகையில் கல் நட்டு வண்ணம் இட்டு குத்தகை காலம் முழுமைக்கும் பராமரிக்க வேண்டும்.
2. குத்தகையின் முழு விவரங்கள் அடங்கிய தகவல் பலகை வைத்தல் வேண்டும்.
3. குவாரிக்கு சென்றுவரும் பாதை வசதிகள் குத்தகைதாரர்கள் அவர் தம் சொந்த பொறுப்பிலேயே அமைத்துக் கொள்ள வேண்டும்.
4. குத்தகை உரிமம் வழங்கப்பட்ட பகுதியில் சாதாரண கட்டுமான கல், ஜல்லி, அளவுக்கல் அளவிலான மெருகூட்ட கூடிய தகுதி வாய்ந்த ஆபரண கற்களை உடைக்கக் கூடாது.
5. குவாரியிலிருந்து கொண்டு செல்லப்படும் மேற்கண்ட வகை கற்களுக்கு 1959ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் பின் இணைப்பு 2ல் கண்டுள்ளவாறு உரியவரி் செலுத்த வேண்டும். அரசு அவ்வப்போது அறிவிக்கும் உரியவரி் மாற்றங்களுக்கு ஏற்ப எவ்வித ஆட்சேபணை இன்றி செலுத்துதல் வேண்டும்.
6. குத்தகை அனுமதி வழங்கப்பட்ட நிலத்திலிருந்து கொண்டு செல்லப்பட்ட கற்களுக்கு முறையான கணக்குகளும், குழிவாயில் பதிவேடும் முறையாக பராமரித்தல் வேண்டும். அவற்றை சம்பந்தப்பட்ட அலுவலர்கள் தனித்தனிக்கு ஆஜர்படுத்த கோரினால் தவறாது சமர்ப்பிக்க வேண்டும்.



தனி இயக்குநர் (புவியியல் மற்றும் சரங்கத்துறை)-ன் அலுவலக முத்திரை, கையொப்ப முத்திரையுடன் கூடிய உரிய அனுப்புகைச் சீட்டை வாகனங்களுக்கு கொடுக்கப்படும் போது அனுப்புகைச் சீட்டில் வாகன எண், தேதி, புறப்படும் நேரம், செலுத்துபிடம் ஆகியவற்றை முறையாகக் குறிப்பிட்டு கையொப்பம் இட்ட பின்னரே, குத்தகைதாரரோ அல்லது அவரது அனுமதி பெற்ற நபரோ கொடுக்க வேண்டும். மேற்கண்டவாறு குறிப்பிடுவதில் ஏதேனும் தவறுகள் இருந்தாலோ, கலங்கள் பூர்த்தி செய்யப்படாமல் இருந்தாலோ முறையற்ற வகையில் கனிமம் எடுத்துச் செல்வதாகக் கருதப்பட்டு வாகனத்தை கைப்பற்றி அபராதம் விதிப்பதோடு, அதற்கு குத்தகைதாரரை பொறுப்பாக்கி கனிம விதிகளின் படி மேல் நடவடிக்கை எடுக்கப்படும்.

8. இந்த ஆணையில் குத்தகை அனுமதி வழங்கப்பட்ட புலத்ததை முழுமையாகவோ, பகுதியாகவோ எவருக்கும் உள் குத்தகைக்கு விடுவதோ அல்லது கிரையம் செய்வதோ கூடாது.
9. குத்தகைதாரர், தமக்கு குத்தகை வழங்கப்பட்ட பகுதிக்கு அருகில் உள்ள பட்டா நிலத்திற்கு எவ்வித இடையூறும் இல்லாமல் குவாரிப் பணி செய்யப்பட வேண்டும்.
10. வெடிபொருள் சட்டம் 1884ல் தெரிவிக்கப்பட்ட சரத்துக்கள் மற்றும் கீழ்க்காணும் நிபந்தனைகளின்படியும் குறைந்த அளவு வெடிபொருளை உபயோகித்து கற்கள் வெளியே சிதறாமலும், சத்தம் அதிகம் ஏற்படாமலும், பொதுமக்களுக்கும், கால்நடைகளுக்கும், எவ்வித பாதிப்பும் இன்றியும் கல்குவாரி பணி செய்யப்பட வேண்டும்.
 - அ) கல்குவாரியில் ஒரு முறை வெடிப்பதற்கு மொத்த குழிகளிலும் உபயோகிக்கப்படும் / திரப்பப்படும் வெடிமருந்தின் அளவு இரண்டு கிலோ கிராமிற்கு மிகாமல் இருக்க வேண்டும்.
 - ஆ) ஒரு முறை வெடிக்கும் மொத்த குழிகளின் எண்ணிக்கை 10-க்கு மிகாமல் இருக்க வேண்டும்.
 - இ) சிறிய விட்டமுடைய (< 50 மி.மீ) ஆழ்துளை குழிகளை ஜாக்ஹாமர் மூலம் அமைத்து அடிப்பகுதியில் டெட்டனேட்டர் வைத்து வெடிக்கும் முறையை கடைப்பிடிக்க வேண்டும். மேலும், பெரிய / அகல விட்டமுடைய குழிகளை போர் (Wagon Drill) வாயிலாக அமைத்து கண்டிப்பாக வெடிக்க கூடாது.
 - ஈ) டிலே (delay) டெட்டனேட்டர்களை குழிகளின் அடிப்பகுதியில் அமைத்து (Bottom initiation) கல்குவாரிகளில் வெடிக்க வேண்டும்.
- உ) முதலில் வெடி வைத்து பெயர்ந்து வந்த பெரிய கற்களை சிறிதாக்க மீண்டும் இரண்டாவது முறையாக வெடி வைக்கக் கூடாது.
- ஊ) அருகாமையில் உள்ள குடியிருப்புகளுக்கும், பொதுமக்களுக்கும் எவ்வித பாதிப்பும் ஏற்படா வண்ணம் கட்டுபாடான முறையில் (controlled blasting method) அதாவது கல்குவாரியில் வெடி வைக்கும் பரப்பினை தண்ணீரால் ஈரப்படுத்தியும், குறைந்தளவு வெடி மருந்துகள் நிரப்பப்பட்ட குழிகள் மீது மண் மூட்டைகள், பழைய கோணிப்பைகள், டயர்கள் மற்றும் கன்வேயர் பெல்ட்டுகளை அமைத்து மட்டில் (Muffle blasting) முறையில் வெடி வைத்து குவாரிப்பணி செய்யலாம்.
- எ) வெடிபொருள்கள் அரசு உரிமம் பெற்ற விற்பனைதாரரிடம் மட்டுமே பெற்று வெடிப்பதற்கு உரிமம் / அங்கீகாரம் பெற்ற வெடிப்பாளர்களை (Blaster / Mines mate) கொண்டு கல்குவாரியில் வெடி வைக்க வேண்டும்.



4. பார்வை 2-ல் காணும் தாராபுரம் வருவாய் கோட்டாட்சியர் அவர்களின் அறிக்கையில், காங்க்யம் வட்டம், கீரனூர் கிராமம், புல எண். 441/ஏ1, ஏ2 மற்றும் ஏ3 ஆகிய கால்களில் மொத்தம் 2.78.0 ஹெக்டர் பூமியானது சென்னிமலை சார் பதிவாளர் அலுவலக பத்திர எண். 945/2005, 947/2005, 946/2005, 1455/2005 மற்றும் 1456 / 2005-ன் கிரைய வகையிலும், கீரனூர் கிராம கணக்குகளில் பட்டா எண். 508, 518, 556-ன்படியும் மனுதாரர் விஜயலட்சுமியின் பெயரில் தனியாக தாக்கவாகியுள்ளது எனவும், பிரஸ்தாப புலங்களில் குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பாக, நாளது தேதி வரையில் ஆட்சேபணைகள் ஏதும் வரம்பெறவில்லை எனவும், கீரனூர் கிராமம், புல எண்கள். 441/ஏ1, ஏ2, 603/1 (ப), 603/2 (ப), 603/3 (ப), 604/4 (ப) ஆகியவற்றில் மொத்தம் 4.34.0 ஹெக்டர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க ஈரோடு மாவட்ட ஆட்சித் தலைவர் அவர்களின் செயல்முறைகள் ந.க. 66673 / 2005 / எக்ஸ்-1, நாள்: 27.2.2006-ன்படி 26.2.2011 வரை குத்தகை உரிமம் வழங்கப்பட்டுள்ளது எனவும், பிரஸ்தாப புலங்களின் நான்கு புறமும் அளவிட்டு செய்யப்பட்டு எல்லைக் கற்கள் நடப்பட்டுள்ளது எனவும், 300 மீட்டர் சுற்றளவில் நக்தம் குடியிருப்புகள் ஏதாவில்லை எனவும், பிரஸ்தாப புலங்களுக்கு க.ச. 437, 459 வண்டிப்பாதை வழியாக சென்றுவர பாணை வசதி உள்ளது எனவும், பிரஸ்தாப புலங்களுக்கு வடக்கில் புல எண். 439-ம், கிழக்கில் புல எண். 441/ஏ4-ம், தெற்கில் புல எண். 442-ம், மேற்கில் புல எண். 603-ம் அமைந்துள்ளது என தெரிவித்து மனுதாரருக்கு அரசு விதிகளுக்கு உட்பட்டு கல்குவாரி குத்தகை உரிமம் வழங்கலாம் என பரிந்துரை செய்துள்ளார்.

5. பார்வை 3-ல் காணும் திருப்பூர் புவியியல் மற்றும் கால்கத்தூறை, உதவி இயக்குநர் புலத்தணிக்கை அறிக்கையில், குத்தகை கோரும் புலத்தில் ஏற்கனவே ஈரோடு மாவட்ட ஆட்சியரின் ந.க. எண். 66673 / 2005 / எக்ஸ்-1 நாள்: 27.2.2006-ன்படி ஐந்து ஆண்டுகளுக்கு வழங்கப்பட்ட குத்தகை உரிமம் 26.2.2011 உடன் முடிவடைந்து விட்டது எனவும், குத்தகை கோரும் புலமான 441/ஏ1 மற்றும் 441/ஏ2 ஆகியவற்றில் முந்தைய குவாரி காலத்தில் குவாரிப்பணி செய்த 82 x 63 x 3.5 - 5.00 mts என்ற சராசரி அளவுள்ள கற்குழி காணப்படுகிறது எனவும், குத்தகை கோரும் புலத்தின் மேல்மட்டத்தில் 2.5 மீட்டர் ஆழத்திற்கு கிராவல் மண் படிவுகளும் அதனைத் தொடர்ந்து கிராளைட் னைசிக் வகை பாறைகளும் அமைந்துள்ளன எனவும், மேற்கண்ட பாறைகளில் காணப்படும் வெடிப்புகளால் இவ்வகையான பாறைகளில் மெருகூட்டப்பட்ட பளிங்கு கற்கள் செய்ய இயலாது எனவும், மாறாக கட்டிடப் பணிகளுக்கு தேவையான ஜல்விக் கற்கள் தயாரிக்க ஏற்றவையாக உள்ளது எனவும், பிரஸ்தாப புலத்திலிருந்து 300 மீட்டர் சுற்றளவிற்குள் நீர் நிலைகள், மின் கம்பிகள் ஏதாவில்லை எனவும், குத்தகை காலத்தில் அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் இடைவெளியும், குத்தகைக் காலத்தில் பொதுமக்களுக்கோ, பொது சொத்துக்களுக்கோ எவ்வித சேதமும் இன்றி குவாரிப்பணி செய்ய வேண்டும். தவறும் பட்சத்தில் ஏற்படும் சேதங்களுக்கு குத்தகைதாரரே பொறுப்பேற்க வேண்டும் எனவும், மெட்டாலிபரஸ் கனிம விதிகளின்படி தகுந்த பாதுகாப்பானதும், தகுந்த இடைவெளியும் உள்ளதமான Benches அமைத்து குவாரிப்பணி செய்ய வேண்டும் என்ற நிபந்தனைகளுடன் மனுதாரருக்கு குவாரி குத்தகை உரிமம் வழங்கலாம் என பரிந்துரை செய்துள்ளார்.

6. திருப்பூர் மாவட்டம், காங்க்யம் வட்டம், கீரனூர் கிராமம், புல எண்கள். 441/ஏ1, ஏ2, 603/1 (ப), 603/2 (ப), 603/3 (ப), 604/4 (ப) ஆகியவற்றில் மொத்தம் 4.34.0 ஹெக்டர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க ஈரோடு மாவட்ட ஆட்சித் தலைவர் அவர்களின் செயல்முறைகள் ந.க. 66673 / 2005 / எக்ஸ்-1 நாள்: 27.2.2006-ன்படி 26.2.2011 வரை குத்தகை உரிமம் வழங்கப்பட்டது.

7. இவ்வலுவலகத்தில் பராமரிக்கப்படும் ஆவணங்களின் அடிப்படையில் மனுதாரர் செலுத்த வேண்டிய கனிம வரி ஏதும் நிலுவையில் இல்லை.

8. மேற்கண்ட அலுவலர்களின் பரிந்துரை மற்றும் சிறுகனிம சலுகை விதிகளின் பேரில், மனுதாரருக்கு குவாரி குத்தகை உரிமம் வழங்க ஒப்புதல் தெரிவிக்கப்பட்டதன் பேரில், மனுதாரர் விதிகளின்படி காப்புத் தொகையாக ரூ. 5000/-ஐ



11. மேற்குறிப்பிட்ட நிபந்தனை, மற்றும் கனிம விதிகளை மீறியுள்ளது உறுதிபடும் தருணத்தில் விதிமுறைகளுக்கு உட்பட்டு குத்தகை இரத்து செய்ய நடவடிக்கை எடுக்கப்படும். மேற்கண்ட நிபந்தனைகள் ஒப்பந்தப் பத்திரத்தில் கண்டுள்ள நிபந்தனைகள் மற்றும் 1959-ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் ஆகியவற்றின் அடிப்படையில் குத்தகைதாரர் குவாரிப் பணி புரிய வேண்டும்.

(ஓம்)- எம். மதிவாணன்,
மாவட்ட ஆட்சியர்,
திருப்பூர்.

பெறநர்

திருமதி. பி. விஜயலட்சுமி,
க/பெ. எஸ்.பி. பாலசுப்பிரமணியம்,
3/109, தொட்டியவலவு,
மொரட்டுப் பாளையம்,
அவினாசி வட்டம்.

நகல்:-

1. வருவாய் கோட்டாட்சியர் - தாராபுரம்
2. வருவாய் வட்டாட்சியர் - காங்கயம்.
3. வட்டார வளர்ச்சி அலுவலர் - காங்கயம்.
4. கிராம நிர்வாக அலுவலர் - கீரணூர்
(வட்டாட்சியர் மூலமாக)

உண்மை நகல் / உத்தரவுப்படி //

(True copy)

மாவட்ட ஆட்சியருக்காக,
திருப்பூர்

DEPUTY DIRECTOR
Geology and Mining
Tiruppur

ANNEXURE II



சுரோடு
வட்டம். காவிரியம்.

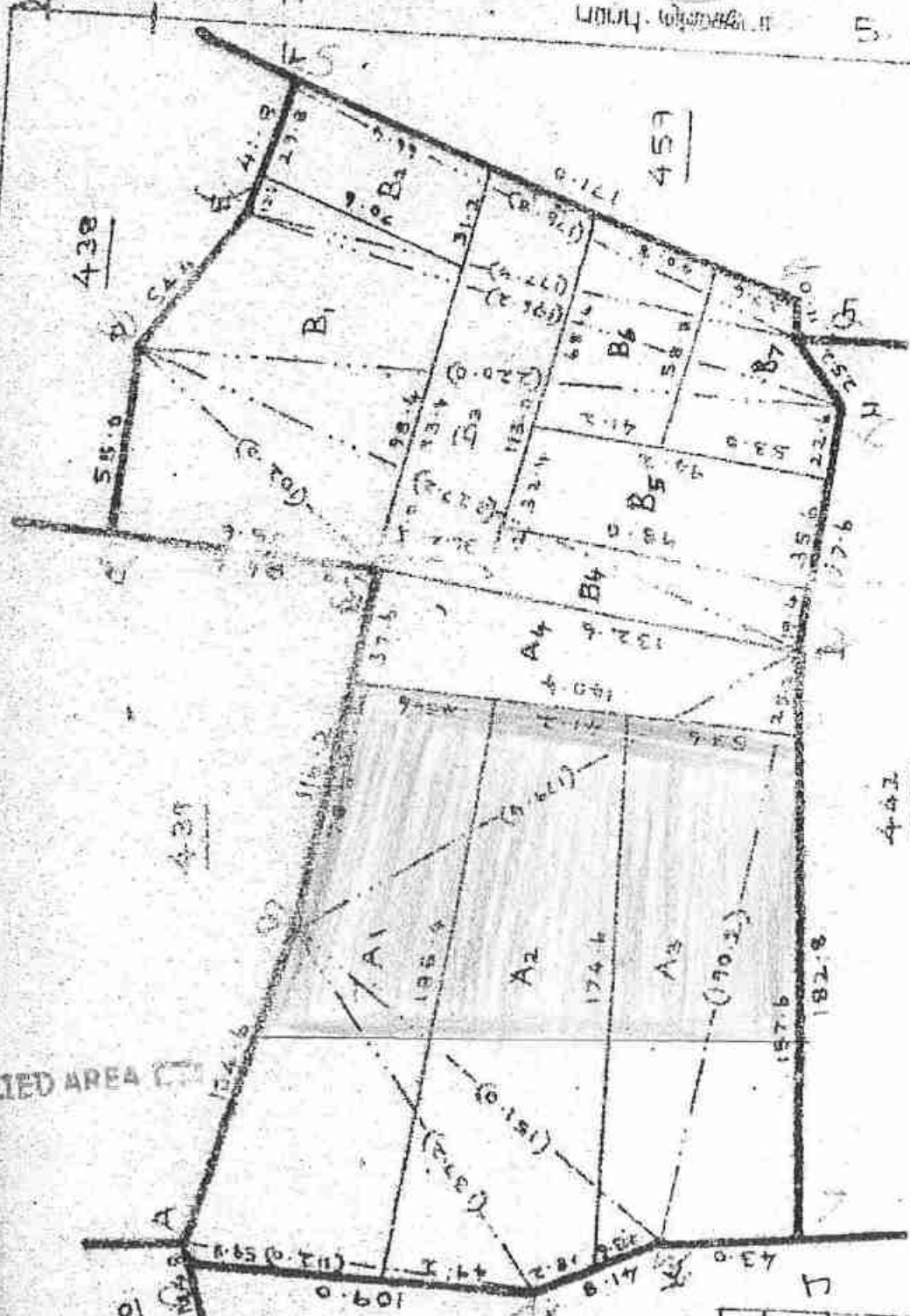
புலனாள் 441

புலனாள் 443

புலனாள் 7

புலனாள் 51 (புலனாள் 11)

5. ஏ. 85.0



438

438

457

442

439

440

443

4)
71.8
1.3 64

51.4
7.0
8
4.2
2.0

REAL APPLIED AREA

18 5/16

சுரோடு
காவிரியம் வட்டம்
புலனாள் 441
புலனாள் 443
புலனாள் 7
புலனாள் 51 (புலனாள் 11)
5. ஏ. 85.0

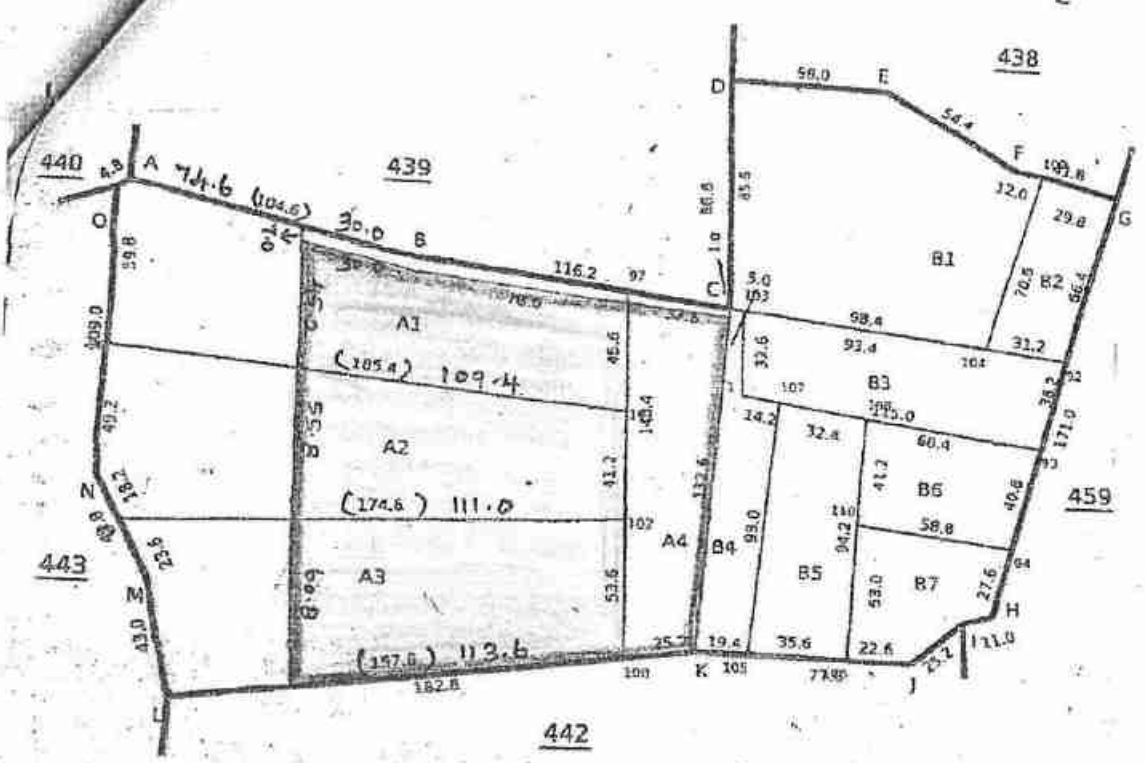
நிலவகுப்பாளர்
நகரகலாவுயர் கல்வட்டம்
காவிரியம் வட்டம்.
புலனாள் 1m.m. = 2000m.m.

I	2272
	1240

Survey No.: 441

Area : Hect 05 Ares 83.00

Scale : 1 : 2000



441/A1, A2, A3, A4 - 4.95 Ares

441/A1 - 1.14 ; 441/A2 - 1.28 ; 441/A3 - 1.53

441/A4 - 1.00

LEASE APPLIED AREA



பெயர்: கி. இராஜ
பெயர்: காமராசன்

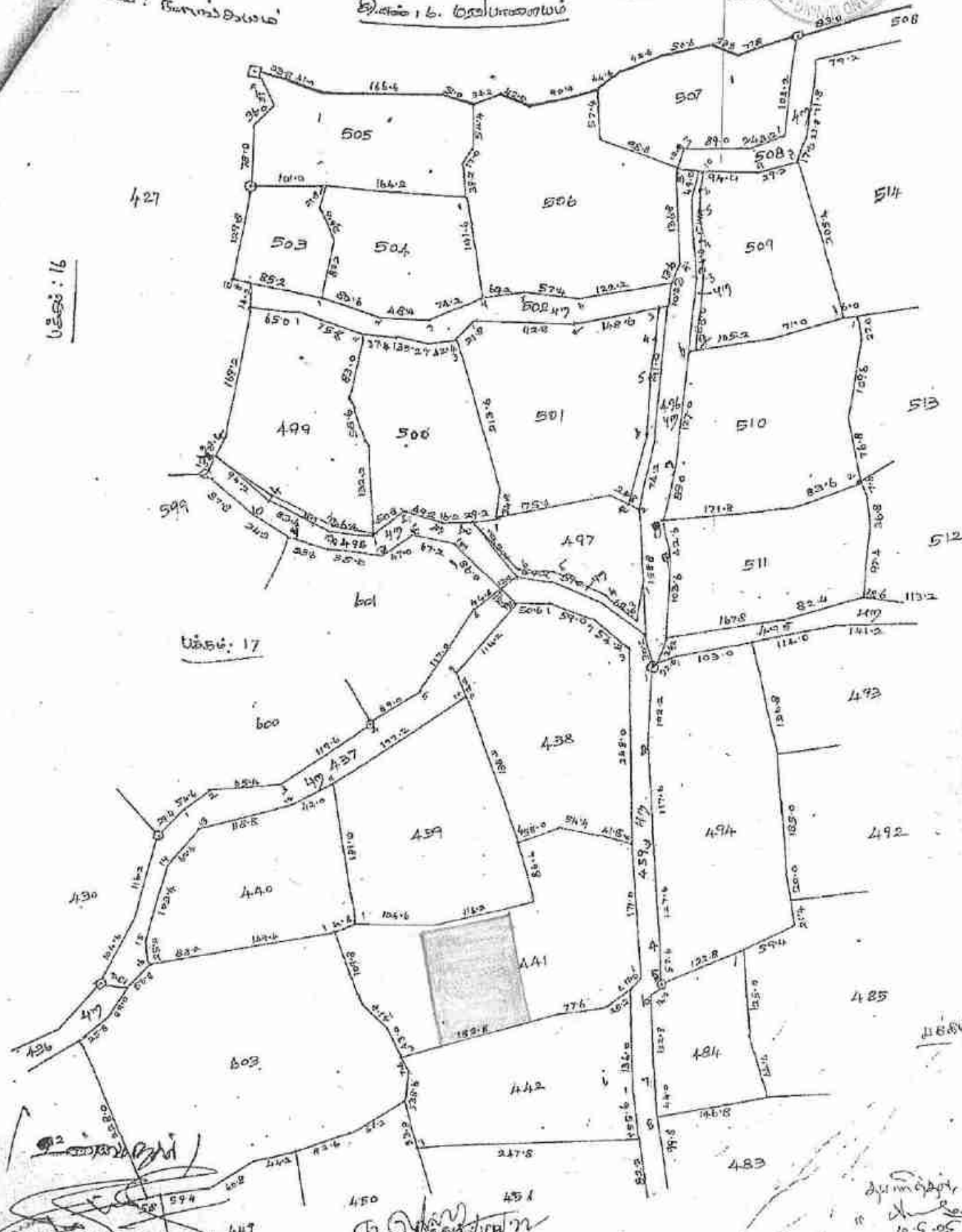
பெயர்: சி. வி. 20
பெயர்: சி. வி. 16. பாலசுப்பிரமணியம்

பெயர்: 7.
பெயர்: சி. வி. 16. பாலசுப்பிரமணியம்

பக்கம்: 16

பக்கம்: 17

பக்கம்: 21



கிராம நிர்வாக அலுவலர்
/ நெ. கிராமர்
காங்கயம் வட்டம்

நிலவகுசிய அலுவலர்
நத்தக்காடைநூர் உள்ளூர்
காங்கயம் வட்டம்

LEASE APPLIED AREA



தமிழக அரசு
வருவாய்த் துறை



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

மாவட்டம் : திருப்பூர்

வட்டம் : காங்கயம்

வருவாய் கிராமம் : கீரனூர்

பட்டா எண் : 556

உரிமையாளர்கள் பெயர்

1. எஸ்.பி.பாலசுப்பிரமணியம்

மனைவி

பி.விஜயலக்ஷ்மி

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	
439	3	0 - 36.00	0.50	--	--	--	--	----- 15-10-2014
440	3	1 - 11.00	1.53	--	--	--	--	----- 15-10-2014
441	A1	0 - 96.00	1.33	--	--	--	--	----- 15-10-2014
		2 - 43.00	3.36					

குறிப்பு 2 :

	1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் https://eservices.tn.gov.in என்ற இணைய தளத்தில் 32/05/007/00556/70716 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
	2. இத் தகவல்கள் 09-03-2022 அன்று 12:16:49 PM நேரத்தில் அச்சடிக்கப்பட்டது.
	3. கைப்பேசி கேமராவின் 2D barcode படப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருப்பூர்

வட்டம் : காங்கயம்

வருவாய் கிராமம் : கீரனூர்

பட்டா எண் : 508

உரிமையாளர்கள் பெயர்

1. எஸ்.பி.பாலசுப்பிரமணியம்

மனைவி

பி.விஜயலட்சுமி

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
439	2	0 - 24.00	0.33	--	--	--	--	---- -- 15-10-2014
440	2	1 - 8.50	1.50	--	--	--	--	---- -- 15-10-2014
441	A2	0 - 97.00	1.34	--	--	--	--	---- -- 15-10-2014
		2 - 29.50	3.17					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 32/05/007/00508/70733 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 09-03-2022 அன்று 12:18:45 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருப்பூர்

வட்டம் : காங்கயம்

வருவாய் கிராமம் : கீர்னூர்

பட்டா எண் : 518

உரிமையாளர்கள் பெயர்

1. எஸ்.பி.பாலசுப்பிரமணியம்

மனைவி

பி.விஜயலட்சுமி

புல எண்	உட்பிரிவு	புன்செய்		நுன்செய்		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
441	A3	0 - 85.00	1.17	--	--	--	--	----- 11-03-2011
		0 - 85.00	1.17					

குறிப்பு 2 :



- மேற்கண்ட தகவல் / சான்றுதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 32/05/007/00518/70734 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 09-03-2022 அன்று 12:19:55 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode டிடிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : திருப்பூர்

வட்டம் : காங்கயம்

வருவாய் கிராமம் : கீரணூர்

பட்டா எண் : 3902

உரிமையாளர்கள் பெயர்

1. S.P.பாலசுப்பிரமணியம்

மகன்

B.விஷ்ணு குமார்

புல எண்	உட்கிரேவு	புன்செய்		தன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	ஹெக்டர் - ஏர்	ரூ - பை	
441	B5	0 - 35.50	0.49	--	--	--	--	2022/0103 /32/389229--- -- 02-04-2022
441	A4	0 - 42.50	0.59	--	--	--	--	2022/0103 /32/389229--- -- 02-04-2022
441	B4	0 - 22.50	0.31	--	--	--	--	2022/0103 /32/389229--- -- 02-04-2022
		1 - 0.50	1.39					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 32/05/007/03902 /50774 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 02-04-2022 அன்று 01:47:46 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. ஹைப்பேசி கோமராவின் 2D barcode படிப்பாளர் மூலம் படிந்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

4/2/2022, 1:44 PM

86 A

சண் 2
திரையத்தின் வருடாந்திர முவாரி கைப்பற்று சாரூபிய அட்டிசுக்கல் கணக்கு

இருட்டிட்டுப் புகைஸ்		இருட்டிட்டுப் புகைஸ்				(15)	(16)	(17)	(18)	(19)
புகைஸ் குவாட்	புகைஸ் / அழிவாண்டி	புகைஸ்	புகைஸ்	புகைஸ்						
செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்



செய்துள்ள புகைஸ்
செய்துள்ள புகைஸ்
செய்துள்ள புகைஸ்

செய்துள்ள புகைஸ்

செய்துள்ள புகைஸ்		செய்துள்ள புகைஸ்				(7)	(8)	(9)	(10)	(11)	(12)
செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்							
செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	செய்துள்ள புகைஸ்	

செய்துள்ள புகைஸ்
செய்துள்ள புகைஸ்

செய்துள்ள புகைஸ்
செய்துள்ள புகைஸ்

செட்டிங்க

District: Tiruppur

Taluk: KANGAYAM

Village: KEERANUR



No.	Survey No.	Type	Area (Acres)	Cultivation	Area		Area		Value	No. of Cows	No. of Buffaloes	Remarks
					Area	Area	Area	Area				
2A	434-29	P	6	பட்டா	8-3	5	2	0	52.00	3	04	1420-செட்டி
2B	434-P	P	7	பட்டா	8-3	5	2	0	60.00	3	20	1330-செட்டி
Total For Survey Number-434										5	24	
A	435-A	P	8	பட்டா	8-3	5	2	0	42.00	2		84395-செட்டி
B	435-B	P	9	பட்டா	8-3	5	2	0	32.50	4		1087-செட்டி
C	435-C	P	7	பட்டா	8-3	5	2	0	26.50	4		670-செட்டி
D	435-D	P	9	பட்டா	8-3	5	2	0	46.50	12		1213-செட்டி
E	435-E	P	9	பட்டா	8-3	5	2	0	92.50	1		1088-செட்டி
F	435-F	P	9	பட்டா	8-3	5	2	0	55.00	5		670-செட்டி
Total For Survey Number-435										15	31	
436				பட்டா	0-0	0	0	0	67.50	0		செட்டி
437				பட்டா	0-0	0	0	0	92.00	0		செட்டி
A1	438-AP	P	7	பட்டா	8-4	6	1	38	62.00	2		1081-செட்டி
A2	438-AP	P	8	பட்டா	8-4	6	1	38	64.00	0		604-செட்டி
A3	438-AP	P	8	பட்டா	8-4	6	1	38	32.50	0		4522-செட்டி
B1	438-BP	P	8	பட்டா	8-4	6	1	38	65.00	2		995-செட்டி
B2	438-BP	P	8	பட்டா	8-4	6	1	38	12.00	0		17134-செட்டி
C	438-C	P	8	பட்டா	8-4	6	1	38	61.50	0		8567-செட்டி
D	438-D	P	8	பட்டா	8-4	6	1	38	22.50	0		3167-செட்டி
Total For Survey Number-438										5	18	
J	439	P	8	பட்டா	8-4	6	1	38	24.00	0		828-செட்டி
2	439	P	8	பட்டா	8-4	6	1	38	24.00	0		508-செட்டி
3	439	P	8	பட்டா	8-4	6	1	38	36.00	0		556-செட்டி
4	439	P	8	பட்டா	8-4	6	1	38	12.50	1		171-செட்டி
5	439	P	8	பட்டா	8-4	6	1	38	66.00	1		306-செட்டி
6	439	P	8	பட்டா	8-4	6	1	38	67.00	1		282-செட்டி
7	439	P	8	பட்டா	8-4	6	1	38	3.00	1		604-செட்டி
Total For Survey Number-439										4	54	
1	440	P	8	பட்டா	8-4	6	1	38	16.00	1		878-செட்டி
2	440	P	8	பட்டா	8-4	6	1	38	8.50	1		808-செட்டி
3	440	P	8	பட்டா	8-4	6	1	38	11.00	1		556-செட்டி
Total For Survey Number-440										1	63	
A1	441-AP	P	8	பட்டா	8-4	6	1	38	96.00	1		556-செட்டி
A2	441-AP	P	8	பட்டா	8-4	6	1	38	97.00	1		506-செட்டி
A3	441-AP	P	8	பட்டா	8-4	6	1	38	85.00	1		518-செட்டி
A4	441-AP	P	8	பட்டா	8-4	6	1	38	17.50	0		258-செட்டி

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அ-பதிவேடு விவரங்கள்



மேல் : திருப்பூர்
மேல் : காங்கயம்
மேல் : கிரனூர்

1. புல எண்	441	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	A1	10. மண் தரம்	6
3. பழைய புல உட்பிரிவு எண்	441-AP	11. தீர்வை (ரூ - ரெற)	1.38
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 96.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.33
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	556
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.பி.விஜயலட்சுமி

குறிப்பு 1:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை.
இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60716 என்ற
குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



முகம் : திருப்பூர்
முகம் : காங்கயம்
முகம் : கீரனூர்

1. புல எண்	441	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	A2	10. மண் தரம்	6
3. பழைய புல உட்பிரிவு எண்	441-AP	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 97.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.34
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	508
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.பி.விஜயலட்சுமி

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60733 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



திருப்பூர்

காங்கயம்

மம் : கீரனூர்

1. புல எண்	441	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	A3	10. மண் தரம்	6
3. பழைய புல உட்பிரிவு எண்	441-AP	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 85.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த-தீர்வை (ரூ - பை)	1.17
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	518
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.பி.விஜயலட்சுமி

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60734 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

ஆ-பதிவேடு விவரங்கள்



பெயர் : திருப்பூர்
 பட்டம் : காங்கயம்
 கிராமம் : கீரனூர்

1. புல எண்	441	9. மண் வயனமும் ரகமும்	B - 4
2. உட்பிரிவு எண்	A4	10. மண் தரம்	6
3. பழைய புல உட்பிரிவு எண்	441-AP	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 42.50
5. ஆரக / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - டை)	0.59
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	3902
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.B.விஷ்ணு குமார்

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60774 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



தமிழ்நாடு தமிழ்நாடு TAMIL NADU

04AC 7022

25 MAY 2022

சை. தாசீல்
மாத்திரைத்தான்
திருப்பத்தூர், சென்னை
உரிமம் எண்: 2/20

சம்மதக் கடிதம்

திருப்பூர் மாவட்டம், வாவிபாளையம் அஞ்சல், 4/114ஜி, சேடர்பாளையம் என்ற முகவரியில் வசிக்கும் திரு. பாலசுப்பிரமணியம் மனைவி விஜயலட்சுமி (1) ஆகிய நான் திருப்பூர் மாவட்டம், வாவிபாளையம் அஞ்சல், 4/114ஜி, சேடர்பாளையம் என்ற முகவரியில் வசிக்கும் திரு. பாலசுப்பிரமணியம் மகன் திரு. பி. விஸ்ணுகுமார் (2) ஆகிய உங்களுக்கு எழுதிக் கொடுக்கும் சம்மதக் கடிதம் என்னவென்றால்.

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீர்ணூர் கிராமம், புல எண். 441/A1-ல் 0.96.0 ஹெக்டர் பரப்பு பட்டா எண். 556-ன்படியும், புல எண். 441/A2-ல் 0.97.0 ஹெக்டர் பரப்பு பட்டா எண். 508-ன்படியும், புல எண். 441/A3-ல் 0.85.0 ஹெக்டர் பட்டா எண். 518-ன்படியும் நம்மில் (1) இலக்கமிட்டவர் பெயரில் தனிப்பட்டவாக தாக்கலாகியுள்ளது.

மேற்படி பூமியில் நம்மில் (2) இலக்கமிட்ட விஸ்ணுகுமார் என்பவர் சாதாரண கற்கள் / கிராவல் மண் வெட்டியெடுக்க விண்ணப்பம் செய்துள்ளார். மேற்படி புலத்தில் துணை இயக்குநர் (கனிமம்) அலுவலகமால் அனுமதி வழங்கும் நாளிலிருந்து ஐந்து வருட காலத்திற்கு குவாரிக் குத்தகை உரிமம் வழங்க (1) இலக்கமிட்ட எனக்கு எவ்விதமான ஆட்சேபணையும் இல்லை. பின்னிட்டு எவ்வித பிரச்சனையும் செய்யமாட்டேன். முழுமனதுடன் சம்மதம் அளிக்கிறேன் என உறுதி கூறுகிறேன்.

R.Suguna Devi M.A.B.L.,
Advocate Extraordinary Public
Control

भारत सरकार

Unique Identification Authority of India
Government of India

பதிவேட்டு எண்/Enrolment No.: 0000/00270/57758

Vishnu Kumar (விஷ்ணு குமார்)

நகவல்

Date: 13/05/2016

S/O, Balasubramaniam, 4/114g, sedarpalayam, Srv
Nagar, Mariaman Kovil, Vavipalayam Post,
Vavipalayam, Tiruppur,
Tamil Nadu - 641666

- ஆதார் அடையாளத்திற்கான சான்று, குடியியலமைப்பு அல்ல.
- அடையாள சான்ற ஆன்லைன் ஆதர்ப்புகள் மூலமாகப் பெறவும்.
- இது எலக்ட்ரானிக் செயல்முறை மூலம் தயாரிக்கப்பட்ட கடிதமாகும்.

INFORMATION

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7931 2047 6111



எனது ஆதார், எனது அடையாளம்.



1347



vishnu@adhaar.gov.in



www.adhaar.gov.in

Signature Not Verified
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IDENTIFICATION AUTHORITY OF INDIA
Date: 2016.05.13 09:21:57 IST

- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்.
- ஆதார் ஆதார் பெறலுக்கு ஒரு ஒரு முறை மட்டுமே நீங்கள்
விண்ணப்பத்தை பூர்த்தி செய்து பதிவு செய்ய வேண்டிய
அவசியம் ஏற்படும்.
- தயவுசெய்து உங்களின் மூலத்தை புதிய மொபைல் நம்பர்
மற்றும் e-மெயில் முகவரியை பதிவு செய்யவும். இதனால்
உங்களுக்கு பல்வேறு வசதிகளை பெற்றுக் கொள்ளும்
செலாக்கியம் கிடைக்கும்.

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भारत सरकार

GOVERNMENT OF INDIA



भारतीय विशिष्ट पहचान प्राधिकरण

UNIQUE IDENTIFICATION AUTHORITY OF INDIA

விஷ்ணு குமார்
Vishnu Kumar
பிறந்த நாள்/ DOB: 19/03/1994
ஆண் / MALE

முகவரி:

பாலசுப்ரமணியம்,
4/114ஜி,சேடாப்பளையம்,
சின்வ நகர், மாரியமன்
கோவில், வாவிப்பலயம்
மேல்பட்ட, வாவிப்பளையம்,
திருப்பூர்,
தமிழ் நாடு - 641666

Address:

S/O, Balasubramaniam,
4/114g, sedarpalayam, Srv
Nagar, Mariaman Kovil,
Vavipalayam Post, Vavipalayam,
Tiruppur,
Tamil Nadu - 641666

7931 2047 6111

7931 2047 6111



आयकर विभाग

INCOME TAX DEPARTMENT



भारत सरकार

GOVT. OF INDIA

VISHNU KUMAR BALASUBRAMANIAM

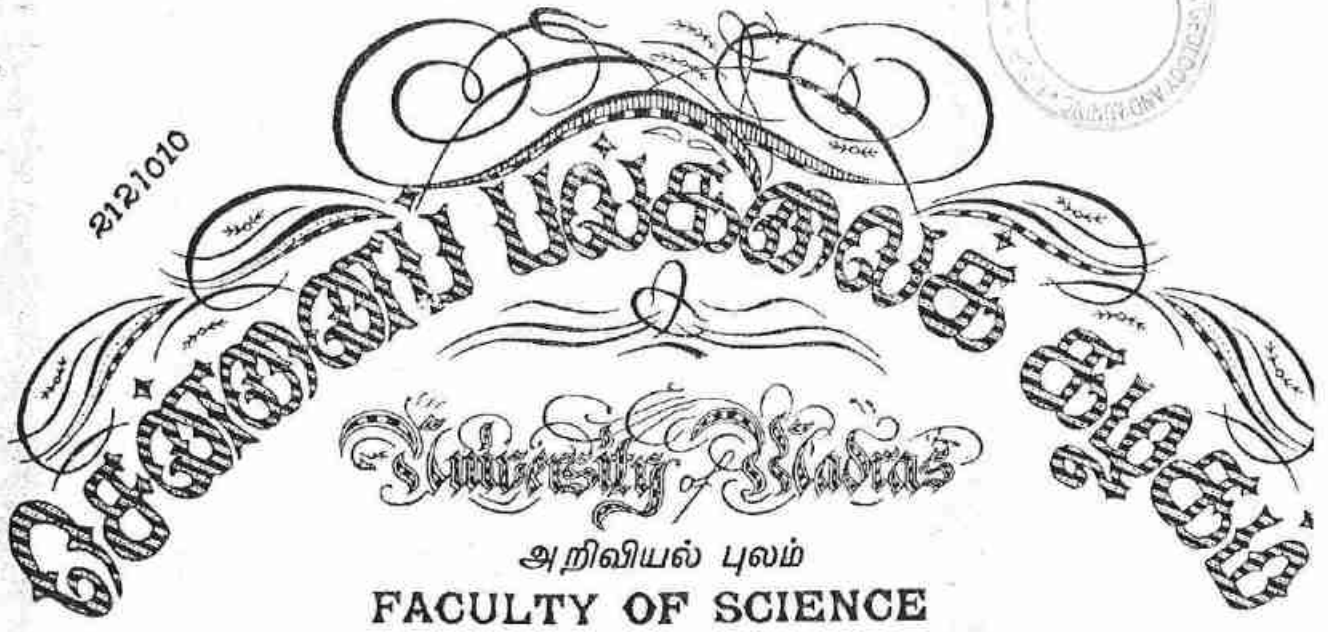
BALASUBRAMANIAM PALANISAMY
GOUNDER

19/03/1994

Permanent Account Number

CLUPB7590R





சென்னைப் பல்கலைக் கழகப் பேரவை 1994 ஆம் ஆண்டு ஏப்ரல் மாதம் நடந்த கனிமவியல் தேர்வில் பெ. தங்கராசு என்பவர் முதல் வகுப்பில் தேர்ச்சி பெற்றார் என்று தக்க தீர்வாளர்கள் சான்றளித்தபடி அறிவியல் நிறைஞர் என்னும் பட்டத்தை அவருக்குப் பல்கலைக் கழக இலச்சினையுடன் வழங்குகிறது.

The Senate of the UNIVERSITY OF MADRAS hereby makes known that *P. Thangaraju* has been admitted to the Degree of Master of Science, he/she having been certified by duly appointed Examiners to be qualified to receive the same in *Geology* and was placed in the *First* Class, at the Examination held in April 1994.

Given under the seal of the University



சேப்பாக்கம், Choppak, Madras

சென்னை, Madras
நாள்: Dated: 25-01-1999

பதிவாளர்,
Registrar

P.T. Thangaraju

துணை வேந்தர்,
Vice-Chancellor



GOVERNMENT OF INDIA
MINISTRY OF LABOUR AND REHABILITATION
OFFICE OF THE DIRECTOR GENERAL OF MINES SAFETY

Certificate of Practical experience granted by the Manager to a candidate for a Manager's / Surveyor's / Foremen's / Over man's / Sirdar's / Mate's / Short firer's/ Blaster's Certificate of competency (Restricted) examination under the Metalliferous Mines Regulations 1961.

I **T.VENKATARAJAGOPALAN** being the Mines Agent of **M/S.LIMENAPH CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Thenmali Limestone Mine)** do hereby certify that Thiru. **P.THANGARAJU**, son of **S.PERIASAMY** (whose signature is appended) worked as a Geologist in the above mine from 02.05.1994 to 30.12.1999. During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved continuous attendance at the mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper candidate to be examined for Certificate of Competency.

~~OR~~ **THEMILLAI LIME STONE MINES**
[Handwritten signature and date 10/6/06]
Agent (Mines)
(Signature with date and official Seal)
[T.VENKATARAJAGOPALAN]

Mines Agent:
P.O. : **ARUKANGULAM**
District : **TIRUNELVELI**
State : **TAMIL NADU**

[Handwritten signature]
(Signature of Candidate)

(State name of Mineral) : **LIMESTONE**

S.No	Particulars of practical Experience (a)	Place of Experience (b)	Period of practical experience(c)		Total Experience (e)		
			From	To	Yr.	Month	Day
01.	As a Trainee in Drilling Operation.	Semi Mechanised Opencast working	02.05.1994	15.07.1995	01	02	14
02.	As a Trainee in Blasting Operation.		16.07.1995	10.12.1996	01	04	25
03.	Exploration		11.12.1996	31.01.1998	01	01	20
04.	Surveying		01.02.1998	25.06.1998	00	04	25
05.	Sampling Quality control and		26.06.1998	20.07.1999	01	00	24
06.	Supervision in HEMM Operation.		21.07.1999	30.12.1999	00	05	10
GRAND TOTAL					05	07	28
(Five Years Seven Months Twenty Eight Days Only)							

AVERAGE MONTHLY OUTPUT (D) / AVERAGE DAILY EMPLOYMENT (e) DURING THE ABOVE PERIOD IS GIVEN BELOW :

In below ground working	In open – cast working	In all
Nil	35	35
Nil		

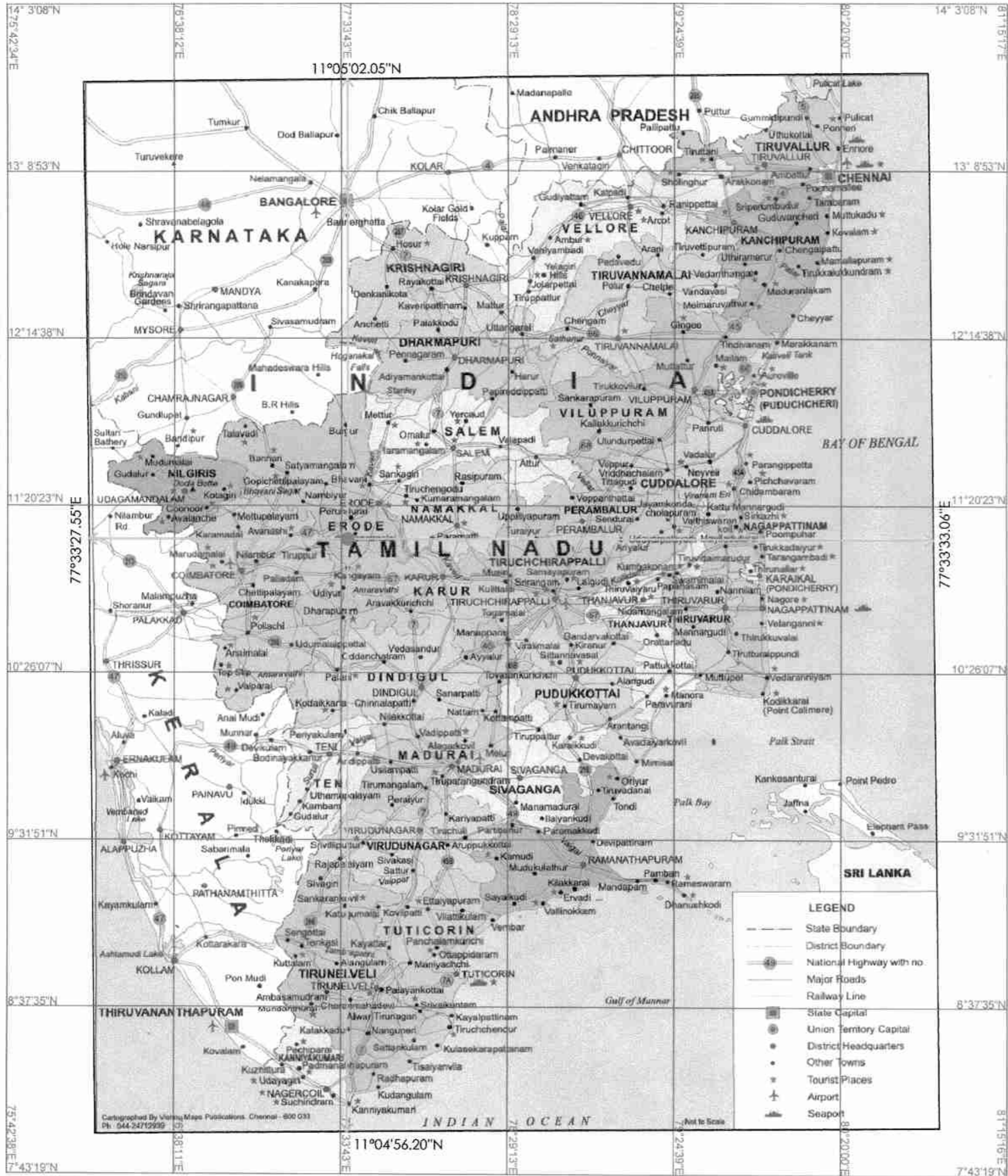
Signature of Candidate

Signature of Manager with (Agent Signes)
[T.VENKATARAJAGOPALAN]

Name of the Mine :

Instructions :-

01. State clearly the nature of duties
02. State whether on surface, in open cast workings or below ground.
03. State specifically the period spent by the applicant in different mining operations, or surveying operations, as the case may be. If the employment has not been such as to involve continuous attendance of the applicant at the mine, it must be stated how many days a week he was employed at the mine, whether underground or above ground and in what capacity.
04. Delete if the mine is a Metalliferous mine.
05. Delete if the mine is a Coal mine.



INDEX

Q.L.APPLIED AREA : ●
 TOPO SHEET NO. : 58 E/12
 LATITUDE : 11°04'56.20"N to 11°05'02.05"N
 LONGITUDE : 77°33'27.55"E to 77°33'33.06"E

APPLICANT :
 Thiru.B. VISHNU KUMAR,
 S/o. BALASUBRAMANIAM,
 No. 4/ 114 -G, SEDARPALAYAM,
 VAVIPALAYAM,
 TIRUPPUR DISTRICT - 641 666.

LOCATION OF Q.L.A AREA:
 S.F.Nos : 441/A1(P),A2(P),A3(P)& 441/A4(P)
 EXTENT : 2.00.21 Ha.
 VILLAGE : KEERANUR,
 TALUK : KANGAYAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMIL NADU.

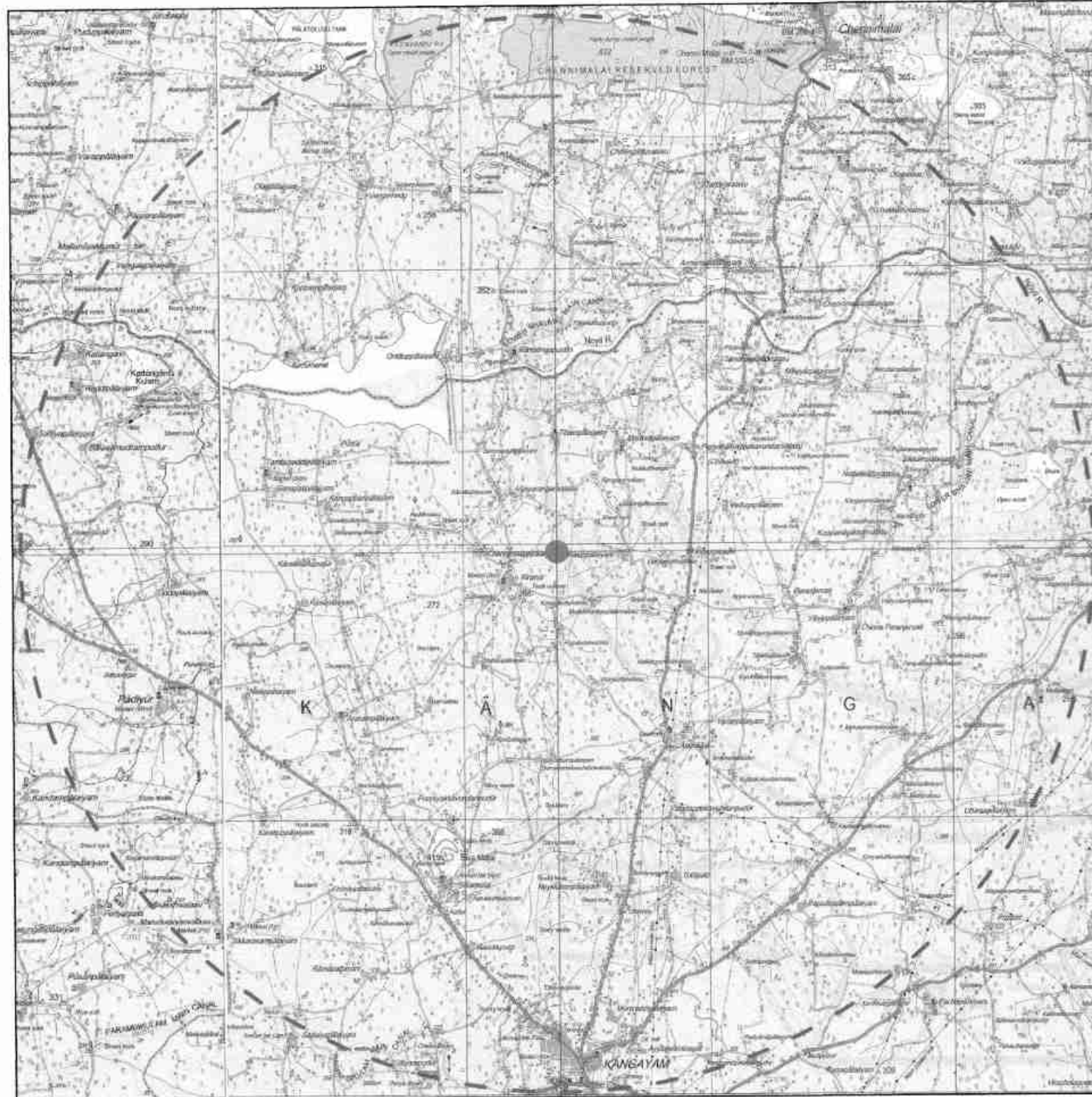
PLATE NO - I
 DATE OF SURVEY : 24.03.2023

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
 D. P. THANGARAJU, M.Sc., Ph.D.,
 QUALIFIED PERSON



11° 10' 27.30"N



77° 27' 58.21"E

77° 39' 02.35"E

10° 59' 30.95"N

TOPO SHEET NO. : 58 E/12

LATITUDE : 11°04'56.20"N to 11°05'02.05"N
 LONGITUDE : 77°33'27.55"E to 77°33'33.06"E

10km RADIUS : 

Q.L. APPLIED AREA : 

- Express highway: with toll; with bridge; with distance stone.....
- Roads metalled: according to importance.....
- Roads, double carriageway; according to importance.....
- Unmetalled road. Cart-track. Pack-track with pass. Foot-path.....
- Streams: with track in bed; undefined. Canal.....
- Dams: masonry or rock-filled; earthwork. Weir.....
- River; dry with water channel; with island & rocks. Tidal river.....
- Submerged rocks. Shoal. Swamp. Reeds.....
- Wells: lined; unlined. Tubewell. Spring. Tanks; perennial; dry.....
- Embankments: road or rail; tank. Broken ground.....
- Railways, broad gauge: double; single with station; under constrm..
- Railways, other gauges: double; single with distance stone; do.....
- Mineral line or tramway. Kiln. Cutting with tunnel.....
- Contours with sub-features. Rocky slopes. Cliffs.....
- Sand features: (1)flat. (2)sand-hills(permanent). (3)dunes(shifting).
- Towns or Villages: inhabited; deserted. Fort.....
- Huts: permanent; temporary. Tower. Antiquities.....
- Temple. Chhatri. Church. Mosque. Idgah. Tomb. Graves.....
- Lighthouse. Lightship. Buoys: lighted; unlighted. Anchorage.....
- Mine. Vine on trellis. Grass. Scrub.....
- Palms: palmyra; other. Plantain. Conifer. Bamboo. Other trees.....
- Areas: cultivated; Wooded. Surveyed trees.....
- Boundary, international.....
- Boundary, state: demarcated; undemarcated.....
- Boundary, district; subdivision; tahsil or taluk; forest.....
- Boundary pillars: surveyed; unlocated.....
- Heights: triangulated: station: point; approximate.....
- Bench-mark: geodetic; tertiary; canal.....
- Post office. Telegraph office. Overhead tank.....
- Rest house or inspection bungalow. Circuit house. Police station...
- Camping Ground. Forest: reserved; protected.....
- Spaces names: administrative; locality or tribal.....
- Hospital. Dispensary. Veterinary: Hospital/Dispensary.....
- Aerodrome. Helipad. Tourist site.....
- Powerline: with pylons surveyed; with poles unsurveyed.....



APPLICANT :

Thiru.B. VISHNU KUMAR,
 S/o. BALASUBRAMANIAM,
 No. 4/ 114 -G, SEDARPALAYAM,
 VAVIPALAYAM, TIRUPPUR DISTRICT - 641 666.



LOCATION OF Q.L.A AREA:

S.F.Nos : 441/A1(P),A2(P),A3(P)& 441/A4(P)
 EXTENT : 2.00.21 Ha.
 VILLAGE : KEERANUR,
 TALUK : KANGAYAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMIL NADU.

PLATE NO - I-A

DATE OF SURVEY : 24.03.2023

**TOPO SKETCH OF QUARRY LEASE
 APPLIED AREA FOR 10Km RADIUS**

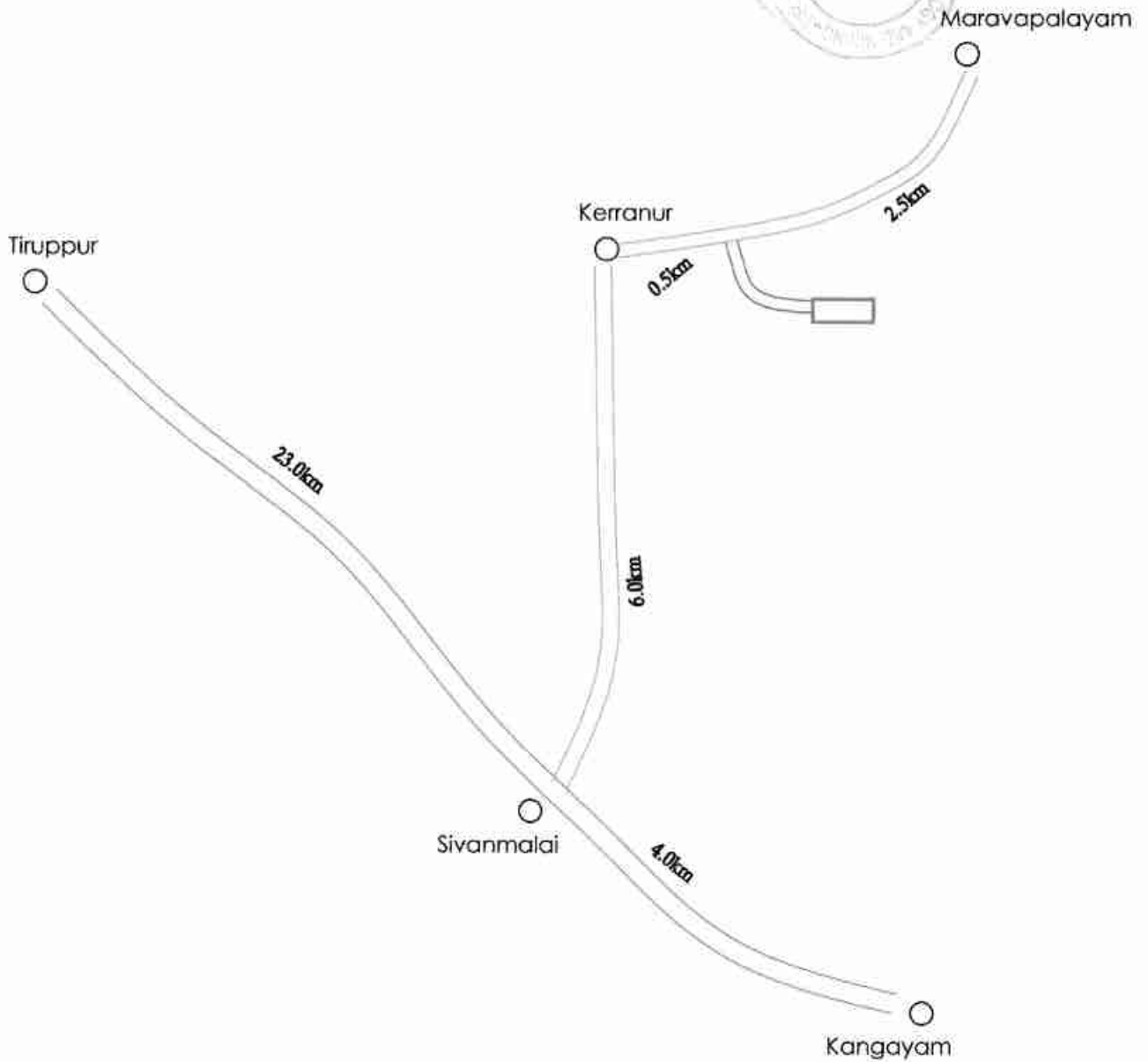
SCALE. 1:1,00,000

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 AUTHENTICATED BY STATE GOVERNMENT


 D. P. THANGARAJU, M.Sc., Ph.D.,
 QUALIFIED PERSON

PLATE NO : I-C
ROUTE MAP



<u>INDEX</u>	
LEASE APPLIED AREA	
SH - ROAD	
PANCHAYAT ROAD	
APPROACH ROAD	

APPLICANT :
Thiru.B. VISHNU KUMAR,
S/o. BALASUBRAMANIAM,
No. 4/ 114 -G, SEDARPALAYAM,
VAVIPALAYAM,
TIRUPPUR DISTRICT - 641 666.

LOCATION OF Q.L.A AREA:
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A3(P)& 441/A4(P)
EXTENT : 2.00.21 Ha.
VILLAGE : KEERANUR,
TALUK : KANGAYAM,
DISTRICT : TIRUPPUR,
STATE : TAMIL NADU.

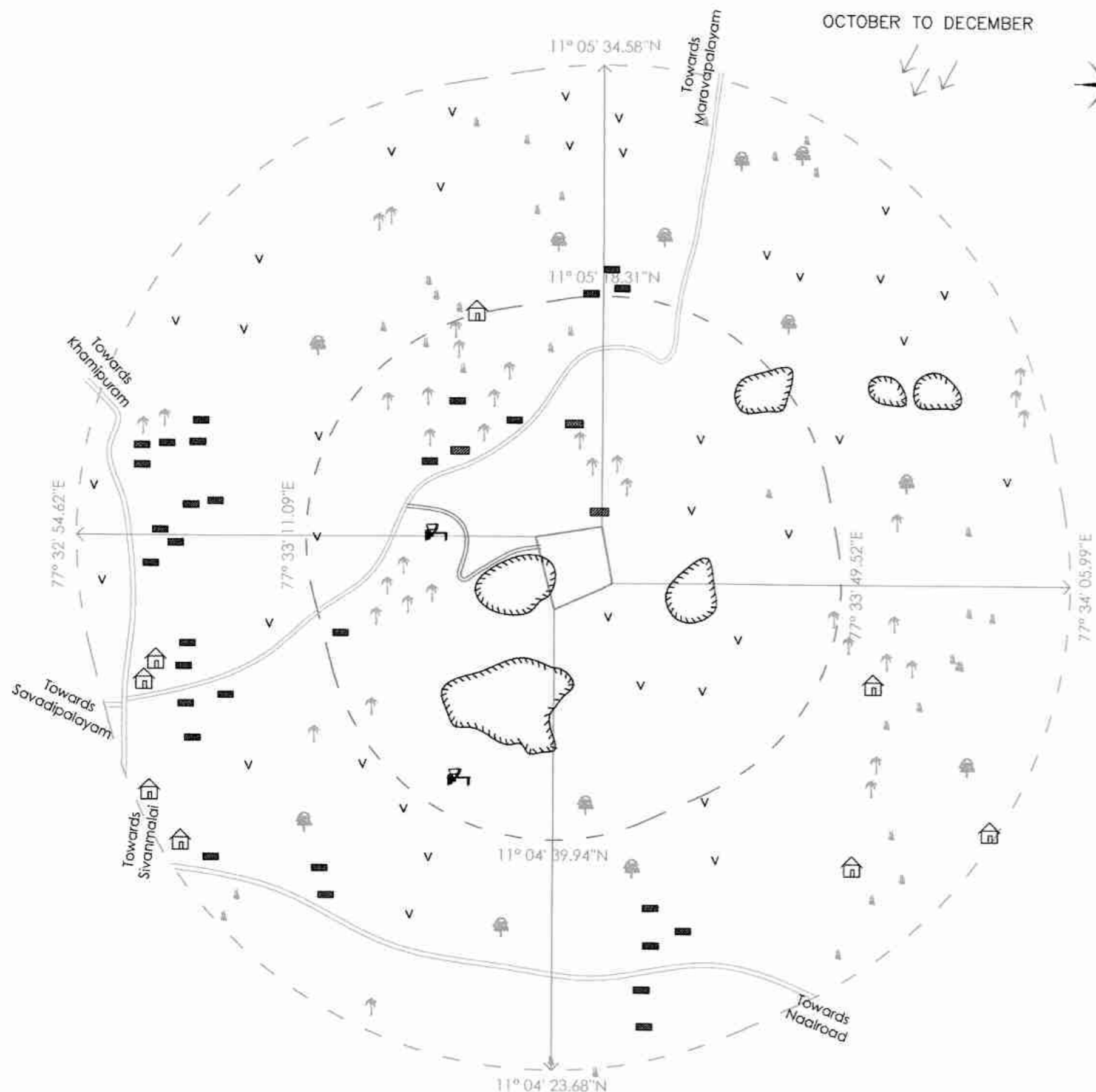
SCALE :
NOT TO SCALE

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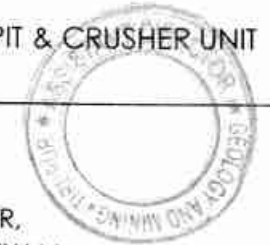
DR.P.THANGARAJU, M.Sc., Ph.D.,
QUALIFIED PERSON

101 A

OCTOBER TO DECEMBER



- INDEX**
- Q.L. APPLIED AREA
 - 1 Km RADIUS
 - 500m RADIUS
 - SEASONAL AGRICULTURE LAND
 - TREES
 - HABITATION & INFRASTRUCTURE
 - WIND DIRECTION
 - PANCHAYAT ROAD
 - APPROACH ROAD
 - BARREN LAND
 - QUARRY PIT & CRUSHER UNIT



APPLICANT :
 Thiru.B. VISHNU KUMAR,
 S/o. BALASUBRAMANIAM,
 No. 4/ 114 -G, SEDARPALAYAM,
 VAVIPALAYAM,
 TIRUPPUR DISTRICT - 641 666.

LOCATION OF Q.L.A AREA:
 S.F.Nos : 441/A1(P),A2(P),A3(P) & 441/A4(P)
 EXTENT : 2.00.21 Ha.
 VILLAGE : KEERANUR,
 TALUK : KANGAYAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMIL NADU.

PLATE NO - I-B

DATE OF SURVEY : 24.03.2023

ENVIRONMENTAL & LAND USE PLAN

SCALE. 1:10,000

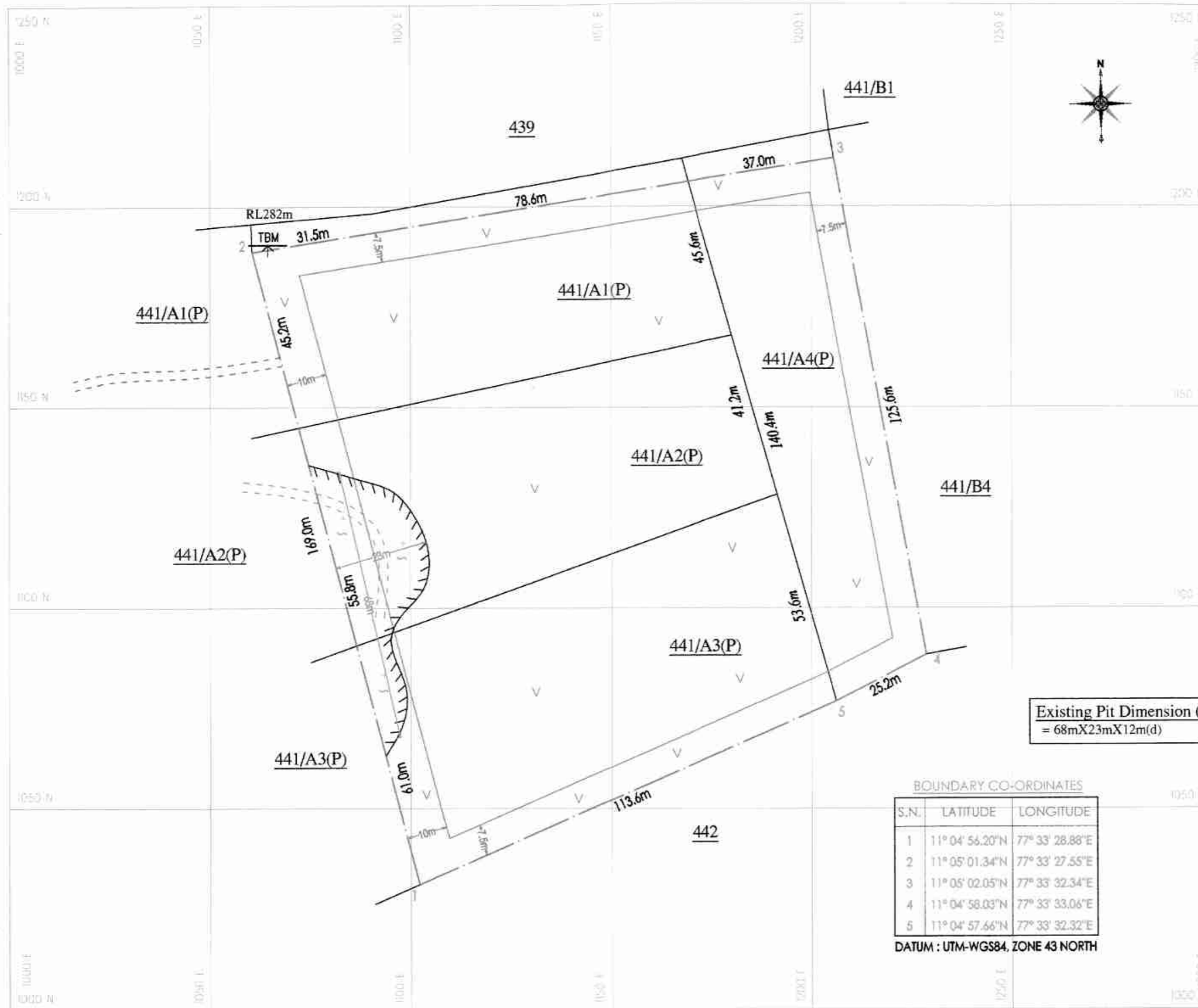
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Dr. P. THANGARAJU, M.Sc., Ph.D.,
 QUALIFIED PERSON

JULY TO SEPTEMBER

TOPO SHEET NO. : 58 E/12
 LATITUDE : 11°04'56.20"N to 11°05'02.05"N
 LONGITUDE : 77°33'27.55"E to 77°33'33.06"E

LAND USE PATTERN		
DESCRIPTION	PERCENTAGE	INDEX
QUARRY PITS & CRUSHER	(10%)	
TREES	(06%)	
BARREN LAND	(44%)	
ROADS	(05%)	
HABITATION & INFRASTRUCTURE	(07%)	
AGRICULTURE LAND	(28%)	
TOTAL	100%	



Existing Pit Dimension (max)
= 68mX23mX12m(d)

BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	11° 04' 56.20"N	77° 33' 28.88"E
2	11° 05' 01.34"N	77° 33' 27.55"E
3	11° 05' 02.05"N	77° 33' 32.34"E
4	11° 04' 58.03"N	77° 33' 33.06"E
5	11° 04' 57.66"N	77° 33' 32.32"E

DATUM : UTM-WGS84, ZONE 43 NORTH

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 10m & 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- ROUGHSTONE
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD



APPLICANT :

Thiru.B. VISHNU KUMAR,
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No. 4/ 114 -G, SEDARPALAYAM,
VAVIPALAYAM,
TIRUPPUR DISTRICT - 641 666.

LOCATION OF Q.L.A AREA:

S.F.Nos : 441/A1(P),A2(P),A3(P)& 441/A4(P)
EXTENT : 2.00.21 Ha.
VILLAGE : KEERANUR,
TALUK : KANGAYAM,
DISTRICT : TIRUPPUR,
STATE : TAMIL NADU.

PLATE NO - II

DATE OF SURVEY : 24.03.2023

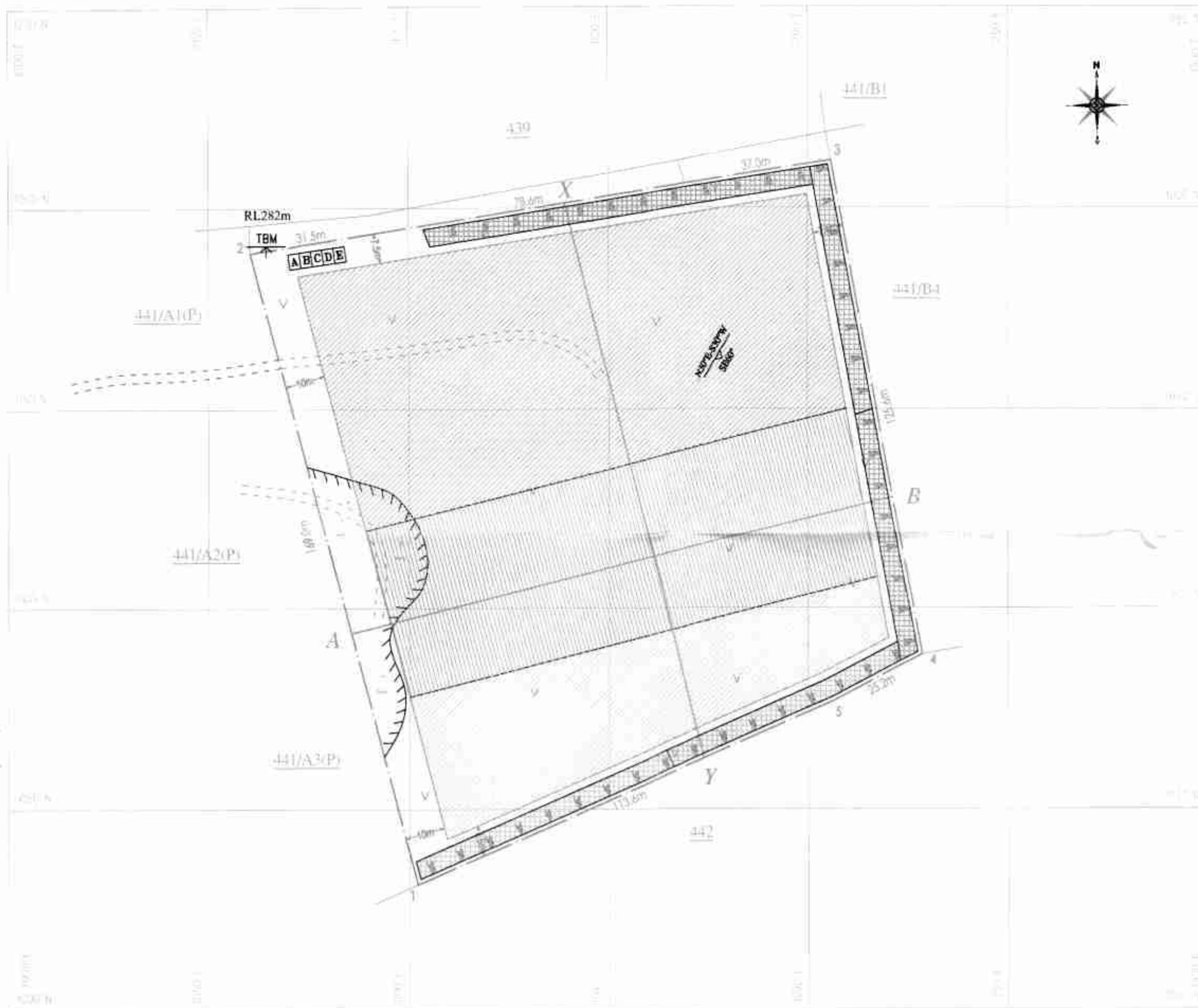
QUARRY LEASE PLAN & SURFACE PLAN

SCALE. 1:1000

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P. HANGARA, U.M.Sc., Ph.D.,
QUALIFIED PERSON



BOUNDARY COORDINATES:

S.N.	LATITUDE	LONGITUDE
1.	11° 04' 56.20"N	77° 33' 28.88"E
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DATUM : UTM-WGS84, ZONE 43 NORTH

INDEX

	Q.L. APPLIED AREA BOUNDARY
	10m & 7.5m SAFETY DISTANCE
	TEMPORARY BENCH MARK
	GRAVEL
	WEATHERED ROCK
	ROUGHSTONE
	QUARRY PIT
	STRIKE & DIP
	SHRUBS
	QUARRY HAUL ROAD
	APPROACH ROAD
	D.O.E DEPTH OF ESTIMATION

APPLICANT :

Thiru.B. VISHNU KUMAR,
S/o. BALASUBRAMANIAM,
No. 4/ 114 -G. SEDARPALAYAM,
VAVIPALAYAM,
TIRUPPUR DISTRICT - 641 666.

LOCATION OF Q.L.A AREA:

S.F.Nos : 441/A1(P),A2(P),A3(P) & 441/A4(P)
EXTENT : 2.00.21 Ha.
VILLAGE : KEERANUR,
TALUK : KANGAYAM,
DISTRICT : TIRUPPUR,
STATE : TAMIL NADU.

PLATE NO - III

DATE OF SURVEY : 24.03.2023

TOPOGRAPHY, GEOLOGICAL PLAN, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS

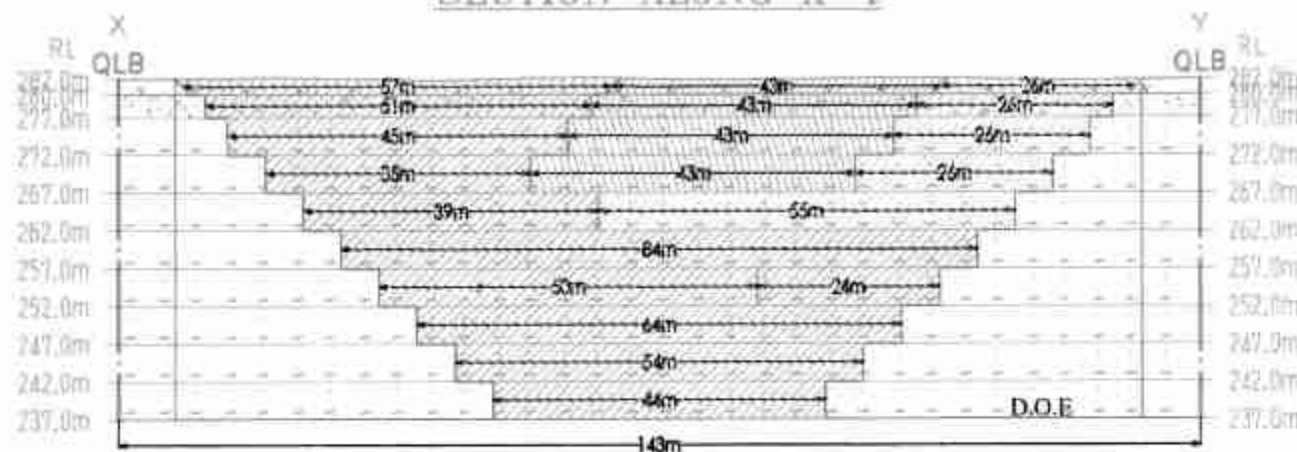
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D.P. THANGARAJU, M.Sc., Ph.D.
QUALIFIED PERSON 104 A

SECTION ALONG X-Y



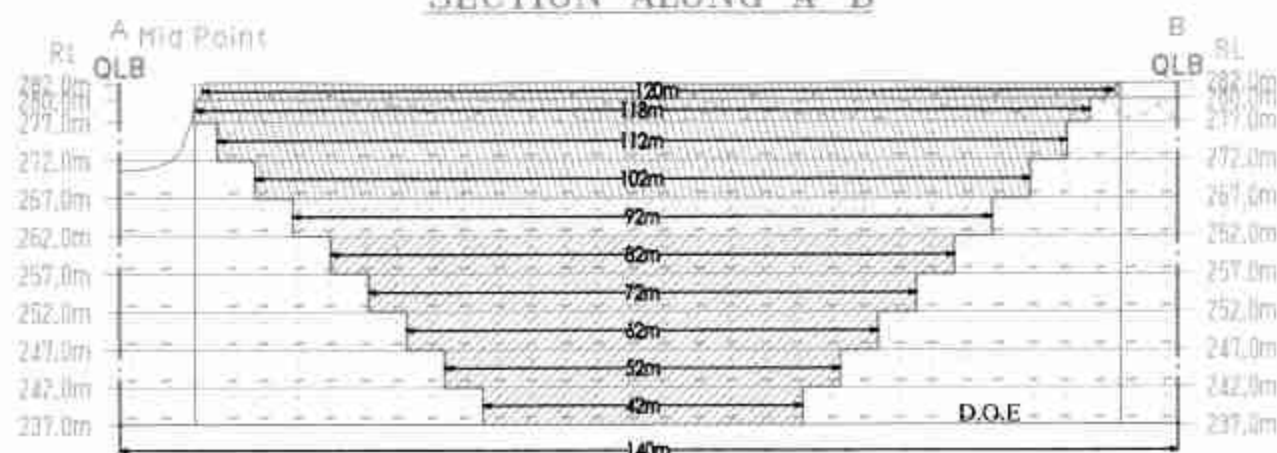
Existing Pit Dimension (max)
= 68mX23mX12m(d)

SITE SERVICES (Proposed)

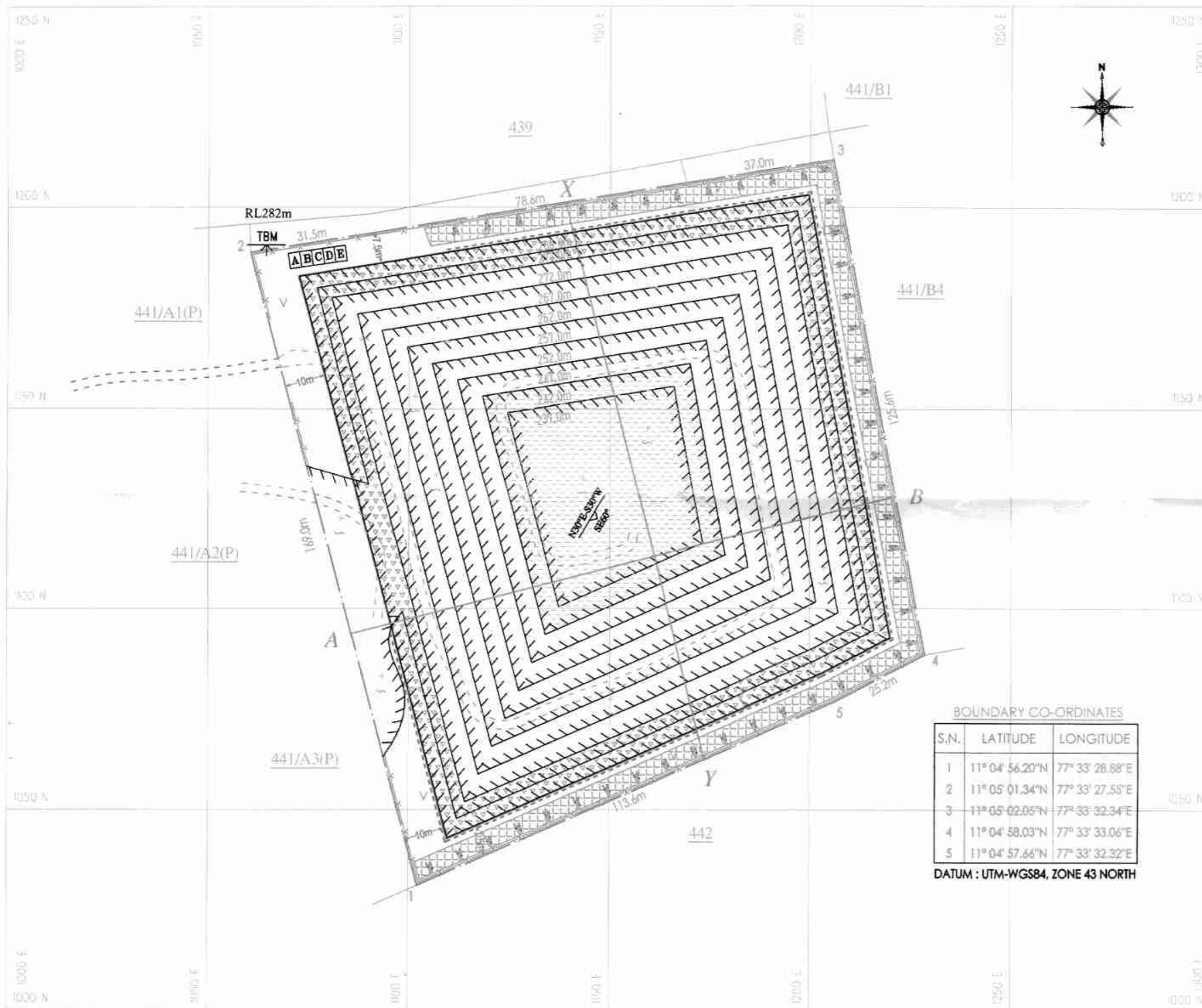
A - OFFICE
B - STORE ROOM
C - FIRST AID ROOM
D - REST SHELTER
E - TOILET

I - yr Proposed area to be Planted	
II - yr Proposed area to be Planted	
III - yr Proposed area to be Planted	
IV - yr Proposed area to be Planted	
V - yr Proposed area to be Planted	

SECTION ALONG A-B



I - yr Proposed area to be Quarried	
II - yr Proposed area to be Quarried	
III - yr Proposed area to be Quarried	
IV - yr Proposed area to be Quarried	
V - yr Proposed area to be Quarried	



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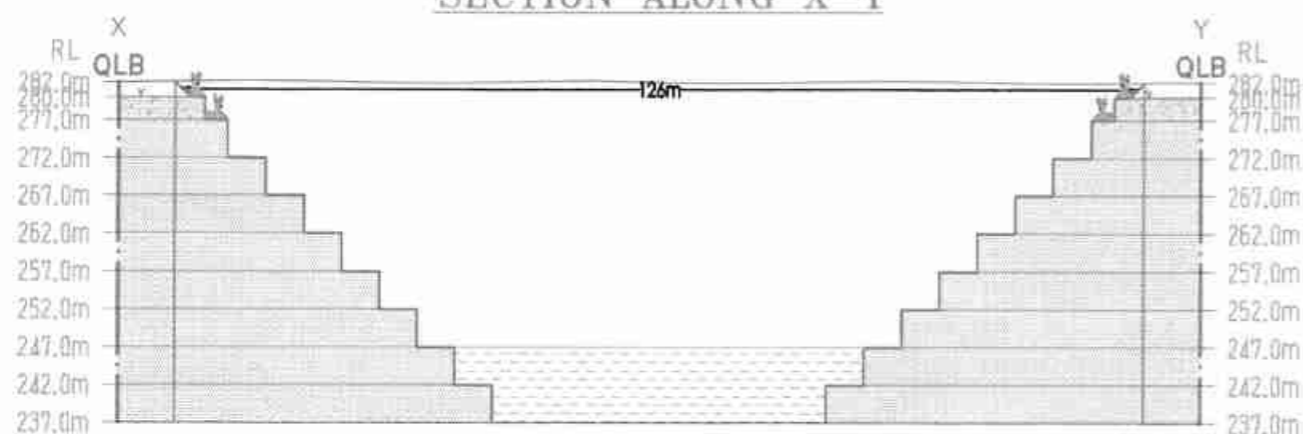
- Q.L. APPLIED AREA BOUNDARY
- 10m & 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- WEATHERED ROCK
- ROUGHSTONE
- QUARRY PIT
- STRIKE & DIP
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- 1-V Yr PLANTATION
- BARBED WIRE FENCING
- PROPOSED GARLAND DRAIN
- EXISTING LAND FORM
- SOIL LAYER
- REHABILITATED LAND FORM
- OLD SURFACE LEVEL
- FINISHED SURFACE LEVEL
- RAIN WATER STORAGE

BOUNDARY CO-ORDINATES

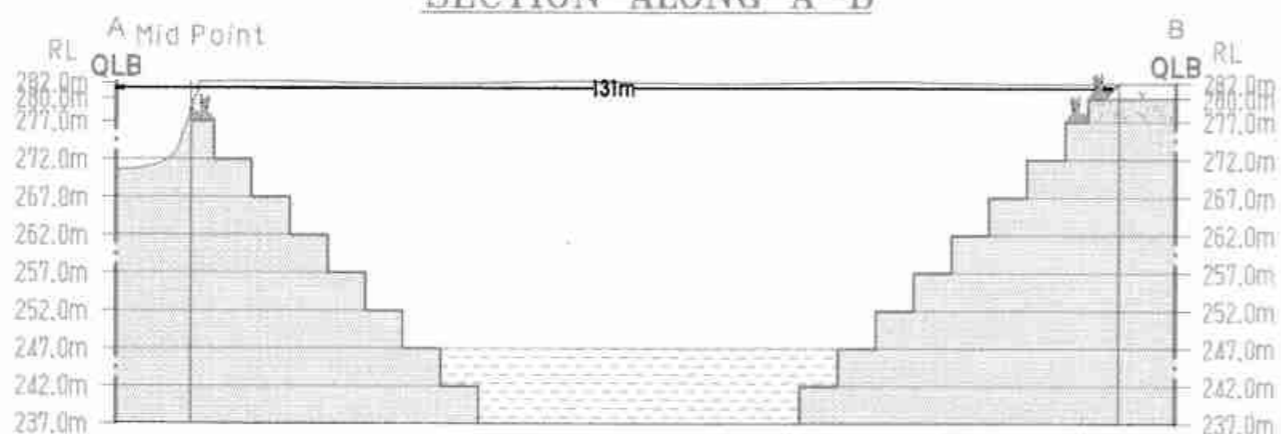
S.N.	LATITUDE	LONGITUDE
1	11° 04' 56.20"N	77° 33' 28.88"E
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5	11° 04' 57.66"N	77° 33' 32.32"E

DATUM : UTM-WGS84, ZONE 43 NORTH

SECTION ALONG X-Y



SECTION ALONG A-B



Proposed Pit Dimension (max)
= 126mX131mX45m(d)

LAND USE PATTERN

DESCRIPTION	PRESENT AREA IN (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
QUARRYING PIT	0.10.11	1.60.31
INFRASTRUCTURE	Nil	0.01.00
ROADS	0.02.00	0.02.00
GREEN BELT	Nil	0.16.00
UN-UTILIZED AREA	1.88.10	0.20.90
TOTAL	2.00.21	2.00.21

APPLICANT :

Thiru.B. VISHNU KUMAR,
S/o. BALASUBRAMANIAM,
No. 4/ 114 -G, SEDARPALAYAM,
VAVIPALAYAM,
TIRUPPUR DISTRICT - 641 666.

LOCATION OF Q.L.A AREA:

S.F.Nos : 441/A1(P),A2(P),A3(P)& 441/A4(P)
EXTENT : 2.00.21 Ha.
VILLAGE : KEERANUR,
TALUK : KANGAYAM,
DISTRICT : TIRUPPUR,
STATE : TAMIL NADU.



PLATE NO - IV

DATE OF SURVEY : 24.03.2023

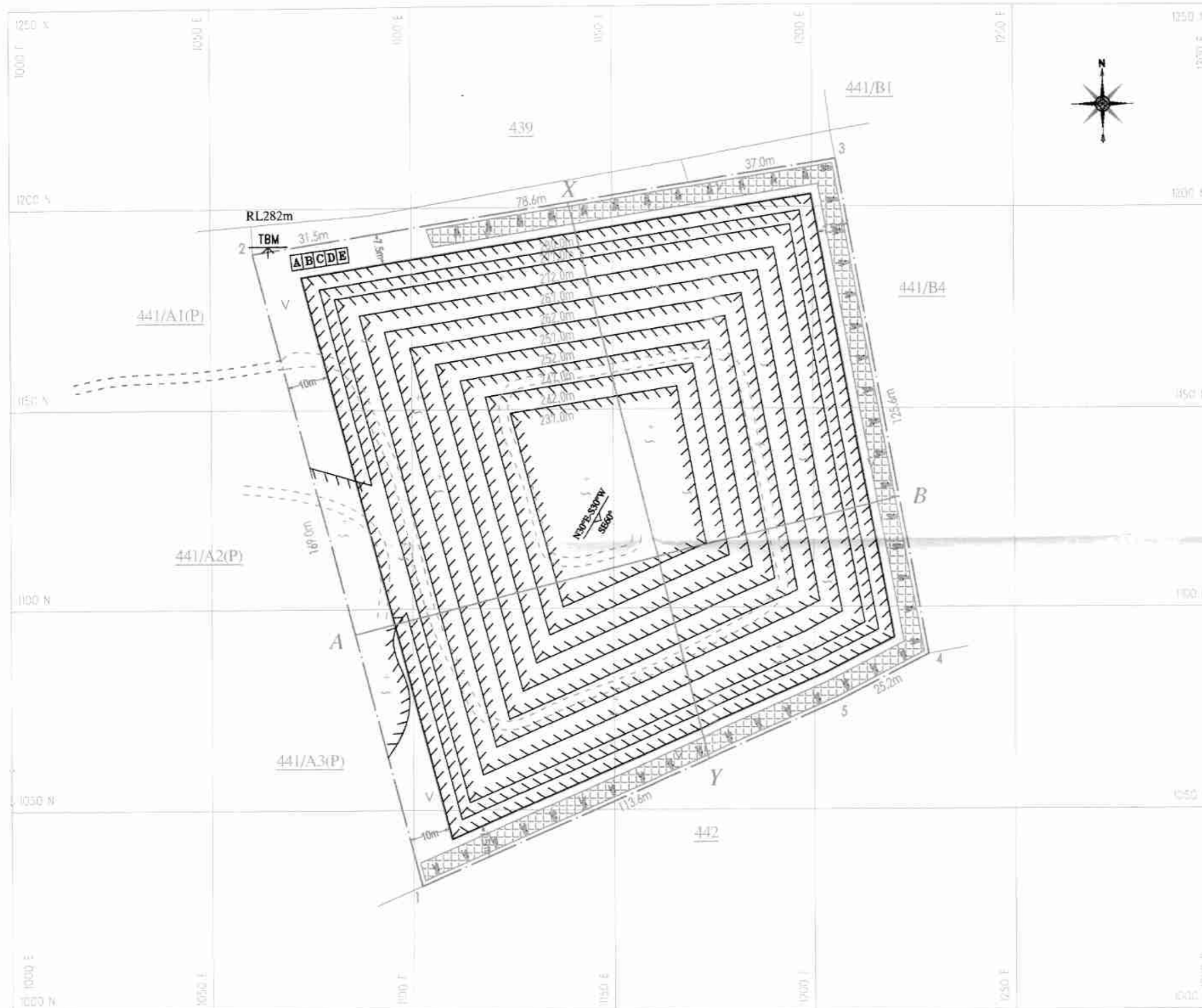
PROGRESSIVE QUARRY CLOSURE PLAN & SECTIONS

SCALE: 1:1000

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Dr.P. MANIGARAJU, M.Sc., Ph.105 A
QUALIFIED PERSON



BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	11° 04' 56.20" N	77° 33' 28.88" E
2	11° 05' 01.34" N	77° 33' 27.55" E
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DATUM : UTM-WGS84, ZONE 43 NORTH

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	Q.L. APPLIED AREA BOUNDARY
	10m & 7.5m SAFETY DISTANCE
	TEMPORARY BENCH MARK
	GRAVEL
	WEATHERED ROCK
	ROUGHSTONE
	QUARRY PIT
	STRIKE & DIP
	SHRUBS
	QUARRY HAUL ROAD
	APPROACH ROAD
	1-V Yr PLANTATION

APPLICANT :

Thiru. B. VISHNU KUMAR,
S/o. BALASUBRAMANIAM,
No. 4/ 114 -G, SEDARPALAYAM,
VAVIPALAYAM,
TIRUPPUR DISTRICT - 641 666.

LOCATION OF Q.L.A AREA:

S.F.Nos : 441/A1(P), A2(P), A3(P) & 441/A4(P)
EXTENT : 2.00.21 Ha.
VILLAGE : KEERANUR,
TALUK : KANGAYAM,
DISTRICT : TIRUPPUR,
STATE : TAMIL NADU.

PLATE NO - V

DATE OF SURVEY : 24.03.2023

CONCEPTUAL PLAN &
SECTIONS

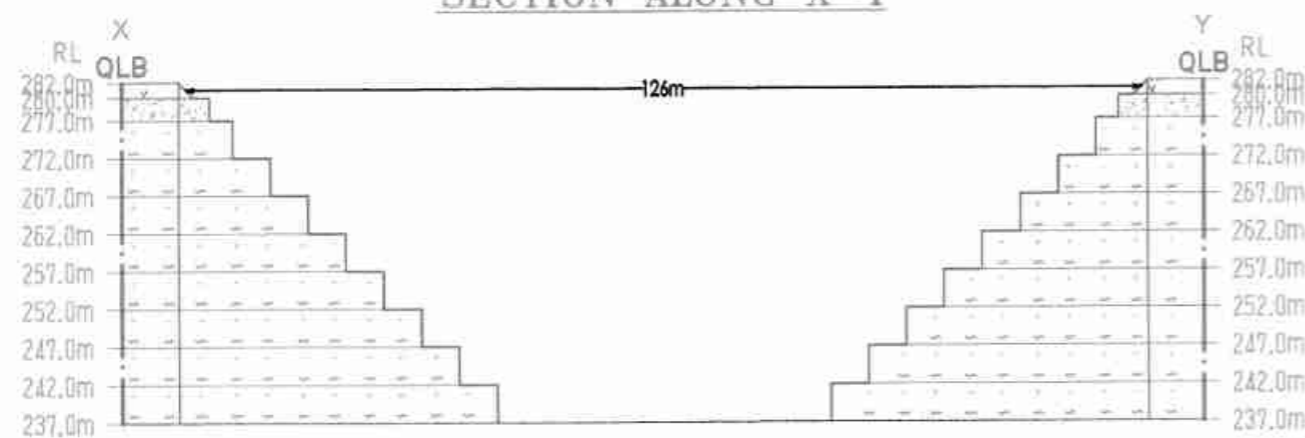
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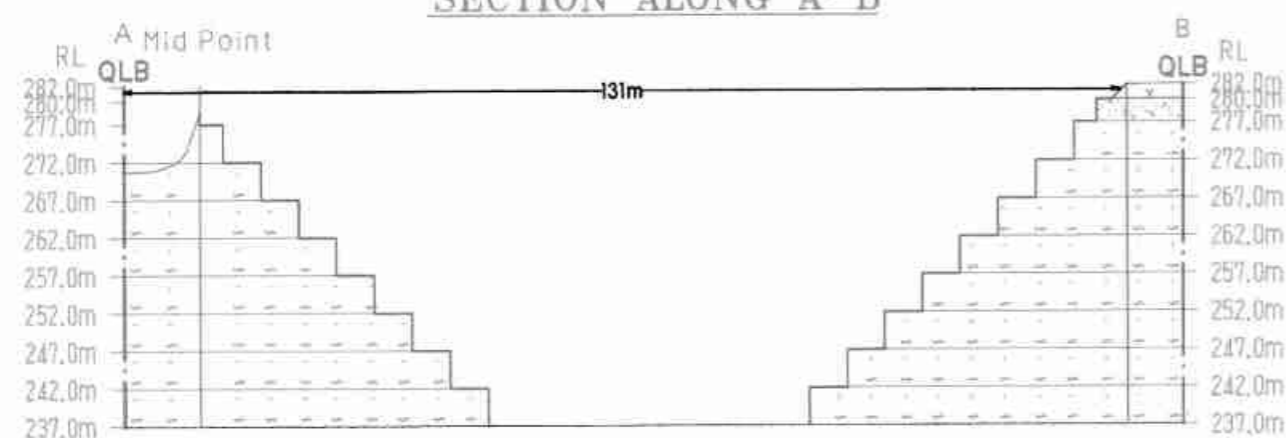
Dr. P. THANGARAJU, M.Sc., Ph.D.,
QUALIFIED PERSON

SECTION ALONG X-Y



Ultimate Pit Dimension (max)
= 126mX131mX45m(d)

SECTION ALONG A-B



Hydrogeological Report For
Rough stone and Gravel Quarry Over an
Extent of 2.00.21ha of patta lands in S.F.Nos.441/A1 (P),
A2 (P), A3 (P) & A4 (P) of Keeranur Village,
Kangayam Taluk,
Tiruppur District, Tamil Nadu State.

HYDROGEOLOGICAL REPORT FOR KEERANUR

ROUGH STONE AND GRAVEL QUARRY

1. INTRODUCTION

NAME OF THE APPLICANT WITH ADDRESS-

Name of the applicant : **Thiru. B. Vishnu Kumar**
S/o. Balasubramaniam,
Address : No.4/114-G, Sedarpalayam,
Vavipalayam,
Tiruppur District.
Pin Code : 641 666
Mobile No : +91 96888 54077
Aadhaar No : 7931 2047 6111 (Annexure No. VIII)
Email ID : vish.kum19@gmail.com

DETAILS OF THE AREA-

Land Classification : Patta land
Survey No : 441/A1 (P), A2 (P), A3 (P) & A4 (P)
Extent : 2.00.21Ha
Village : Keeranur
Taluk : Kangayam
District : Tiruppur

The Client requires detailed information on ground water occurrences at proposed project site of Rough stone and Gravel quarry. The objective of the present study is to assess the availability of groundwater and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and water quality. For this purpose all available hydrogeological information of the areas has been analyzed, and a geophysical survey was done.

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Client's requirements. The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data
- b) State & District Geological and Hydrogeological Reports and Maps.
- c) Technical reports of the area by various organizations.

2. SCOPE OF THE WORKS –

The scope of works includes:

- ❖ Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to proposed mining activities.
- ❖ To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- ❖ To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- ❖ To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

3. BACKGROUND INFORMATION

Geographical information of the study area-

The investigated site falls in the Toposheet No: **58 – E/12** Latitude between **11°04'56.20"N to 11°05'02.05"N** and Longitude between **77°33'27.55"E to 77°33'33.06"E** on WGS datum-1984.

Geomorphology and Land Use

The geomorphologic characteristics of Tirupur are broadly classified into Padi plain, Habitation mask and Water body mask. The land use categories are classified as Built up, Agriculture, Water bodies and Waste land. Soil types in Tirupur block can be divided into Fine, Fine loamy, Loamy skeletal, and Clayey loamy.

Climate

The climate in the plains of Noyyal river basin is "semiarid subtropical monsoonic". The hot months are March, April and May with a maximum temperatures ranging from 35.5°C to 36.8°C and the cool months are November, December and January with minimum temperatures ranging from 23.9°C to 24.1 °C. The mean annual temperature is 29.4°C.

Rainfall

Rainfall in the basin is highly variable due to the orographic effects of the Western Ghats. The western and upper reaches usually receive more than 3000 mm annually during the southwest monsoon whereas the eastern part of the basin receives an annual rainfall of 600 mm, which mostly occurs during the northeast monsoon and most of it is received during the months of April and May.

Soil

The type of soil that occur in Noyyal basin are many and varied, ranging from shallow red non-calcareous soils to very deep grey calcareous ones. A standard reconnaissance soils survey of Coimbatore district reveals the occurrence of 14 different soil series and their associations. These 14 series can be broadly classified in to five categories: red soil, grey soil, alluvial soil, colluvial soil and forest soil

1. GEOLOGY**Regional Geology of Tiruppur District-**

Tiruppur district of Tamil Nadu forms a part of southern Granulitic terrain and is predominantly occupied by crystalline rocks of Archaean to late Proterozoic age. Regionally, the rocks can be grouped under five categories namely i) Charnockite Group represented by Charnockite, Pyroxene Granulite and Magnetite Quartzite, ii) Peninsular Gneissic Complex (II) comprising hornblende-biotite gneiss, iii) Basic intrusive include Pyroxinite/Dunite iv) Younger intrusive comprising, Nepheline-Syenite, Pink Granite, Pegmatite and Quartz veins and v) Quaternary sediments of Kankar and soil.

Stratigraphy of the Area

Tiruppur District is predominantly occupied by hornblende Biotite gneisses of PGC (II) with enclaves of Magnetite Quartzite, Pyroxene Granulite and Charnockite. The area exposes several bands of Pyroxene Granulite which is medium grained, medium to dark grey in color and stand out prominently in the gneissic country generally parallel to regional foliation. Charnockite is coarse grained, massive, many places it is foliated, grey colored and greasy and exposed as boulder outcrops and small knolls. It is well exposed in Central, Western and Southern parts of the Tiruppur District. The general strike of foliation varies from ENE-WSW, E-W with dipping towards NW and N respectively.

Hornblende-Biotite gneiss is well foliated, medium to coarse grained, pale grey and exposed as sheets and small knolls. Pink Granite gneiss occurs as thin bands and lensoidal bodies. It is a medium grained rock composed of alternating bands of mafic (mainly of biotite

and hornblende) and felsic (Feldspar and Quartz) minerals. It is well recognized in Avinashi area.

Stratigraphy succession of Tiruppur District

Age	Group	Lithology
Holocene		Block Cotton Soil/Clay ± Gypsum
Cenozoic		Kankar/calc-tufa
Neoproterozoic	Acid intrusive	Quartz veins Pegmatite Pink Granite
	Sivamalai syenite Complex	Nepheline-syenite
	Chalk Hills (Basic Intrusive)	Pyroxenite/Dunite
Archaean- Palaeoproterozoic	Peninsular Gneissic Complex (II) PGC (II)	Pink Granite Gneiss Hornblende Biotite gneiss
Archaean	Charnockite Group	Charnockite (Unclassified) Pyroxene Granulite Banded Magnetite Quartzite

Basic intrusives such as pyroxenite/dunite occurs as bouldery outcrop and lensoidal bodies in the country rock and mostly concordant to the regional foliation. Many basic intrusives are reported in south and south-east of Tiruppur town. The trend of these bodies is east-west.

Nepheline syenite is a leucocratic, coarse grained rock and composed mainly of Feldspar with Nepheline and shows pitted appearance due to removal of Nepheline. This alkaline rock is available in and around Sivanmalai area only.

Acid intrusive are overlain by sediments of Quaternary age, represented by Kankar and black cotton soil with Gypsum. Most of the area is covered by brown and red brown soil. Some part of the area covered with black cotton soil contains Gypsum as lumps. Black cotton soil covers south-western part of the district.

2. GEOPHYSICAL INVESTIGATION METHODS

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A, expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

$$R = dV/I \text{ (Ohm)}$$

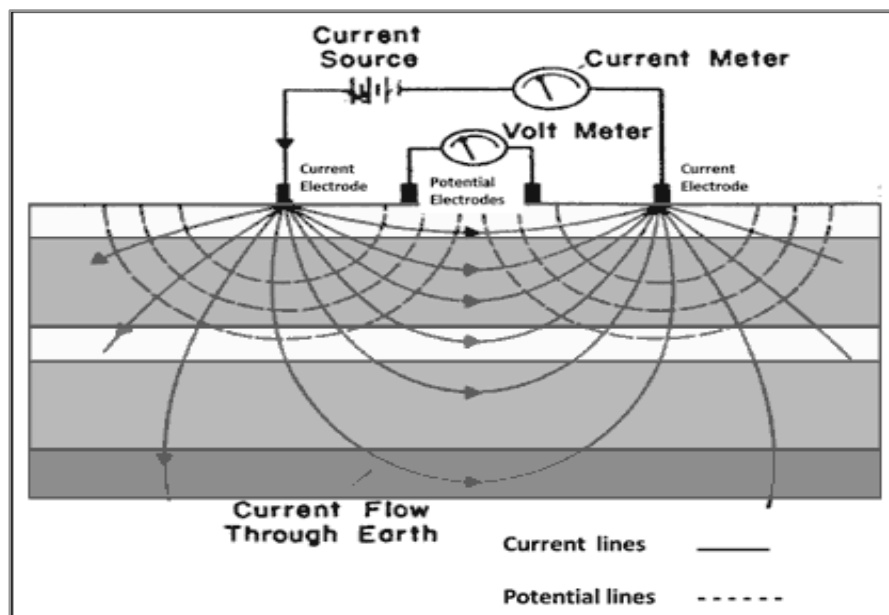
Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

Vertical Electrical Sounding (VES)

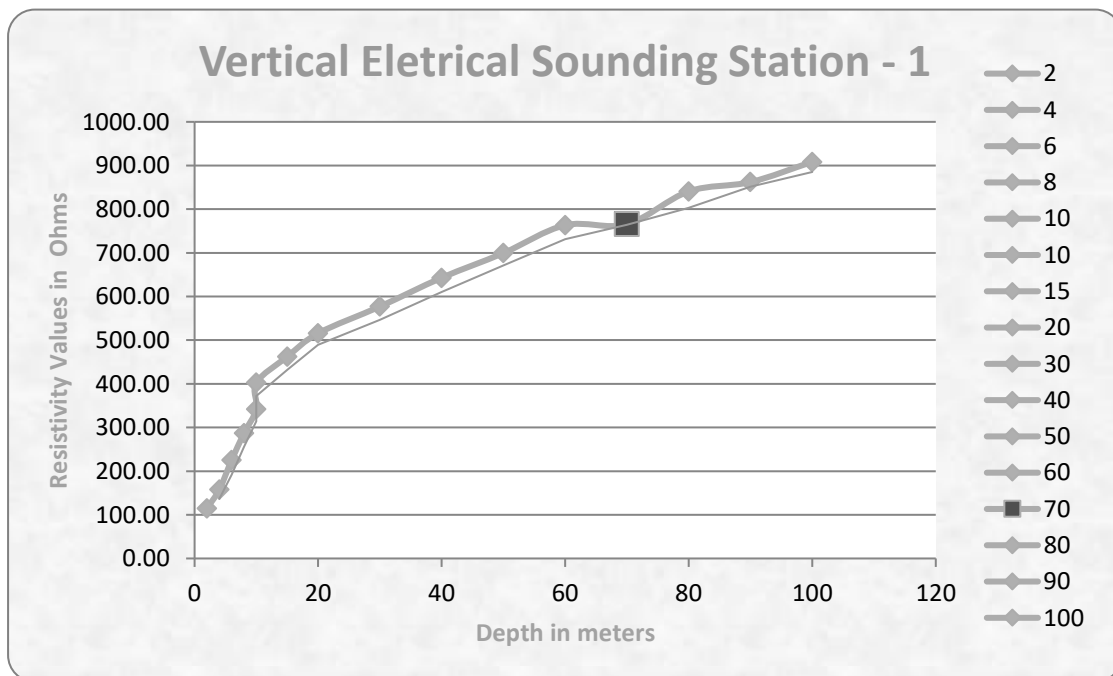
When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

Vertical Electrical Sounding Method



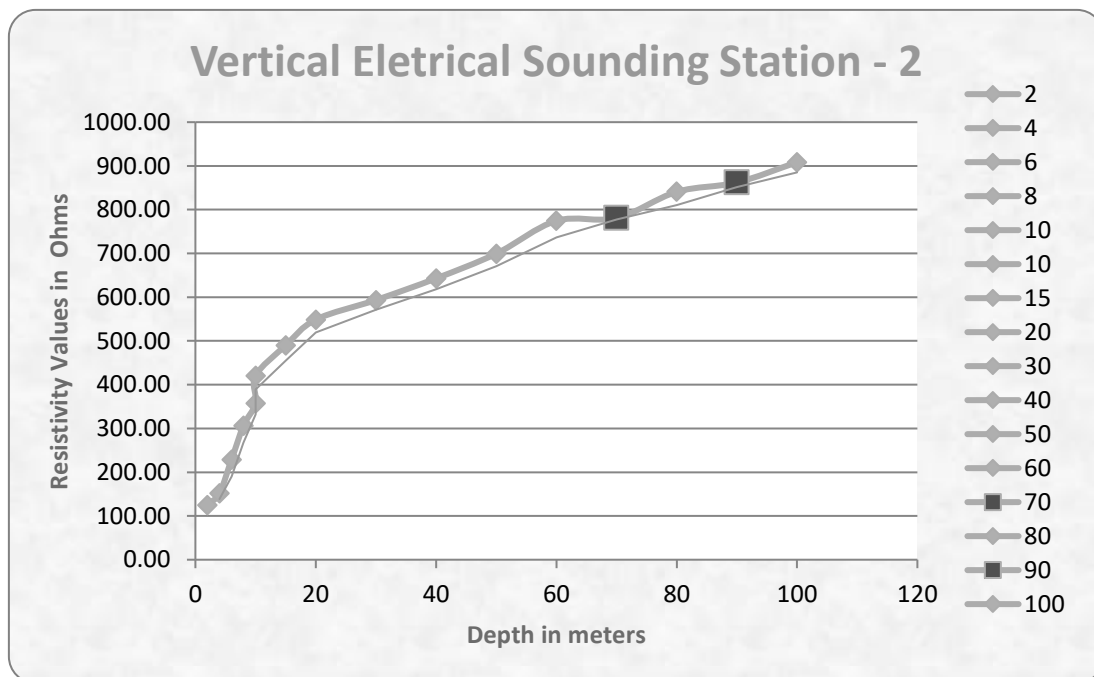
Geophysical Data's and Graphs Fracture Zone Levels

Vertical Electrical Sounding Station - 1					
GPS Coordinates - 11°04'56.20"N 77°33'27.55"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms [R]	Apparent Resistance in Ohms
1	2	1	4.71	24.36	114.74
2	4	1	23.55	6.70	157.79
3	6	1	54.95	4.10	225.30
4	8	1	98.91	2.90	286.84
5	10	1	155.45	2.20	341.99
6	10	5	23.55	17.10	402.71
7	15	5	62.80	7.36	462.21
8	20	5	117.75	4.38	515.75
9	30	5	274.75	2.10	576.98
10	40	5	494.55	1.30	642.92
11	50	5	777.15	0.90	699.44
12	60	5	1122.55	0.68	763.33
13	70	5	1530.75	0.50	765.38
14	80	5	2001.75	0.42	840.74
15	90	5	2535.55	0.34	862.09
16	100	5	3132.15	0.29	908.32



● Based on the vertical electrical sounding graphs purple color is fracture zone.

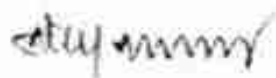
Vertical Electrical Sounding Station - 2					
GPS Coordinates - 11°05'02.05"N 77°33'33.06"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms [R]	Apparent Resistance in Ohms
1	2	1	4.71	26.53	124.96
2	4	1	23.55	6.46	152.13
3	6	1	54.95	4.16	228.59
4	8	1	98.91	3.10	306.62
5	10	1	155.45	2.30	357.54
6	10	5	23.55	17.86	420.60
7	15	5	62.80	7.80	489.84
8	20	5	117.75	4.66	548.72
9	30	5	274.75	2.16	593.46
10	40	5	494.55	1.30	642.92
11	50	5	777.15	0.90	699.44
12	60	5	1122.55	0.69	774.56
13	70	5	1530.75	0.51	780.68
14	80	5	2001.75	0.42	840.74
15	90	5	2535.55	0.34	862.09
16	100	5	3132.15	0.29	908.32



● This vertical electrical sounding graphs purple color is fracture zone.

3. Conclusion –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium groundwater potential. Productive aquifers are expected at depth of 75m to 80m where minor fractures are observed and shallow aquifers are expected above 60m-65m BGL. The ultimate pit limit as per the approved mining plan depth is **45m** below ground level which will have no impact on the Ground Water.



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

Govt. Approved Hydro Geologist

M/s. Geo Exploration and Mining Solutions,

Regd. Office: No. 17, Advaita Ashram Road,

Alagapuram, Salem – 636 004, Tamil Nadu

Mobile: +91 - 94433 56539

E-Mail: infogeoexploration@gmail.com

K. SOMASUNDARAM EXPLOSIVES

18/97, Nattarpalayam, Pappini Village, Paranservali (Po), KANGAYAM - 638 701. Tirupur Dt.

29.03.2023

Date :

To B.Vishnu Kumar ,
S/o S.P.Balasubramaniam ,
4/114-G, Sedarpalayam ,
Vavipalayam Post,
Tiruppur District - 641666.
Tamilnadu State.

Ref: Your Letter Dated : 27.03.2023

Sub: Regarding blasting Work using explosive in your proposed quarry.

Sir,

We are having explosive license in form LE-3 holding No : E/SC/TN/22/516(E42731) situate in SF No.837/1 Pappini Village, Kangayam Taluk, Tirupur District. Our office functioning at Address 18/97 , Nattarpalayam, Paranservali (Post), Kangayam Tk, Tirupur District - 638 701.

We are enacting 2 explosive vans for transporting detonators and class 2 separately for our magazine to our work site and well experienced and licensed blasters and shot firers for safety blasting work Since 5 years without untoward incident.

We are willing to undertake blasting work on contract basis at your S.F. 441/A1(P), A2(P), A3(P), and A4(P) (2.00.21 Hectares) at Keeranur Village, Kangayam Taluk, Tiruppur District.

Thanking you,

Signature,
For K. Somasundaram Explosives

K. SOMASUNDARAM EXPLOSIVES


Occupier

Encl:

1) License copy.

अनुज्ञापने प्ररूप एल. ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 का अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)
(See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)(ग) उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने
Licence to possess: (c) for use, explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazine

अनुज्ञापि सं. (Licence No.): E/SC/TN/22/516(E42731)

वार्षिक फीस रूपाए (Annual Fee Rs): 3000/-



1. Licence is hereby granted to

Shri K.Somasundaram S/o. M.Kittusamy Gounder (आधिभागी / Occupier : Shri K.Somasundaram) D.No:18/97,
Natarpalayam, Pappini Village, Kankeyam Taluk, Paramasivai P.O, Town/Village - Pappini, District-TIRUPUR, State-
Tamil Nadu, Pincode - 638701

को अनुज्ञापि अनुदत्त की जाती है।

2. अनुज्ञापिधारी की प्रास्थिति | Status of licensee : Partnership Firm

3. अनुज्ञापि निम्नलिखित प्रयोजनों के लिए विधिमाम्य है।

Licence is valid only for the following purpose.

possess for use of Nitrate mixture - Slurry and Emulsion Explosives, Safety Fuse, Detonating Fuse, Electric and/or Ordinary Detonators.

4. अनुज्ञापि विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमाम्य है।

Licence is valid for the following kinds and quantity of explosives: -- (क) (a)

क्र Sr. No.	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1.	Nitrate mixture - Slurry and Emulsion Explosives	2.0	0	600 Kg
2.	Safety Fuse	6.1	0	5000 Mtrs
3.	Detonating Fuse	6.2	0	1000 Mtrs
4.	Electric and/or Ordinary Detonators	6.3	0	10000 Nos

(ख) किसी एक कैलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञापि के लिए)

(b) Quantity of explosives to be purchased in a calendar month [applicable for licence under article 3(b) and (c)]:

20 times
as above.

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञापि परिसर की पुष्टि होती है।

The licensed premises shall conform to the following drawing(s).

रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/516(E42731)

दिनांक (Dated) 28/01/2009

6. अनुज्ञापि परिसर निम्नलिखित पते पर स्थित हैं। The licensed premises are situated at following address:

Survey No(s). 837/1, ग्राम (Town/Village) : Pappini village, Taluk-Kangayam

जिला (District)
दूरभाष (Phone)

TIRUPUR

राज्य (State)
ई. मेल (E-Mail)

Tamil Nadu

पुलिस थाना (Police Station) : Kangayam
पिनकोड (Pincode)
फैक्स (Fax)

7. अनुज्ञापि परिसर में निम्नलिखित सुविधाएं अंतर्भूत हैं।

The licensed premises consist of following facilities.

A Main Magazine Room, Lobby and Detonator room.

8. अनुज्ञापि समग्र - समग्र पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2008 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपायों के अधीन रहते हुए अनुदत्त की जाती है।

The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures.

- उपर्युक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए)।
Drawings (showing site, constructional and other details) as stated in serial No. 5 above.
- अनुज्ञापि प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञापि की शर्तों और अतिरिक्त शर्तों।
Conditions and Additional Conditions of this licence signed by the licensing authority.
- दूरी प्ररूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञापि तारीख 31 मार्च 2010 तक विधिमाम्य रहेगी। This licence shall remain valid till 31st day of March 2010.

यह अनुज्ञापि, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञापि की शर्तों का अधिकरण करने या यदि अनुज्ञापि परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिबंधित की जा सकती है, जहां वह लागू हों।

This licence is liable to be suspended or evoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VII, 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 - 28/01/2009

Sd/-
संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives
South Circle, Chennai

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 28/06/2011
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 22/04/2013

Transfers :

- Change in Licensee Name/Address/Status dated : 07/09/2017

नवीनीकरण के पृष्ठानक के लिए स्थान
Space for Endorsement of Renewal

नवीनीकरण की तारीख Date of Renewal	समाप्ति की तारीख Date of Expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प Signature of licensing authority and stamp
05/03/2020	31/03/2025	Jt Chief Controller of Explosives, South Circle, Chennai

कानूनी चेतावनी : विस्फोटकों को गलत ढंग से चलाने या उनका दुरुपयोग विधि के अधीन गंभीर दंडिक अपराध होगा।
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

கிராம நிர்வாக அலுவலர் அறிக்கை :

திருச்சூர் மாவட்டம், காங்கியல்
 வட்டம் 07. கிராம கிராமம் நீ.ச 441/A1
 ம.வா 0.96.0 ஓரிடம் மட்டம் எண் 556, நீ.ச
 441/A2 ம.வா 0.97.0 ஓரிடம் மட்டம் எண் 508,
 நீ.ச 441/A3 ம.வா 0.85.0 ஓரிடம் மட்டம் எண் 518
 ஆகியவை மாவட்ட நிர்வாக அலுவலர் அலுவலர்
 - அலுவலர் அலுவலர், நீ.ச 441/A4 ம.வா
 0.42.5 ஓரிடம் மட்டம் எண் 3902 மாவட்ட நிர்வாக
 - அலுவலர் அலுவலர் B. அலுவலர் அலுவலர் அலுவலர்
 கிராம கணக்கிதரம் தூக்கமாகி உள்ளது.
 மேலும் மல எண்ணகம் நீ.ச 441/A1 - 0.44.10
 441/A2 - 0.53.21 ஓரிடம், 441/A3 - 0.63.30 ஓரிடம்
 441/A4 - 0.39.60 ஓரிடம் ஆக மொத்தம் ம.வா
 2.00.21 ஓரிடம் இலக்கு கட்டி 300 வீட்டு
 கட்டிடங்கள் கட்டியுள்ளனர், கோயிலம், பள்ளி
 - கட்டும் ஏதும் இல்லை எனினும் அதற்கான
 - பணம் கிட்டுள்.


 கிராம நிர்வாக அலுவலர்
 706, கிராமம்
 காங்கியல் வட்டம்

**TOPOGRAPHICAL VIEW OF KEERANUR ROUGH STONE
AND GRAVEL QUARRY LEASE APPLIED AREA**



Name of the Applicant : **B. Vishnu Kumar,**
S/o. Balasubramaniam,
Address : No.4/114-G, Sedarpalayam,
Vavipalayam, Tiruppur District,
Tamil Nadu State – 641 666.

LOCATION DETAILS

Extent : 2.00.21ha
S.F. Nos. : 441/A1 (P), A2 (P), A3 (P) & A4 (P)
Village : Keeranur
Taluk : Kangayam
District : Tiruppur
State : Tamil Nadu

Signature of the applicant

(B. Vishnu Kumar)

(Village Administrative Officer)
765, கீரனூர்
Attestation

நாள்: 26.10.2022

"அ1 விளம்பரம்"

திருப்பூர் மாவட்டம், திருப்பூர் - 641666, வாவிபாளையம், எண்.4/114-ஜி, சேடர்பாளையம் என்ற முகவரியில் வசித்து வரும் பாலசுப்பிரமணியம் மகன் திரு.பி.விஷ்ணுகுமார் என்பவர் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க கீழ்க்கண்ட புலங்களுக்கு 5 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி மனு செய்துள்ளார்.

வ. எண்.	கிராமம்	புல எண்	மொத்த பரப்பு (ஹெக்டேர்)	குத்தகைக்கு கோரப்படும் பரப்பு (ஹெக்டேர்)
1.	கீரனூர்	441/A1	0.96.0	0.44.10
2.		441/A2	0.97.0	0.53.21
3.		441/A3	0.85.0	0.63.30
4.		441/A1	0.42.5	0.39.60
மொத்தம்			3.20.5	2.00.21

மேற்கண்ட புலங்களில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க 5 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்க பொது மக்களுக்கு ஆட்சேபணை ஏதும் இருப்பின் இவ்விளம்பரம் செய்யப்பட்ட 15 தினங்களுக்குள் வாய் மொழியாகவோ அல்லது எழுத்து பூர்வமாகவோ நத்தக்காடையூர் நிலவருவாய் ஆய்வாளர் அல்லது காங்கயம் வட்டாட்சியகம் தெரிவிக்கவேண்டும் எனவும் தவறும் பட்சத்தில் பொது மக்களுக்கு ஆட்சேபணை ஏதும் இல்லை என கருதி குவாரி குத்தகை உரிமம் வழங்க நடவடிக்கை மேற்கொள்ளப்படும் எனவும் இதன் மூலம் தெரிவித்துக்கொள்ளப்படுகிறது.

ந. விஷ்ணுகுமார்
நிலவருவாய் ஆய்வாளர்
நத்தக்காடையூர் உள்வட்டம்
காங்கயம் வட்டம்.

பெறுநர்,

கிராம நிர்வாக அலுவலர்,
கீரனூர் கிராமம்.

மேற்கண்ட விபரத்தினை கிராமத்தில் விளம்பரம் செய்து பொது மக்கள் கையொப்பம் பெற்ற மீள சமர்ப்பிக்குமாறு கீரனூர் கிராம நிர்வாக அலுவலர் கேட்டுக் கொள்ளப்படுகிறார்.

ந. விஷ்ணுகுமார்
நிலவருவாய் ஆய்வாளர்
நத்தக்காடையூர் உள்வட்டம்
காங்கயம் வட்டம்.

பெறுநர்,
கிராம நிர்வாக அலுவலர்,
கீரனூர் கிராமம்.

அனுப்புநர்

திரு.பா.ராகவேந்திரன்,
வட்டார வளர்ச்சி அலுவலர்(கி.ஊ.)
காங்கயம்.

பெறுநர்

துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருப்பூர்.

ந.க.எண். 1025/2021/ஆ4

நாள்: .12.2022

அய்யா/அம்மையர்,

பொருள்: கனிமங்களும் சுரங்கங்களும் - சிறுகனிமம் - சாதாரண கற்கள் - திருப்பூர் மாவட்டம் - காங்கயம் வட்டாரம் - கீரனூர் கிராமம் - புல எண்:441/A1(P),441/A2(P),441/A3(p),441/A4(p) (0.39.60)ஆகியவற்றில் மொத்தம் 2.00.21 ஹெக்டர் பட்டா நிலப்பரப்பில் சாதாரண கற்கள் /கிராவல் மண் வெட்டி எடுக்க 5 வருடங்களுக்கு குவாரி குத்தகை உரிமம் கோரி திரு.பி.விஸ்ணுகுமார், த/பெ.பாலசுப்பிரமணியம் என்பவர் மனு செய்துள்ளது - விசாரணை அறிக்கை அனுப்பி வைத்தல் - தொடர்பாக.

பார்வை: 1)துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை,திருப்பூர் அவர்களின் கடித ந.க.எண்:685/2022/கனிமம், நாள்:11.10.2022

2)மண்டல துணை வட்டார வளர்ச்சி அலுவலர்-
(3),ஆய்வறிக்கை நாள்:28.11.2022



பார்வை 1-ல் காணும் திருப்பூர் மாவட்ட துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை அவர்களின் கடிதத்தில் கேட்டுள்ளவாறு காங்கயம் வட்டாரத்திற்குட்பட்ட கீரனூர் கிராமம் புல எண்:441/A1(P)(0.44.10), 441/A2(P)(0.53.21), 441/A3(p)(0.63.30), 441/A4(p) (0.39.60) ஆகியவற்றில் மொத்தம் 2.00.21ஹெக்டர் பட்டா நிலப்பரப்பில் பிரஸ்தாப புலங்களிலிருந்து 300மீட்டர் சுற்றளவிற்குள் அங்கீகரிக்கப்பட்ட குடியிருப்பு மனைகள்(layout) மற்றும் அங்கீகரிக்கப்பட்ட கட்டுமானங்கள் ஏதும் இல்லை என்ற விவரத்தினை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

வட்டார வளர்ச்சி அலுவலர்(கி.ஊ.)
காங்கயம்.

நகல்:

திரு.பி.விஸ்ணுகுமார்,
த/பெ.பாலசுப்பிரமணியம்,
எண்:4/114-ஜி,சேடர்பாளையம்,
வாவிபாளையம்,
திருப்பூர்.



THIRU. A.R. RAHUL NADH, I.A.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.9456/SEAC/1(a)ToR- 1692/2024 Dated:23.04.2024.

To

Thiru. P. Sasikumar,
S/o. Palanisamy,
No. 5/257, Keeranur Village,
Kangayam Taluk,
Tiruppur District – 638 701.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Proposed Rough Stone Quarry lease over an extent of 4.44.0 Ha at S.F.No. 449(P) & 450 in Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu by Thiru.P.Sasikumar - under project category – “B1” and Schedule S.No.1(a) “Mining of Minerals Projects” of EIA Notification, 2006, as amended – **ToR issued along with Public Hearing - preparation of EIA report – Regarding.**

- Ref:**
1. Online proposal No. SIA/TN/MIN/81244/2021 dated 28.07.2022.
 2. Your application submitted for Terms of Reference dated: 26.08.2022.
 3. Minutes of the 319th SEAC meeting held on 12.10.2022.
 4. Minutes of the 564th SEIAA meeting held on 28.10.2022.
 5. Proponent Reply dated:23.11.2023.
 6. Minutes of the 679th SEIAA meeting held on 13.12.2023.
 7. Proponent Reply dated: 17.04.2024.
 8. Minutes of the 713th SEIAA meeting held on 23.04.2024.

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

The proponent, Thiru.P.Sasikumar has submitted an application for Terms of Reference (ToR) on: 26.08.2022, for the Proposed Rough Stone Quarry lease over an extent of 4.44.0 Ha at S.F.No. 449(P) & 450 in Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

The proposal was placed in 319th meeting of SEAC held on 12.10.2022. The details of the project are available in the website (parivesh.nic.in).

The SEAC noted the following:

1. The project proponent, Thiru.P.Sasikumar has applied for Terms of Reference for the proposed Rough stone quarry lease over an extent of 4.44.0 at S.F.Nos. **449(P) & 450 in Keeranur Village, Kangayam Taluk, Tiruppur District, Tamilnadu.**
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 mining plan, the lease period is for 5 years. The mining plan is for 5 years. The production for 5 years not to exceed **4,52,430 cu.m of rough stone** with an ultimate depth of 37m below ground level.

Based on the presentation made by the proponent, **SEAC considering the safety aspects, suggested the proponent to realign the benches and revise the quantity accordingly and decided to grant Terms of Reference (TOR) with Public Hearing for the revised quantity** 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 project proponent shall submit certified compliance report for the EC obtained earlier along with the EIA report.
2. The PP shall furnish a letter from DFO on the proximity details of nearest RF with respect to the proposed project site.
3. The Project Proponent shall necessarily prepare and submit an 'Action Plan' for carrying out the realignment of the benches, i.e., section -'A-B' & 'C-D' where the bench width of 10 m to be maintained as 'safety berm' in the proposed quarry lease which shall be approved by the concerned Asst. Director of Geology and Mining indicating the revised quantity of excavation during the time of appraisal for obtaining the EC.



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4. The PP shall furnish slope stability action plan vetted by the concerned AD (Mines) for the systematic working by maintaining proper benches incorporating the haul road with proper gradient as the height of the proposed quarry is exceeding 30 m, during the EIA appraisal.
5. The PP shall give an affidavit stating that the jack hammer drill machine fitted with the dust extractor will be deployed for the drilling operations such that the fugitive dust is controlled effectively at the source.
6. 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.
7. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry.
8. 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.
9. 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.
10. 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).
11. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
12. The proponent shall furnish photographs of adequate fencing, green belt along the periphery


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- including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
13. 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.
 14. 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.
 15. 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.
 16. 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.
 17. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
 18. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
 19. 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.



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20. 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.
21. 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.
22. 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.
23. Impact on local transport infrastructure due to the Project should be indicated.
24. 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.
25. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
26. 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.
27. The Public hearing advertisement shall be published in one major National daily and one most circulated Tamil daily.
28. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
29. 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.
30. 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.



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- 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.
31. 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
 32. 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.
 33. 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.
 34. 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.
 35. 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.
 36. 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.
 37. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
 38. 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.
 39. 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.
 40. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit



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stating to abide the EMP for the entire life of mine.

41. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix - I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	விலவம்
2	<i>Adonanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்குன்றிமணி
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aafu	ஆஃபு
7	<i>Bauhinia tomentos</i>	Iruvathu	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமா
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punnai	புள்ளை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon swietenia</i>	Purasamaram	பரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjalllavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவளி
18	<i>Creteva adansoni</i>	Mavalingum	மாவிலங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உவா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சிறு உவா
21	<i>Diospyro sebenum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகனை
23	<i>Ficus amplissima</i>	Kalitchi	கல் திச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆத்ரூப்புவரசு
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயிலி மரம், ஆயிலி
27	<i>Lannea coromandelica</i>	Odhiam	ஒதியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottamaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	விலா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	அரம்பா, பிசின்பட்டை
32	<i>Madhuca longifolia</i>	Iluppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழமரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	எச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்


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40	<i>Premna mollissima</i>	Murnai	முள்ளை
41	<i>Premna serratifolia</i>	Narumurnai	நறு முள்ளை
42	<i>Premna tomentosa</i>	Malapoovarasu	மலைப் பூவரசு
43	<i>Prosopis cinerea</i>	Vanni maram	வன்னி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வெண்ணாங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	பூலவு
47	<i>Puthranjiva roxburghii</i>	Karipala	கறிபாலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Manipungan, Soapukai	மணிப்புங்கன் சோப்புக்காய்
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Strobilus asper</i>	Firay maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yetti	யெட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தான் கொட்டை
54	<i>Syzygium cumini</i>	Navai	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தாண்ட்ரி
56	<i>Terminalia arjuna</i>	Ven marudhu	வெண் மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சந்தன வேம்பு
58	<i>Thospesia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsuratrifoliata</i>	valsura	வால்கரா
60	<i>Wrightia tinctoria</i>	Veppalai	வெப்பலாலை
61	<i>Pithecolobium dulce</i>	Kodukkapudi	கொடுக்காப்புளி

Discussion by SEIAA and the Remarks:-

The subject was placed in the 713th authority meeting held on 23.04.2024. Earlier, the subject was placed in the 565th & 678th authority meetings held on 31.10.2023 & 13.12.2023 respectively and was deferred for obtaining Certified Compliance Report for the EC obtained earlier dated.10.08.2016.

The proponent vide letter dated.17.04.2024 has replied that the CCR will be submitted along with the Final EIA/EMP Report.

In view of the above, the authority after deliberations, 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 & the following conditions & the conditions mentioned in 'Annexure B' of this minutes.

- The proponent shall submit a Certified Compliance Report for the EC obtained earlier dated.10.08.2016.



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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.,
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.



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- 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.

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,


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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.
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.



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EMP

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

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


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should be given.

- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and 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


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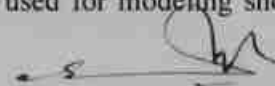
any, of change of land use should be given.

- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site 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


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

- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be 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



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provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing predominant wind direction may also be indicated on the map.

- 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


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

- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by 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 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)


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would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.

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


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Copy to:

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

From

Thiru. K. Ramesh, M.Sc.,
Deputy Director,
Dept. of Geology and Mining,
Tiruppur.

To

Thiru. P. Sasikumar,
S/o. Palanisamy,
Door No. 5/257, Keeranur village,
Kangeyam Taluk,
Tiruppur District - 638 701.

R.c. No. 1309/2021/Mines Dated : 22.06.2022.

Sub: Mines and Minerals - Minor Mineral - Rough Stone and Gravel - Tiruppur District -Kangeyam Taluk -Keeranur village - S.F. No. 449 (Part) (0.97.0) and 450 (3.47.0) - over an extent of 4.44.0 Hectares - Quarry lease application preferred by Thiru. P. Sasikumar, S/o. Palanisamy - Precise area communicated - Draft mining plan submitted - Approved - Other quarries situated in 500m radius details - Requested - Regarding.

- Ref: 1. Thiru. P. Sasikumar, S/o. Palanisamy, No. 5/257, Keeranur Village, Kangeyam Taluk quarry lease application dated: 01.09.2021.
2. The Deputy Director, Geology and Mining, Tiruppur letter R.C. No. 1309/Mines/2021 dated 25.04.2022
3. Mining Plan submitted by Thiru. P. Sasikumar, S/o. Palanisamy in letter dated 17.05.2022.
4. The Deputy Director, Geology and Mining, Tiruppur letter R.C. No. 1309/Mines/2021 dated 22.06.2022.
5. Thiru. P. Sasikumar, S/o. Palanisamy letter dated 21.06.2022.

As requested by the applicant, the details of quarry leases located within 500 meter radius from the proposed Rough Stone and Gravel quarry lease over an extent of 4.44.0 Hect. in S.F.Nos. 449 (Part) (0.97.0) and 450 (3.47.0) in Keeranur Village of Kangeyam Taluk of Tiruppur District is given as follows.

a. Existing quarries

S. No	Name of the lessee	Village	S.F. No	Extent Hect.	Collector's proceedings No. & Date	Lease period
1	S.P. Bala subramaniam	Keeranur	603/3 (P), 603/4 (P)	2.01.17	125 / MINES / 2017 dated 1.10.2018	01.10.2018 - 30.9.2023

b. Abandoned / expired quarries

S. No	Name of the lessee	Village	S.F. No	Extent Hect.	Collector's proceedings No. & Date	Lease period
1	P. Vijayalakshmi	Keeranur	441/A1, 441/A2, 441/A3	2.78.0 Hect	R.C.166/mines/2011 date 3.7.2012	03.07.2012- 02.07.2017 (Lease period expired)
2	A.M. Palanisamy	Keeranur	484/1,2	2.41.0	1009 / 2009 / Mines dated 17.3.2010	17.03.2010 - 16.3.2015 (expired)

c. Present proposed quarries

S. No	Name of the lessee	Village	S.F. No	Extent Hect.	Collector's proceedings No. & Date	Lease period
1	P. Sasikumar	Keeranur	442	2.00.0	--	Nearby applied area
2	P. Sasikumar	Keeranur	449 P, 450	4.44.0	--	Proposed area

2. Further, it is revealed from the perusal of this office records and registers that the proposed area was already held under quarrying lease for a period of 10 years as detailed below:-

Sl. No	Name of the Lessee	S.F. No. and extent	Order details	Lease period
1.	P. Sasikumar	449 (P), 450	900/2009/Mines dated: 08.05.2010	08.05.2010 to 07.05.2015
2.	P. Sasikumar	449 (P), 450	61/2015/Mines dated: 21.09.2016	21.09.2016 to 20.09.2021

In this regard, as per the approved mining plan, the existing quarry pit dimension (maximum) is as detailed below:-

Length in (m)	Width in (m)	Depth in (m)
210	220	12m below ground level

[Signature]
Deputy Director,
Geology and Mining,
Tiruppur.

Copy to

The Chairman, State Level Environment Impact,
Assessment Authority, Tamil Nadu,
3rd Floor, Panagal Maaligai, No.1 Jeenis Road,
Saidapet, Chennai-15.

From

Thiru. K. Ramesh, M.Sc.,
Deputy Director,
Dept. of Geology and Mining,
Tiruppur.

To

Thiru. P. Sasikumar,
S/o. Palanisamy,
Door No. 5/257, Keeranur village,
Kangeyam Taluk,
Tiruppur District - 638 701.

R.c. No. 1309 /2021/Mines Dated : 22.06.2022.

Sub: Mines and Minerals - Minor Mineral - Rough Stone
- Tiruppur District -Kangeyam Taluk -Keeranur
village - S.F. No. 449 (Part) (0.97.0) and 450
(3.47.0) - over an extent of 4.44.0 Hectares -
Quarry lease application preferred by Thiru. P.
Sasikumar, S/o. Palanisamy - Precise area
communicated - Draft mining plan submitted -
Approval of mining plan - Regarding

- Ref: 1. Thiru. P. Sasikumar, S/o. Palanisamy, No.
5/257, Keeranur Village, Kangeyam Taluk
quarry lease application dated: 01.09.2021.
2. The Deputy Director, Geology and Mining,
Tiruppur letter R.C. No. 1309/Mines/2021
dated 25.04.2022
3. Mining Plan submitted by Thiru. P. Sasikumar,
S/o. Palanisamy in letter dated 17.05.2022.

Thiru. P. Sasikumar, S/o. Palanisamy, No. 5/257, Keeranur Village,
Kangeyam Taluk has preferred application for the grant of Rough Stone
quarry lease in Patta land over an extent of 4.44.0 Hect. in S.F.Nos. 449
(Part) (0.97.0) and 450 (3.47.0) in Keeranur Village of Kangeyam Taluk of
Tiruppur District.

2. Based on recommendations of the Tahsildar, Kangeyam,
Revenue Divisional Officer, Dharapuram, Block Development Officer,
Kangeyam and the Assistant Geologist (Mines), Tiruppur and records
available, precise area has been communicated to the applicant with a
direction to submit mining plan and also to submit environmental clearance
as stipulated under rule 41 and 42 of Tamil Nadu Minor Mineral Concession
Rules, 1959 vide memo dated 25.04.2022.

3. Accordingly, Thiru. P. Sasikumar, S/o. Palanisamy submitted the Draft Mining Plan and the same has been examined in detail and it is found correct. Therefore, in exercise of the powers delegated under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959, and as per the guidelines / instructions issued by the Commissioner of Geology and Mining, Chennai vide letter Roc. No. 3868/LC/2012 dated 19.11.2012, the mining plan submitted by Thiru. P. Sasikumar, S/o. Palanisamy in respect of the subject area is hereby approved subject to the following conditions:

- (i). That the mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.
- (ii). This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884(Central Act IV of 1884) and the rules made there under the Tamil Nadu Minor Mineral Concession Rules, 1959.

- (iii). That the mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- (iv). 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.


- (v). If anything is found to be concealed as required by the Mines Act in the contents of the Mining Plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.

- (vi). Safety distances mentioned in the precise area has to be maintained for the entire duration of the lease period.
- (vii). Waste material should be dumped within the lease granted area as earmarked in the Mining Plan.

- (viii). Necessary Environmental Clearance has to be obtained by the applicant from the competent authority before the grant of quarry lease as per the rules.

- (viii). Necessary Environmental Clearance has to be obtained by the applicant from the competent authority before the grant of quarry lease as per the rules.
- (ix). Quarrying operations and production shall be carried out as per the approved Mining Plan and the applicant shall be liable to pay the cost of mineral if there is any deviation in the quantum indicated in the approved year wise quantum of production and any such cases as on date are to be dealt with as per Court direction.
- (x). If any violation is found during quarrying operation, the penal provisions of Tamil Nadu Minor Mineral Concession Rules shall attract.
- (xi). The applicant should strictly adhere to the statutory and safety requirements.

Encl: Approved Mining Plan.


Deputy Director,
Geology and Mining,
Tiruppur.

Copy to

- 0-75*
22/1/02
1. The Director,
Department of Geology and Mining,
Guindy, Chennai - 600 032.
 2. The Chairman ,
State Level Environment Impact Assessment Authority,
Panagal park Building, Saidapet, Chennai -600 015.
 3. Dr. P. Thangaraju, RQP
17, Advaita Ashram road,
Alagapuram, Salem - 4.



MINING PLAN AND PROGRESSIVE QUARRY CLOSURE PLAN FOR KEERANUR ROUGH STONE 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 : 4.44.0 Ha ✓
S.F.Nos. : 449 (P) & 450 ✓
VILLAGE : KEERANUR ✓
TALUK : KANGAYAM ✓
DISTRICT : TIRUPPUR ✓
STATE : TAMIL NADU ✓

FOR

APPLICANT

Thiru.P.Sasikumar,
S/o. Palanisamy,
Door No. 5/257, ✓
Keeranur Village, ✓
Kangayam Taluk, ✓
Tiruppur District – 638 701. ✓

PREPARED BY

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

No.17, Advaita Ashram Road,
Alagapuram, Salem – 636 004.
Cell: 94422 78601 & 94433 56539.
E-Mail: infogeoexploration@gmail.com



P.Sasikumar,
S/o. Palanisamy,
Door No. 5/257,
Keeranur Village,
Kangayam Taluk,
Tiruppur District – 638 701.

CONSENT LETTER FROM THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Keeranur Rough Stone Quarry lease applied area over an extent of 4.44.0 Hectares of patta lands in S.F.Nos. 449 (P) & 450 of Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared by

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

I request to the Deputy Director, Department of Geology and Mining, Tiruppur District to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

Dr.P.Thangaraju, M.Sc., Ph.D.,
No. 17, Advaita 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

P.Sasikumar

Place: Tiruppur
Date: 26.04.2022



P.Sasikumar,

S/o. Palanisamy,

Door No. 5/257,

Keeranur Village,

Kangayam Taluk,

Tiruppur District – 638 701.

DECLARATION OF THE APPLICANT

The Mining Plan and Progressive Quarry Closure Plan in Respect of Keeranur Rough Stone Quarry lease applied area over an extent of 4.44.0 Hectares of patta lands in S.F.Nos. 449 (P) & 450 of Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared in full consultation with me.

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

Signature of the Applicant


P.Sasikumar

Place: Tiruppur

Date: 26.04.2022



CERTIFICATE

Certified that I, **Dr.P.THANGARAJU**, M.Sc., Ph.D., having an office at Regd. Off. No. 17, Advaita Ashram Road, Alagapuram, Salem – 636 004, holding a Post Graduate in Geology (M.Sc. Geology) from Madras University, Chennai and I worked in the field of Geology in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 stipulates the eligibility for preparing Mining plans as “(I)(a) a post graduate degree in Geology granted by a university established” and (I)(b) “Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree”. Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

Accordingly, I am prepare this Mining Plan and Progressive Quarry Closure Plan in Respect of Keeranur Rough Stone Quarry in S.F.Nos. 449 (P) & 450 over an extent of 4.44.0 Ha of Patta lands in Keeranur Village, Kangayam Taluk, Tiruppur District, Tamilnadu State for Thiru.P.Sasikumar, S/o. Palanisamy, residing at Door No. 5/257, Keeranur Village, Kangayam Taluk, Tiruppur District – 638 701. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person


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

Place: Salem

Date: 29.04.2022

Dr.P.Thangaraju, M.Sc., Ph.D.,
No. 17, Advaita 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 Keeranur Rough Stone Quarry in S.F.Nos. 449 (P) & 450 over an extent of 4.44,0 Ha of Patta lands in Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared for

Thiru.P.Sasikumar,

S/o. Palanisamy,
Door No. 5/257,
Keeranur Village,
Kangayam Taluk,
Tiruppur District – 638 701.

Whenever specific permissions/ exemptions/ relaxations and approvals are required, the Applicant will approach the concerned authorities of the Deputy Director, Department of Geology and Mining, Tiruppur District, Tamil Nadu for such permissions/ exemptions/ relaxations and approvals.

It is also certified that information furnished in the above Mining Plan are true and correct to the best of my knowledge.

Signature of the Qualified Person


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

Place: Salem
Date: 29.04.2022

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

No. 17, Advaita 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 Keeranur Rough Stone Quarry in S.F.Nos.449 (P) & 450 over an extent of 4.44.0 Ha of Patta lands in Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared for

Thiru.P.Sasikumar,

S/o. Palanisamy,

Door No. 5/257,

Keeranur Village,


Kangayam Taluk,

Tiruppur District – 638 701.

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


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

Place: Salem

Date: 29.04.2022



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**MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE
PLAN FOR KEERANUR ROUGH STONE QUARRY OVER AN EXTENT
OF 4.44.0 Ha IN KEERANUR VILLAGE, KANGAYAM TALUK,
TIRUPPUR 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.P.Sasikumar**, S/o. Palanisamy, residing at No. 5/257, Keeranur Village, Kangayam Taluk, Tiruppur District – 638 701.

The applicant applied for Rough Stone quarry over an extent of 4.44.0 Hectares of patta lands in S.F.Nos. 449 (P) & 450 of Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State under Rule 19 (1), 20 & 22 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The application was processed by the Deputy Director, Department of Geology and Mining, Tiruppur District and passed a Precise area Communication letter vide **Rc.No. 1309/Mines/2021, Dated: 25.04.2022** to submit an approved Mining Plan and obtain Environmental Clearance from the SEIAA, Tamil Nadu with the conditions to provide:

- a. A Safety distance of 7.5 meters should be left out for the surrounding patta lands.
- b. A Safety distance of 10 meters should be left out for previously granted quarry lease in S.F.Nos. 442 & 451.

In order to ensure compliance of the order of the Honorable Supreme Court Dated: 27.02.2012 in LA.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 than 5Ha would be treated as category B as defined in the EIA notification 2006 and will be considered by the state notified by MoEF as prescribed procedure under EIA notification 2006.

In the above circumstances the applicant through his consultant is hereby preparing the mining plan 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 quarry. This mining plan is prepared by considering the Rules 41 & 42 as

This Mining Plan is approved subject

to the Conditions indicated in the

Mining Plan approved Letter

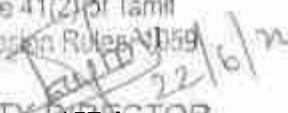
No. 1309/Mines/2021

Dt: 22.6.22.

This Mining Plan is approved as per the

Powers conferred under rule 41(2) of Tamil

No. 1959 of 1959 (as amended) Concession Rules 1959


DEPUTY DIRECTOR
Geology and Mining
Tiruppur

157 A


Amended in Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the Notification No. 10/2006 and its subsequent Amendment and judgments till 24.01.2019,



Short Notes of Mining plan:

- a. Village Panchayat - Keeranur
- b. Panchayat Union - Kangayam
- c. The Geological Resources are **11,64,716m³** of Rough Stone and **2,552m³** of Gravel in the cross section method in the entire area.
- d. The Total Mineable Reserves are **6,76,350m³** of Rough Stone in the entire area.
- e. The proposed quantity of reserves/ (level of production) to be mined are **4,52,430m³** of Rough Stone for five years in the entire area.
- f. Total extent of the lease applied area is about 4.44.0 Ha.
- g. Topography of the area = The area is flat topography
- h. Proposed Depth of mining = 37m (2m Gravel + 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 **Thiru.Sasikumar**, over an extent of 4.44.0 hectares of Patta lands in S.F.Nos. 449(P) & 450 of Keeranur Village, Kangayam Taluk, Tiruppur District vide **Rc.No.900/Mines/2009, Dated: 08.05.2010** for the period of five years from 08.05.2010 to 07.05.2015 for quarrying of Rough Stone and Gravel. The quarry lease was again granted in the favour of **Thiru.Sasikumar**, over an extent of 4.44.0 hectares of Patta lands in S.F.Nos. 449(P) & 450 of Keeranur Village, Kangayam Taluk, Tiruppur District vide **Rc.No.61/Mines/2015, Dated: 21.09.2016** for the period of five years from 21.09.2016 to 20.09.2021 for quarrying of Rough Stone and Gravel subsequently the applicant has obtained Environmental Clearance from the SEIAA, Tamil Nadu vide **Lr. No. SEIAA-TN/F.No.5252/1(a)/EC.No:3526/2016, Dated: 10.08.2016** for quarrying of Rough Stone and Gravel. The applicant has applied a quarry lease on 01.09.2021, over an extent of 4.44.0 hectares of Patta lands in S.F.Nos. 449(P) & 450 of Keeranur Village, Kangayam Taluk, Tiruppur District for the period of five years. The application was meritoriously processed by the Deputy Director, Department of Geology and Mining, Tiruppur District and recommended the quarry lease for the period of five years.
- k. The maximum dimension of the **existing quarry pit** is given table below (Refer Plate No. II),

Existing Pit Dimension (maximum)		
Length (m)	Width (m)	Depth (m)
210	220	12m below ground level

- 
- l. Method of mining / level of mechanization.
Opencast mechanized method, the quarry operation involves shallow jack hammer drilling, slurry blasting.
- m. Type of machineries proposed in the quarrying operation is given below.
Excavators attached with rock breaker (Rental Basis).
Jack hammer, Compressor (Diesel drive) (4 Jack Hammer capacity) (Rental Basis).
- n. No trees will be uprooted due to this quarry operation.
- o. The approach road from the main road to quarry is already constructed and same will be maintained in a good condition for the haulage of quarry materials and machineries.
- p. There is No Export of this Rough Stone.
- q. Topo sketch covering 10Km and 1Km radius around the proposed area with markings of habitations, water bodies including streams, rivers, roads, major structure like bridges, wells, archacological importance, places of worships are marked and enclosed as Plate No. IA and IB.
- r. The lease applied area is about 4.44.0Ha bounded by ten corners; the corners are designated as 1-10 clock-wise from the Western corner and the Co – ordinates for all the comers are clearly marked in the Quarry Lease Plan and Surface Plan enclosed as Plate No. – II.
- s. The plans of proposed quarrying area showing the dimensions of the pit, their proposed depth and maximum area of proposed quarrying are and marked in the Topography, Geological Plan and section enclosed as Plate No. III.
- t. 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.
- u. There is no wastage anticipated during this quarry operation, hence waste dump is not proposed in the lease applied area.
- v. Around 40 employees are deploying in the quarrying operation.
- w. Total Cost of the project is about **Rs.80,95,000/-**.

x. Infrastructures around the quarry lease applied area:

Table - 1

Particulars	Location	Approximate aerial distance from lease applied area
Nearest Post Office	Arasampalayam	5km - SW
Nearest School	Naal Road	3km - SE
Nearest Dispensary	Savadipalayam	4.0km - NW
Nearest Town	Kangayam	8.0km - S
Nearest Police Station	Kangayam	8.0km - S
Nearest Govt. Hospital	Kangayam	8.0km - S
Nearest D.S.P. Office	Kangayam	8.0km - S
Nearest Railway Station	Uthukuli	15.0km - NW
Nearest Airport	Coimbatore	66km - W
Nearest Seaport	Kochi	190km - SW
District Head quarters	Tiruppur	24.0km - NW

2.0 GENERAL INFORMATION

2.1 a) Name of the Applicant : Thiru.P.Sasikumar,
S/o. Palanisamy

b) Address of the Applicant (With Phone No and Aadhaar No.)
Address : Door No. 5/257,
Keeranur Village,
Kangayam Taluk,
Tiruppur District.

Pin Code : 638 701
Mobile No : 98945 44917
Aadhaar No : 4034 3853 8454
E-mail : sasiblumetal@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.

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

The precise area communication letter was received from the Deputy Director, Department of Geology and Mining, Tiruppur District vide Rc.No. 1309/Mines/2021, Dated: 25.04.2022 to submit an approved mining plan and Environmental Clearance from the SEIAA, Tamil Nadu.

c) Period of permission / lease to be granted:

Five Years

d) Name and address of the Qualified Person preparing the mining plan:

Name : Dr.P.Thangaraju, M.Sc., Ph.D.,
Qualified Person

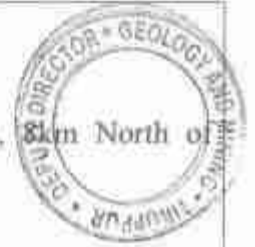
Address : No.17, Advaita Ashram Road,
Alagapuram, Salem – 6 36 004.

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 24km Southeast of Tiruppur, 8km North of Kangayam and 1km Northeast side of Keeranur Village.



Location Map of the Lease Applied area

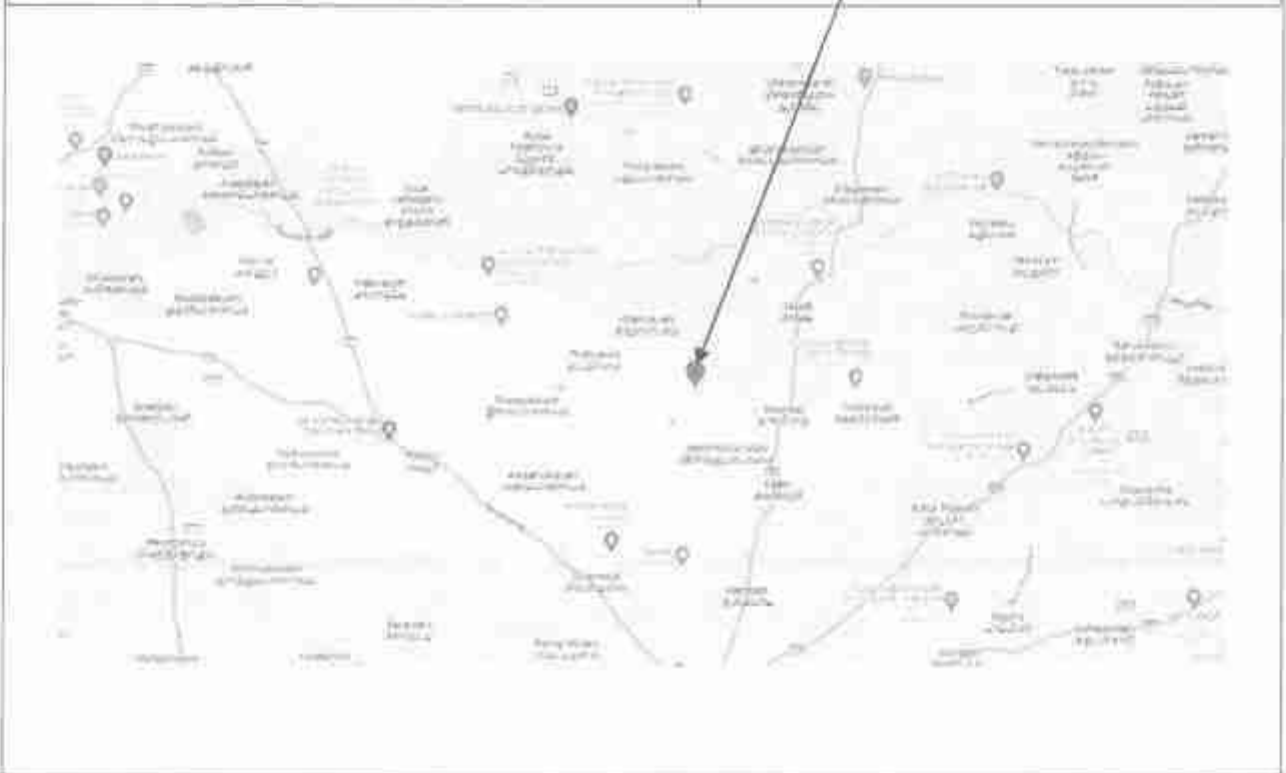
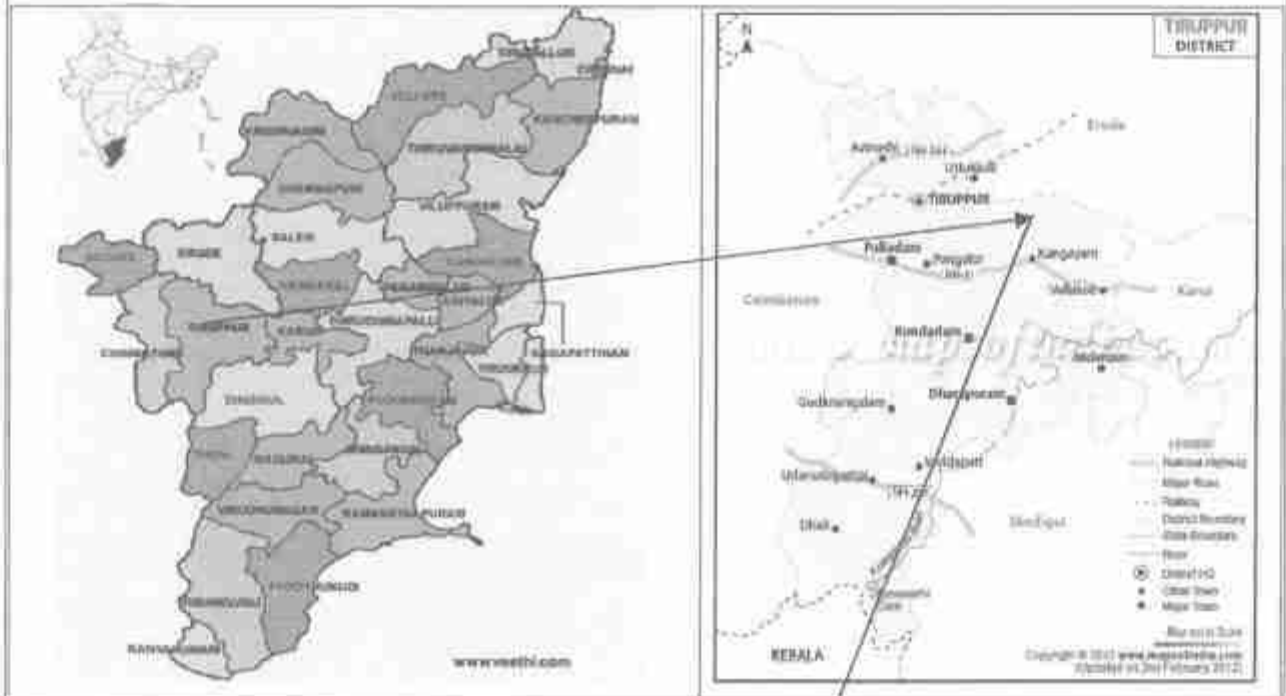


Table - 2

District	Taluk	Village	S.F. Nos.	Area (Ha)	Patta No.	Classification
Tiruppur	Kangayam	Keeranur	449 (P)	0.97.0	1381	Patta land (Refer Annexure No. IV - VI)
			450	3.47.0	1341	
Total Extent				4.44.0		

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, registered in the name of the applicant (Thiru.P.Sasikumar). Refer the Patta copy as Annexure No. IV.

d) Toposheet No. with latitude and longitude:

The lease applied area falls in the Toposheet No: 58 - E/12 Latitude between: 11°04'45.60"N to 11°04'53.95"N and Longitude between: 77°33'19.87"E to 77°33'29.50"E on WGS datum-1984. Please refer the Plate Nos. I to II.

e) Existence of public road / Railway line, if any nearby and approximate distance:

The approach (Earth Road) road is situated on the West side of the area which is connects to the Keeranur – Maravapalayam Village Road located at 270m on the Northwest 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.

The approach road from the quarry is already constructed, 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 Erode – Coimbatore which is located about 13km on the Northwest 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 West side and altitude of the area is 273m (max) 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 pits.

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 618mm.

Topographical View of Keeranur Rough Stone 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 N45°E – S45°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 Tiruppur District. Besides, the Qualified Person and his team members made a detailed geological study of the proposed area. The Rough Stone formation is clearly inferred from the existing quarry pits.

4.3 Estimation of Reserves:**a) Geological reserves with geological sections on a scale of 1:1000 / 1:2000**

As far as Rough Stone (Charnockite) is concerned, the only practical method is the systematic geological mapping and delineation of Rough Stone within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.,

Totally four sections have been drawn, one section along the strike direction as (X-Y) Length wise and other three cross sections are drawn perpendicular to strike as (A-B, C-D and E-F) Width 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 are calculated up to a maximum depth of 37m [2m Gravel + 35m Rough Stone] below from the general ground level. The total Geological Resources are calculated by cross section method. The total Geological Resources are calculated in cross section method and the geological resource calculated after depletion of the existing pit.

Table – 3

Section	Bench	Length (m)	Width (m)	Depth (m)	Geological Resources of Rough Stone (m ³)	Gravel (m ³)
XY-AB	I	11	12	2	-	264
	II	11	12	5	660	-
	III	11	12	5	660	-
	IV	127	234	5	148590	-
	V	127	234	5	148590	-
	VI	127	234	5	148590	-
	VII	127	234	5	148590	-
	VIII	127	234	5	148590	-
	Total					744270
XY-CD	I	58	16	2	-	1856
	II	58	17	5	4930	-
	III	58	17	5	4930	-
	IV	58	168	5	48720	-
	V	58	168	5	48720	-
	VI	58	168	5	48720	-
	VII	58	168	5	48720	-
	VIII	58	168	5	48720	-
	Total					253460
XY-EF	I	9	24	2	-	432
	II	9	24	1	216	-
	II	45	109	4	19620	-
	III	45	109	5	24525	-
	IV	45	109	5	24525	-
	V	45	109	5	24525	-
	VI	45	109	5	24525	-
	VII	45	109	5	24525	-
	VIII	45	109	5	24525	-
Total					166986	432
Grand Total					1164716	2552

The Geological Resources of Gravel : 2,552m³

The Geological Resources of Rough Stone : 11,64,716m³

Existing Pit Dimension:

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

Table-4

Existing Pit Dimension (maximum)		
Length (m)	Width (m)	Depth (m)
210	220	12m below ground level

Mineable Reserves:

The mineable reserves are calculated after leaving the safety distance and Bench loss.

Table - 5

Section	Bench	Length (m)	Width (m)	Depth (m)	Mineable Reserves of Rough Stone (m ³)
XY-AB	IV	110	206	5	113300
	V	105	196	5	102900
	VI	100	186	5	93000
	VII	95	176	5	83600
	VIII	90	166	5	74700
	Total				
XY-CD	IV	58	137	5	39730
	V	58	127	5	36830
	VI	58	117	5	33930
	VII	58	107	5	31030
	VIII	58	97	5	28130
	Total				
XY-EF	II	35	80	4	11200
	III	30	70	5	10500
	IV	25	60	5	7500
	V	20	50	5	5000
	VI	15	40	5	3000
	VII	10	30	5	1500
	VIII	5	20	5	500
	Total				
Grand Total					676350

The mineable reserves have been computed as **6,76,350m³** of Rough Stone at the rate of 100% recovery upto a depth of 37m (2m Gravel + 35m Rough Stone) below from the general ground level for a period of five years.

5.0 MINING**5.1. Method of mining (opencast / underground):**

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

However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety 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. The Gravel was removed previous quarrying operations. 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

Section	Year	Bench	Length (m)	Width (m)	Depth (m)	Recoverable Reserves of Rough Stone (m ³)		
XY-EF	I	II	35 ✓	80 ✓	4	11200		
		III	30 ✓	70	5	10500		
		IV	25 ✓	60	5	7500		
		V	20	50	5	5000		
		VI	15 ✓	40	5	3000		
XY-CD		IV	33 ✓	137	5	22605		
		V	28 ✓	127	5	17780		
		VI	23 ✓	117	5	13455		
Total						91040		
XY-AB	II	IV	25 ✓	137 ✓	5	17125		
		V	30 ✓	127 ✓	5	19050		
		VI	35 ✓	117 ✓	5	20475		
		IV	17	206	5	17510		
		V	12	196	5	11760		
		VI	7	186	5	6510		
Total						92430		
XY-AB	III	IV	45 ✓	206 ✓	5	46350		
		V	45 ✓	196 ✓	5	44100		
		Total						90450
XY-EF	IV	IV	48 ✓	206 ✓	5	49440		
		VII	10 ✓	30 ✓	5	1500		
		VIII	5 ✓	20 ✓	5	500		
		VII	40 ✓	107 ✓	5	21400		
XY-CD		VIII	35 ✓	97 ✓	5	16975		
		Total						89815
		VII	18 ✓	107 ✓	5	9630		
XY-AB	V	VIII	23 ✓	97 ✓	5	11155		
		VI	26 ✓	186 ✓	5	24180		
		VII	28 ✓	176 ✓	5	24640		
		VIII	23 ✓	166 ✓	5	19090		
		Total						88695
Grand Total						452430		

The Recoverable reserves have been computed as 4,52,430m³ of Rough Stone at the rate of 100% recovery upto a depth of 37m (2m Gravel + 35m Rough Stone) below ground level for a period of 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	=	4,52,430m ³
Hence total Lorry loads per day	=	4,52,430m ³ /6m ³
	=	75,405 Lorry loads
	=	75,405/5 years
	=	15,081/300 days
Rough Stone	=	50 Lorry loads per day

Working hours = 8.30 am to 5.30 pm (with 12.30-1.30 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	10	30-35	1.2m to 2.0m	Compressed air
2	Compressor	3	-	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	5	20 tonnes	Diesel Drive

5.6. Disposal of Overburden/Waste:

The overburden in the form of Gravel formation, the Gravel was removed previous quarrying lease period. 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)
210	220	37m below ground level

Greenbelt has proposed on the safety zone and Panchayat roads 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. 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 if quarry. Hence, backfilling is not possible in this quarry. 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 (Refer plate no. IV).

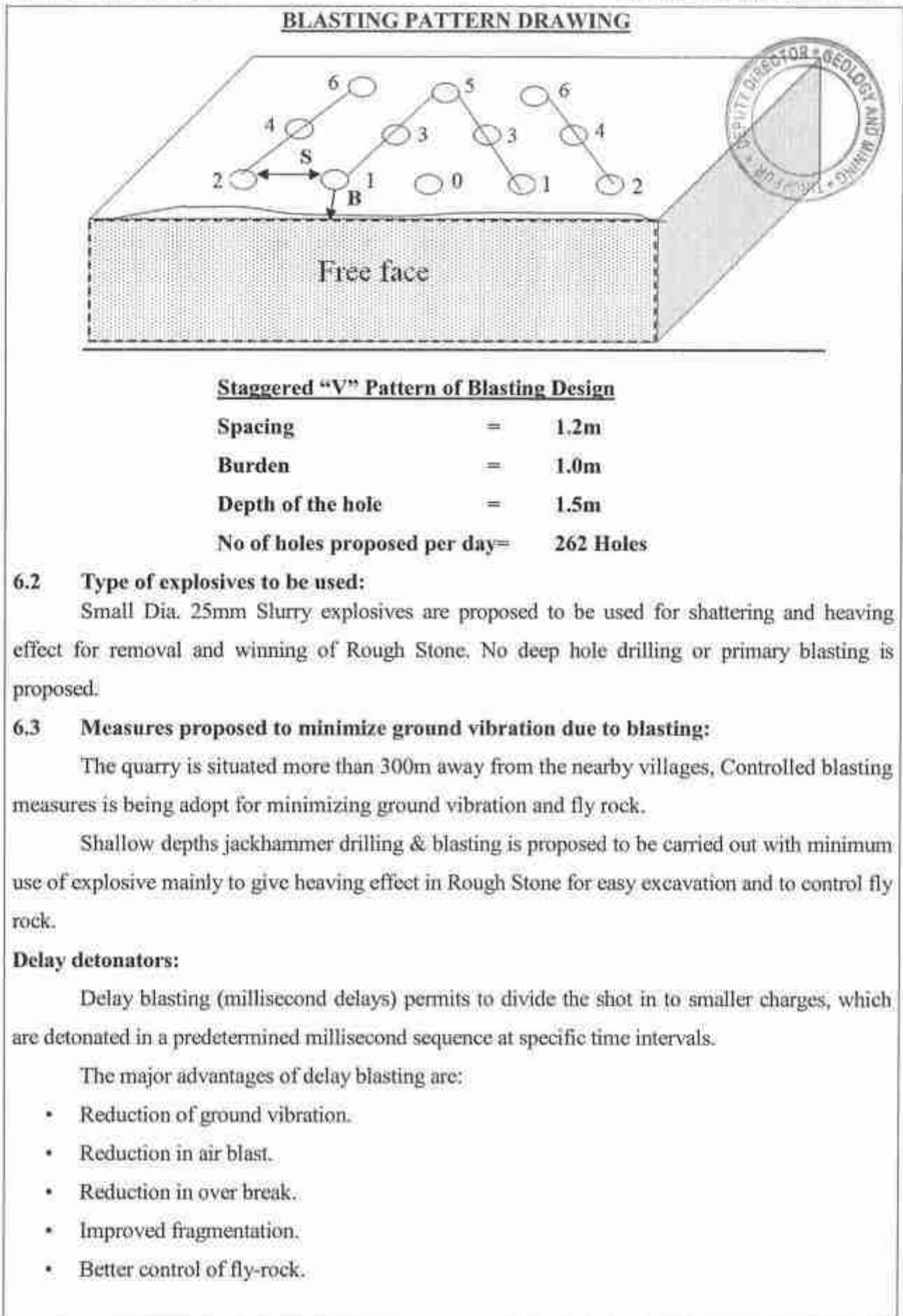
6.0 BLASTING

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 program for the production per day:

No of Holes	= 262 Holes
Yield	= 786 Tons
Powder factor	= 6 Tons/Kg of explosives
Total explosive required	= 131 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 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 about 70m BGL 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	105m West side	11° 04'50.24"N 77°33'16.57"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):

There is no EB (LT/HT) line situated within 50m radius of the lease applied area.

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

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

8.4 Archaeological / historical monuments:

There are no Archaeological / historical monuments within 500m radius of the area.

8.5 Road (NH, SH others):

The Nearest National Highway (NH - 81) Coimbatore to Chidambaram Road is situated about 9.0km on the Southern side of the lease applied area.

The State Highway (SH - 96) Savadi - Nalraod Road is about 2km on the Eastern side of the lease applied area.

The Major District Road (MD - 71) Chennimalai - Uthukuli Road is situated about 7 km on the Northwestern side of the lease applied area

8.6 Places of worships:

There is no place of worships within the radius of 500m 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 1km 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	No Village Road is passing within the radius of 10m of the lease applied area.															
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 border="1"> <thead> <tr> <th>Direction</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>East</td> <td>Patta land</td> <td>10m to adjacent quarry</td> </tr> <tr> <td>South</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>West</td> <td>Patta land</td> <td>7.5m</td> </tr> </tbody> </table> (Refer Plate No. II).	Direction	Classification	Safety Distance	North	Patta land	7.5m	East	Patta land	10m to adjacent quarry	South	Patta land	7.5m	West	Patta land	7.5m
Direction	Classification	Safety Distance																
North	Patta land	7.5m																
East	Patta land	10m to adjacent quarry																
South	Patta land	7.5m																
West	Patta land	7.5m																
5.	Power House, EB line (HT & LT Line)	50m	There is no EB (LT/HT) line located within 50m radius of the area.															
6.	Boundaries of the permitted area	7.5m/10m	The boundaries of the permitted areas as follows: North – S.F.No. 443 East – S.F.Nos. 442 and 451 South – S.F.No. 452 West – S.F.No. 449(Part) (Refer Plate No. II).															
7.	Reserve forest / protected area / ECO sensitive area	1km	There is no reserved forest located within the radius of 1km from the lease applied area. The Following reserve forest is situated at a distance of 10 km: 1. Chennimalai R.F. – 8km – North 2. Villikaradu R.F. – 8km - NW															
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 Metalliferous mines regulations, 1961.

a. Mine official & Competent Persons:

Mines Manager/Mines Foreman	:	1
Mate/Blaster	:	1

b. Machinery Operators

Jack hammer operator	:	20
Excavator Operator	:	2
Tippers Driver	:	5

c. Ordinary Employee

Helper	:	3
Cleaner & Co-Operator	:	7
Security	:	1
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 water vendors in Keeranur which is located about 1km on the Northeast side of the lease applied area.

b) Sanitary Facilities:

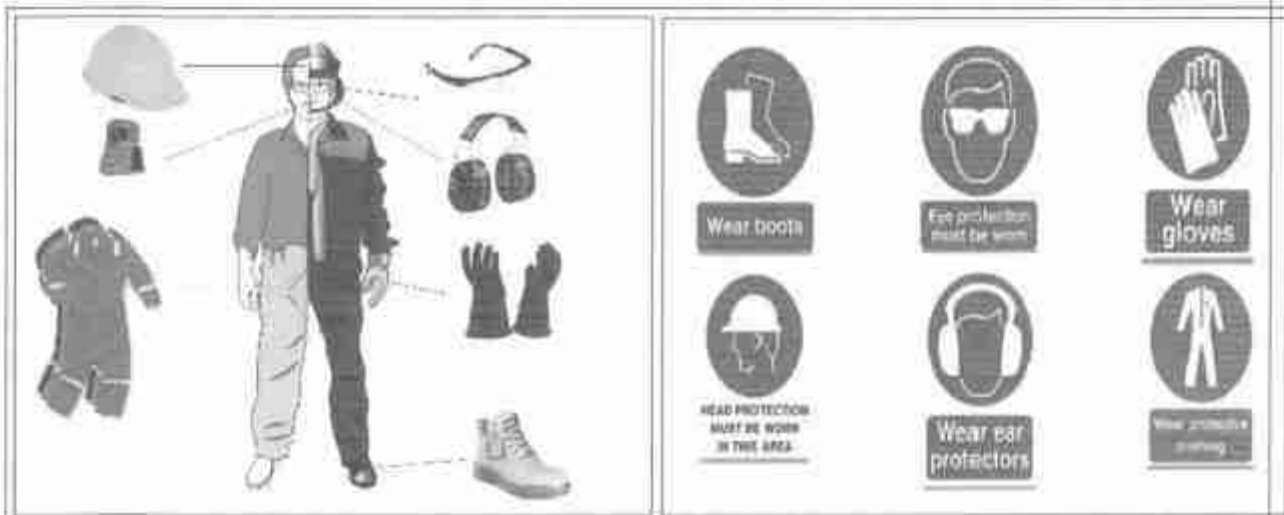
Hygienic modern Sanitary Facilities are will be constructed as semi permanent structure and it will be maintained periodically.

c) First aid facility:

First aid kits are kept in Mines office room, in case of such eventuality is the victim will be given first aid immediately at the site by the competent and statutory foreman/permit manager/mate will be in charge of first aid and injured person will be taken to the hospital by the applicant's vehicle. Hospital is available in Kangayam located at a distance of 8km on the South 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 lease applied area has utilized only for quarry operation in earlier.

LAND USE PATTERN**Table – 11**

Description	Present area (Ha)	Area at the end of this quarrying period (Ha)
Quarrying Pit	3.54.0	3.54.0
Infrastructure	Nil	0.01.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.16.0
Unutilized Area	0.88.0	0.71.0
Grand Total	4.44.0	4.44.0






10.2 Water Regime:

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







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

10.3 Flora and Fauna:

Table - 12

S.No	Name of the plant (Scientific)	Family Name	Common Name	Habit	Picture
1.	<i>Prosopis juliflora</i>	Fabaceae	Seemai karuvelam	Tree	
2.	<i>Azadirachta indica</i>	Meliaceae	Neem, Vembu	Tree	
3.	<i>Cocos nucifera</i>	Arecaceae	Thennai	Tree	
4.	<i>Opuntia bentoni</i>	Cactaceae	Cactus/Kalli	Shrub	
5.	<i>Borassus flabellifer</i>	Arecaceae	Panai	Tree	

List of Fauna

S.No.	Scientific Name	Common Name	Picture
1.	<i>Capra aegagrus hircus</i>	Goat	
2.	<i>Funambulus palmarum</i>	Squirrel	
3.	<i>Bos taurus</i>	Cow	
4.	<i>Danaus plexippus</i>	Striped tiger	
5.	<i>Corvus leuillanti</i>	Crow	
6.	<i>Agrion sp & Petalura sp</i>	Dragon fly	

**10.4 Climatic Conditions:**

The area receives rainfall of about 618mm/annum and the rainy season is mainly from Oct - Dec during monsoon. The summer is hot with maximum temperature of 40°C and winter encounters a minimum temperature of 21°C.

10.5 Human settlement:

There are few villages located within 5.0km 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.	Naal Road	2km – SE	2,800
2.	Alambadi	4km – SE	2,900
3.	Maravapalayam	2km – NE	2,700
4.	Keeranur	1km – SW	2,800

Basic human welfare Amenities such as Health Centre, Schools, Communication Facilities, and Commercial Centres etc., are available at Kangayam located at a distance of 8km on the Southern 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 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 37m 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.1,14,000/-**.



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

The safety zone 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 trees proposed to be planted	Survival %	Area to be covered sq.m.	Name of the species	No. of trees expected to be grown
I	40	80%	320	Neem, Pongamia pinnata, Casuarina, etc.,	32
II	40	80%	320		32
III	40	80%	320		32
IV	40	80%	320		32
V	40	80%	320		32

Nearly 1600 sq.m area is proposed to use under Greenbelt by planting 200 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. 20,000/-** for the period of five years.

The Greenbelt Development will be formed in around quarried out top Benches, Approach Road and Panchayat Road. The cost would be around **Rs. 20,000/-**

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.



A. Project cost / investment						
i)	Land cost	The Land value as per the Government Guideline land cost is calculated as follows,			Rs.26,56,000/-	
		S.F.No	Extent	Cost/Ha		Total
		449 (P)	0.97.0	662500		642625
		450	3.47.0	580000		2012600
		Total	4.44.0	Total		2655225
		i.e., Rs. 26,56,000/- (Source: https://tnreginet.gov.in/portal/)				
ii)	Machinery to be used	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)			Rs.35,00,000/-	
iii)	Refilling/ Fencing	Fencing will be constructed around the quarry pit to prevent the inadvertent entry of public and cattle cost would be around			Rs.1,14,000/-	
iv)	Labourers shed	Labour sheds will be constructed as semi permanent structure. The cost is around			Rs. 2,50,000/-	
v)	Sanitary facility	Adequate latrine and urinal accommodation has provided at conveniently accessible places the cost would be around			Rs. 1,20,000/-	
vi)	Others items	First aid room & accessories			Rs.1,50,000/-	
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.1,00,000/-	
viii)	Sanitary arrangement	The latrine and urinal will keep clean and sanitary condition. The maintenance cost would be around			Rs. 80,000/-	
ix)	Safety kit	All the Safety kit such as Helmet, Earmuffs, Goggles, Reflector Jackets, Safety shoes etc., will be provided to the workers by the applicant own cost which would be around			Rs.1,50,000/-	

x) Water sprinkling	Water will be sprinkled in the haul roads by water sprinklers the cost would be around	Rs. 3,00,000/-
xi) Garland drain	Construction of Garland drain with check dam to prevent surface run-off rain water in to the quarry pit, the construction cost is around	Rs. 96,000/-
xii) Greenbelt etc.	Greenbelt development and maintenance will be carried out in the boundary barriers the cost would be around	Rs.20,000/-
	Greenbelt development and maintenance will be carried out in the quarried out top benches, approach road and panchayat road	Rs.20,000/-
Total Project Cost		Rs.75,56,000/-
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		Rs. 76,000/-
Cost		
Total EMP Cost for the five years period is Rs.3,80,000/-		
Description		Amount (Rs.)
A. Operational Cost		75,56,000
B. EMP Cost		3,80,000
Total Project Cost (A+ B)		79,36,000
The applicant Indents to involve corporate environment responsibilities (CER) activity like Water Purifier, Medicine Storage rack, Cot and Bed facilities to the nearby Government Primary Health Centre and Water Purifier, Bench & Table facilities to the nearby Government School at 2.0% from the total project cost. The Cost would be around Rs.1,59,000/- .		1,59,000
Total Cost		80,95,000
The Total cost would be around eighty lakhs and ninety five thousand only.		

11.0 PROGRESSIVE QUARRY CLOSURE PLAN**11.1 Introduction:**

The Progressive Quarry Closure Plan for Rough Stone quarry lease applied area over an extent of 4.44.0 Hectares of patta lands in S.F.Nos. 449 (P) & 450 of Keeranur Village, Kangayam Taluk, Tiruppur District, Tamil Nadu State has been prepared for **Thiru.P.Sasikumar**, S/o. Palanisamy residing at No. 77, South Street, Morattupalayam Village, Uthukuli Taluk, Tiruppur District – 638 701.

11.2 Present Land use pattern:Land Use Table – 16

Description	Present area (Ha)
Quarrying Pit	3.54.0
Infrastructure	Nil
Roads	0.02.0
Green Belt	Nil
Unutilized Area	0.88.0
Grand Total	4.44.0

11.3 Method of Mining:

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

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

11.4 Mineral Processing Operations:

The quarried out Rough Stone will be transported by the 10/20tons 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.

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

Qualified Person

No.17, Advaita 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 3.54.0 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)
Quarrying Pit	3.54.0	3.54.0
Infrastructure	Nil	0.01.0
Roads	0.02.0	0.02.0
Green Belt	Nil	0.16.0
Unutilized Area	0.88.0	0.71.0
Grand Total	4.44.0	4.44.0

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

**(ii) Water quality management:**

Following control measures will be adopted for controlling water pollution:-

- Construction of Garland 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 is utilized (100%). Hence, waste management does not arise.

(v) Disposal of mining machinery:

All the machineries will be engaged on rental basis. After completion of quarry operation all purchased machineries will be utilized another quarry area. Hence, disposal or decommissioning of mining machinery does not arise.

(vi) Safety & Security:

Safety measures will be implemented to prevent access in the excavation area an unauthorized person as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.

- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0 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 quarried out benches, Greenbelt Development will be formed in all around the benches and safety barrier 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:

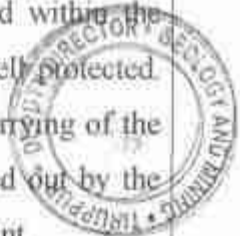
As at present mining is not going to be closed so abandonment cost could not be assessed. However, based on the progressive quarry closure activities during the plan period, cost is assessed as given below:

Land Use Table – 18

ACTIVITY		YEAR					RATE	AMOUNT (INR)
		I	II	III	IV	V		
Plantation under safety zone	Nos.	40	40	40	40	40	@100 Rs Per sapling	Rs.20,000/-
	Cost	4000	4000	4000	4000	4000		Rs.20,000/-
Plantation cost in the quarried out top benches, approach road and panchayat road	Nos.	40	40	40	40	40	@300 Rs Per Meter	Rs.1,14,000/-
	Cost	4000	4000	4000	4000	4000		Rs96,000/-
Wire Fencing (In Mtrs) 380		1,14,000	-	-	-	-	@300 Rs Per Meter	Rs.1,14,000/-
Garland drain (In Mtrs) 320		96,000	-	-	-	-	@300 Rs Per Meter	Rs96,000/-
TOTAL								Rs.2,50,000/-

12 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 with the quarrying operation, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Concerned Department.



Prepared by

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

Place: Salem
Date: 29.04.2022

DONATE RED
SPREAD GREEN
SAVE BLUE

This Mining Plan is approved subject to the Conditions Indicated in the Mining Plan approved Letter No. 1309/Mines/2021
Date: 22.6.22

This Mining Plan is approved as per the Powers conferred under rule 41(2) of Tamil Nadu Minor Mineral Concession Rules, 1959

[Signature]
DEPUTY DIRECTOR
Geology and Mining
Tiruppur

[Signature]
22/6/22

ந.க.எண். 1309/கனிமம்/ 2021

புவியியல் மற்றும் சுரங்கத்துறை
மாவட்ட ஆட்சியர் அலுவலகம்,
திருப்பூர்.



நாள்: 25.04.2022

குறிப்பாணை

பொருள் : கனிமங்களும் சுரங்கங்களும் - சிறு கனிமம் - திருப்பூர் மாவட்டம் - காங்கயம் வட்டம் - கீரனூர் கிராமம் - புல எண்கள். 449 (பகுதி) (0.97.0) மற்றும் 450 (3.47.0) ஆகியவற்றில் மொத்தம் 4.44.0 ஹெக்டர் பரப்பில் சாதாரண கற்கள் வெட்டியெடுத்துக் கொள்ள குவாரி குத்தகை உரிமம் கோரி திரு. P. சசிக்குமார், த/பெ. பழனிச்சாமி என்பவர் விண்ணப்பம் அளித்தது - புலத்தணிக்கை அறிக்கை சமர்ப்பிக்கப்பட்டது - தகுதியான நிலப்பரப்பாக கருதி ஏற்பளிக்கப்பட்ட சுரங்க திட்டம் மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய இசைவினை பெற்று சமர்ப்பிக்கக் கோருதல் - தொடர்பாக.

- பார்வை :
1. திரு. P. சசிக்குமார், த/பெ. பழனிச்சாமி, கதவு எண். 5/257, கீரனூர் கிராமம், காங்கயம் வட்டம் என்பவரின் விண்ணப்பம் நாள்: 01.09.2021.
 2. இவ்வலுவலக ந.க.எண். 1309/2021/கனிமம் நாள்: 26.10.2021.
 3. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை ந.க. 1870/எம்.எம்.1/2020 நாள்: 10.08.2020 கடிதத்துடன் அரசாணை (பல்வகை) எண். 169, தொழில் (எம்.எம்.சி-1) துறை நாள்: 04.08.2020 இணைத்து வரப்பெற்றுள்ளது. (தமிழ்நாடு அரசிதழ் சிறப்பு வெளியீடு எண். 315 நாள்: 04.08.2020).
 4. வட்டாட்சியர், காங்கயம் கடிதம் ந.க. 4548/2021/அ2 நாள்: 03.12.2021.
 5. வருவாய் கோட்டாட்சியர், தாராபுரம் கடிதம் ந.க. 4412/2021/இ நாள்: 22.12.2021.
 6. வட்டார வளர்ச்சி அலுவலர் (வ.ஊ), காங்கயம் கடிதம் ந.க. 1025/2021/ஆ4, நாள்: 04.04.2022.
 7. உதவிப் புவியியலாளர் (கனிமம்), திருப்பூர் புலத்தணிக்கை அறிக்கை நாள்: 19.04.2022.
 8. கீரனூர் கிராம நிர்வாக அலுவலர் சான்று நாள்: 20.04.2022
 9. மற்றும் உரிய ஆவணங்கள்

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரனூர் கிராமம், வட்டா புல எண்கள். 449 (பகுதி) (0.97.0) மற்றும் 450 (3.47.0) ஆகியவற்றில் மொத்தம் 4.44.0 ஹெக்டர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் குவாரிக் குத்தகை உரிமம் வழங்க கோரி



திரு. P. சசிக்குமார், த/பெ. பழனிச்சாமி என்பவர் பார்வை 1-ல் கண்டுள்ளபடி உரிய ஆவணங்களுடன் விண்ணப்பம் அளித்துள்ளார்.

2. மேற்படி விண்ணப்பங்கள் தொடர்பாக, வட்டாட்சியர், காங்கயம், வருவாய் கோட்டாட்சியர், தாராபுரம், வட்டார வளர்ச்சி அலுவலர், காங்கயம் மற்றும் உதவிப் புவியியலாளர் (கனிமம்), திருப்பூர் ஆகியோர் புலத்தணிக்கை மேற்கொண்டு திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரனூர் கிராமம், பட்டா புல எண்கள். 449 (பகுதி) (0.97.0) மற்றும் 450 (3.47.0) ஆகியவற்றில் மொத்தம் 4.44.0 ஹெக்டர் பரப்பில் திரு. P. சசிக்குமார், த/பெ. பழனிச்சாமி என்பவருக்கு சாதாரண கற்கள் மட்டும் வெட்டியெடுத்தக் கொள்ள குவாரி உரிமம் வழங்க கீழ்க்கண்ட நிபந்தனைகளுக்குட்பட்டு அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

நிபந்தனைகள்:

- விண்ணப்ப புலங்களை சுற்றியுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரி பணிபுரிய வேண்டும்.
- இதற்கு முன்பு குவாரிக் குத்தகை உரிமம் வழங்கப்பட்ட புல எண்கள். 442 மற்றும் 451 புலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி விட்டு குவாரிப்பணி புரிய வேண்டும்.

3. எனவே, வட்டாட்சியர், காங்கயம், வருவாய் கோட்டாட்சியர், தாராபுரம், வட்டார வளர்ச்சி அலுவலர், காங்கயம் மற்றும் உதவிப் புவியியலாளர் (கனிமம்), திருப்பூர் ஆகியோரின் பரிந்துரை மற்றும் நிபந்தனைகளின் அடிப்படையில், திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரனூர் கிராமம், பட்டா புல எண்கள். 449 (பகுதி) (0.97.0) மற்றும் 450 (3.47.0) ஆகியவற்றில் மொத்தம் 4.44.0 ஹெக்டர் பரப்பில் 1959ம் வருட தமிழ்நாடு சிறுகனிம விதிகள், விதி எண்.19 (1), 20 மற்றும் 22-ன் படி மேற்கண்ட நிபந்தனைகளுக்குட்பட்டு 5 (ஐந்து) வருட காலத்திற்கு திரு. P. சசிக்குமார், த/பெ. பழனிச்சாமி என்பவருக்கு சாதாரண கற்கள் மட்டும் வெட்டியெடுத்தக் கொள்ள குவாரி உரிமம் வழங்குவதற்குரிய தகுதியான நிலப்பரப்பாக கருதப்படுகிறது.

4. மேலும், தமிழ்நாடு சிறு கனிம சலுகை விதிகள்-1959 விதி எண். 41-ன்படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறு மனுதாரரைக் கேட்டுக்கொள்ளப்படுகிறது. மேலும்



ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தின் தொடர்ச்சியாக 1959ம் வருடத்தில் தமிழ்நாடு சிறுகனிம சலுகை விதிகள், விதி எண்.42-ன் படி சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினைப் பெற்று சமர்ப்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும் என இதன் மூலம் தெரிவிக்கப்படுகிறது.

துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருப்பூர்.

பெறுநர்:

திரு. P. சசிக்குமார்,
த/பெ. பழனிச்சாமி,
கதவு எண். 5/257,
கீரனூர் கிராமம், காங்கயம் வட்டம்

25/1/22

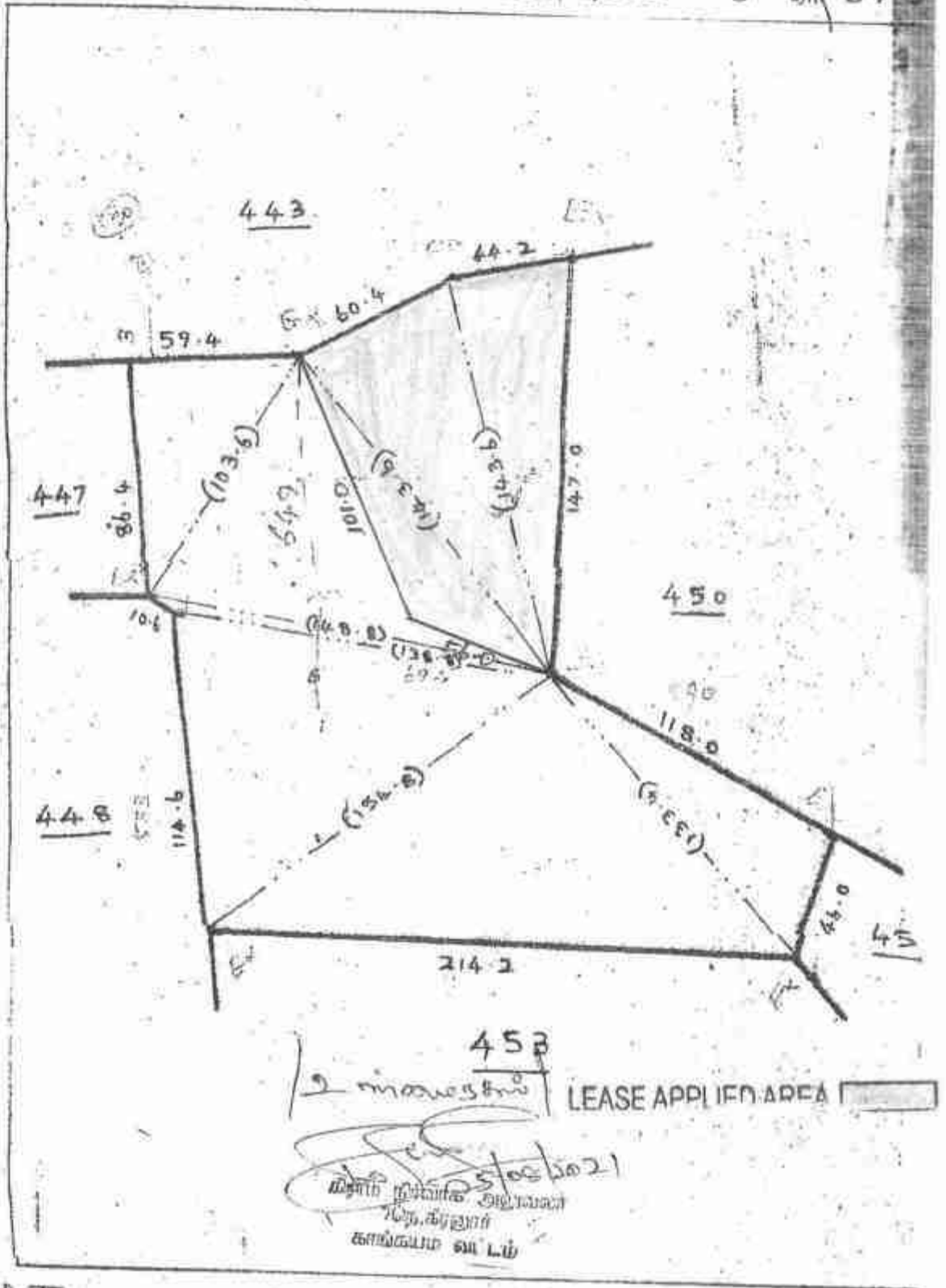


மாலைமலை, பெரியபாளையம்

வட்டம்: கன்னியாகுமரி

புள்ளி: 449

பரப்பு: செ.மீ. 3 மீ 84



P. Jayaraj
15/5/84

பரப்பு 1 ம.மீ ? 2000 ம.மீ.

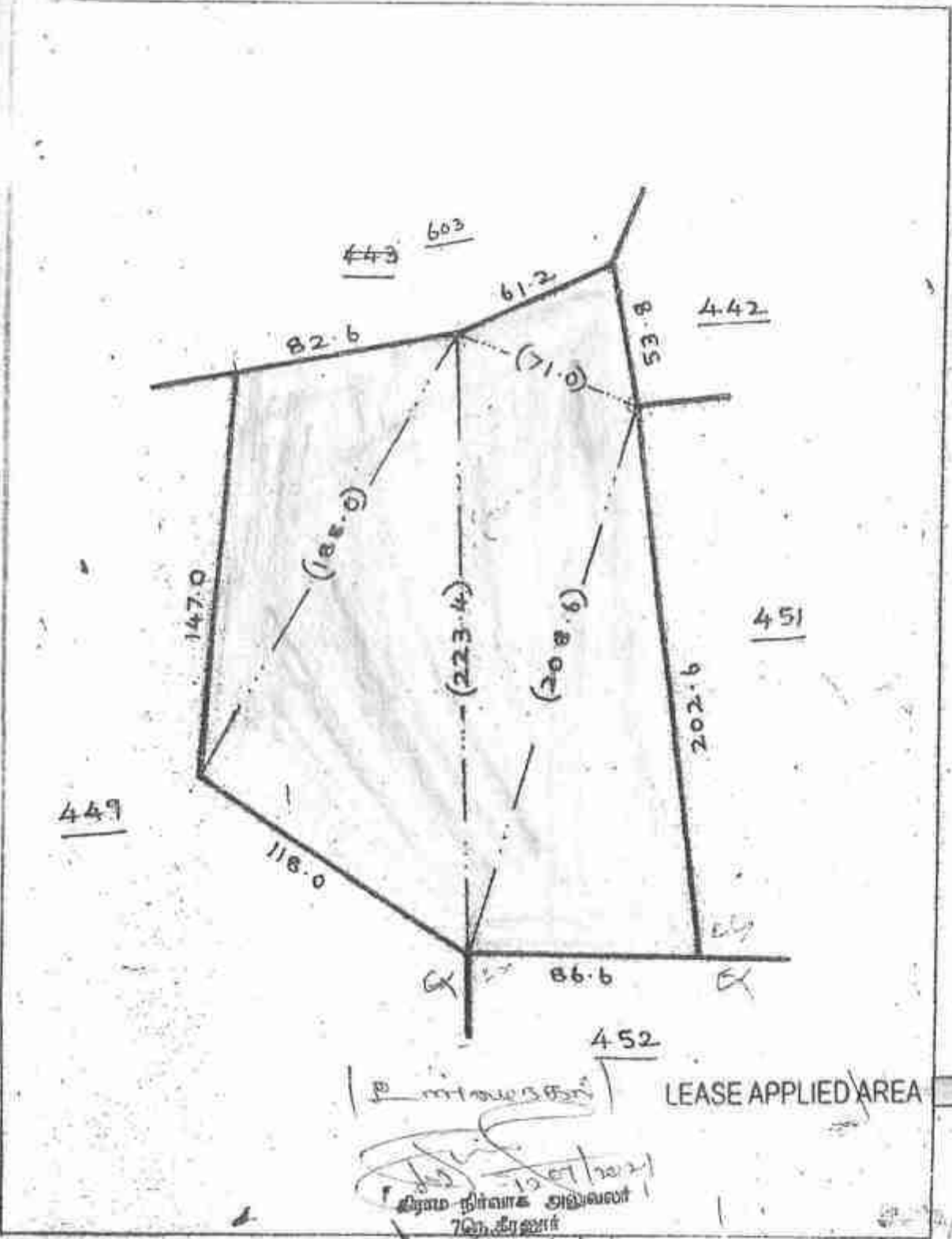
பகுதி 1.10 புறியாள்

பகுதி 1.10 காரைக்கால்

புல எண்: 450

புறியாள் {
மேல் 7
கீழ் 3

புறியாள் எண் 3 மற்றும் 4



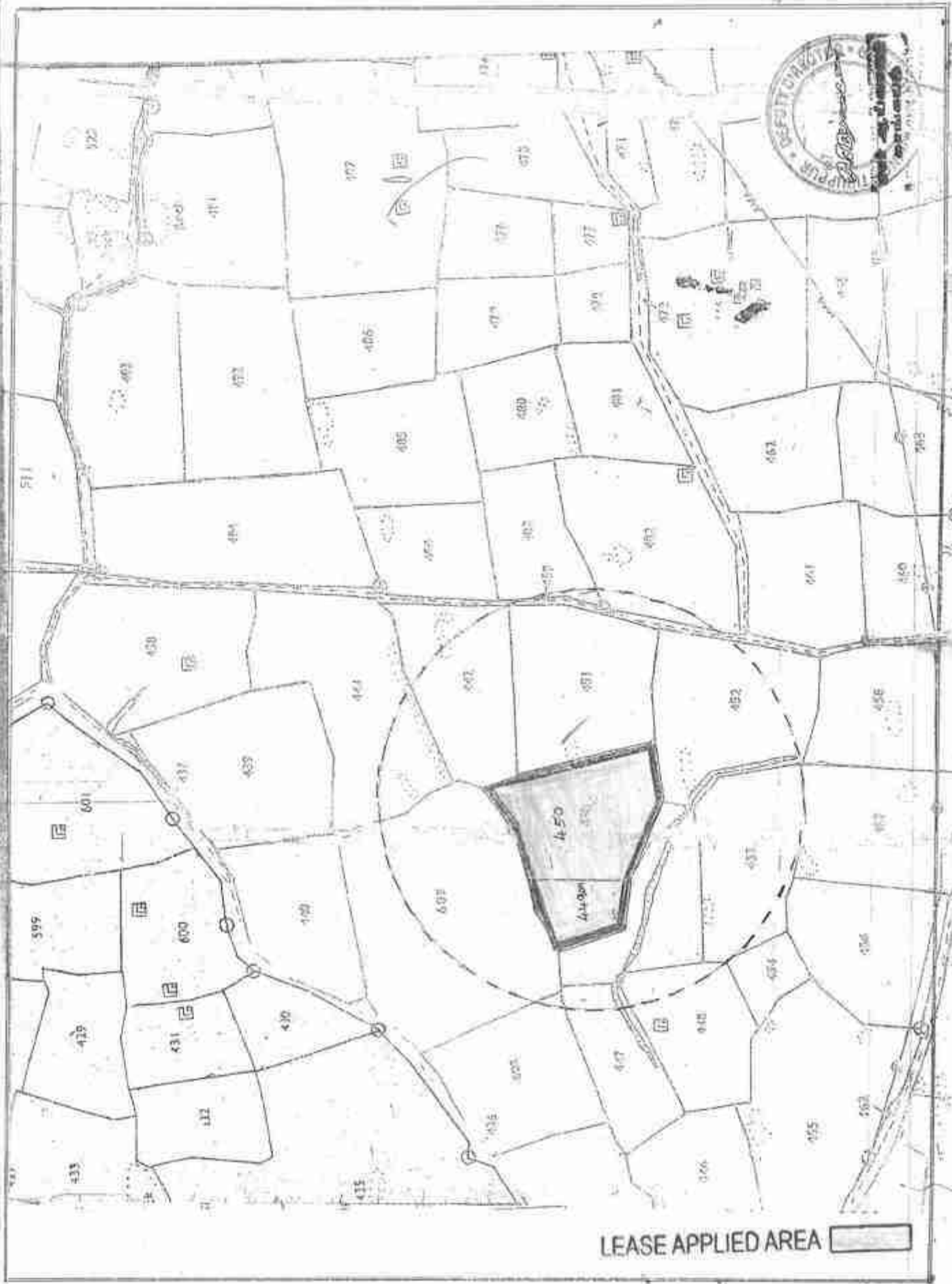
LEASE APPLIED AREA

சுற்றுலா மற்றும்
 தொழில் நுட்ப
 துறைமுகம்
 காரைக்கால்

புறியாள்
 P. Jayaraj
 15/5/2014

அளவு: 1 M.M = 2000 M.M.

புறியாள் எண் 3
 12/6/2014



LEASE APPLIED AREA 



தமிழக அரசு
வருவாய்த் துறை



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

மாவட்டம் : திருப்பூர்

வட்டம் : காங்கயம்

வருவாய் பிரிவு : கீரஜூர்

பட்டா எண் : 1341

உரிமையாளர்கள் பெயர்

1. சி.பழனிசாமி

மகன்

மி.சசீகிருஷ்ணர்

புல எண்	உட்பிரிவு	புள்ளி		நள்ளி		மற்றவை		குறிப்புகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		நெடு - ஏர்	சு - பை	நெடு - ஏர்	சு - பை	நெடு - ஏர்	சு - பை	
442	-	3 - 63.50	5.02	--	--	--	--	----- 15-10-2014
450	-	3 - 47.00	4.79	--	--	--	--	----- 15-10-2014
		7 - 10.50	9.81					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் பின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தரங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 32/05/007/01341 /30769 என்ற குறிப்பு எண்ணை உடனீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 25-08-2021 அன்று 12:27:11 PM நேரத்தில் அச்சுக்கப்பட்டது.
3. கையொப்பி செய்யாத 2D barcode படிப்பவர்கள் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

ANNEXURE VI

ஆபதிவேடு விவரங்கள்



மாவட்டம் : திருப்பூர்

வட்டம் : காங்கலம்

கிராமம் : கிரஜூர்

1. புல எண்	449	9. மண் வயனமும் சமூகம்	8 - 4
2. உட்பிரிவு எண்	-	10. மண் தரம்	6
3. பண்டிய புல உட்பிரிவு எண்	449	11. தீர்வை (ரூ - மை)	1.38
4. பகுதி	-	12. பரப்பு (நெக்டே. - ஏர்)	3 - 84.50
5. அரசு / சப்ததலாசி	சப்ததலாசி	13. மொத்த தீர்வை (ரூ - மை)	5.31
6. நிலத்தின் வகை	புஞ்சை	14. மட்டா எண்	1381
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு பெயர்	-	16. பெயர்	1.பி.சசிக்குமார்

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தரங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60763 என்ற குறிப்பு எண்மைய உள்நேடு செய்து உறுதி செய்துகொள்ளவும்.

அபதிவேடு விலைகள்



மாவட்டம் : திருப்பூர்

வட்டம் : கரங்கலம்

கிராமம் : கீரணூர்

1. புல எண்	450	9. மண் வயலரும் சகமும்	8 - 4
2. உட்பிரிவு எண்	-	10. மண் தரம்	6
3. பண்டை புல உட்பிரிவு எண்	450	11. நீர்மை (ரூ - ஹெ)	1.38
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	3 - 47.00
5. ஆரக / சயத்துவாரி	சயத்துவாரி	13. மொத்த நீர்மை (ரூ - டை)	4.79
6. நிலத்தின் வகை	புஞ்சா	14. பட்டா எண்	1341
7. பண்ட ஆதாரம்	-	15. குறிப்பு	-
8. இலகோ	-	16. பெயர்	1.பி.சசிக்ஞார்

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விலைகள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தரங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60769 என்ற குறிப்பு எண்ணை உள்ளிட்டு செய்து உறுதி செய்துகொள்ளவும்.



ANNEXURE *PL*



இந்திய அரசாங்கம்

Unique Identification Authority of India
Government of India

பிறவு அடையாளம்/Enrollment No. : 2043/30783/04257



201102016

To
Sankumar
சங்குமார்
S/O: Palanisamy
S / 257
Korahur
Kangayam taluk
Korahur
Korahur, Kangayam, Tirupur,
Tamil Nadu - 636701
9894541917



KA011873061PH

01167306



உங்கள் ஆதார் எண் / Your Aadhaar No. :

4034 3853 8454

எனது ஆதார், எனது அடையாளம்



இந்திய அரசாங்கம்

Government of India

சங்குமார்
Sankumar

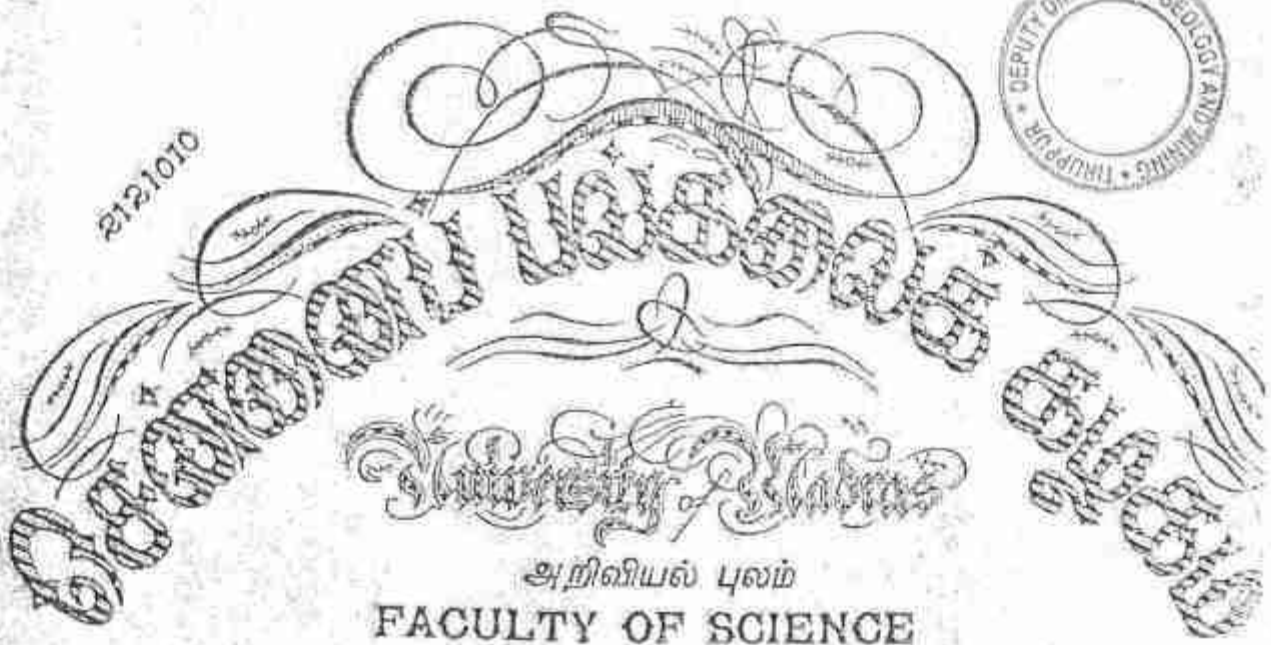
பிறந்த தேதி / DOB: 03/12/1986

ஆண்பால் / Male

4034 3853 8454



எனது ஆதார், எனது அடையாளம்



2121070

சென்னைப் பல்கலைக் கழகப் பேரவை 1994

ஆண்டு..... ஏப்ரல்..... மாதம் நடந்த..... கூடுதலியல்..... தோலில்
 பெ. சங்கராசு..... என்பவர்..... முதல்..... வகுப்பில்
 இயக்கி இயற்றினா என்று தக்க சான்றுகளை சான்றளித்தபடி அறிவியல் நிறைஞர்
 எனலும் பட்டத்தை அவருக்குப் பல்கலைக் கழக இயக்கினையின்படி வழங்குகிறது.

The Senate of the UNIVERSITY OF MADRAS hereby
 makes known that..... P. Thangaraju.....
 has been admitted to the Degree of Master of Science, he/she
 having been certified by duly appointed Examiners to be qualified
 to receive the same in..... Geology..... and was placed in the
 First..... Class, at the Examination held in April 1994.



Given under the seal of the University

செயலகம், Chopauk
 சென்னை, Madras
 நாள்: Dated: 25-01-1999

பதிவாளர், Registrar

P.T. Thangaraju
 குளமாலை 205 A
 Vice-Chancellor



GOVERNMENT OF INDIA
MINISTRY OF LABOUR AND REHABILITATION
OFFICE OF THE DIRECTOR GENERAL OF MINES SAFETY

Certificate of Practical experience granted by the Manager to a candidate for a Manager's / Surveyor's / Foremen's / Over man's / Sirdar's / Mate's / Short firer's / Blaster's Certificate of competency (Restricted) examination under the Metalliferous Mines Regulations 1961.

I, TVENKATARAJAGOPALAN being the Mines Agent of M/S.LIMENAPH CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Thenmali Limestone Mine) do hereby certify that Thiru. P.THANGARAJU, son of S.PERIASAMY (whose signature is appended) worked as a Geologist in the above mine from 02.05.1994 to 30.12.1999. During his term of work aforesaid, he has obtained practical experience as detailed overleaf. The duties connected with his work have involved continuous attendance at the mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper candidate to be examined for Certificate of Competency.

TREMBELAI LIME STONE MINES
10/6/96
Agent (Mines)
(Signature with date and official Seal)
[TVENKATARAJAGOPALAN]

Mines Agent:
P.O. : ARUKANGULAM
District : TIRUNELVELI
State : TAMIL NADU

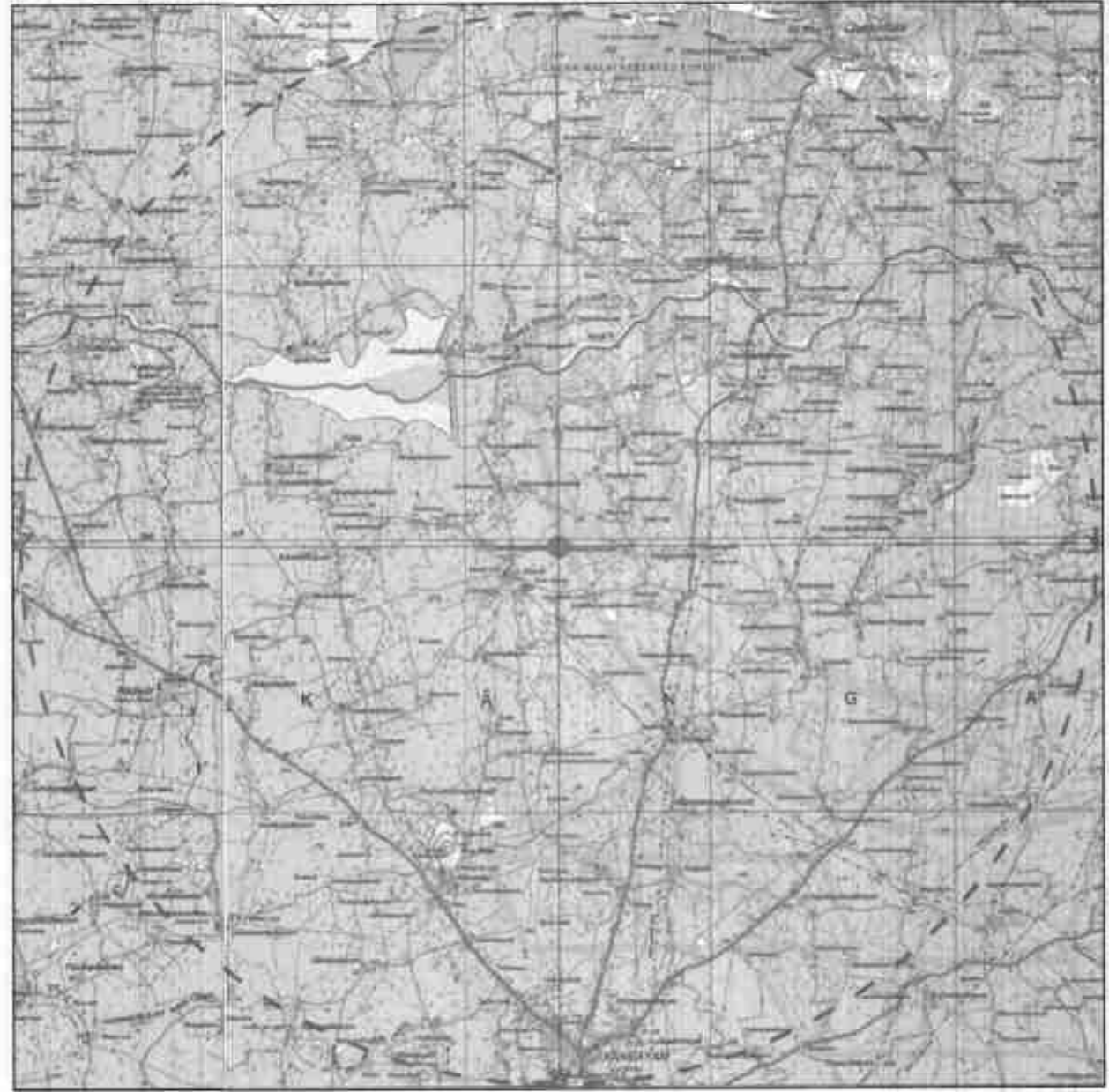
[Handwritten Signature]
(Signature of Candidate)

(State name of Mineral) : LIMESTONE



11° 10' 19.21"N

77° 27' 50.53"E



77° 38' 58.79"E

10° 59' 20.34"N

Express highway; with toll; with bridge; with distance stone.....	
Roads metalled; according to importance.....	
Roads, double carriageway, according to importance.....	
Unmetalled road. Cart-track. Pack-track with pass. Foot-path.....	
Streams: with track in bed; undefined. Canal.....	
Dams: masonry or rock-filled; earthwork. Weir.....	
River, dry with water channel; with island & rocks. Tidal river.....	
Submerged rocks. Shoal. Swamp. Reeds.....	
Wells: lined, unlined. Tubewell. Spring. Tanks/perennial; dry.....	
Embankments: road or rail; tank. Broken ground.....	
Railways, broad gauge: double; single with station; under constrn.....	
Railways, other gauges: double; single with distance stone; do.....	
Mineral line or tramway. Kin. Cutting with tunnel.....	
Contours with sub-features. Rocky slopes. Cliffs.....	
Sand features: (1)flat. (2)sand-hills(permanent). (3)dunes(shifting).....	
Towns or Villages: inhabited; deserted. Fort.....	
Huts: permanent; temporary. Tower. Antiquities.....	
Temple. Chhatri. Church. Mosque. Idgah. Tomb. Graves.....	
Lighthouse. Lightship. Buoys: lighted; unlighted. Anchorage.....	
Mine. Vine on trellis. Grass. Scrub.....	
Palms: palmyra; other. Plantain. Conifer. Bamboo. Other trees.....	
Areas: cultivated; Wooded. Surveyed trees.....	
Boundary, international.....	
Boundary, state: demarcated; undemarcated.....	
Boundary, district; subdivision: tahsil or taluk; forest.....	
Boundary pillars: surveyed; unlocated.....	
Heights: triangulated; station; point; approximate.....	
Bench-mark: geodetic; tertiary; canal.....	
Post office. Telegraph office. Overhead tank.....	
Rest house or inspection bungalow. Circuit house. Police station.....	
Camping Ground. Forest: reserved; protected.....	
Spaces names: administrative; locality or tribal.....	
Hospital. Dispensary. Veterinary. Hospital/Dispensary.....	
Aerodrome. Heliport. Tourist site.....	
Powerline: with pylons surveyed; with poles unsurveyed.....	

APPLICANT :

Thiru. P. SASIKUMAR,
S/o. PALANISAMY,
Door No. 5/ 257, KEERANUR VILLAGE,
KANGAYAM TALUK,
TIRUPPUR DISTRICT.



LOCATION OF Q.L. APPLIED AREA:

S.F.NO's : 449(P) & 450,
EXTENT : 4.44.0 Ha.
VILLAGE : KEERANUR,
TALUK : KANGAYAM,
DISTRICT : TIRUPPUR,
STATE : TAMILNADU.

PLATE NO - I-A

DATE OF SURVEY : 27.04.2022

**TOPO SKETCH OF QUARRY LEASE
APPLIED AREA FOR 10Km RADIUS**

SCALE. 1:1,00,000

PREPARED BY :

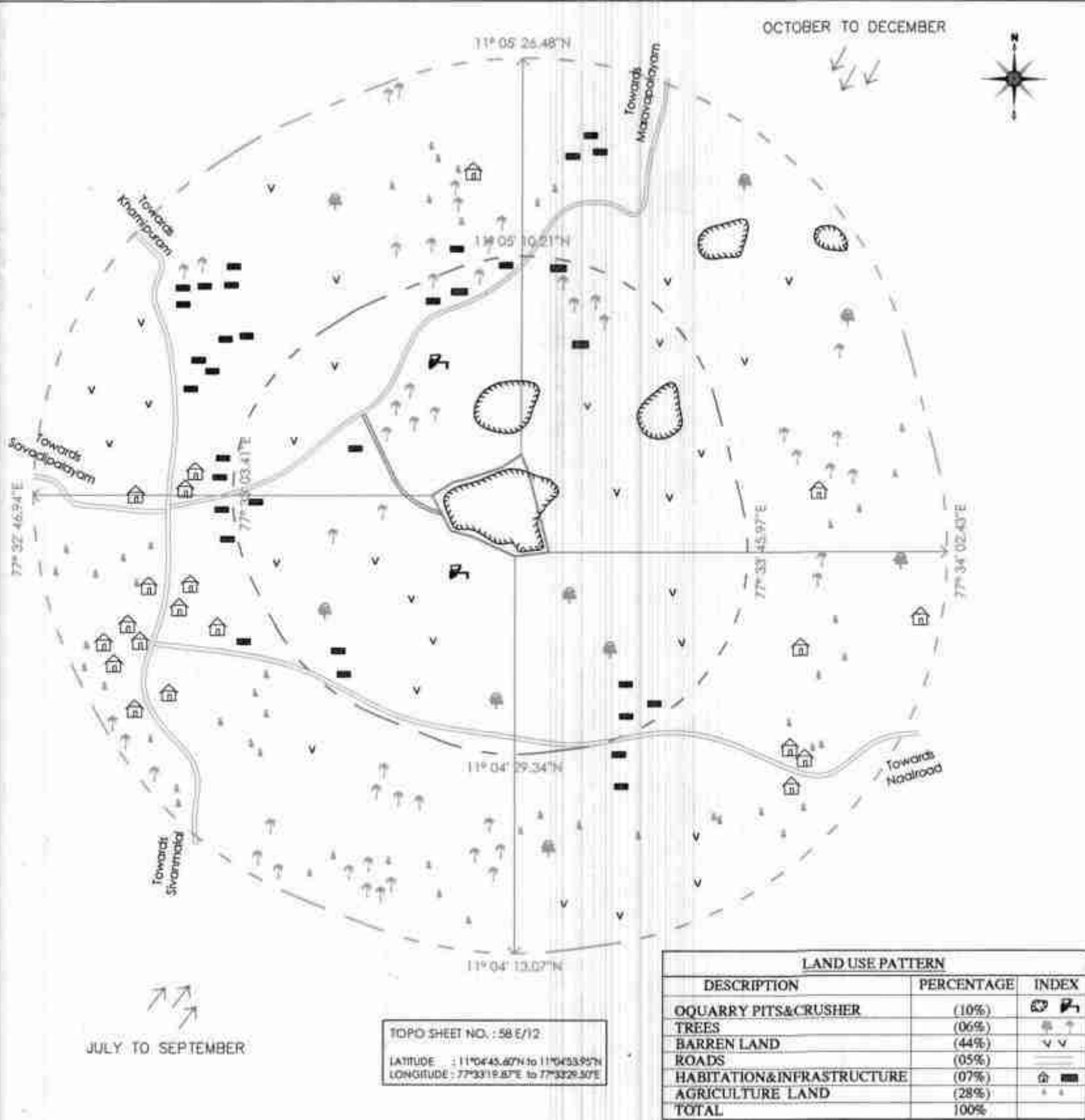
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT.

Dr. P. THANGARAJAM, M.Sc., Ph.D.
QUALIFIED PERSON.

TOPO SHEET NO. : 58 E/12

LATITUDE : 11°04'45.60"N to 11°04'53.95"N
LONGITUDE : 77°33'19.87"E to 77°33'29.50"E

10km RADIUS	1	
Q.L. APPLIED AREA	1	



OCTOBER TO DECEMBER



- INDEX**
- Q.L. APPLIED AREA
 - 1 Km RADIUS
 - 500m RADIUS
 - SEASONAL AGRICULTURE LAND
 - TREES
 - HABITATION & INFRASTRUCTURE
 - WIND DIRECTION
 - PANCHAYAT ROAD
 - APPROACH ROAD
 - BARREN LAND
 - QUARRY PIT & CRUSHER UNIT

APPLICANT :

Thiru. P. SASIKUMAR,
S/o. PALANISAMY,
Door No. 5/ 257,
KEERANUR VILLAGE,
KANGAYAM TALUK,
TIRUPPUR DISTRICT.



LOCATION OF Q.L. APPLIED AREA:

S.F.NO's : 449(P) & 450.
EXTENT : 4.44,0 Ha.
VILLAGE : KEERANUR,
TALUK : KANGAYAM,
DISTRICT : TIRUPPUR,
STATE : TAMILNADU.

PLATE NO - I-B

DATE OF SURVEY : 27.04.2022

ENVIRONMENTAL & LAND USE PLAN

SCALE: 1:10,000

PREPARED BY :

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Dr. P. Manjagan, M.Sc., Ph.D.
QUALIFIED 208'A

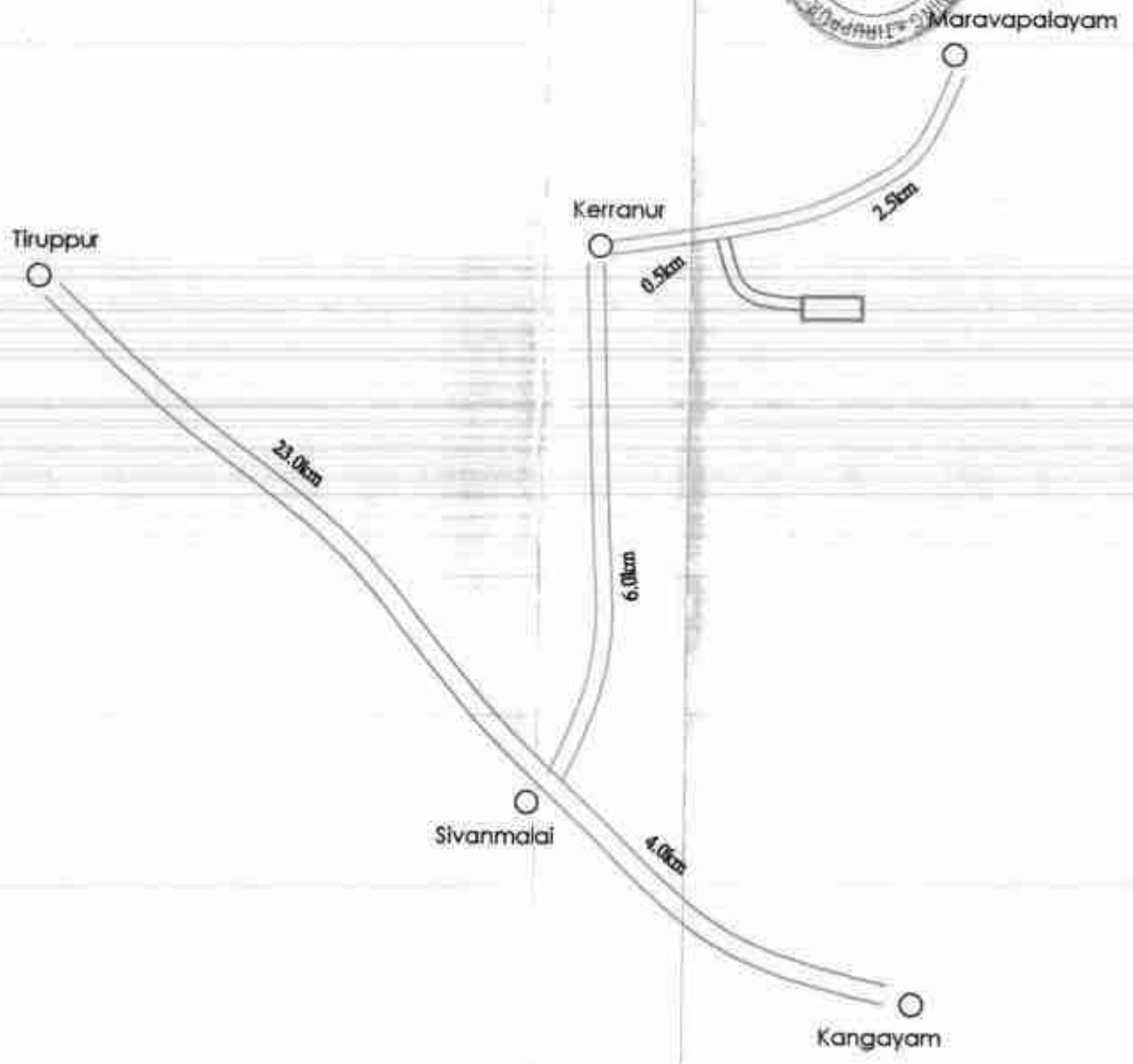
TOPO SHEET NO. : 58 E/12
LATITUDE : 11°04'43.67"N to 11°04'53.95"N
LONGITUDE : 77°33'19.67"E to 77°33'26.50"E

LAND USE PATTERN		
DESCRIPTION	PERCENTAGE	INDEX
QUARRY PITS & CRUSHER	(10%)	
TREES	(06%)	
BARREN LAND	(44%)	
ROADS	(05%)	
HABITATION & INFRASTRUCTURE	(07%)	
AGRICULTURE LAND	(28%)	
TOTAL	100%	

JULY TO SEPTEMBER



PLATE NO : I-C
ROUTE MAP



INDEX

LEASE APPLIED AREA	
SH - ROAD	
PANCHAYAT ROAD	
APPROACH ROAD	

APPLICANT :
 Thiru. P. SASIKUMAR,
 S/o. PALANISAMY,
 Door No. 5/ 257,
 KEERANUR VILLAGE,
 KANGAYAM TALUK,
 TIRUPPUR DISTRICT.

LOCATION OF Q.L. A. AREA:
 S.F.NO's : 449(P) & 450,
 EXTENT : 4.44.0 Ha.
 VILLAGE : KEERANUR,
 TALUK : KANGAYAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMILNADU.

SCALE :
 NOT TO SCALE

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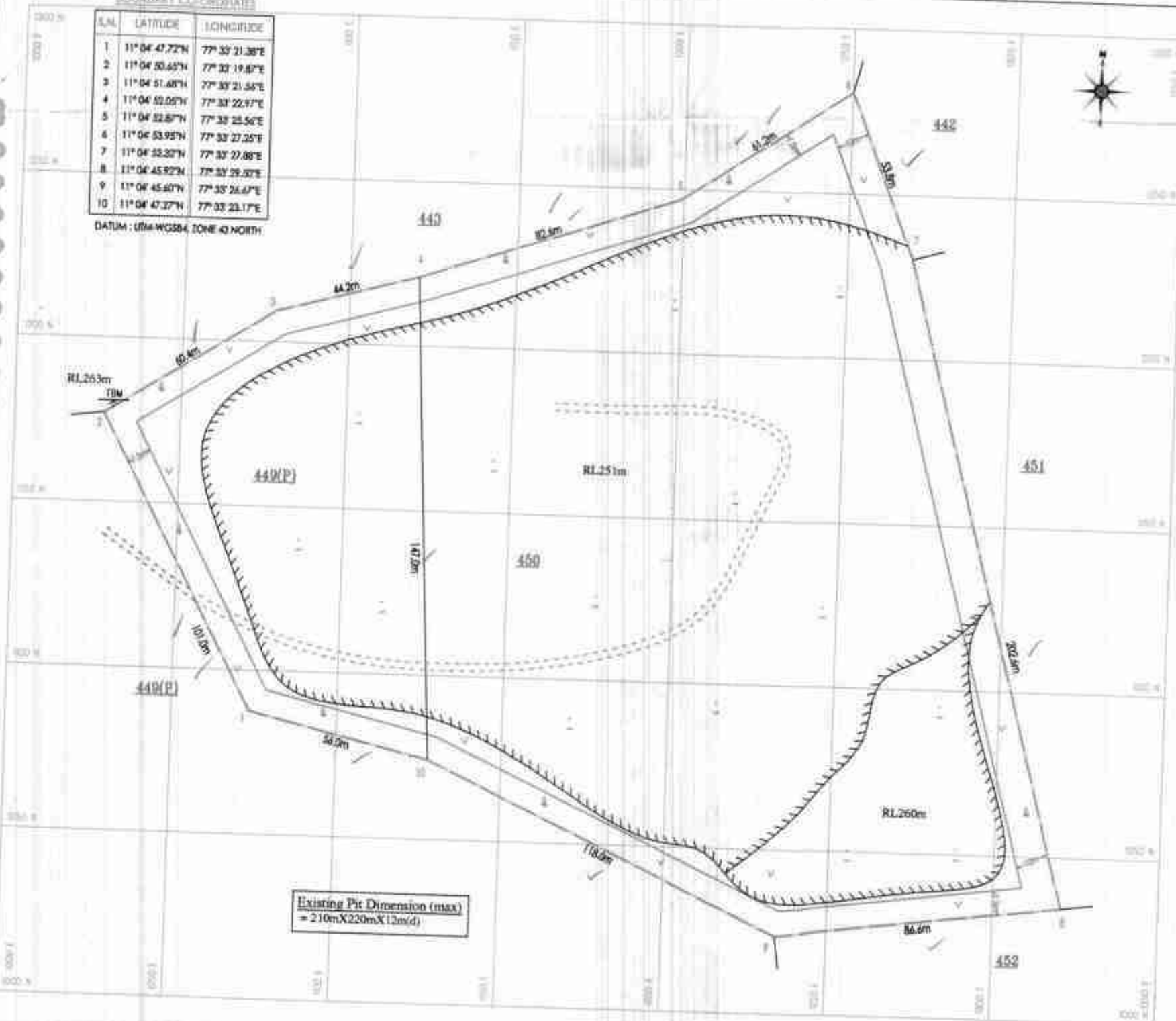
(Signature)
 Dr. P. TMKNGARAJU, M.Sc., Ph.D.
 QUALIFIED PERSON

209 A

BOUNDARY CO-ORDINATES

S.N.	LATITUDE	LONGITUDE
1	11° 04' 47.72"N	77° 33' 21.36"E
2	11° 04' 50.65"N	77° 33' 19.87"E
3	11° 04' 51.68"N	77° 33' 21.54"E
4	11° 04' 52.05"N	77° 33' 22.97"E
5	11° 04' 52.87"N	77° 33' 25.56"E
6	11° 04' 53.95"N	77° 33' 27.25"E
7	11° 04' 53.32"N	77° 33' 27.88"E
8	11° 04' 45.92"N	77° 33' 29.30"E
9	11° 04' 45.60"N	77° 33' 26.47"E
10	11° 04' 47.37"N	77° 33' 23.17"E

DATUM : UTM WGS84 ZONE 43 NORTH



Existing Pit Dimension (max)
= 210mX220mX12m(d)

INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- ROUGHSTONE
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD

APPLICANT :

Thiru. P. SASKUMAR
S/o. PALANISAMY,
Door No. 5/257,
KEERANUR VILLAGE,
KANGAYAM TALUK,
TIRUPPUR DISTRICT.



LOCATION OF Q.L. APPLIED AREA:

S.F. NOs : 449(P) & 450.
EXTENT : 4.44 Ha.
VILLAGE : KEERANUR,
TALUK : KANGAYAM,
DISTRICT : TIRUPPUR,
STATE : TAMILNADU.

PLATE NO - II

DATE OF SURVEY : 27.04.2022

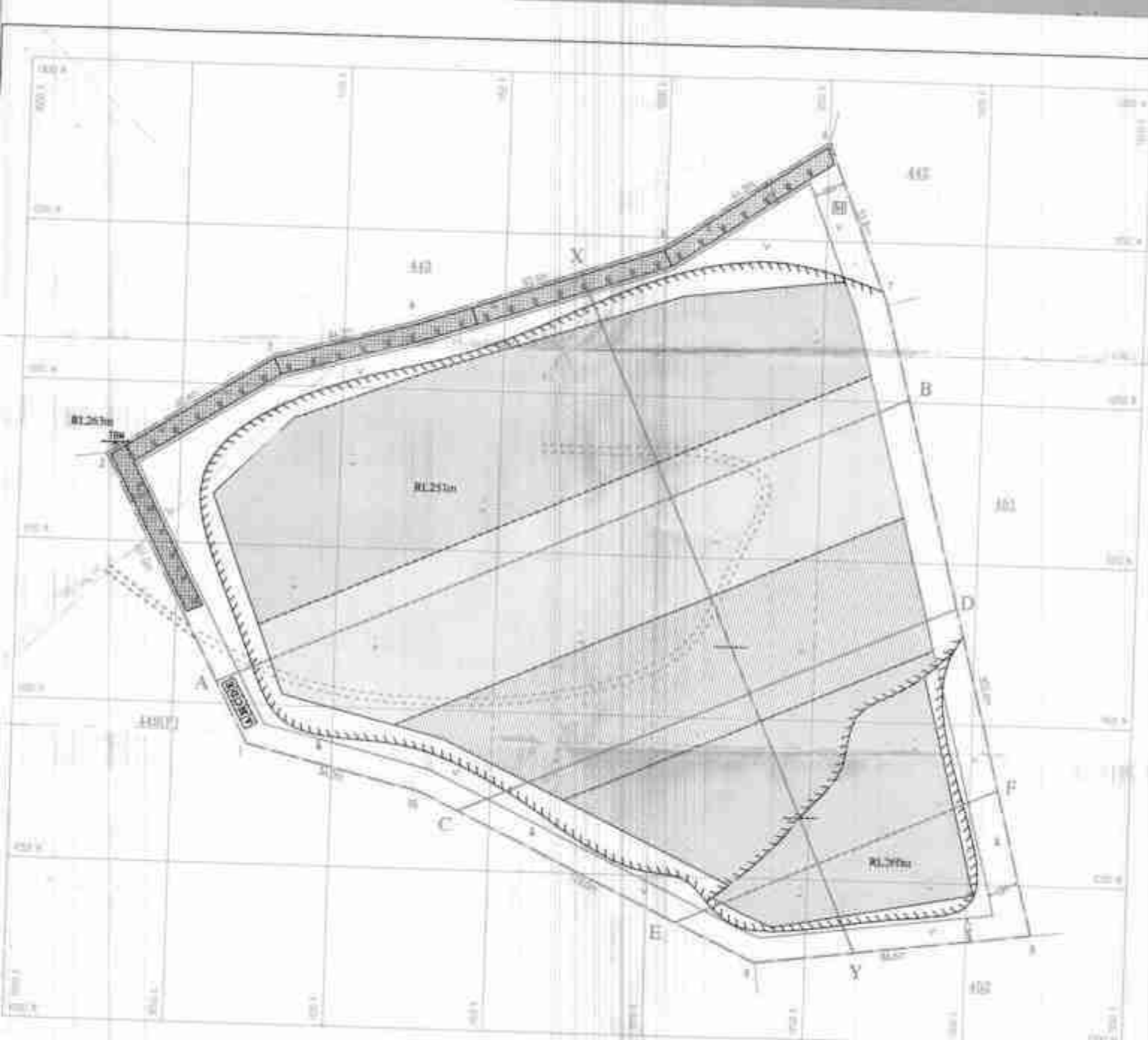
QUARRY LEASE PLAN &
SURFACE PLAN

SCALE : 1:1000

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AUTHENTICATED BY STATE GOVERNMENT

210 A
D.P. THIRUGARAJULAN S.O. P.O.
QUALIFIED PERSON



BOUNDARY COORDINATES

S.N.	LATITUDE	LONGITUDE
1	11°04'47.22"N	77°38'21.36"E
2	11°04'50.67"N	77°38'19.67"E
3	11°04'51.87"N	77°38'21.56"E
4	11°04'52.87"N	77°38'22.97"E
5	11°04'53.87"N	77°38'25.07"E
6	11°04'53.87"N	77°38'27.25"E
7	11°04'53.37"N	77°38'27.85"E
8	11°04'48.92"N	77°38'29.50"E
9	11°04'45.67"N	77°38'26.67"E
10	11°04'47.27"N	77°38'23.17"E

DATA : UTM WGS84 ZONE 43 NORTH

SITE SURVEYS (Proposed)

A - 20000
B - 40180 20130
C - 40000 4200000
D - 40000 100000
E - 20000
F - 2000000

INDEX

	Q.L. APPLIED AREA BOUNDARY
	7.5m SAFETY DISTANCE
	TEMPORARY BENCH MARK
	GRAVE
	ROUGHSTONE
	STRIKE & DIP
	QUARRY PIT
	DRIVE
	QUARRY HAUL ROAD
	APPROACH ROAD
	DEPTH OF ESTIMATION

APPLICANT:
 THIRU. P. SANKUMAR,
 S/O. PALANISAMY,
 Door No. 5/257,
 KEERANUR VILLAGE,
 KANGAYAM TALUK,
 TRIPPUR DISTRICT.



LOCATION OF Q.L. APPLIED AREA:
 S.F. NO. : 44(P) & 45D.
 EXTENT : 4.44 Hrs.
 VILLAGE : KEERANUR,
 TALUK : KANGAYAM,
 DISTRICT : TRIPPUR,
 STATE : TAMILNADU.

PLATE NO - III
 DATE OF SURVEY : 27.04.2022

**TOPOGRAPHY, GEOLOGICAL PLAN
 YEARWISE DEVELOPMENT &
 PRODUCTION PLAN & SECTIONS**
 SCALE = 1 : 1000

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 AUTHENTICATED

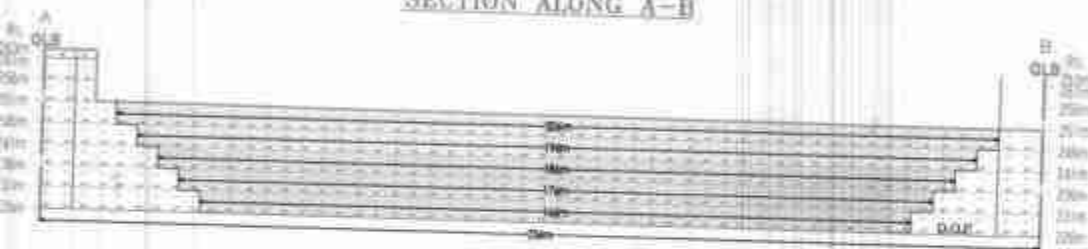
211 A

S. P. Sankumar
 S.P. SANKUMAR, M.Sc. (GEO),
 QUALIFIED PERSON

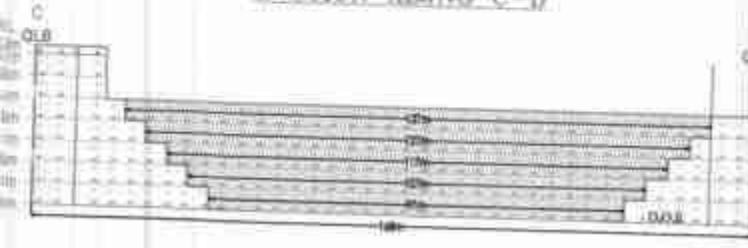
SECTION ALONG X-Y



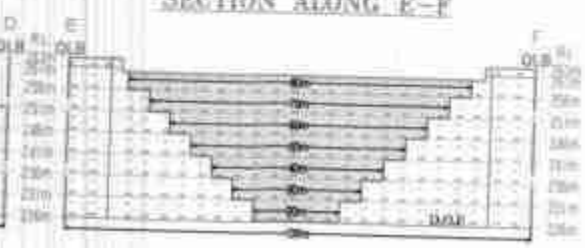
SECTION ALONG A-B



SECTION ALONG C-D



SECTION ALONG E-F



I - yr Proposed area to be Quarried

II - yr Proposed area to be Quarried

III - yr Proposed area to be Quarried

IV - yr Proposed area to be Quarried

V - yr Proposed area to be Quarried

I - yr Proposed area to be Placed

II - yr Proposed area to be Placed

III - yr Proposed area to be Placed

IV - yr Proposed area to be Placed

V - yr Proposed area to be Placed

Existing Pit Dimension (max)
 = 210m X 220m X 12m(d)



BOUNDARY CO-ORDINATES

S.N.	BEARING	LENGTH
1	11° 04' 47.22" N	77' 33' 23.38" E
2	11° 04' 36.67" N	77' 33' 19.67" E
3	11° 04' 32.87" N	77' 33' 21.54" E
4	11° 04' 33.07" N	77' 33' 22.27" E
5	11° 04' 32.87" N	77' 33' 22.54" E
6	11° 04' 32.97" N	77' 33' 22.37" E
7	11° 04' 32.37" N	77' 33' 22.87" E
8	11° 04' 43.92" N	77' 33' 21.32" E
9	11° 04' 45.07" N	77' 33' 21.67" E
10	11° 04' 47.27" N	77' 33' 23.17" E

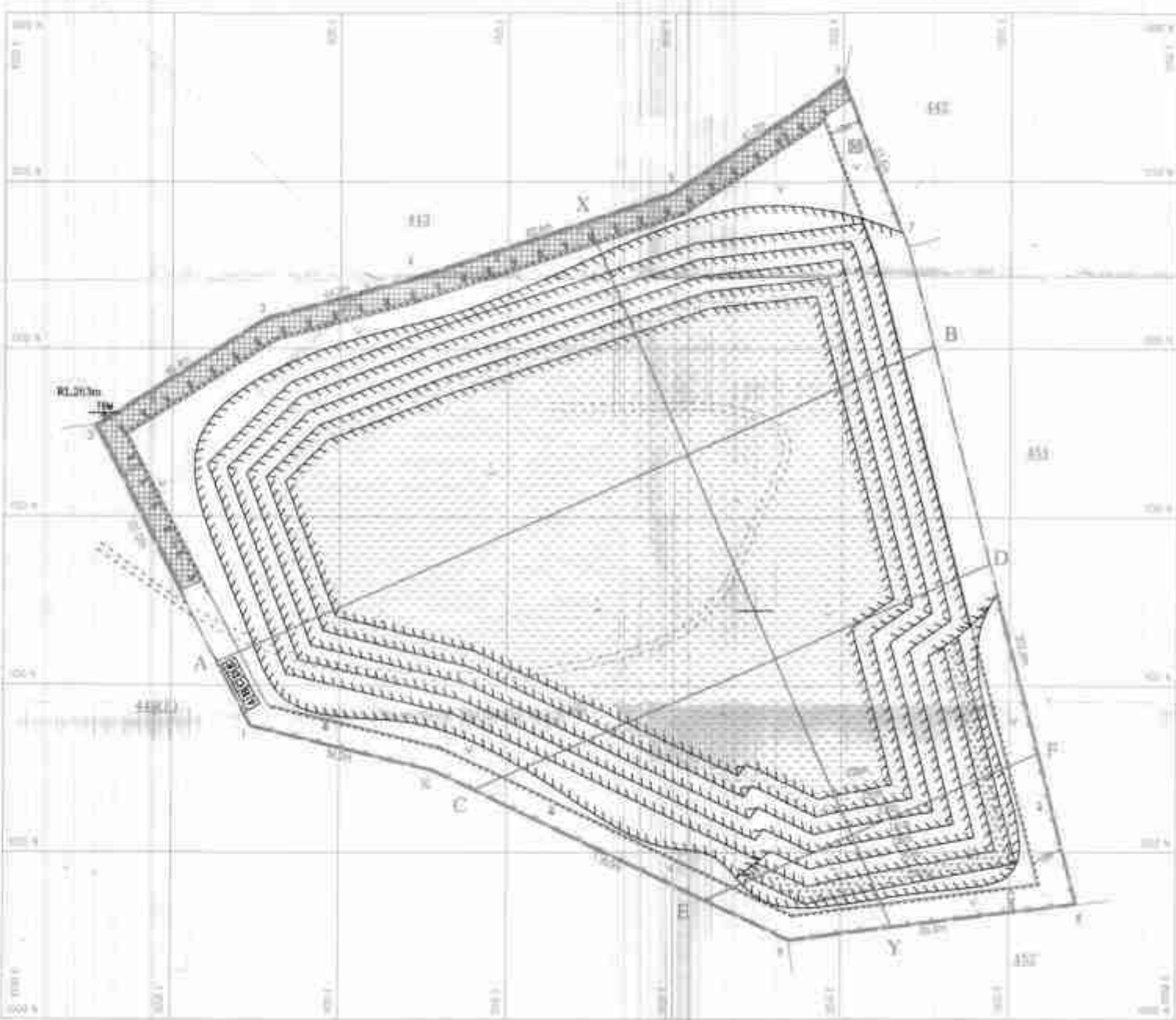
DATUM: UTM-WGS84, ZONE 43 NORTH

SITE SERVICES

- A. OFFICE
- B. STORE ROOM
- C. FIRST AID ROOM
- D. WASTE DISPOSAL
- E. TOILET
- F. WORKSHOP

INDEX

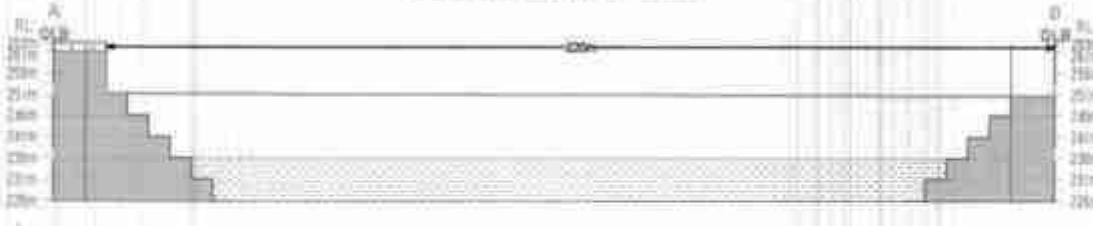
- Q.L. APPLIED AREA BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- ROUGHSTONE
- STRIVE & DIP
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- IV Y PLANTATION
- BARBED WIRE FENCING
- EXISTING LAND FORM
- SOIL LAYER
- REHABILITATED LAND FORM
- PROPOSED GARLAND DRAIN
- OLD SURFACE LEVEL
- FINISHED SURFACE LEVEL
- RAIN WATER STORAGE



SECTION ALONG X-Y



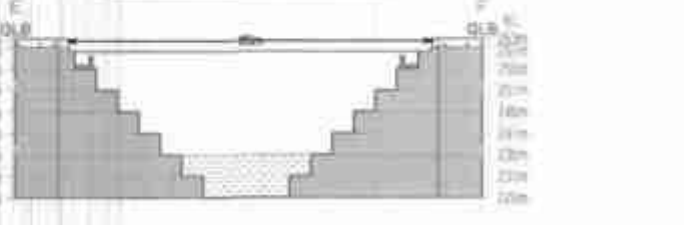
SECTION ALONG A-B



SECTION ALONG C-D



SECTION ALONG E-F



LAND USE PATTERN

DESCRIPTION	PRESENT AREA IN (ha)	AREA AT THE END OF THE QUARRYING PERIOD (ha)
QUARRYING PIT	3.640	3.640
INFRASTRUCTURE	0.00	0.00
ROADS	0.00	0.00
FOREST BELT	0.00	0.00
UNUTILISED AREA	0.840	0.710
TOTAL	4.440	4.440

Proposed Pit Dimension (max) = 210m X 220m X 37m

APPLICANT :

Mrs. P. SASKUNAR,
S/O. PALANISAMY,
DOOR NO. 5/ 257,
KEERANUR VILLAGE,
KANGAYAM TALUK,
TRIPPUR DISTRICT.



LOCATION OF Q.L. APPLIED AREA:

S.F. NO. : 449(P) & 450.
EXTENT : 4.44.0 Hrs.
VILLAGE : KEERANUR,
TALUK : KANGAYAM,
DISTRICT : TRIPPUR,
STATE : TAMILNADU.

PLATE NO - IV

DATE OF SURVEY : 27.04.2022

PROGRESSIVE MINE CLOSURE PLAN & SECTIONS

SCALE : 1 : 1000

PREPARED BY :

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212A
S.P. SHANMUGARAJU, P.E.
SURVEYOR



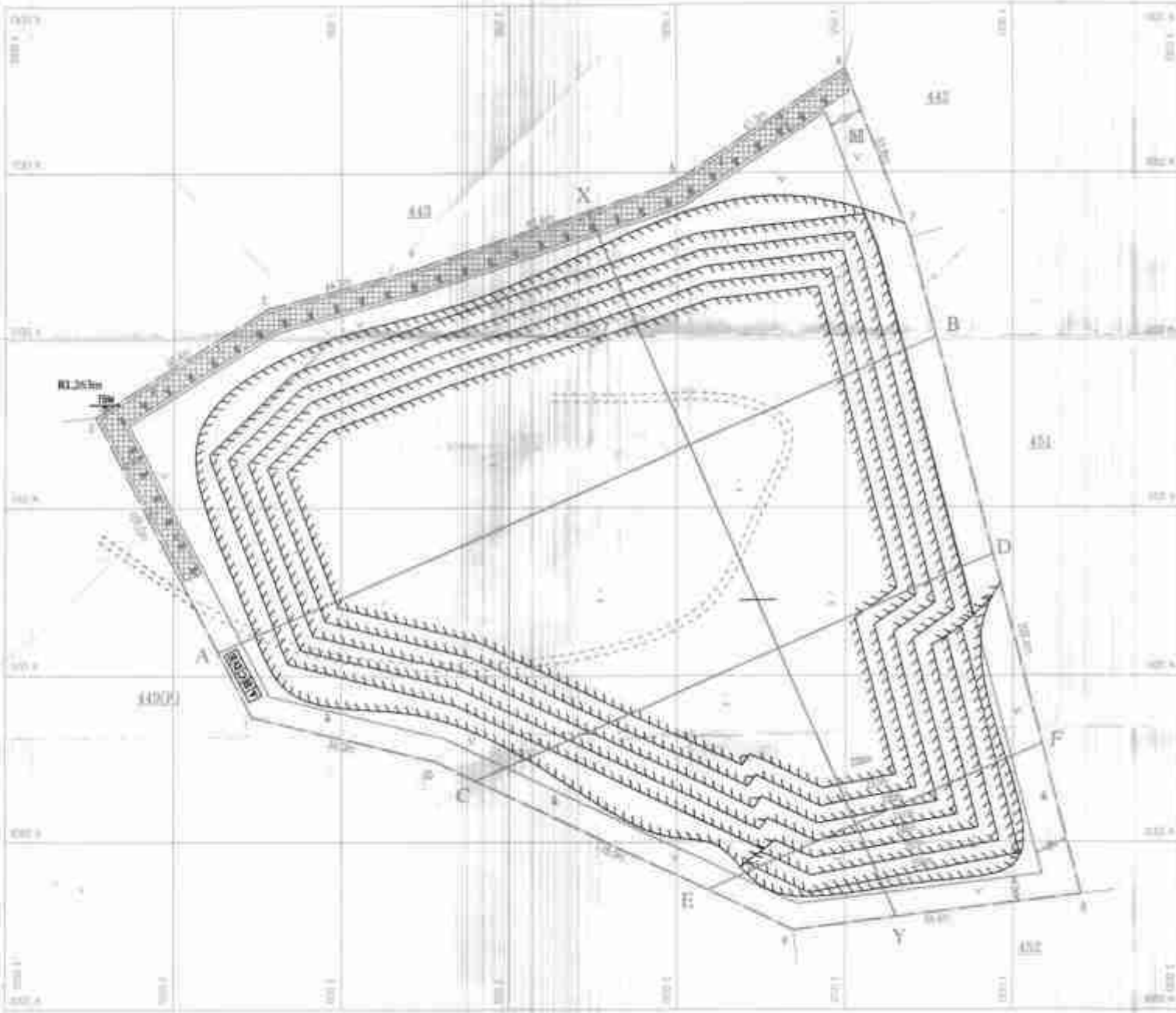
BORDERLINE CO-ORDINATE

S.N.	LATITUDE	LONGITUDE
1	11°04'42.72"N	77°32'31.36"E
2	11°04'51.68"N	77°32'19.87"E
3	11°04'51.68"N	77°32'21.87"E
4	11°04'52.08"N	77°32'22.97"E
5	11°04'53.87"N	77°32'25.57"E
6	11°04'53.95"N	77°32'27.25"E
7	11°04'53.32"N	77°32'27.85"E
8	11°04'45.92"N	77°32'28.50"E
9	11°04'45.67"N	77°32'26.47"E
10	11°04'42.27"N	77°32'33.17"E

DATUM : UTM WGS84 ZONE 43 NORTH

NOTE SERVICES

- A-ADJUST
- B-BOUNDARY
- C-CORNER ADJUSTMENT
- D-DEVIATION
- E-ENCLOSURE
- F-ENCLOSURE
- G-ENCLOSURE



INDEX

- Q.L. APPLIED AREA BOUNDARY
- 7.5m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- GRAVEL
- ROUGHSTONE
- STRIKE & DIP
- QUARRY PIT
- SHRUBS
- QUARRY HAUL ROAD
- APPROACH ROAD
- 1/4" PLANTATCH

APPLICANT :

THIRU. P. SANKUMAR,
S/O: PALANISAMY,
DOOR NO. 5/257,
KEERANUR VILLAGE,
KANDAYAM TALUK,
TRIPPUR DISTRICT.



LOCATION OF Q.L. APPLIED AREA:

S.E.N.O.S : 449(P) & 450.
EXTENT : 4.44 Hrs.
VILLAGE : KEERANUR,
TALUK : KANDAYAM,
DISTRICT : TRIPPUR,
STATE : TAMILNADU.

PLATE NO - V

DATE OF SURVEY : 27.04.2022

CONCEPTUAL PLAN & SECTIONS

SCALE : 1:1000

PREPARED BY :

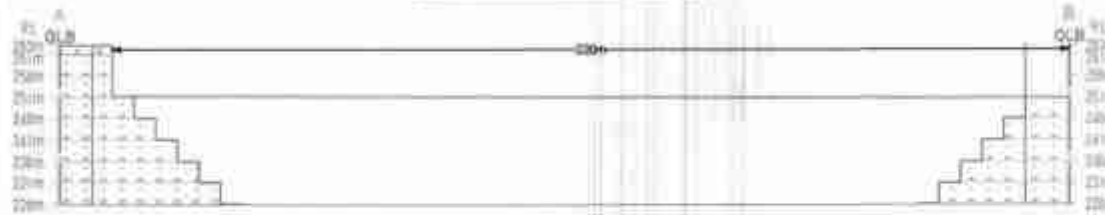
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS PLAN IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE BASED UPON THE LEASE MAP AUTHENTICATED BY STATE GOVERNMENT

(Signature)
S. P. SANKUMAR, S.P.M.
QUARTER MASTER

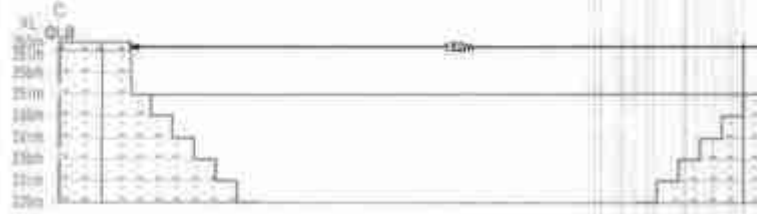
SECTION ALONG X-Y



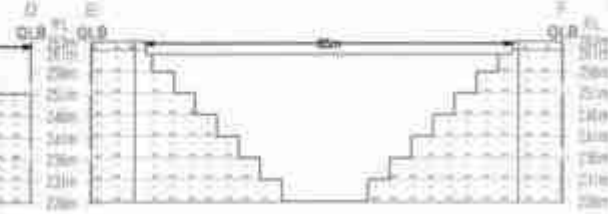
SECTION ALONG A-B

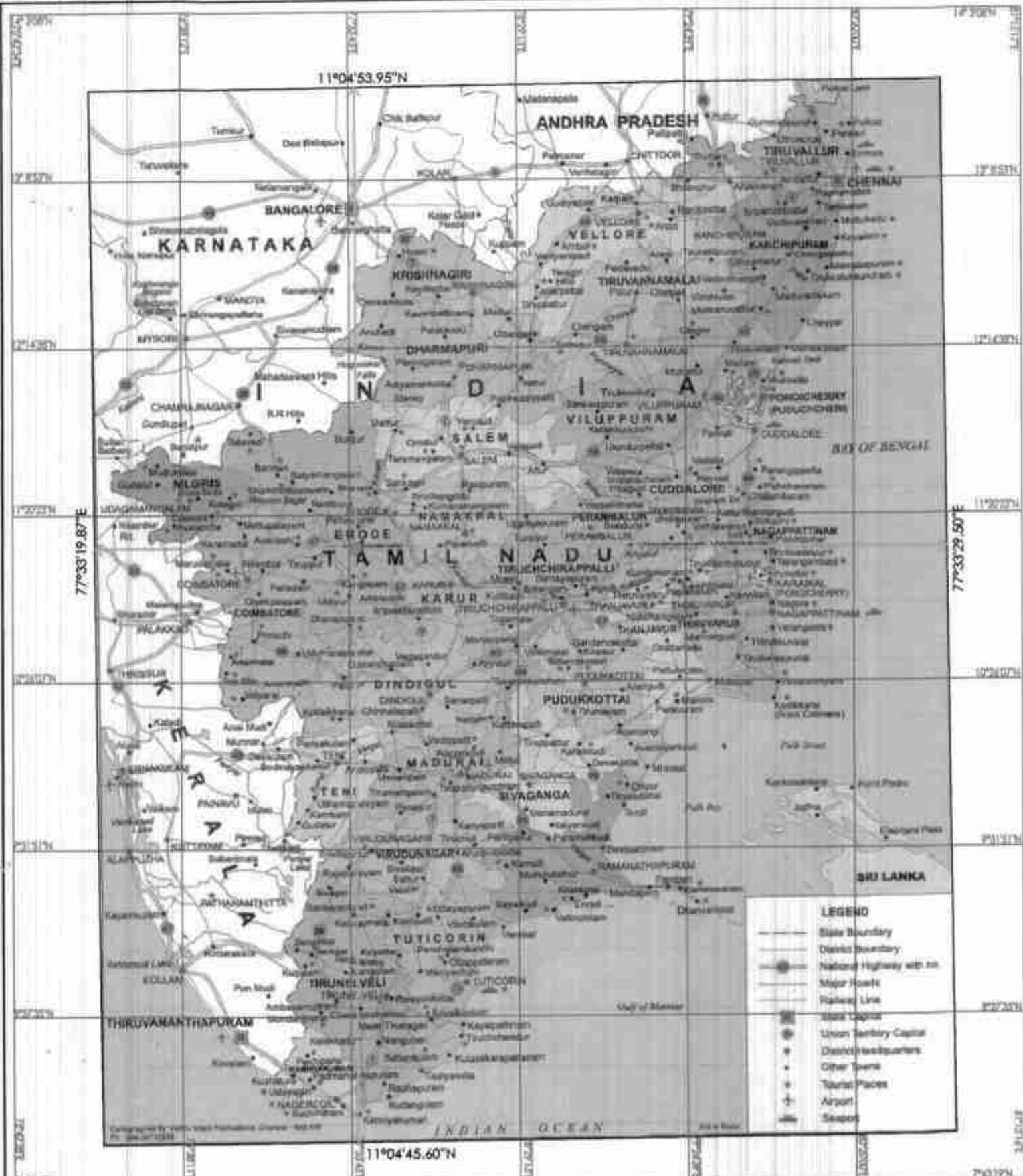


SECTION ALONG C-D



SECTION ALONG E-F





INDEX

Q.L.APPLIED AREA : ●
 TOPO SHEET NO. : 58 E/12
 LATITUDE : 11°04'45.60"N to 11°04'53.95"N
 LONGITUDE : 77°33'19.87"E to 77°33'29.50"E

APPLICANT :
 Thiru. P. SASIKUMAR,
 S/o. PALANISAMY,
 Door No. 5/ 257,
 KEERANUR VILLAGE,
 KANGAYAM TALUK,
 TIRUPPUR DISTRICT.

LOCATION OF Q.L. APPLIED AREA:
 S.F.NO's : 449(P) & 450.
 EXTENT : 4.44.0 Ha.
 VILLAGE : KEERANUR,
 TALUK : KANGAYAM,
 DISTRICT : TIRUPPUR,
 STATE : TAMILNADU.

PLATE NO - I
 DATE OF SURVEY : 27.04.2022

LOCATION PLAN
 SCALE, 1:24,00,000

PREPARED BY :
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 AUTHENTICATED BY STATE GOVERNMENT.

(Signature)
 Dr. P. THANGARAJU, Sr. P.G.O.,
 QUALIFIED PERSON

Hydro Geological Report For
Rough Stone and Gravel Quarry
Over an extent of 4.44.0Ha of Patta land in
S.F.Nos. 449 (P) & 450 of
Keeranur Village,
Kangayam Taluk,
Tiruppur District, Tamil Nadu State.

P. Subjmer

HYDRO GEOLOGICAL REPORT FOR KEERANUR

ROUGH STONE AND GRAVEL QUARRY.

1. INTRODUCTION

NAME OF THE APPLICANT WITH ADDRESS-

Name of the applicant : **P.Sasikumar**
Address : S/o. Palanisamy,
No. 5/257, Keeranur Village,
Kangayam Taluk,
Tiruppur District – 638 701
Mobile No: 98945 44917
State : Tamilnadu
Mobile : +91 98945 44917

DETAILS OF THE AREA-

Land Classification : Patta Land
Survey No : 449 (P) & 450
Extent : 4.44.0Ha
Village : Keeranur
Taluk : Kangayam
District : Tiruppur

The Client requires detailed information on ground water occurrences at proposed project site of Keeranur Rough Stone and gravel quarry. The objective of the present study is to assess the availability of groundwater and comment on aspects of depth to potential aquifers, aquifer availability and type, possible yields and water quality. For this purpose all available hydrogeological information of the areas has been analyzed, and a geophysical survey was done.

The investigations involved hydrogeological, geophysical field investigations and a detailed study in which the available relevant geological and hydrogeological data were collected, analyzed, collated and evaluated within the context of the Client's requirements.

The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data
- b) State & District Geological and Hydrogeological Reports and Maps.
- c) Technical reports of the area by various organizations.

P. Subramanian

2. SCOPE OF THE WORKS –

The scope of works includes:

- ❖ Site visits to familiarize with the project areas. Identify any issues that might impact the Ground Water Scenario due to proposed mining activities.
- ❖ To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydrogeological reports,
- ❖ To carry out hydrogeological evaluation and geophysical investigations in the selected sites in order to determine potential for groundwater at project site.
- ❖ To prepare hydrogeological survey reports in conformity with the provisions of the rules and procedure outlined by the Central Ground Water Board (CGWB), by Assessment of water quality and potential infringement of National standards, Assessment of availability of groundwater and Impact of proposed activity on aquifer, water quality and other abstractors.

3. BACKGROUND INFORMATION

Geographical information of the study area-

The investigated site falls in the Toposheet No: 58 - E/12 Latitude between 11°04'45.60"N to 11°04'53.95"N and Longitude between: 77°04'52.24"E to 77°04'56.71"E on WGS datum-1984.

GEOMORPHOLOGY

Tiruppur district forms part of the upland plateau region of Tamil Nadu with many hill ranges, hillocks and undulating topography with a gentle slope towards east except for the hilly terrain in the west. The undulating topography with innumerable depressions, are used as tanks for storage of rainwater for agriculture.

The prominent geomorphic units in the district are 1) Structural hills, 2) Ridges, 3) Inselbergs, 4) Bazada, 5) Valley fill, 6) Pediment, 7) Shallow Pediments and 8) Deep Pediments.

The Nilgiris on the northwest and Anamalai on the south are the important ranges, which attain a height of over 2513m above mean sea level (MSL) and the highest elevation in the valleys adjoining the hills is 600 M above MSL. The 'Palghat Gap', which is an east-west trending mountain pass, is an important physiographic feature is located in the western part of the district.

Soils

The soils of Tiruppur district can be broadly classified into 6 major soils types viz, Red calcareous Soil, Black Soil, Red non-calcareous, Alluvial and Colluvial Soil, Brown Soil, and Forest Soil. About sixty per cent of the district is covered by red soils, of which red calcareous soil is predominant. They occupy most parts of Palladam, Tiruppur, Mettupalayam and Udumalpet Taluks. Medium to deep red calcareous soils are found mainly in Pollachi and Udumalpet Taluks. Parts of Palladam, Avinashi and Udumalpet Taluks are occupied by red non-calcareous soils.

The highlands in Tiruppur, Palladam and Avinashi Taluks are mostly occupied by the black soils, which are dark gray to grayish brown in colour.

The Alluvial soils are found in small patches along the Noyyal river mainly in the upper reaches. The Colluvial soils are found mainly in Chinnathadagam and Chitrachavadi sub-basins and as scattered patches at the foothills of the Anaimalai. The Forest soils are confined to the reserve forest area and have a surface layer of organic matter.

Rainfall and Climate

The district receives the rain under the influence of both southwest and Northeast monsoons. The northeast monsoon chiefly contributes to the rainfall in the district and summer rains are negligible.

Rainfall data from six stations over the period 1901-2000 were utilized and a perusal of the analysis shows that the normal annual rainfall over the district varies from about 550mm to 900mm. It is the minimum around Kangayam (550 mm) in the eastern part of the district. It gradually increases towards south and attains a maximum around Anaimalai hills.

The district enjoys a tropical climate. The weather is pleasant during the period from November to January. Mornings in general are more humid than the afternoons, with the humidity exceeding 78% on an average. In the period June to November the afternoon humidity exceeds 66% on an average. In the rest of the year the afternoons are drier, the summer afternoons being the driest. The period from April to June is generally hot and dry. The temperature recorded varies from 11.7°C to 42.6°C.

GEOLOGY

Regional Geology of Tiruppur District-

The district is occupied by Charnockite Group of rocks consisting of Charnockite, pyroxene granulites and associated magnetite quartzite, the Knodalite Group comprising gametiferous – sillimanite gneiss, calc-granulite, crystalline limestone, sillimanitequartzites and associated migmatitic gneisses. The fissile homblende gneisses (Peninsular gneiss –

P. Subramanian

younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsitge – kyanitequartzites, ferruginous quartzite (Satyamangalam Group) intruded by a number of ultramafic and basic rocks and granites are seen in the Northern portions of the district especially around Mettupalayam, Avinashi and Northern areas of Tiruppur. The granites are Proterozoic age and occupy the Western end and Eastern Part of the District as separate bodies and are recognized as Maruthamalai Granite and Punjapuliampatti Granites respectively. The quaternary alluvium is seen in the West and Northwestern areas of Udumalaipettai and Western areas of Tiruppur town. The alluvium is more than 30m thick in the Chinnathadagam valley northwest of Tiruppur and in the Siruvani valley west of Tiruppur. In the Udumalaipettai Taluk area, it overlies the kankar deposit.

It is revealed the Tiruppur district is occupied by the rocks of Sathiyamangalam, Peninsular gneissic complex-I and Charnockite group of Archaean age, Peninsular Gneissic Complex-II of Archaean to Palaeoproterozoic age, Basic intrusive of Mesoproterozoic age, Younger intrusive of Neoproterozoic age and recent alluvium.

The Peninsular gneissic complex-I comprising hornblende biotite gneiss and granite area the major rock types exposed. Hornblende biotite granite is medium to coarse grained and mesocratic and considered to be retrograded product of product of Charnockite – Pyroxene granulite. It is medium grained, White to pale pink colored with disseminations of limonitised magnetite. The white colored granite appears to be older and the pink colored cuts across the white colored granite. The younger phase of coarse grained granite occur as thin stringers and lesser in the southern part. The peripheral part of granite close to the gneiss is granitic in nature.

STRATIGRAPHY SUCCESSION

Lithology	Group	Super Group	Age
Gypseous clay			Holocene
Granite	Acid intrusives		Neoproterozoic
Dolerite /basic dyke	Basic intrusives		Mesoproterozoic
Quartzofeldspathic Gneiss Garnet.		Peninsular Gneissic complex- II	Archaean to Palaeoproterozoic
Hornblende biotite gneiss			
Charnockite		Southern Granulite Complex	

P. Subramanian

Grey Hornblend Biotite gneiss		Peninsular Gneissic complex- I	Archaean
Gabbro	Sitampundi		
Amphibolite	Mettupalayam Complex		
Magnetite Quartzite			
Talc – Termolite – Actinolite Schist	Sathiyamanagalam Group		

4. GEOPHYSICAL INVESTIGATION METHODS

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

P. Subjmer

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A , expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

$$R = dV/I \text{ (Ohm)}$$

Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

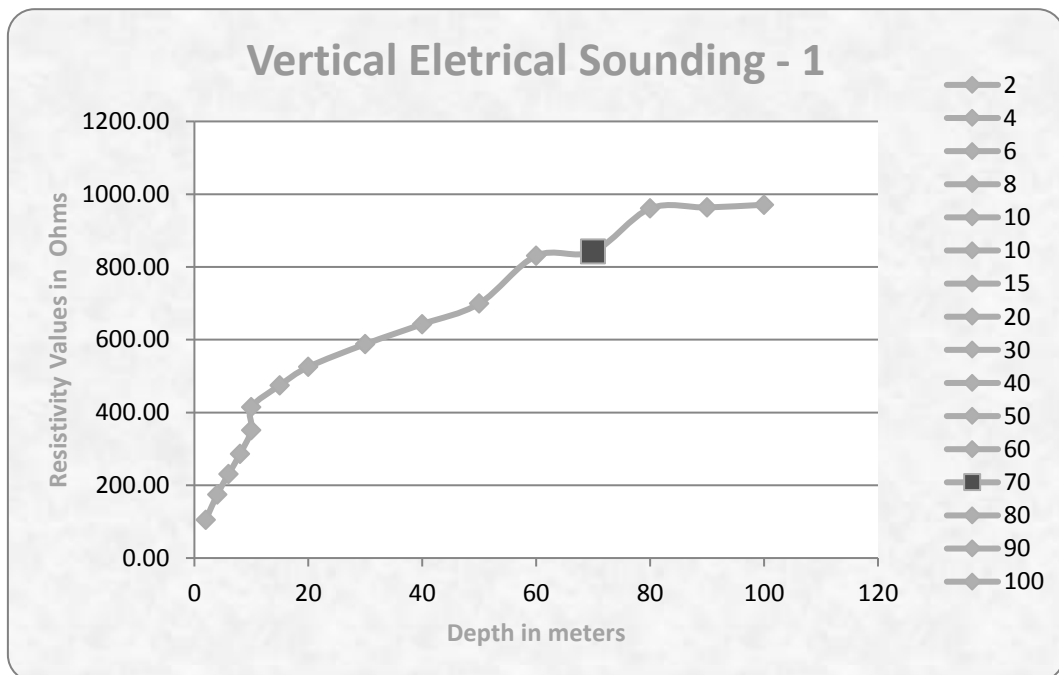
Vertical Electrical Sounding (VES)

When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.

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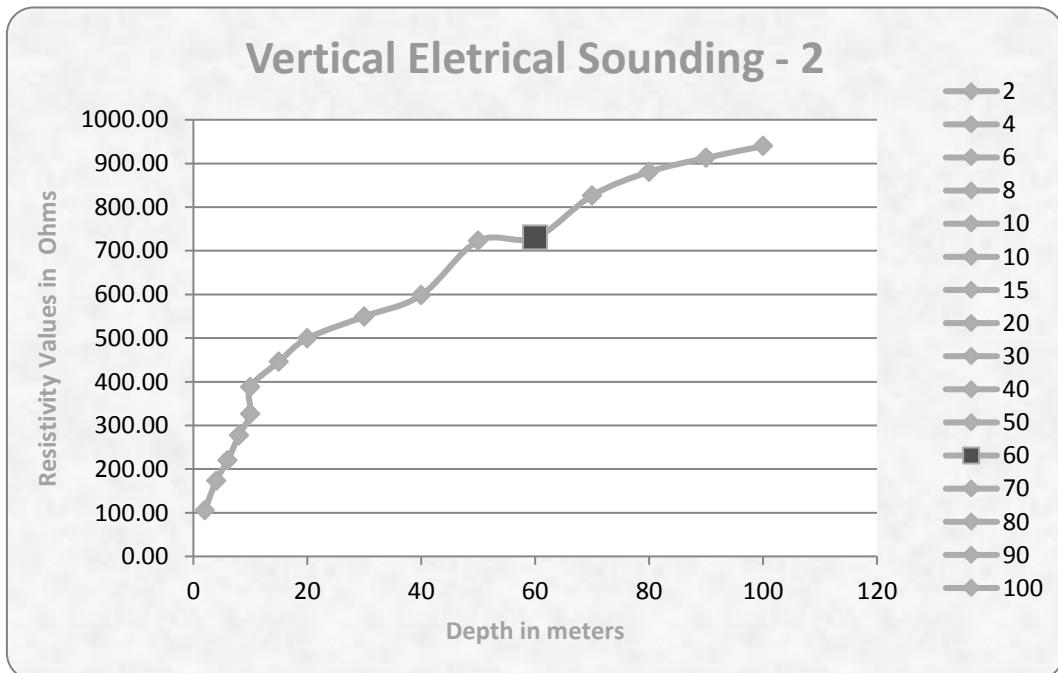
Vertical Electrical Sounding Data's and Graphs

STATION-1					
GPS Coordinates - 11° 4'49.92"N 77°33'20.27"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical Factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	22.25	104.84
2	4	1	23.55	7.42	174.27
3	6	1	54.95	4.23	230.79
4	8	1	98.91	2.88	285.85
5	10	1	155.45	2.27	351.32
6	10	5	23.55	17.61	414.48
7	15	5	62.80	7.56	474.77
8	20	5	117.75	4.46	525.17
9	30	5	274.75	2.15	587.97
10	40	5	494.55	1.31	642.92
11	50	5	777.15	0.91	699.44
12	60	5	1122.55	0.76	830.69
13	70	5	1530.75	0.54	841.91
14	80	5	2001.75	0.45	960.84
15	90	5	2535.55	0.39	963.51
16	100	5	3132.15	0.36	970.97



P. Subjmer

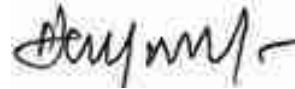
STATION-2					
GPS Coordinates - 11° 4'45.78"N 77°33'28.70"E					
S.No	Ab/2(m)	Mn/2(m)	Geometrical factor (G)	Resistance Value in Ohms	Apparent Resistance in Ohms
1	2	1	4.71	22.47	105.79
2	4	1	23.55	7.38	173.33
3	6	1	54.95	4.00	219.80
4	8	1	98.91	2.80	276.95
5	10	1	155.45	2.10	326.45
6	10	5	23.55	16.46	387.63
7	15	5	62.80	7.11	445.88
8	20	5	117.75	4.24	499.26
9	30	5	274.75	2.00	549.50
10	40	5	494.55	1.20	598.41
11	50	5	777.15	0.93	722.75
12	60	5	1122.55	0.65	729.66
13	70	5	1530.75	0.54	826.61
14	80	5	2001.75	0.45	880.77
15	90	5	2535.55	0.36	912.80
16	100	5	3132.15	0.32	939.65



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5. Conclusion –

Based on the available information and the geophysical investigations it is concluded that the project area is considered to have medium groundwater potential. Productive aquifers are expected at depth of 65m to 70m where minor fractures are observed and shallow aquifers are expected above 55m-60m BGL. The ultimate pit limit as per the approved mining plan depth is 37m (2m Gravel + 35m Rough Stone) below ground level which will have no impact on the Ground Water.



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

Govt. Approved Hydro Geologist

M/s. Geo Exploration and Mining Solutions,

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Alagapuram, Salem – 636 004, Tamil Nadu

Mobile: +91 - 94433 56539

E-Mail: infogeoexploration@gmail.com





भारत सरकार | Government of India
 वाणिज्य और उद्योग विभाग | 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, 1st Floor, Shastri Bhavan
 26 हड्डोडस रोड, मुंगम्बक्कम चेन्नै | 26 Haddons Road, Mungambakkam Chennai 600066
 फोन (Phone):- 28281923 | फैक्स (Fax):- 28284848

दिनांक (Date): 23/02/2022

संख्या (No.): E/SC/TN/22/432(E23992)

सेवा में | To,

Sri Selvanayagi Explosives,
 #152 Pudukalayan East, Karatikuhukudi, Murungatholavu Post, Chennaiinlai, Town/Village - Keeranur (Post)
 District-ERODE, State-Tamil Nadu, Pincode - 638051

विषय: Survey No(s).422/B1, ग्राम Keeranur, जिला ERODE, राज्य Tamil Nadu में मेसर्स Sri Selvanayagi Explosives द्वारा विस्फोटक के मगजीन में उपयोग के लिए कब्जा हेतु विस्फोटक नियम, 2008 के अंतर्गत LE-3 में जारी अनुज्ञापति सं E/SC/TN/22/432(E23992) के संशोधन संदर्भ में।
 (विस्फोटक की मात्रा / मासिक खरीद सीमा में परिवर्तन)
 Subject: Possession for Use of Explosives from magazine situated at Survey No(s).:422/B1, Keeranur, Dist. ERODE, Tamil Nadu -Licence No.: E/SC/TN/22/432(E23992) granted in Form LE-3 of Explosives Rules, 2008 - (Amendment of Quantity of Explosives/Monthly Purchase Limit).

महोदय | Sir,

आपका उपर्युक्त विषय पर पत्र संख्या 57751 दिनांक 22/02/2022 का संदर्भ ग्रहण करें।
 Please refer to your letter no. 57751 dated 22/02/2022.

अनुज्ञापति संख्या E/SC/TN/22/432(E23992) विस्फोटक की मात्रा / मासिक खरीद सीमा में परिवर्तन के संदर्भ में पत्रा संशोधित कर भेजी जा रही है।
 The Licence No.: E/SC/TN/22/432(E23992) is forwarded herewith duly amended in respect of following:

Quantity of Explosives/Monthly Purchase Limit

किसी भी एक समय में लाइसेंस क्षमता निम्नलिखित वर्ग तथा मात्रा से अधिक नहीं होगी।
 The licence capacity at any one time shall not exceed the kinds and quantities mentioned below;

संख्या No	विस्फोटक Explosive(s)	वर्ग Class	प्रभाग Div	उप-प्रभाग Sub Div	क्षमता Capacity	इकाई Unit
1	Nitrate Mixture	2	0	0	1000	Kg.
2	Safety Fuse	6	1	0	10000	Mtrs
3	Detonating Fuse	6	2	0	5000	Mtrs
4	Electric and/or Ordinary Detonators	6	3	0	20000	Nos.

किसी एक कैलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3 (ख) और (ग) के अधीन अनुज्ञापति के लिए लागू) : 15 गुना
 Quantity of explosives to be purchased in a calendar month[applicable for licence under article 3(b) and (c)]: 15 times as above.
 यह अनुज्ञापति दिनांक 31 मार्च 2024 तक प्रवृत्त रहेगी।
 This Licence shall remain valid till 31st day of March 2024.

अनुज्ञापति के आगामी नवीकरण हेतु कृपया विस्फोटक नियम, 2008 के नियम 112 के अंतर्गत प्रक्रिया का पालन करें। कृपया धारणी दें।
 For further revalidation(if required), please follow the procedure under Rule 112 of Explosives Rules, 2008. Receipt of this letter may please be acknowledged.

भवदीय | Your's faithfully

(डा.टी.एल.थनुलिंगम | Dr. T. L. THANULINGAM)
 उप मुख्य विस्फोटक नियंत्रक | Deputy Chief Controller of Explosives
 कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives
 दक्षिणांचल, चेन्नै | South Circle, Chennai

तेलियापि प्रेषित | Copy Forwarded to:

1. District Magistrate, ERODE, Tamil Nadu with reference to his Noe No: R.DIS.73943/2004 C4 Dated: 16/06/2005
2. Superintendent of Police, ERODE, Tamil Nadu.

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>)

Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.

Digitally signed by Dr T L Thanulingam
 Reason: Licence No. : E/SC/TN/22/432
 Location:Chennai [E23992]
 Date:2022.02.23 03:58:50 +05:30

अनुज्ञापि प्ररूप एल. ई.-3 | LICENCE FORM LE-3
 (विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (प) देखिए।)
 (See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)
 (ग) उपयोग के लिए एक समय पर वर्ग 1,2,3,4,5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने के लिए अनुज्ञापि
 Licence to possess : (c) for use, explosives of class 1, 2,3,4,5,6 or 7 in a magazine

अनुज्ञापि सं. (Licence No.) : E/SC/TN/22/432(E23992)
 वार्षिक फीस रूपए (Annual Fee Rs): 3600/-

1. Licence is hereby granted to

Sri Selvanayagi Explosives (अधिभोगी / Occupier : Sri D.selvaraju.), 4/152 Pudupalayam East, Karaikuthukadu, Murungotholuvu Post,Chennimalai, Town/Village - Keeranur (Post), District-ERODE, State-Tamil Nadu, Pincode - 638051



को अनुज्ञापि अनुदत्त की जाती है।

2. अनुज्ञापिधारी की प्रास्थिति | Status of licensee : Individual

3. अनुज्ञापि निम्नलिखित प्रयोजनों के लिए विधिमार्ग है।
 Licence is valid only for the following purpose.

4. अनुज्ञापि विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमार्ग है।
 Licence is valid for the following kinds and quantity of explosives: -- (क) (a)

क्र. सं. 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	6,1	0	10000 Mtrs
3.	Detonating Fuse	6,2	0	5000 Mtrs
4.	Electric and/or Ordinary Detonators	6,3	0	20000 Nos.

(ख) किसी एक कलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञापि के लिए)
 (b) Quantity of explosives to be purchased in a calendar month (applicable for licence under article 3(b) and (c)) :

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञापि परिसर की पुरि होती है।
 The licensed premises shall conform to the following drawing(s) :

रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/432(E23992)
 दिनांक (Dated) 23/02/2022

15 times
as above.

6. अनुज्ञापि परिसर निम्नलिखित पते पर स्थित हैं। The licensed premises are situated at following address:
 Survey No(s). 422/B1 , ग्राम (Town/Village) : Keeranur

जिला (District) ERODE पुलिस थाना (Police Station) : KANGAYAM
 दूरभाष (Phone) राज्य (State) Tamil Nadu पिनकोड (Pincode)
 ई. मेल (E-Mail) दिवस (Fax)
 : MAIN MAGAZINE, DETONATOR MAGAZINE AND A LOBBY

7. अनुज्ञापि परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं।
 The licensed premises consist of following facilities.

8. अनुज्ञापि समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपावधों के अधीन रहते हुए अनुदत्त की जाती है।
 The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2004 framed there under and the conditions, additional conditions and the following Annexures.

- उपयुक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए)।
 Drawings (showing site, constructional and other details) as stated in serial No. 5 above.
- अनुज्ञापि प्राधिकारी द्वारा हस्ता. क्षरित इस अनुज्ञापि की शर्तों और अतिरिक्त शर्तों।
 Conditions and Additional Conditions of this licence signed by the licensing authority.
- दूसरे प्ररूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञापि तारीख 31 मार्च 2007 तक विधिमार्ग रहेगी। This licence shall remain valid till 31st day of March 2007.

यह अनुज्ञापि, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञापि की शर्तों का अधिकरण करने या यदि अनुज्ञापि परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिबंधित की जा सकती है, जहां वह लागू हो।
 This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 06/01/2006

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives
 South Circle, Chennai

Amendments :

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 27/09/2011
- Change in Postal Address dated : 04/04/2017
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 23/02/2022

नवीनीकरण के पृष्ठान के लिए स्थान
 Space for Endorsement of Renewal

नवीकरण की तारीख
 Date of Renewal

समाप्ति की तारीख
 Date of Expiry

05/03/2019

31/03/2024

अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प
 Signature of licensing authority and stamp

Sd/-

Jr. Chief Controller of Explosives, South Circle, Chennai

व्यवृत्ती चेतावनी : विस्फोटकों को गलत ढंग से चलाने या उनका दुरुपयोग विधि के अधीन गंभीर दंडिक अपराध होगा।
 Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

Note :- This is system generated document does not require physical signature. Applicant may take printout for their records.

Digitally signed by Dr T L Thanulingam
 Reason: Licence No. : E/SC/TN/22/432
 Location: Chennai [E23992]
 Date: 2022.02.23 03:58:35 +05:30

அனுப்புநர்:
இரா.குமரேசன், எம்.ஏ, எம்.எட், எம்.பில்,
வருவாய் கோட்டாட்சியர்,
தாராபுரம்.

பெறுநர்:
துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருப்பூர்.

ந.க.4412/2021/இ

நாள்: 22.12.2021.

அய்யா,

பொருள்: கனிமங்களும் சுரங்கங்களும் - சிறு கனிமம் - சாதாரண கற்கள் - திருப்பூர் மாவட்டம் - காங்கயம் வட்டம் - நத்தக்காடையூர் உள்வட்டம் - கீரனூர் கிராமம் - புல எண். 449(பகுதி) காலையில் பு.ஹெக். 0.97.0 மற்றும் புல எண்.450 காலையில் பு.ஹெக். 3.47.0 ஆக மொத்தம் பு.ஹெக். 4.44.0 பட்டா நிலப்பரப்பில் சாதாரண கற்கள் / கிராவல் மண் வெட்டியெடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம் வழங்குகோரி திரு.பி.சசிசுமார், த/பெ.பழனிசாமி என்பவர் மனு அளித்தது - அறிக்கை அனுப்புதல் - தொடர்பாக

பார்வை:

1. திருப்பூர் துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை அலுவலக கடிதம் ந.க.1309/2021/கனிமம், நாள்: 26.10.2021.
2. இவ்வலுவலக கடித ந.க.4412/2021/இ, நாள்: 02.11.2021 மற்றும் 17.11.2021.
3. காங்கயம் வட்டாட்சியர் அறிக்கை ந.க.4548/2021/அ2, நாள்: 03.12.2021.

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், நத்தக்காடையூர் உள்வட்டம், கீரனூர் கிராமம், புல எண். 449(பகுதி) காலையில் பு.ஹெக்டேர் 0.97.0 மற்றும் புல எண்.450 காலையில் பு.ஹெக்டேர் 3.47.0 ஆக மொத்தம் பு.ஹெக்டேர் 4.44.0 பட்டா நிலப்பரப்பில், சாதாரண கற்கள்/கிராவல் மண் வெட்டியெடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம் வழங்குகோரி திரு.பி.சசிசுமார், த/பெ.பழனிசாமி என்பவர் மனு அளித்துள்ளதன் பேரில் பார்வை 3-ல் காணும் காங்கயம் வட்டாட்சியர் அறிக்கை வரப்பெற்றுள்ளது. எனவே அதன் பேரில் புலத்தணிக்கை மற்றும் விசாரணை மேற்கொண்டு எனதறிக்கையினை கீழ்க்கண்டவாறு தெரிவித்துக்கொள்கிறேன்.

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், நத்தக்காடையூர் உள்வட்டம், கீரனூர் கிராமம், புல எண். 449(பகுதி) காலையில் பு.ஹெக்டேர் 0.97.0 மற்றும் புல எண்.450 காலையில் பு.ஹெக்டேர் 3.47.0 ஆக மொத்தம் பு.ஹெக்டேர் 4.44.0 பட்டா நிலப்பரப்பில், சாதாரண கற்கள்/கிராவல் மண் வெட்டியெடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம் வழங்குகோரி திரு.பி.சசிசுமார், த/பெ.பழனிசாமி என்பவர் மனு அளித்துள்ளார். மனுதாரர் திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரனூர் கிராமம், பள்ளக்காடு என்ற முகவரியில் வசித்து வருகிறார். மனுதாரர் மனு தொடர்பாக விசாரணை செய்யப்பட்டதில், காங்கயம் வட்டம், நத்தக்காடையூர் உள்வட்டம், கீரனூர் கிராமம், புல எண். 450 காலையில் பு.ஹெக்டேர் 3.47.0 பரப்பளவுள்ள பூமியானது,

சென்னிமலை சார்பதிவாளர் அலுவலக கிரைய ஆவணஎண்.1547/2009, நாள்:02.07.2009-
 ன்படியும், கீரணூர் கிராமம், புல எண். 449 காலையில் பு.ஹெக்டேர் 3.84.50 பரப்பளவுள்ள
 பூமியானது, சென்னிமலை சார்பதிவாளர் அலுவலக தானசெட்டில்மெண்டு ஆவணஎண்.
 1549/2009, நாள்:02.07.2009-ன்படியும் மனுதாரரான பழனிசாமி மகன் பி.சசிக்குமார் என்பவருக்கு
 பாத்தியப்பட்டதாகும். மேற்படி பூமியானது, கிராம ஆவணங்களில் பட்டா எண்.1341,1381-ன்படி
 பழனிசாமி மகன் பி.சசிக்குமார் பெயரில் தனிப்பட்டவாக தாக்கலாகியுள்ளது. இதில்
 மனுதாரருக்கு பாத்தியப்பட்ட புல எண். 449 காலையில் பு.ஹெக்டேர் 3.84.50 மொத்தப் பரப்பளவில்
 பு.ஹெக்டேர் 0.97.0 பரப்பளவுள்ள இடத்திற்கும், புல எண். 450 காலையில் பு.ஹெக்டேர் 3.47.0
 பரப்பளவுள்ள இடத்திற்கும் ஆக மொத்தம் பு.ஹெக்டேர் 4.44.0 பரப்பளவுள்ள பட்டா நிலப்பரப்பில்,
 சாதாரண கற்கள்/கிராவல் மண் வெட்டியெடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம்
 கோரியுள்ளார். மனுதாரர் குத்தகை உரிமம் கோரும் பு.ஹெக்டேர் 4.44.0 பரப்பு கீரணூர் கிராம புல
 வரைபடத்தில் தனியே குறித்து காட்டப்பட்டுள்ளது.

மனுதாரர் குத்தகை உரிமம் வழங்கக் கோரும் புலமானது நிலமெடுப்பு, நில ஆர்ஜிதம்
 பூமிதானம், நில உச்சவரம்பு போன்ற நடவடிக்கைகளுக்கு உட்படுத்தவில்லை. மேற்படி குத்தகை
 உரிமம் பெறுவதற்கு மனுதாரர் சீனியரேஜ் கட்டணம் ரூ.1,500/-ஐ இணைய வழியில் சலான்
 எண்.20210901422038, நாள்:01.09.2021-ன்படி SBI வங்கியில் செலுத்தியுள்ளார். குத்தகை
 உரிமம் கோரும் புலத்தின் எல்லைகள் வரையறுக்கப்பட்டு எல்லை கற்கள் நடப்பட்டுள்ளது.
 மனுதாரருக்கு குத்தகை உரிமம் வழங்குவது தொடர்பாக, மேற்படி கிராமத்தில் 15.11.2021 அன்று
 "அ1" விளம்பரம் செய்யப்பட்டது. "அ1" விளம்பரம் செய்யப்பட்ட நாள் முதல் நாள்து வரை எவ்வித
 ஆட்சேபணையும் இல்லை என வாக்குமூலம் பெறப்பட்டு இணைக்கப்பட்டுள்ளது. குத்தகை உரிமம்
 கோரும் புலத்திற்கு சுமார் 300 மீட்டர் சுற்றளவிற்கு அங்கீகரிக்கப்பட்ட மனையிடங்கள்,
 குடியிருப்புகள், கிராம நத்தம், மயானம், கோவில், புராதன சின்னங்கள் மற்றும் வளக்காடுகள்
 எதுவுமில்லை.மேலும், குத்தகை உரிமம் கோரும் புலத்திற்கு அருகில் கோவில்கள்,
 பள்ளிக்கூடங்கள், மருதிகள், மற்றும் தேவாலயங்கள் எதுவுமில்லை. உயர்வழுத்த மற்றும்
 தாழ்வழுத்த மின்கம்பிகள் எதுவும் செல்லவில்லை. மேலும் மேற்படி புலத்தில் விலையுயர்ந்த
 மரங்கள் ஏதும் இல்லை. மனுதாரர் குத்தகை உரிமம் தொடர்பாக உறுதிமொழி ஆவணமும்
 இணைத்துள்ளார். மேற்படி பூமிக்கு நிலவரி, வருமான வரி, கனிம வரி, போன்றவை எதுவும்
 இல்லை என உறுதிமொழி பத்திரம் கொடுத்துள்ளார். தமிழ்நாடு சிறு கனிம சட்டம் 1959-ன்படி
 விதிகளுக்குட்பட்டு நடப்பதாக மனுதாரர் வாக்குமூலம் அளித்துள்ளார். மேலும், மேற்படி பிரச்சினை
 புலத்தில் குத்தகை உரிமம் வழங்குவது தொடர்பாக பொதுமக்களிடம் வாக்குமூலம் பெற்று
 இணைக்கப்பட்டுள்ளது. புல விசாரணையின் போது இது தொடர்பாக பொதுமக்கள் எவரும்
 ஆட்சேபணை செய்யவில்லை.

தாராபுரம் வருவாய் கோட்டாட்சியரின் புலத்தணிக்கை குறிப்பு

வட்டம் : காங்கயம்
கிராமம் : கீரனூர்
புல எண். : 449(P)-ல் பு.ஹெக். 0.97.0 &
450-ல் பு.ஹெக். 3.47.0
தணிக்கை நாள் : 18.12.2021.

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், நத்தக்காடையூர் உள்வட்டம், கீரனூர் கிராமம், புல எண். 449(பகுதி) காலையில் பு.ஹெக்டேர் 0.97.0 மற்றும் புல எண்.450 காலையில் பு.ஹெக்டேர் 3.47.0 ஆக மொத்தம் பு.ஹெக்டேர் 4.44.0 பட்டா நிலப்பரப்பில், சாதாரண கற்கள்/கிராவல் மண் வெட்டியெடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம் வழங்குகோரி திரு.பி.சசிசுமார், த/பெ.பழனிசாமி என்பவர் மனு அளித்துள்ளதன் பேரில் இன்று(18.12.2021) புலத்தணிக்கை மற்றும் விசாரணை செய்யப்பட்டது.

குத்தகை உரிமம் வழங்கக் கோரும் புலமானது நிலமெடுப்பு, நில ஆர்ஜிதம், பூமிதானம், நில உச்சவரம்பு போன்ற நடவடிக்கைகளுக்கு உட்படுத்தவில்லை. குத்தகை உரிமம் கோரும் புலத்தின் எல்லைகள் வரையறுக்கப்பட்டு எல்லை கற்கள் நடப்பட்டுள்ளது. மனுதாரருக்கு குத்தகை உரிமம் வழங்குவது தொடர்பாக விசாரணை செய்ததில் பொதுமக்களிடமிருந்து எவ்வித ஆட்சேபமும் வரப்பெறவில்லை. குத்தகை உரிமம் கோரும் புலத்திற்கு 300 மீட்டர் சுற்றளவிற்கு அங்கீகரிக்கப்பட்ட மனையிடங்கள், குடியிருப்புகள், கிராம நத்தம் எதுவுமில்லை. குத்தகை உரிமம் கோரும் புலத்திற்கு அருகில் கோவில்கள், பள்ளிக்கூடங்கள், மசூதிகள், மற்றும் தேவாலயங்கள் எதுவுமில்லை. மேலும், தாழ்வழுத்த மற்றும் உயர்வழுத்த மின்கம்பிகள் எதுவும் செல்லவில்லை. தமிழ்நாடு சிறு களிம சலுகை விதிச் சட்டம் 1959-ன்படி விதிகளுக்குட்பட்டு நடப்பதாக மனுதாரர் தெரிவித்துள்ளார்.

எனவே, மனுதாரர் திரு.பி.சசிசுமார், த/பெ.பழனிசாமி என்பவருக்கு, திருப்பூர் மாவட்டம், காங்கயம் வட்டம், நத்தக்காடையூர் உள்வட்டம், கீரனூர் கிராமம், புல எண். 449(பகுதி) காலையில் பு.ஹெக்டேர் 0.97.0 மற்றும் புல எண்.450 காலையில் பு.ஹெக்டேர் 3.47.0 ஆக மொத்தம் பு.ஹெக்டேர் 4.44.0 பட்டா நிலப்பரப்பில், சாதாரண கற்கள்/கிராவல் மண் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்கலாம் என்பதை தெரிவித்து திருப்பூர் துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை அவர்களுக்கு கடித வரைவு தயார் செய்து வைக்கவும்.


வருவாய் கோட்டாட்சியர்,
தாராபுரம்.

மேற்படி பூமியானது, கிராம ஆவணங்களில் பட்டா எண்.1341,1381-ன்படி பழனிசாமி மகன் பி.சசிக்குமார் பெயரில் தனிப்பட்டவாக தாக்கலாகியுள்ளது. இதில் மனுதாரருக்கு பாத்தியப்பட்ட புல எண். 449 காலையில் பு.ஹெக்டேர் 3.84.50 மொத்தப் பரப்பளவில் பு.ஹெக்டேர் 0.97.0 பரப்பளவுள்ள இடத்திற்கும், புல எண். 450 காலையில் பு.ஹெக்டேர் 3.47.0 பரப்பளவுள்ள இடத்திற்கும் ஆக மொத்தம் பு.ஹெக்டேர் 4.44.0 பரப்புள்ள பட்டா நிலப்பரப்பில், சாதாரண கற்கள்/கிராவல் மண் வெட்டியெடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம் கோரியுள்ளார். மனுதாரர் குத்தகை உரிமம் கோரும் பு.ஹெக்டேர் 4.44.0 பரப்பு கீரனூர் கிராம புல வரைபடத்தில் தனியே குறித்து காட்டப்பட்டுள்ளது.

மனுதாரர் குத்தகை உரிமம் வழங்கக் கோரும் புலமானது நிலமெடுப்பு, நில ஆர்ஜிதம், பூமிதானம், நில உச்சவரம்பு போன்ற நடவடிக்கைகளுக்கு உட்படுத்தவில்லை. மேற்படி குத்தகை உரிமம் பெறுவதற்கு மனுதாரர் சீனியரேஜ் கட்டணம் ரூ.1,500/-ஐ இணைய வழியில் சலான் எண்.20210901422038, நாள்:01.09.2021-ன்படி SBI வங்கியில் செலுத்தியுள்ளார். குத்தகை உரிமம் கோரும் புலத்தின் எல்லைகள் வரையறுக்கப்பட்டு எல்லை கற்கள் நடப்பட்டுள்ளது. மனுதாரருக்கு குத்தகை உரிமம் வழங்குவது தொடர்பாக, மேற்படி கிராமத்தில் 15.11.2021 அன்று "அ1" விளம்பரம் செய்யப்பட்டது. "அ1" விளம்பரம் செய்யப்பட்ட நாள் முதல் நாளது வரை எவ்வித ஆட்சேபணையும் இல்லை என வாக்குமூலம் பெறப்பட்டு இணைக்கப்பட்டுள்ளது. குத்தகை உரிமம் கோரும் புலத்திற்கு சுமார் 300 மீட்டர் சுற்றளவிற்கு அங்கீகரிக்கப்பட்ட மனையிடங்கள், குடியிருப்புகள், கிராம நத்தம், மயானம், கோவில், புராதன சின்னங்கள் மற்றும் வனக்காடுகள் எதுவுமில்லை.

மேலும், குத்தகை உரிமம் கோரும் புலத்திற்கு அருகில் கோவில்கள், பள்ளிக்கூடங்கள், மசூதிகள், மற்றும் தேவாலயங்கள் எதுவுமில்லை. உயர்வழுத்த மற்றும் தாழ்வழுத்த மின்கம்பிகள் எதுவும் செல்லவில்லை. மேலும் மேற்படி புலத்தில் விலையுயர்ந்த மரங்கள் ஏதும் இல்லை. மனுதாரர் குத்தகை உரிமம் தொடர்பாக உறுதிமொழி ஆவணமும் இணைத்துள்ளார். மேற்படி பூமிக்கு நிலவரி, வருமான வரி, கனிம வரி, போன்றவை எதுவும் இல்லை என உறுதிமொழி பத்திரம் கொடுத்துள்ளார். தமிழ்நாடு சிறு கனிம சட்டம் 1959-ன்படி விதிகளுக்குட்பட்டு நடப்பதாக மனுதாரர் வாக்குமூலம் அளித்துள்ளார். மேலும், மேற்படி பிரஸ்தாப புலத்தில் குத்தகை உரிமம் வழங்குவது தொடர்பாக பொதுமக்களிடம் வாக்குமூலம் பெற்று இணைக்கப்பட்டுள்ளது. புல விசாரணையின் போது இது தொடர்பாக பொதுமக்கள் எவரும் ஆட்சேபனை செய்யவில்லை.

எனவே, திரு.பி.சசிக்குமார், த/பெ.பழனிசாமி என்பவருக்கு, திருப்பூர் மாவட்டம், காங்கயம் வட்டம், நத்தக்காடையூர் உள்வட்டம், கீரனூர் கிராமம், புல எண். 449(பகுதி) காலையில் பு.ஹெக்டேர் 0.97.0 மற்றும் புல எண்.450 காலையில் பு.ஹெக்டேர் 3.47.0 ஆக மொத்தம் பு.ஹெக்டேர் 4.44.0 பட்டா நிலப்பரப்பில், சாதாரண கற்கள்/கிராவல் மண் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்கலாம் என்பதைப் பணிவுடன் தெரிவித்துக் கொள்கிறேன். இத்துடன் நில வருவாய் ஆய்வாளரின் அறிக்கை, கிராம நிர்வாக அலுவலர் வாக்குமூலம், அ1 விளம்பரம், மனுதாரர் வாக்குமூலம், பொதுமக்கள் வாக்குமூலம், கிராம ஆவணங்கள் மற்றும் விசாரணை ஆவணங்களை இணைத்துப்பியுள்ளேன் என்பதை பணிவுடன் தெரிவித்துக் கொள்கிறேன்.

இணைப்பு: மேற்சொன்னவாறு

தங்கள் உண்மையுள்ள,

வட்டாட்சியர்,
காங்கயம்.

03/12/2014

புலத்தணிக்கை குறிப்பு

கிராமம் : கீரனூர்

தணிக்கை நாள்: 03.12.2021

புல எண்: 449(P)-ல் பு.ஹெக். 0.97.0 & 450-ல் பு.ஹெக். 3.47.0



திருப்பூர் மாவட்டம், காங்கயம் வட்டம், நத்தக்காடையூர் உள்வட்டம், கீரனூர் கிராமம், புல எண். 449(பகுதி) காலையில் பு.ஹெக்டேர் 0.97.0 மற்றும் புல எண்.450 காலையில் பு.ஹெக்டேர் 3.47.0 ஆக மொத்தம் பு.ஹெக்டேர் 4.44.0 பட்டா நிலப்பரப்பில், சாதாரண கற்கள்/கிராவல் மண் வெட்டியெடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம் கோரி திரு.பி.சசிசுமார், த/பெ.பழனிசாமி என்பவர் மனு அளித்துள்ளதன் பேரில் இன்று(03.12.2021) புலத்தணிக்கை மற்றும் விசாரணை செய்யப்பட்டது.

குத்தகை உரிமம் வழங்கக் கோரும் புலமானது நிலமெடுப்பு, நில ஆர்ஜிதம், பூமிதானம், நில உச்சவரம்பு போன்ற நடவடிக்கைகளுக்கு உட்படுத்தவில்லை. குத்தகை உரிமம் கோரும் புலத்தின் எல்லைகள் வரையறுக்கப்பட்டு எல்லை கற்கள் நடப்பட்டுள்ளது. மனுதாரருக்கு குத்தகை உரிமம் வழங்குவது தொடர்பாக விசாரணை செய்ததில் பொதுமக்களிடமிருந்து எவ்வித ஆட்சேபணையும் வரப்பெறவில்லை. குத்தகை உரிமம் கோரும் புலத்திற்கு 300 மீட்டர் சுற்றளவிற்கு அங்கீகரிக்கப்பட்ட மனையிடங்கள், குடியிருப்புகள், கிராம நத்தம் எதுவுமில்லை. குத்தகை உரிமம் கோரும் புலத்திற்கு அருகில் கோவில்கள், பள்ளிக்கூடங்கள், மசூதிகள், மற்றும் தேவாலயங்கள் எதுவுமில்லை. மேலும், தாழ்வழுத்த மற்றும் உயர்வழுத்த மின்கம்பிகள் எதுவும் செல்லவில்லை. தமிழ்நாடு சிறு களிம சலுகை விதிச் சட்டம் 1959-ன்படி விதிகளுக்குட்பட்டு நடப்பதாக மனுதாரர் தெரிவித்துள்ளார்.

மனுதாரர் திரு.பி.சசிசுமார், த/பெ.பழனிசாமி என்பவருக்கு, திருப்பூர் மாவட்டம், காங்கயம் வட்டம், நத்தக்காடையூர் உள்வட்டம், கீரனூர் கிராமம், புல எண். 449(பகுதி) காலையில் பு.ஹெக்டேர் 0.97.0 மற்றும் புல எண்.450 காலையில் பு.ஹெக்டேர் 3.47.0 ஆக மொத்தம் பு.ஹெக்டேர் 4.44.0 பட்டா நிலப்பரப்பில், சாதாரண கற்கள்/கிராவல் மண் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்க பரிந்துரை செய்து தாராபுரம் வருவாய் கோட்டாட்சியர் அவர்களுக்கு முன்மொழிவுகள் தயார் செய்து ஒப்புதலுக்கு வைக்கவும்.

வட்டாட்சியர்,
காங்கயம்.

நிலவருவாய் ஆய்வாளர் அலுவலகம்,
நத்தக்காடையூர்.

உ.மு.276/2021

நாள்: 30.11.2021.

பணிநீதனுப்பப்படுகிறது.

பொருள் : கனிமங்களும் சுரங்கங்களும் - சிறு கனிமம் - திருப்பூர் மாவட்டம் - காங்கயம் வட்டம் - கீரனூர் கிராமம் - புல எண்.449 (ப) நெ.காலையில் பு.ஹெக்.0.97.0 மற்றும் புல எண்.450 நெ.காலையில் பு.ஹெக்.3.47.0 பரப்பளவு பூமி ஆக மொத்தம் 4.44.0 ஹெக்டேர் நிலப்பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குத்தகை உரிமம் கோரி திரு.பி.சசிக்குமார், த/பெ.பழனிசாமி என்பவர் மனு அளித்தது - அறிக்கை சமர்ப்பித்தல் - தொடர்பாக.

- பார்வை :
1. திருப்பூர் துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை அலுவலக கடிதம் ந.க.1309/2021/கனிமம், நாள்: 26.10.2021.
 2. தாராபுரம் சார் ஆட்சியர் அவர்களின் ந.க.4412/20210/இ, நாள்:02.11.2021.
 3. காங்கயம் வட்டாட்சியர் ந.க.4548/2021/அ2, நாள்:13.11.2021.

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரனூர் கிராமம், புல எண்.449 (ப) நெ.காலையில் பு.ஹெக்.0.97.0 மற்றும் புல எண்.450 நெ.காலையில் பு.ஹெக்.3.47.0 பரப்பளவு பூமி ஆக மொத்தம் 4.44.0 ஹெக்டேர் நிலப்பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குத்தகை உரிமம் கோரி திரு.பி.சசிக்குமார், த/பெ.பழனிசாமி என்பவர் மனு அளித்த தொடர்பாக விசாரணை மேற்கொண்டு எனது அறிக்கையை பின்வருமாறு சமர்ப்பித்துக்கொள்கிறேன்.

மனுதாரர் திரு. பி.சசிக்குமார், த/பெ.பழனிசாமி என்பவர் திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரனூர் கிராமம், பள்ளக்காடு என்ற முகவரியில் வசித்து வருகிறார். காங்கயம் வட்டம், கீரனூர் கிராமம், புல எண். 449 நெ.காலையில் பு.ஹெக்.3.84.50 பரப்பளவு பூமியானது சென்னிமலை சார்பதிவக கிரைய பத்திர எண்.1549/2009, நாள். 02.07.2009-ன்படி மனுதாரர் திரு.பழனிசாமி மகன் பி.சசிக்குமார் என்பவருக்கு பாத்தியப்பட்டுள்ளது. இப்பூமியின் பட்டா எண்.1381-ன்படி சி.பழனிசாமி மகன் பி.சசிக்குமார் என மனுதாரரின் பெயரில் தனிப்பட்டவாக தாக்கலாகியுள்ளது. மேலும் கீரனூர் கிராமம், புல எண். 450 நெ.காலையில் பு.ஹெக்.3.47.0 பரப்பளவு பூமியானது சென்னிமலை சார்பதிவக கிரைய பத்திர எண்.1547/2009, நாள்: 02.07.2009-ன்படி மனுதாரர் திரு.சசிக்குமார் என்பவருக்கு பாத்தியப்பட்டுள்ளது. மேற்படி புலத்தின் பட்டா எண்.1341-ன்படி சி.பழனிசாமி மகன் பி.சசிக்குமார் என்பவரின் பெயரில் தனிப்பட்டவாக தாக்கலாகியுள்ளது. இதில் புல எண்.449 நெ.காலையில் மொத்தமுள்ள 3.84.50 ஹெக். பரப்பளவு பூமியில் மனுதாரர் 0.97.0 ஹெக். பரப்பளவு பூமிக்கு மட்டும் குவாரி குத்தகை உரிமம் கோரியுள்ளார். மேலும் புல எண்.450 நெ.காலையில் மொத்தமுள்ள 3.47.0 நெ.காலையில் மொத்த பூமிக்கும் குவாரி குத்தகை உரிமம்

புலக் குவாரி
பரப்பளவு
முறையே

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரணூர் கிராமம்; கிராம நிர்வாக அலுவலர் வாக்குமூலம்.

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரணூர் கிராமம், புல எண்.449 (ப) நெ.காஸையில் பு.ஹெக்.0.97.0 மற்றும் புல எண்.450 நெ.காஸையில் பு.ஹெக்.3.47.0 பரப்பளவு பூமி ஆக மொத்தம் 4.44.0 ஹெக்டேர் நிலப்பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குத்தகை உரிமம் கோரி திரு.பி.சசிக்குமார், த/பெ.பழனிசாமி என்பவர் மனு அளித்தது தொடர்பான விசாரணை என்பதை தெரிந்துக்கொண்டேன்.

மனுதாரர் திரு. பி.சசிக்குமார், த/பெ.பழனிசாமி என்பவர் திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரணூர் கிராமம், பள்ளக்காடு என்ற முகவரியில் வசித்து வருகிறார். காங்கயம் வட்டம், கீரணூர் கிராமம், புல எண். 449 நெ.காஸையில் பு.ஹெக்.3.84.50 பரப்பளவு பூமியானது சென்னிமலை சார்பதிவக கிரைய பத்திர எண்.1549/2009, நாள். 02.07.2009-ன்படி மனுதாரர் திரு.பழனிசாமி மகன் பி.சசிக்குமார் என்பவருக்கு பாத்தியப்பட்டுள்ளது. இப்பூமியின் பட்டா எண்.1381-ன்படி சி.பழனிசாமி மகன் பி.சசிக்குமார் என மனுதாரரின் பெயரில் தனிப்பட்டவாக தாக்கலாகியுள்ளது. மேலும் கீரணூர் கிராமம், புல எண். 450 நெ.காஸையில் பு.ஹெக்.3.47.0 பரப்பளவு பூமியானது சென்னிமலை சார்பதிவக கிரைய பத்திர எண்.1547/2009, நாள்: 02.07.2009-ன்படி மனுதாரர் திரு.சசிக்குமார் என்பவருக்கு பாத்தியப்பட்டுள்ளது. மேற்படி புலத்தின் பட்டா எண்.1341-ன்படி சி.பழனிசாமி மகன் பி.சசிக்குமார் என்பவரின் பெயரில் தனிப்பட்டவாக தாக்கலாகியுள்ளது. இதில் புல எண்.449 நெ.காஸையில் மொத்தமுள்ள 3.84.50 ஹெக். பரப்பளவு பூமியில் மனுதாரர் 0.97.0 ஹெக். பரப்பளவு பூமிக்கு மட்டும் குவாரி குத்தகை உரிமம் கோரியுள்ளார். மேலும் புல எண்.450 நெ.காஸையில் மொத்தமுள்ள 3.47.0 நெ.காஸையில் மொத்த பூமிக்கும் குவாரி குத்தகை உரிமம் கோரி மனு செய்துள்ளார். மேற்படி புல எண்.449 மற்றும் 450 ஆகிய புல எண்களில் முறையே 0.97.0 பரப்பளவு பூமி மற்றும் 3.47.0 பரப்பளவு பூமி ஆக மொத்தம் 4.44.0 ஹெக். பரப்பளவு பூமிக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரியுள்ளார்.

மேற்படி குவாரி குத்தகை கோரும் புலத்தை சுற்றி எல்லைகள் வரையறுக்கப்பட்டு எல்லைக்கற்கள் நடப்பட்டுள்ளன. மேற்படி புலங்களின் வழியாக உயர் மற்றும் தாழ்வழுத்த மின்கம்பித் தொடர் ஏதும் செல்லவில்லை. மேற்படி புலத்தில் விலையுயர்ந்த மரங்கள் ஏதும் இல்லை. புல விசாரணையின் போது இது தொடர்பாக பொதுமக்கள் எவரும் ஆட்சேபணை செய்யவில்லை. மேலும், மேற்படி நிலங்கள் அரசு நடவடிக்கைகளான நில ஆர்ஜிதம், பூமிதானம், நில உச்சவரம்பு, நிலமெடுப்பு போன்றவைகளுக்கு கட்டுப்பட்டதல்ல.

மனுதாரர், குவாரி உரிமம் பெறும் பொருட்டு கனிம விதிகளின்படி சீனியரேஜ் தொகை ரூ.1500/-ஐ இணைய வழியில் சலான் எண்.20210901422038, நாள்:01.09.2021-ன்படி செலுத்தி உள்ளார். மனுதாரருக்கு குவாரி குத்தகை வழங்குவது தொடர்பாக "அ1" விளம்பரம் செய்யப்பட்டுள்ளது. நாளது வரை ஆட்சேபணை ஏதும் வரப்பெறவில்லை. மனுதாரருக்கு குத்தகை உரிமம் வழங்குவது சம்மந்தமாக பொதுமக்களுக்கு எவ்வித ஆட்சேப இல்லை என வாக்குமூலம் பெறப்பட்டு இணைக்கப்பட்டுள்ளது. மேலும், கிராவல்

பிள்ளைகள்
வயிற் றார்
உய கனிம வரி,
சித்தலர் ளார்.
கள்ளர்.

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரணூர் கிராமம், பள்ளக்காடு எண்.449 என்ற முகவரியில் வசித்து வரும் திரு.பழனிசாமி மகன் பி.சசிக்குமார் என்பவர் அளிக்கும் வாக்குமூலம்.

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரணூர் கிராமம், புல எண்.449 (ப) நெ.காலையில் பு.ஹெக்.0.97.0 மற்றும் புல எண்.450 நெ.காலையில் பு.ஹெக்.3.47.0 பரப்பளவு பூமி ஆக மொத்தம் 4.44.0 ஹெக்டேர் நிலப்பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குத்தகை உரிமம் கோரி நான் அளித்த மனு மீதான விசாரணை என்பதை தெரிந்துக்கொண்டேன்.

நான் மேற்படி முகவரியில் வசித்து வருகிறேன். எனக்கு காங்கயம் வட்டம், கீரணூர் கிராமம், புல எண். 449 நெ.காலையில் பு.ஹெக்.3.84.50 பரப்பளவு பூமியானது சென்னிமலை சார்பதிவக கிரைய பத்திர எண்.1549/2009, நாள். 02.07.2009-ன்படி எனக்கு பாத்தியப்பட்டுள்ளது. இப்பூமியின் பட்டா எண்.1381-ன்படி சி.பழனிசாமி மகன் பி.சசிக்குமார் என எனது பெயரில் தனிப்பட்டவாக தாக்கலாகியுள்ளது. மேலும் கீரணூர் கிராமம், புல எண். 450 நெ.காலையில் பு.ஹெக்.3.47.0 பரப்பளவு பூமியானது சென்னிமலை சார்பதிவக கிரைய பத்திர எண்.1547/2009, நாள்: 02.07.2009-ன்படி எனக்கு பாத்தியப்பட்டுள்ளது. இப்புலத்தின் பட்டா எண்.1341-ன்படி சி.பழனிசாமி மகன் பி.சசிக்குமார் என எனது பெயரில் தனிப்பட்டவாக தாக்கலாகியுள்ளது. இதில் புல எண்.449 நெ.காலையில் மொத்தமுள்ள 3.84.50 ஹெக். பரப்பளவு பூமியில் மனுதாரர் 0.97.0 ஹெக். பரப்பளவு பூமிக்கு மட்டும் குவாரி குத்தகை உரிமமும் மற்றும் புல எண்.450 நெ.காலையில் மொத்தமுள்ள 3.47.0 நெ.காலையில் மொத்தமுள்ள பூமி ஆக மொத்தம் 4.44.0 ஹெக். பரப்பளவு பூமிக்கும் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி மனு செய்துள்ளேன். மேலும், குவாரி உரிமம் பெறும் பொருட்டு கனிம விதிகளின்படி சீனியரேஜ் தொகை ரூ.1500/-ஐ இணைய வழியில் சலான் எண்.20210901422038, நாள்:01.09.2021-ன்படி செலுத்தி உள்ளேன். மேலும் நான் அரசுக்கு செலுத்த வேண்டிய கனிம வரி, வருமான வரி ஆகியவை நிலுவையில் ஏதுமில்லை. குத்தை உரிமம் தொடர்பான உறுதி மொழி ஆவணத்தையும் இத்துடன் இணைத்துள்ளேன். எனக்கு மேற்படி புலத்தில் குவாரி குத்தகை வழங்கும்பட்சத்தில் தமிழ்நாடு சிறுவகைக் கனிமச் சலுகை விதிகள் 1959-ன்படி நடந்து கொள்வேன் என்பதை தெரிவித்துக்கொள்கிறேன். எனவே, எனக்கு பாத்தியப்பட்ட கீரணூர் கிராமம், புல எண்.449 (ப) நெ.காலையில் பு.ஹெக்.0.97.0 பரப்பளவு பூமி மற்றும் புல எண்.450 நெ.காலையில் பு.ஹெக்.3.47.0 பரப்பளவு பூமி ஆக மொத்தம் 4.44.0 ஹெக்டேர் பரப்பளவு பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் அளிக்குமாறு பணிவுடன் கேட்டுக்கொள்கிறேன்.

மேற்கூறிய யாவும் உண்மை எனவும், பின்னாளில் தவறு எனத்தெரிய வரும்பட்சத்தில் அரசு எடுக்கும் நடவடிக்கைக்கு கட்டுப்படுவேன் என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

/ என்முன்னால்/

/ படித்துப்பார்த்தேன் சரி /

/ படிக்கக்கேட்டேன் சரி/

P. C. P. S. S. S. S.

பாண்டி
சாரா

நிலவருவாய் ஆய்வாளர் அலுவலகம்
நத்தக்காடையூர்

நாள்: 15.11.2021

“அ1 விளம்பரம்”

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரனூர் கிராமம், கஸ்பா கீரனூர், புல எண்.449 என்ற முகவரியில் வசித்து வரும் திரு.சி.பழனிசாமி என்பவரின் மகன் திரு.பி.சசிக்குமார் என்பவர் கீரனூர் கிராமம், புல எண்.449 (ப) நெ.காலையில் பு.ஹெக்.0.97.0 மற்றும் புல எண்.450 நெ.காலையில் பு.ஹெக்.3.47.0 பரப்பளவு பூமி ஆக மொத்தம் 4.44.0 ஹெக்டேர் நிலப்பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி மனு செய்துள்ளார். கீழ்க்கண்ட புலங்களுக்கு குவாரி குத்தகை உரிமம் கோரியுள்ளார்

வ. எண்.	கிராமம்	புல எண்	மொத்த பரப்பு (ஹெக்டேர்)	குத்தகைக்கு கோரப்படும் பரப்பு (ஹெக்டேர்)
1.	கீரனூர்	449	3.84.50	0.97.00
		450	3.47.00	3.47.00
		மொத்தம்	7.31.5	4.44.00

மேற்கண்ட புலங்களில் சாதாரணகற்கள் மற்றும் கிராவல் மண் வெட்டி எடுக்க 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் வழங்க பொது மக்களுக்கு ஆட்சேபணை ஏதும் இருப்பின் இவ்விளம்பரம் செய்யப்பட்ட 15 தினங்களுக்குள் வாய் மொழியாகவோ அல்லது எழுத்து பூர்வமாகவோ நத்தக்காடையூர் நிலவருவாய் ஆய்வாளர் அல்லது காங்கயம் வட்டாட்சியரிடம் தெரிவிக்கவேண்டும் எனவும் தவறும் பட்சத்தில் பொது மக்களுக்கு ஆட்சேபணை ஏதும் இல்லை என கருதி குவாரி குத்தகை உரிமம் வழங்க நடவடிக்கை மேற்கொள்ளப்படும் எனவும் இதன் மூலம் தெரிவித்துக்கொள்ளப்படுகிறது.

நிலவருவாய் ஆய்வாளர்,
நத்தக்காடையூர்.

பெறுநர்,

கிராம நிர்வாக அலுவலர்,
கீரனூர் கிராமம்.

மேற்கண்ட விபரத்தினை கிராமத்தில் விளம்பரம் செய்து பொது மக்கள் ஓசைபொப்பம் பெற்ற மீள சமர்ப்பிக்குமாறு கீரனூர் கிராம நிர்வாக அலுவலர் கேட்டுக்கொள்ளப்படுகிறார்.

பெறுநர்,

கிராம நிர்வாக அலுவலர்,
கீரனூர் கிராமம்.

நிலவருவாய் ஆய்வாளர்,
நத்தக்காடையூர்.

• R ஜெகதீசுலாசு
• ரு விஜயலட்சுமி
236 A

Vaishali #7A

16 கதம்பாடி

கண்ணகம்

T. Subramanian

M. Dhanu

~~Signature~~

A. Kiran

~~Signature~~

Leona

Sanyasa

திருக்கயல்

M. Dhanu

மாண்புமிகு அமைச்சர் க்கு.

சென்னை 'அ' இராணுவத்தினர்

07. கீரான் இராணுவத்தில் இராணுவம் சேர்த்து இராணுவ
இருக்காமை அறியப்படுமா என்று கேள்வி கேட்கப்படுகிறது.

நிலவராய் சூர்யவாணர்
நத்தக்காணியர்
காய்க்காய்
3/11/24

சென்னை 'அ' இராணுவம்
3/11/24
சென்னை 'அ' இராணுவம்

காங்கயம் வட்டம், கீரனூர் கிராமம், கிராம பொதுமக்கள் கொடுக்கும் வாக்குமூலம்.

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரனூர் கிராமம், கஸ்பா கீரனூர், பள்ளக்காடு, புல எண் முகவரியில் வசித்து வரும் திரு.சி.பழனிசாமி என்பவரின் மகன் திரு.பி.சசிக்குமார் கீரனூர் கிராமம், புல எண்.449 (ப) நெ.காலையில் பு.ஹெக்.0.97.0 மற்றும் புல எண்.450 நெ.காலையில் பு.ஹெக்.3.47.0 பரப்பளவு பூமி ஆக மொத்தம் 4.44.0 ஹெக்டேர் நிலப்பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரிய மனுக்கள் மீது விசாரணை என்பதை தெரிந்து கொண்டோம்.

மனுதாரர் மேற்கண்ட முகவரியில் வசித்து வருகிறார். காங்கயம் வட்டம், கீரனூர் கிராமம், புல எண். 449 நெ.காலையில் பு.ஹெக்.3.84.50 பரப்பளவு பூமி மற்றும் புல எண். 450 நெ.காலையில் பு.ஹெக்.3.47.0 பரப்பளவு பூமி ஆகியவை மனுதாரர் திரு.சசிக்குமார் என்பவருக்கு பாத்தியப்பட்டு அனுபவத்தில் இருந்து வருகிறது. இதில் புல எண்.449 நெ.காலையில் மொத்தமுள்ள 3.84.50 ஹெக். பரப்பளவு பூமியில் மனுதாரர் 0.97.0 ஹெக். பரப்பளவு பூமிக்கு மட்டும் குவாரி குத்தகை உரிமம் கோரியுள்ளார் என்பதையும் மேலும் புல எண்.450 நெ.காலையில் மொத்தமுள்ள 3.47.0 நெ.காலையில் மொத்த பூமிக்கும் குவாரி குத்தகை உரிமம் கோரியுள்ளார் என்பதையும் நாங்கள் அறிவோம். மேலும், குவாரி உரிமம் பெறும் பொருட்டு கனிம விதிகளின்படி சீனியரேஜ் தொகை ரூ.1500/-ஐ இணைய வழியில் சலான் எண்.20210901422038, நாள்:01.09.2021-ன்படி செலுத்தி உள்ளார் என்பதையும், அரசுக்கு செலுத்த வேண்டிய கனிம வரி, வருமான வரி ஆகியவை நிலுவையில் ஏதுமில்லை என்பதையும் குத்தகை உரிமம் தொடர்பான உறுதி மொழி ஆவணத்தையும் இணைத்துள்ளார் என்பதையும் தனக்கு மேற்படி புலத்தில் குவாரி குத்தகை வழங்கும்பட்சத்தில் தமிழ்நாடு சிறுவகைக் கனிமச் சலுகை விதிகள் 1959-ன்படி நடந்து கொள்வேன் என உறுதிமொழி ஆவணம் அளித்துள்ளார் என்பதையும் நாங்கள் அறிவோம். எனவே, மனுதாரருக்கு பாத்தியப்பட்ட கீரனூர் கிராமம், புல எண்.449 (ப) நெ.காலையில் பு.ஹெக்.0.97.0 பரப்பளவு பூமி மற்றும் புல எண்.450 நெ.காலையில் பு.ஹெக்.3.47.0 பரப்பளவு பூமி ஆக மொத்தம் 4.44.0 ஹெக்டேர் பரப்பளவு பூமியில் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க 10 ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் அளிக்கலாம் என்பதை தெரிவித்துக்கொள்கிறோம். மேலும் கீழ்க்கண்ட புலங்களில் குவாரி குத்தகை உரிமம் கோரியுள்ளதையும் நாங்கள் அறிவோம்.

பு. எண்.	கிராமம்	புல எண்	மொத்த பரப்பு (ஹெக்டேர்)	குத்தகைக்கு கோரப்படும் பரப்பு (ஹெக்டேர்)
1.	கீரனூர்	449	3.84.50	0.97.00
		450	3.47.00	3.47.00
		மொத்தம்	7.31.5	4.44.00

/படித்துப்பார்த்தோம் சரி/
/படிக்கக்கேட்டோம் சரி/

R. சந்திரசேகர்
கு. மனுதாரர் சி.சி
V. Sathya

உ.க.எண்.4548/2021/அ2

வட்டாட்சியர் அலுவலகம்,
காங்கயம்.
நாள்: .11.2021

குறிப்பாணை

பொருள்: கனிமங்களும் சுரங்கங்களும் - சிறு கனிமம் - சாதாரண கற்கள் - திருப்பூர் மாவட்டம் - காங்கயம் வட்டம் - நத்தக்காடையூர் உள்வட்டம் - கீரனூர் கிராமம் - பட்டா புல எண்.449(ப) 0.97.0 ஹெக்டர் மற்றும் புல எண்.450-ல் 3.47.0 பு.ஹெ ஆகியவற்றில் மொத்தம் 4.44.0 ஹெக்டர் பட்டா நிலப்பரப்பில் சாதாரண கற்கள் / கிராவல் மண் வெட்டியெடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம் கோரி திரு.பி.சசிக்குமார் த/பெ.பழனிசாமி என்பவர் அனுமதி கோரியது - விசாரணை அறிக்கை கோருதல் - தொடர்பாக.

- பார்வை:**
1. திருப்பூர், துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை அலுவலக கடித ந.க.1309/2021/ கனிமம், நாள்: 26.10.2021
 2. தாராபுரம் சார் ஆட்சியர் அவர்களின் ந.க.4412/2021/இ நாள்: 02.11.2021

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், நத்தக்காடையூர் உள்வட்டம், கீரனூர் கிராமம், பட்டா புல எண்.449(ப) 0.97.0 ஹெக்டர் மற்றும் புல எண்.450-ல் 3.47.0 பு.ஹெ ஆகியவற்றில் மொத்தம் 4.44.0 ஹெக்டர் பட்டா நிலப்பரப்பில் சாதாரண கற்கள் / கிராவல் மண் வெட்டியெடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம் கோரி திரு.பி.சசிக்குமார் த/பெ.பழனிசாமி என்பவர் விண்ணப்பித்த மனுவின் பேரில் நடவடிக்கை மேற்கொள்ளும் பொருட்டு மனுதாரருக்கு குத்தகை உரிமம் வழங்குவது தொடர்பாக,

1. குத்தகை வழங்கக் கோரும் புலத்தின் எல்லைகள் வரையறுக்கப்பட்டு எல்லைக்கற்கள் நடப்பட்டுள்ளதா?
2. குவாரி குத்தகை தொடர்பாக பொதுமக்கள் ஆட்சேபணை ஏதும் உள்ளதா என "அ1" நோட்டீஸ் பிரசுரம் மூலம் கண்டறிந்தும்?
3. குத்தகை வழங்கக் கோரும் புலத்திலிருந்து 300 மீட்டர் சுற்றளவில் கிராம நத்தம், அங்கீகரிக்கப்பட்ட குடியிருப்பு மனைகள் மற்றும் கட்டுமானங்கள் ஏதும் உள்ளதா என்பதை கிராம ஆவணங்கள் மூலம் ஆய்வு செய்து உறுதி செய்தும்?
4. குவாரி குத்தகை உரிமம் வழங்கக் கோரும் நிலத்தின் மீதான உரிமை (Surface Right) விண்ணப்பதாரருக்கு உள்ளதா போன்ற விபரங்களுடனும், கிராம கணக்குகளின் (Village Records) நகல் மற்றும் பிரசித்தம் செய்யப்பட்ட "அ1" நோட்டீஸ் நகலுடன் விரிவான அறிக்கை சமர்ப்பிக்குமாறு நத்தக்காடையூர் நிலவருவாய் ஆய்வாளர் கேட்டுக் கொள்ளப்படுகிறார். மேலும், மேற்படி புலம் தொடர்பான உரிய வரைபடங்களை தயார் செய்து வழங்க நத்தக்காடையூர் உள்வட்ட நிலஅளவர் கேட்டுக் கொள்ளப்படுகிறார்.

ஒம்/-பூ, சிவகாமி.
வட்டாட்சியர்,
காங்கயம்.

பெறுநர்:

1. நிலவருவாய் ஆய்வாளர், நத்தக்காடையூர்
2. நில அளவர், நத்தக்காடையூர்

// உண்மை நகல் // உத்தரவுப்படி //

வட்டாட்சியருக்காக
13/11/21

11/11/21

4548

அனுப்புநர்:
திரு.இரா.குமரேசன், எம்.ஏ, எம்.எட், எம்.பில்.,
வருவாய் கோட்டாட்சியர்,
தாராபுரம்

பெறுநர்:
வட்டாட்சியர்,
காங்கயம்

ந.க.4412/2021/இ

நாள் : 02.11.2021.

அம்மையர்,



பொருள்: கனிமங்களும் சுரங்கங்களும் - சிறுகனிமம்-கிராவல் மண்- திருப்பூர் மாவட்டம் - காங்கயம் வட்டம்- கீரனூர் கிராமம்- புல எண்.449 (ப) 0.97.0 ஹெக்டர் மற்றும் புல எண்.450, 3.47.0 பு.ஹெ ஆகியவற்றில் மொத்தம் 4.44.0 ஹெக்டர் மட்டா நிலப்பரப்பில் சாதாரண கற்கள்/ கிராவல் மண் வெட்டி எடுக்க 10 வருடங்களுக்கு குவாரி உரிமம் கோரி திரு.பி.சசிக்குமார், த/பெ.பழனிச்சாமி என்பவர் மனு செய்துள்ளது- விசாரணை அறிக்கை கோருதல்- தொடர்பாக.
திருப்பூர், துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை அலுவலக கடித ந.க.1309/2021/கனிமம், நாள்: 26.10.2021.

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரனூர் கிராமம்- புல எண்.449 (ப) 0.97.0 ஹெக்டர் மற்றும் புல எண்.450, 3.47.0 பு.ஹெ ஆகியவற்றில் மொத்தம் 4.44.0 ஹெக்டர் மட்டா நிலப்பரப்பில் சாதாரண கற்கள்/ கிராவல் மண் வெட்டி எடுக்க 10 வருடங்களுக்கு குவாரி உரிமம் கோரி திரு.பி.சசிக்குமார், த/பெ.பழனிச்சாமி அளித்துள்ள மனுவின் பேரில் விசாரணை மற்றும் புலத்தணிக்கை மேற்கொண்டு விரிவான அறிக்கை அளிக்க கோரி பார்வையில் காணும் கடிதம் வரப்பெற்றுள்ளது. இந்நேரவில் மனுதாரருக்கு குத்தகை உரிமை வழங்குவது தொடர்பாக

1. குத்தகை வழங்கக் கேட்கும் புலத்தின் எல்லைகள் வறையறுக்கப்பட்டு எல்லைக்கற்கள் நடப்பட்டுள்ளதா?
2. குவாரி குத்தகை தொடர்பாக பொதுமக்கள் ஆட்சேபணை ஏதும் உள்ளதா என A1 நோட்டீஸ் பிரசுரம் மூலம் கண்டறிந்தும்.
3. குத்தகை வழங்க கேட்கும் புலத்திலிருந்து 300மீ சுற்றளவிற்குள் ஊர் நத்தம், அங்கீகரிக்கப்பட்ட குடியிருப்பு மனைகள் மற்றும் கட்டுமானங்கள் ஏதும் உள்ளதா?
4. குவாரி குத்தகை உரிமம் வங்கக் கோரும் நிலத்தின் மீதான உரிமை (Surface Right) விண்ணப்பதாரருக்கு உள்ளதா? போன்ற விவரங்களுடன்

கிராம கணக்குகளின் நகல் மற்றும் பிரசித்தம் செய்யப்பட்ட A1 நோட்டீஸ் ஆகியவற்றுடன் குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பான தங்களது குறிப்பான பரிந்துரை அறிக்கையை அனுப்பி வைக்குமாறு கேட்டுக்கொள்கிறேன்

இணைப்பு: மேற்கண்டவாறு

இம்/இரா.குமரேசன்
வருவாய் கோட்டாட்சியர்
தாராபுரம்.

/உண்மை நகல்/உத்திரவுப்படி/

நேர்முக உத்தியோகர்

திரு. க. ரமேஷ், எம்.எஸ்.சி.,
உணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருப்பூர்.

பெறுநர்
சார் ஆட்சியர்,
தாராபுரம்.

004412

ந.க. 1309/2021/கனிமம் நாள்: .10.2021.

அப்பா,

பொருள்:

கனிமங்களும் சுரங்கங்களும் - சிறுகனிமம் - சாதாரண கற்கள் - திருப்பூர் மாவட்டம் - காங்கயம் வட்டம் - கீரனூர் கிராமம் - புல எண்கள். 449 (பகுதி) (0.97.0) மற்றும் 450 (3.47.0) ஆகியவற்றில் மொத்தம் 4.44.0 ஹெக்டர் பட்டா நிலப்பரப்பில் சாதாரண கற்கள் / கிராவல் மண் வெட்டி எடுக்க 10 வருடங்களுக்கு குவாரி குத்தகை உரிமம் கோரி திரு. பி. சசிக்குமார், த/பெ. பழனிச்சாமி என்பவர் மனு செய்துள்ளது - விசாரணை அறிக்கை கேட்டல் - தொடர்பாக.



பார்வை:

திரு. பி. சசிக்குமார், த/பெ. பழனிச்சாமி, 5/257, கீரனூர் அஞ்சல், காங்கயம் வட்டம் என்பவரின் மனு நாள்: 01.09.2021 (இவ்வலுவலகத்தில் பெறப்பட்ட நாள்: 25.10.2021).

திருப்பூர் மாவட்டம், காங்கயம் வட்டம், கீரனூர் கிராமம், பட்டா புல எண்கள். 449 (பகுதி) (0.97.0) மற்றும் 450 (3.47.0) ஆகியவற்றில் மொத்தம் 4.44.0 ஹெக்டர் பரப்புள்ள பட்டா பூமியிலிருந்து 10 வருடங்களுக்கு சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க திரு. பி. சசிக்குமார், த/பெ. பழனிச்சாமி என்பவர் பார்வையில் கண்டவாறு விண்ணப்பம் செய்துள்ளார்.

1. குத்தகை வழங்கக் கேட்கும் புலத்தின் எல்லைகள் வரையறுக்கப்பட்டு எல்லைக் கற்கள் நடப்பட்டுள்ளதா?
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3. குத்தகை வழங்க கேட்கும் புலத்திலிருந்து 300 மீ சுற்றளவிற்குள் கிராம நத்தம், அங்கீகரிக்கப்பட்ட குடியிருப்பு மனைகள் மற்றும் கட்டுமானங்கள் ஏதும் உள்ளதா?
4. குவாரி குத்தகை உரிமம் வழங்கக் கோரும் நிலத்தின் மீதான உரிமை (Surface right) விண்ணப்பதாரருக்கு உள்ளதா? போன்ற விபரங்களுடன்

கிராம கணக்குளின் நகல் மற்றும் பிரசித்தம் செய்யப்பட்ட A1 நோட்டீஸ் ஆகியவற்றுடன் குவாரி குத்தகை உரிமம் வழங்குவது தொடர்பான தங்களது குறிப்பான பரிந்துரை அறிக்கையை அனுப்பி வைக்குமாறு கேட்டுக் கொள்ளப்படுகிறது

இணைப்பு:- மனு மற்றும் ஆவணங்கள் நகல்

நகல்:-

திரு. பி. சசிக்குமார், த/பெ. பழனிச்சாமி,
5/257, கீரனூர் அஞ்சல், காங்கயம் வட்டம்

துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருப்பூர்.

26/10/21

Government of Tamil Nadu

E-Challan

Payable at - DTO TIRUPUR

Remitter Copy



Challan Number 20210901422038 Challan Date 01-Sep-2021 Payment Date 01-Sep-2021
Challan Type Public Remitter Code 30 Remitter Name SASIKUMAR
Challan No. 9894544917 Aadhaar No. Remitter Address KANGAYAM
Department 02704-Directorate of Geology and Mining District TIRUPUR DDO Code 32010005
DDO / Office Name AD GEOLOGY AND MINING, TIRUPPUR Department Transaction ID Office Name

Receipt Type	Sub Type	Acct Code	Amount	Reference No.	Remark
Fees	Application Fees	085300102AA227 05	1500	SF NO 449(P),450	ROUGH STONE AND GRAVEL

Payment Mode Online

Payment Type null

Payment Status Success

Challan Amount (Rs.) 1500

Bank Name SBI

Amount (in words) One Thousand Five Hundred Rupees only.

Bank ref no.

CPABAUNBM5

Please Note, Department Transaction ID and Office Name fields are created only for 4 interface department Registration and Transport and CT for there specific requirements and the values entered in this fields are values passed by them not from IFHRMS.


Please Note, This is a system generated Challan and does not require signature

Note: FOR INDIAN BANK BRANCHES, PLEASE USE CBS SCREEN NO 424 FOR PERFORMING V COLLECT

சான்ற

திருவீழர் வரலட்சம், காங்கயம்

வட்டம் 07. கீரணர் கிராமம், கண்பா
கீரணர் பள்ளிக்காடு என்ற சிகவரியல்
வசிக்க வரும் C. பழனிசாமி மகன்
P. சகிக்குமார் என்பவருக்கி மேற்படி
கீரணர் கிராமம் ரீ.ச 449 -ல் 4.௧௨
3.௧4.50 ரூபிள் அளவீடு சூழியும், ரீ.ச
450 -ல் 4.௧௨ 3.47.00 ரூபிள் அளவீடு
சூழியும் வசனியை சார்பதற்கு விதவண
சாண்கள் 1547 | 2009 மற்றும் 1549 | 2009
நாள் : 02.07. 2009 -ல் 09 மேற்படி
பாதிதயமியட்டதும். மேற்படி சூழியை சீதி
300 மீட்டர் சீதீதளவம் இயலிடுபுகள்,
4.௨௪.௨௪. சினைதிகள், கோயலிகள்,
பள்ளிக்கூடங்கள் குடிமீ இரிவை ரீன குக
சீவம் வதரினக்கமியுகிறார்.


23/06/2022
கிராம நிர்வாக அலுவலர்
76௩.கீரணர்
காங்கயம் வட்டம்

**TOPOGRAPHICAL VIEW OF KEERANUR ROGH STONE
AND GRAVEL QUARRY LEASE APPLIED AREA**



Name of the Applicant : **P.Sasikumar,**
S/o. Palanisamy,
Address : Door No. 5/257,
Keeranur Village,
Kangayam Taluk,
Tiruppur District – 638 701.,

Location:

S.F.Nos. : 449 (Part) and 450
Extent : 4.44.0 Ha
Village : Keeranur
Taluk : Kangayam
District : Tiruppur

Signature of the Applicant

(P.Sasikumar)


29/06/2022
(Village Administrative Officer)
Attestation
காங்கையம் வட்டம்



Dr. S. KALYANASUNDARAM ,I.F.S.(Retd.)
CHAIRMAN

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU
3rd Floor, Panagal Maaligai,
No.1 Jeenis Road, Saidapet,
Chennai-15.
Phone No.044-24359974
Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr. No.SEIAA-TN/F.No.5252/1(a)/ EC.No: 3526/2016 dated: 10.08.2016

To
Thiru. P. Sasikumar
No.130, Arasankadu
Perumanallur
Tiruppur - 638701



Sir,

Sub: SEIAA-TN – Proposed **Rough Stone & Gravel** quarry located at S.F.No 449 (P) & 450, Keeranur Village, Kangeyam Taluk, Tiruppur District- issue of Environmental Clearance – Reg.

Ref: 1. Your Application for Environmental Clearance dt: 16.04.2016
2. Minutes of the 78th SEAC held on 23.07.2016
3. Minutes of the SEIAA meeting held on 10.08.2016

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. P. Sasikumar No.130, Arasankadu Perumanallur Tiruppur - 638701
2	Location of the Proposed Activity	
	Survey Number	449 (P) & 450
	Latitude and Longitude	11°04'45"N to 11°04'54"N 77°33'20"E To 77°33'29"E
	Village	Keeranur
	Taluk	Kangeyam

CHAIRMAN
SEIAA-TN

15/8/16

	District	Tiruppur
3	Proposed Activity	
	i. Minor mineral	Rough Stone & Gravel
	ii. Mining Lease Area	4.44.0 Ha
	iii. Approved quantity	142250 cu.m Rough stone & 25764 cu.m of Gravel
	iv. Depth of Mining	12 m
	v. Type of mining	Opencast Semi mechanised Mining
	vi. Category(B1/B2)	B2
	vii. Precise area communication	Na.Ka.61/Kanimam/2015 dated 05.12.2015
	viii. Mining plan approval	Deputy Director R.c.No61/Mines/2015 dated 12.04.2016
	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:	12 Employees
6	Utilities	
	i. Source of Water :	water vendors/Existing Borehole
	ii. Quantity of Water Requirement in KLD:	
	a. Domestic	0.3KLD
	b. Industrial	} 0.7KLD
	c. Green Belt & Dust Suppression	
	iii. Power Requirement:	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	118098 Liters of HSD
7	Cost	
	i. Project Cost	Rs.58.32 Lakhs
	ii. EMP Cost	Rs.7.60 Lakhs
8	Public Consultation:-	Not required as per O.M. dated 24.12.2013 of MoEF, Gol.
9	Date of Appraisal by SEAC:-	23.07.2016
	Agenda No:	78-26
10	Date of Review/Discussion by SEIAA and the Remarks:-	
	The proposal was placed before the SEIAA in its 186 th Meeting held on 10.08.2016 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:	
	The Environmental Clearance will be coterminous with the mine lease period or limited to a maximum period of 5 years from the date of issue whichever is earlier.	

Kalyanath
CHAIRMAN
SEIAA-TN

Conditions to be Complied before commencing mining operations:-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - I. The project has been accorded Environmental Clearance.
 - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
 - III. Environmental Clearance may also be seen on the website of the SEIAA.
 - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. The applicant has to obtain land use classification as industrial use before issue/renewal of mining lease.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the proponent and also kept at the site, for the general public to see.
6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 15 mts. From any civil structure shall be kept from the periphery of any excavation area.
14. Depth of quarrying shall be 2m above the ground water table /approved depth of mining whichever is lesser to be considered as a safe guard against Environmental Contamination and over exploitation of resources.


CHAIRMAN
SEIAA-TN


10/8/16

15. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
16. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
17. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
18. The explosives shall be stored at site as per the conditions stipulated in the permits issued by the licensing Authority.
19. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
20. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
21. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF, GoI on 16.11.2009.
22. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
23. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
24. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoE&F, GoI to control noise to the prescribed levels.
25. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
26. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
27. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
28. The following measures are to be adopted to control erosion of dumps:-
 - i. Retention/ toe walls shall be provided at the foot of the dumps.
 - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.

29. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous Wastes (Management, Handling, and trans boundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by TNPCB.
30. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
31. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
32. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
33. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
34. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
35. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
36. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 25 hectares within the mining lease period of this application.
37. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 500m radius from the periphery of the quarry site
38. Ground water quality monitoring should be conducted once in 3 Months
39. Transportation of the quarried materials shall not cause any hindrance to the Village people/Existing Village road.
40. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI.
41. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GOI..
42. Bunds to be provided at the boundary of the project site.
43. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.


CHAIRMAN
SEIAA-TN


12/09/16

44. At least 10 Neem trees should be planted around the boundary of the quarry site.
45. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
46. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
47. The Project Proponent shall provide solar lighting system to the nearby villages
48. The Project Proponent shall comply with the mining and other relevant rules and regulations where ever applicable.
49. Rainwater shall be pumped out Via Settling Tank only
50. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
51. As per MoEF&CC, GoI, Office Memorandum dated 30.03.2015, prior clearance from Forestry & Wild Life angle including clearance from standing committee of the National Board for Wild life as applicable shall be obtained before starting the quarrying operation, if the project site is located within 10KM from National Park and Sanctuaries.
52. The quarrying activity shall be stopped if the entire quantity indicated in the Mining plan is quarried even before the expiry of the quarry lease period and the same shall be monitored by the District Authorities.
53. Safety equipments to be provided to all the employees.
54. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
55. The 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.
56. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
57. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
58. The Proponent shall furnish the data obtained from the Public Works Department regarding the details of Ground Water table in the quarry site.
59. 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.
60. 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.
61. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.

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.

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.


CHAIRMAN
SEIAA-TN

Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary, Environment and Forests Department, Government of Tamil Nadu, Tamil Nadu.
3. The Additional Chief Secretary, Industries Department, Government of Tamil Nadu, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 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, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-32
7. The District Collector, Tiruppur District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. El Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.

From

Dr. S.Vediappan, M.Sc., Ph.D.,
Deputy Director,
Dept. of Geology and Mining,
Tiruppur.

To

Thiru. P. Sasikumar,
S/o. Palanisamy,
No. 5/257, Keeranur village,
Kangeyam Taluk,
Tiruppur District – 638 701

R.c. No. 1475/2020/Mines Dated : 26.02.2021.

Sub: Mines and Minerals – Minor Mineral – Rough Stone and Gravel – Tiruppur District – Kangeyam Taluk – Keeranur Village – Patta land in S.F.No. 442 (Part) over an extent of 2.00.0 Hectares – Quarry lease application preferred by Thiru. P. Sasikumar, S/o. Palanisamy - Precise area communicated - Mining Plan Submitted for approval - Approval accorded - regarding.

- Ref: 1. Thiru. P. Sasikumar, S/o. Palanisamy, No. 5/257, Keeranur village, Kangeyam Taluk, Tiruppur District quarry lease application dated: 20.11.2020 and 19.02.2021.
2. The Deputy Director, Geology and Mining, Tiruppur letter R.C. No. 1475/Mines/2020 dated 23.02.2021.
3. Mining Plan submitted by Thiru. P. Sasikumar, S/o. Palanisamy letter dated 25.02.2021 enclosed with mining plan.

1. Thiru. P. Sasikumar, S/o. Palanisamy has preferred application for the grant of Rough Stone and Gravel quarry lease in Patta land in S.F.No. 442 (Part) over an extent of 2.00.0 Hectares of Keeranur Village of Kangeyam Taluk of Tiruppur District for a period of 10 years.

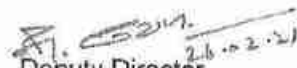
2. Based on reports and records available, precise area has been communicated to the applicant with a direction to submit mining plan and also to submit environmental clearance as stipulated in rule 41 and 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 vide memo dated 23.02.2021.

3. Accordingly, Thiru. P. Sasikumar, S/o. Palanisamy has submitted the Draft Mining Plan and the same has been examined in detail and it is found correct. Therefore, in exercise of the powers delegated under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959, and as per the guidelines / instructions issued by the Commissioner of Geology and Mining, Chennai vide letter Roc.No.3868/LC/2012 dated 19.11.2012, the mining plan submitted by Thiru. P. Sasikumar, S/o. Palanisamy in respect of the subject area is hereby approved subject to the following conditions:

- i. That the mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.

- ii. This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884(Central Act IV of 1884) and the rules made there under the Tamil Nadu Minor Mineral Concession Rules, 1959.
- iii. That the mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- iv. 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.
- v. If anything is found to be concealed as required by the Mines Act in the contents of the Mining Plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- vi. Safety distances mentioned in the precise area has to be maintained for the entire duration of the lease period.
- vii. Waste material should be dumped within the lease granted area as earmarked in the Mining Plan.
- viii. Necessary Environmental Clearance has to be obtained by the applicant from the competent authority before the grant of quarry lease as per the rules.
- ix. Quarrying operations and production shall be carried out as per the approved Mining Plan and the applicant shall be liable to pay the cost of mineral if there is any deviation in the quantum indicated in the approved year wise quantum of production and any such cases as on date are to be dealt with as per Court direction.
- x. If any violation is found during quarrying operation, the penal provisions of Tamil Nadu Minor Mineral Concession Rules shall attract.
- xi. The applicant should strictly adhere to the statutory and safety requirements.

Encl: Approved Mining Plan.


Deputy Director,
Geology and Mining,
Tiruppur.

Copy to

1. The Commissioner, Department of Geology and Mining, Guindy, Chennai - 600 032.
2. The Chairman,
State Level Environment Impact Assessment Authority,
Panagal park Building, Saidapet, Chennai -600 015.
3. Dr. P. Thangaraju, RQP,
Reg.off.No.17, Advaita Ashram Road,
Alagapuram, Salem-636 004.


26.2.21

TEST REPORT

Report No	EHS360/TR/2024-25/049	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/049
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Near Existing Quarry-11° 4'58.06"N 77°33'22.31"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)
01.12.2023	7:00-7:00	45.3	20.3	5.6	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2023	7:15-7:15	44.6	21.1	6.2	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2023	7:00-7:00	45.7	20.3	5.4	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2023	7:15-7:15	45.2	20.1	5.3	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2023	7:00-7:00	44.9	19.5	6.5	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2023	7:15-7:15	46.1	19.8	6.7	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2023	7:00-7:00	45.2	20.3	5.6	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2023	7:15-7:15	45.7	20.4	5.8	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2023	7:00-7:00	46.2	20.8	5.4	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2023	7:15-7:15	46.7	21.3	5.6	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2024	7:00-7:00	45.5	21.5	6.2	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2024	7:15-7:15	45.1	19.6	6.7	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2024	7:00-7:00	44.3	19.9	6.8	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2024	7:15-7:15	44.9	20.3	5.3	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2024	7:00-7:00	45.1	19.8	5.9	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2024	7:15-7:15	45.6	20.3	4.5	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2024	7:00-7:00	45.7	21.4	4.6	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2024	7:15-7:15	44.5	20.6	6.2	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2024	7:00-7:00	44.3	20.7	6.7	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2024	7:15-7:15	43.1	21.3	5.5	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2024	7:00-7:00	43.5	21.6	5.9	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2024	7:15-7:15	44.9	21.3	5.1	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2024	7:00-7:00	45.6	21.5	5.3	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2024	7:15-7:15	45.1	22.3	6.7	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2024	7:00-7:00	45.8	21.4	5.5	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2024	7:15-7:15	46.6	21.6	5.4	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*****

Page 1 of 1

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.

TEST REPORT

Report No	EHS360/TR/2024-25/049	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/049
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 2 – Near Existing Quarry-11° 4'58.06"N 77°33'22.31"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)
01.12.2023	7:00-7:00	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.12.2023	7:15-7:15	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.12.2023	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)
09.12.2023	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.12.2023	7:00-7:00	68.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.12.2023	7:15-7:15	69.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.12.2023	7:00-7:00	66.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.12.2023	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.12.2023	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)
30.12.2023	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.01.2024	7:00-7:00	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.01.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.01.2024	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)
13.01.2024	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)
19.01.2024	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)
20.01.2024	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)
26.01.2024	7:00-7:00	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.01.2024	7:15-7:15	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.02.2024	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)
03.02.2024	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)
09.02.2024	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)
10.02.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.02.2024	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)
17.02.2024	7:15-7:15	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.02.2024	7:00-7:00	66.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.02.2024	7:15-7:15	66.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

Note: BDL: Below Detection Limit ;DL: Detection Limit

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

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

A. S. A.

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.

TEST REPORT

Report No	EHS360/TR/2024-25/050	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/050
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ3 –Keeranur - 11° 4'38.19"N 77°33'1.60"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)
01.12.2023	7:00-7:00	45.3	20.6	5.6	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2023	7:15-7:15	44.6	21.3	4.4	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2023	7:00-7:00	45.2	20.7	4.3	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2023	7:15-7:15	46.3	20.4	4.4	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2023	7:00-7:00	45.1	20.9	4.1	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2023	7:15-7:15	44.3	21.5	4.6	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2023	7:00-7:00	43.6	21.9	4.5	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2023	7:15-7:15	45.6	21.4	4.6	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2023	7:00-7:00	44.7	20.3	4.7	24.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2023	7:15-7:15	43.6	19.6	4.6	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2024	7:00-7:00	45.5	19.4	4.3	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2024	7:15-7:15	45.9	20.8	4.5	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2024	7:00-7:00	45.6	21.6	4.6	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2024	7:15-7:15	46.7	22.3	4.1	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2024	7:00-7:00	46.2	21.5	4.5	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2024	7:15-7:15	46.1	21.6	4.8	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2024	7:00-7:00	46.5	21.8	4.7	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2024	7:15-7:15	45.5	22.3	4.6	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2024	7:00-7:00	45.7	22.4	4.8	25.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2024	7:15-7:15	45.2	21.6	4.6	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2024	7:00-7:00	45.1	20.9	4.2	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2024	7:15-7:15	45.6	21.6	4.8	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2024	7:00-7:00	44.6	22.4	5.3	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2024	7:15-7:15	45.3	22.5	5.7	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2024	7:00-7:00	45.7	21.6	5.5	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2024	7:15-7:15	44.5	21.7	5.1	23.8	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*****

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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.

TEST REPORT

Report No	EHS360/TR/2024-25/050	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/050
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ3 –Keeranur - 11° 4'38.19"N 77°33'1.60"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)
01.12.2023	7:00-7:00	67.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.12.2023	7:15-7:15	66.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.12.2023	7:00-7:00	69.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.12.2023	7:15-7:15	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.12.2023	7:00-7:00	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.12.2023	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)
22.12.2023	7:00-7:00	68.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.12.2023	7:15-7:15	69.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.12.2023	7:00-7:00	69.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.12.2023	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.01.2024	7:00-7:00	68.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.01.2024	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)
12.01.2024	7:00-7:00	66.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.01.2024	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.01.2024	7:00-7:00	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.01.2024	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)
26.01.2024	7:00-7:00	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.01.2024	7:15-7:15	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.02.2024	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.02.2024	7:15-7:15	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.02.2024	7:00-7:00	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.02.2024	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)
16.02.2024	7:00-7:00	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.02.2024	7:15-7:15	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.02.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.02.2024	7:15-7:15	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

Note: BDL: Below Detection Limit ;DL: Detection Limit

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

*****End of Report*****

Page 1 of 1

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.
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TEST REPORT

Report No	EHS360/TR/2024-25/051	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/051
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 – Velayudhampalayam- 11° 4'29.05"N 77°36'43.26"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)
01.12.2023	7:00-7:00	44.3	19.6	4.4	20.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2023	7:15-7:15	43.6	18.5	4.3	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2023	7:00-7:00	45.1	19.6	4.1	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2023	7:15-7:15	45.2	19.7	4.5	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2023	7:00-7:00	42.1	18.3	4.4	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2023	7:15-7:15	44.6	18.6	4.9	20.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2023	7:00-7:00	44.6	20.1	4.2	20.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2023	7:15-7:15	44.3	18.6	5.1	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2023	7:00-7:00	44.5	19.4	5.6	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2023	7:15-7:15	45.2	19.3	5.7	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2024	7:00-7:00	44.3	18.7	5.8	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2024	7:15-7:15	42.6	18.6	5.2	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2024	7:00-7:00	43.5	18.8	5.3	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2024	7:15-7:15	43.6	18.3	5.7	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2024	7:00-7:00	44.7	18.9	5.6	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2024	7:15-7:15	44.8	19.1	5.1	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2024	7:00-7:00	45.1	19.5	5.8	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2024	7:15-7:15	45.8	18.6	5.4	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2024	7:00-7:00	46.1	18.3	5.9	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2024	7:15-7:15	45.1	18.9	6.1	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2024	7:00-7:00	44.3	19.4	5.2	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2024	7:15-7:15	43.6	19.6	5.7	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2024	7:00-7:00	44.5	19.4	5.3	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2024	7:15-7:15	44.8	18.2	4.2	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2024	7:00-7:00	43.6	18.6	4.6	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2024	7:15-7:15	43.8	18.8	4.7	23.8	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*****

Page 1 of 1

Verified by



Authorised Signatory

A S K

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.

TEST REPORT

Report No	EHS360/TR/2024-25/051	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/051
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ4 – Velayudhampalayam- 11° 4'29.05"N 77°36'43.26"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)
01.12.2023	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)
02.12.2023	7:15-7:15	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.12.2023	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.12.2023	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.12.2023	7:00-7:00	69.2	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.12.2023	7:15-7:15	69.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
22.12.2023	7:00-7:00	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.12.2023	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)
29.12.2023	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)
30.12.2023	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.01.2024	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)
06.01.2024	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)
12.01.2024	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)
13.01.2024	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)
19.01.2024	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)
20.01.2024	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)
26.01.2024	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.01.2024	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)
02.02.2024	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)
03.02.2024	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.02.2024	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)
10.02.2024	7:15-7:15	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.02.2024	7:00-7:00	66.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.02.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.02.2024	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)
24.02.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

Note: BDL: Below Detection Limit ;DL: Detection Limit

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

*****End of Report*****

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Authorised Signatory

A S K

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.

TEST REPORT

Report No	EHS360/TR/2024-25/052	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/052
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Thammareddipalayam - 11° 5'36.66"N 77°30'29.39"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)
01.12.2023	7:00-7:00	44.3	20.3	4.3	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2023	7:15-7:15	43.6	20.1	4.2	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2023	7:00-7:00	45.6	21.3	4.1	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2023	7:15-7:15	43.5	19.5	4.5	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2023	7:00-7:00	44.6	19.6	4.4	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2023	7:15-7:15	45.6	18.3	4.6	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2023	7:00-7:00	45.8	18.4	4.3	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2023	7:15-7:15	43.1	21.3	4.5	24.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2023	7:00-7:00	44.2	21.3	5.1	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2023	7:15-7:15	44.7	21.5	5.4	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2024	7:00-7:00	46.2	20.6	5.2	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2024	7:15-7:15	43.5	20.4	5.5	22.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2024	7:00-7:00	43.9	19.6	4.4	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2024	7:15-7:15	44.3	18.6	4.3	23.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2024	7:00-7:00	42.1	19.7	4.7	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2024	7:15-7:15	43.2	18.3	4.6	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2024	7:00-7:00	43.5	18.4	4.5	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2024	7:15-7:15	44.5	19.9	4.2	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2024	7:00-7:00	43.1	19.4	4.3	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2024	7:15-7:15	44.2	18.6	4.4	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2024	7:00-7:00	42.3	18.7	4.5	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2024	7:15-7:15	42.3	18.6	5.3	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2024	7:00-7:00	43.7	19.1	5.4	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2024	7:15-7:15	44.1	19.2	5.1	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2024	7:00-7:00	44.5	19.5	5.6	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2024	7:15-7:15	44.7	19.7	5.5	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
NAAQ* Standard		<100	<60	<805	<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*****

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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.

TEST REPORT

Report No	EHS360/TR/2024-25/052	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/052
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ5 – Thammareddipalayam - 11° 5'36.66"N 77°30'29.39"E		

Date	Period. hrs	SPM (µg/m³)	As (ng/m³)	C6H6 (µg/m³)	BaP (ng/m³)	Pb (µg/m³)	Ni (ng/m³)
01.12.2023	7:00-7:00	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.12.2023	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)
08.12.2023	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)
09.12.2023	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)
15.12.2023	7:00-7:00	64.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.12.2023	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)
22.12.2023	7:00-7:00	64.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.12.2023	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
29.12.2023	7:00-7:00	64.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.12.2023	7:15-7:15	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.01.2024	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)
06.01.2024	7:15-7:15	63.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.01.2024	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)
13.01.2024	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)
19.01.2024	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)
20.01.2024	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.01.2024	7:00-7:00	63.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.01.2024	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)
02.02.2024	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.02.2024	7:15-7:15	63.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.02.2024	7:00-7:00	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.02.2024	7:15-7:15	64.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.02.2024	7:00-7:00	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.02.2024	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)
23.02.2024	7:00-7:00	64.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.02.2024	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

Note: BDL: Below Detection Limit ;DL: Detection Limit

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

*****End of Report*****

Page 1 of 1

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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TEST REPORT

Report No	EHS360/TR/2024-25/053	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/053
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 – Neikkaranpalayam- 11° 1'57.13"N 77°33'45.38"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)
01.12.2023	7:00-7:00	43.5	19.6	4.6	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2023	7:15-7:15	44.6	20.3	4.6	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2023	7:00-7:00	45.5	20.4	5.2	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2023	7:15-7:15	43.2	19.0	5.3	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2023	7:00-7:00	46.1	19.1	4.2	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2023	7:15-7:15	44.5	18.6	4.4	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2023	7:00-7:00	45.6	18.8	4.6	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2023	7:15-7:15	46.2	19.6	5.1	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2023	7:00-7:00	46.7	19.4	5.9	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2023	7:15-7:15	44.3	20.2	5.4	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2024	7:00-7:00	45.8	20.3	5.6	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2024	7:15-7:15	46.7	20.7	4.6	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2024	7:00-7:00	46.1	21.3	5.7	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2024	7:15-7:15	44.2	19.5	4.3	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2024	7:00-7:00	43.5	19.9	4.2	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2024	7:15-7:15	42.2	18.6	4.7	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2024	7:00-7:00	42.6	18.2	4.6	24.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2024	7:15-7:15	42.7	18.6	4.1	24.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2024	7:00-7:00	43.3	19.6	4.3	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2024	7:15-7:15	43.7	20.3	4.5	23.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2024	7:00-7:00	43.6	20.7	4.7	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2024	7:15-7:15	41.5	21.5	4.2	24.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2024	7:00-7:00	42.9	21.2	4.1	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2024	7:15-7:15	43.8	19.6	4.3	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2024	7:00-7:00	43.6	19.4	4.2	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2024	7:15-7:15	44.1	19.8	4.4	22.8	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.

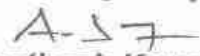
*****End of Report*****

Page 1 of 1

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.

TEST REPORT

Report No	EHS360/TR/2024-25/053	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/053
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 6 – Neikkaranalpalayam- 11° 1'57.13"N 77°33'45.38"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)
01.12.2023	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)
02.12.2023	7:15-7:15	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.12.2023	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)
09.12.2023	7:15-7:15	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.12.2023	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.12.2023	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)
22.12.2023	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)
23.12.2023	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)
29.12.2023	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)
30.12.2023	7:15-7:15	68.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
05.01.2024	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)
06.01.2024	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)
12.01.2024	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.01.2024	7:15-7:15	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.01.2024	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)
20.01.2024	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)
26.01.2024	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)
27.01.2024	7:15-7:15	65.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.02.2024	7:00-7:00	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.02.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.02.2024	7:00-7:00	68.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.02.2024	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.02.2024	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)
17.02.2024	7:15-7:15	64.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.02.2024	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.02.2024	7:15-7:15	66.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

Note: BDL: Below Detection Limit ;DL: Detection Limit

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

*****End of Report*****

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Verified by



Authorised Signatory

A-57

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.

TEST REPORT



TC-9583

Report No	EHS360/TR/2024-25/053	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/053
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ7 – Ayyampalayam- 11° 8'33.48"N 77°33'24.98"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)
01.12.2023	7:00-7:00	43.5	20.3	4.6	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2023	7:15-7:15	44.6	21.5	4.3	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2023	7:00-7:00	45.2	20.6	4.7	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2023	7:15-7:15	45.6	20.4	4.6	24.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2023	7:00-7:00	45.7	19.5	4.5	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2023	7:15-7:15	44.3	18.6	4.2	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2023	7:00-7:00	45.8	19.6	4.4	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2023	7:15-7:15	46.1	19.7	4.5	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2023	7:00-7:00	45.3	18.6	4.7	22.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2023	7:15-7:15	45.2	19.8	5.1	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2024	7:00-7:00	44.7	19.3	4.3	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2024	7:15-7:15	44.6	19.8	4.7	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2024	7:00-7:00	44.8	20.3	4.6	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2024	7:15-7:15	45.1	20.4	4.1	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2024	7:00-7:00	45.6	20.6	4.5	21.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2024	7:15-7:15	45.9	20.7	5.3	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2024	7:00-7:00	45.8	21.3	5.4	22.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2024	7:15-7:15	44.1	21.6	5.7	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2024	7:00-7:00	43.2	20.3	5.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2024	7:15-7:15	43.6	20.6	4.4	23.6	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2024	7:00-7:00	41.6	20.7	4.8	21.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2024	7:15-7:15	43.8	21.6	4.9	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2024	7:00-7:00	45.7	21.8	4.1	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2024	7:15-7:15	46.3	20.6	5.5	24.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2024	7:00-7:00	46.7	21.3	5.6	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2024	7:15-7:15	45.1	21.7	5.4	22.1	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*****

Page 1 of 1

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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TEST REPORT

Report No	EHS360/TR/2024-25/053	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/053
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ7 – Ayyampalayam- 11° 8'33.48"N 77°33'24.98"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)
01.12.2023	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)
02.12.2023	7:15-7:15	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.12.2023	7:00-7:00	67.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.12.2023	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)
15.12.2023	7:00-7:00	65.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.12.2023	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)
22.12.2023	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)
23.12.2023	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)
29.12.2023	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.12.2023	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)
05.01.2024	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)
06.01.2024	7:15-7:15	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.01.2024	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)
13.01.2024	7:15-7:15	68.4	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.01.2024	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.01.2024	7:15-7:15	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.01.2024	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)
27.01.2024	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)
02.02.2024	7:00-7:00	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.02.2024	7:15-7:15	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.02.2024	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)
10.02.2024	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)
16.02.2024	7:00-7:00	65.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
17.02.2024	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)
23.02.2024	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)
24.02.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

Note: BDL: Below Detection Limit ;DL: Detection Limit

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

*****End of Report*****

Page 1 of 1

Verified by



Authorised Signatory

A S J

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.

TEST REPORT

Report No	EHS360/TR/2024-25/048	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/048
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – Core Zone-11° 5'0.39"N 77°33'27.58"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)
01.12.2023	7:00-7:00	45.9	20.7	5.6	20.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.12.2023	7:15-7:15	45.3	21.4	6.1	21.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
08.12.2023	7:00-7:00	44.4	21.6	6.2	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.12.2023	7:15-7:15	45.5	20.9	6.7	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
15.12.2023	7:00-7:00	44.6	21.5	6.5	21.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.12.2023	7:15-7:15	45.6	20.6	5.3	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
22.12.2023	7:00-7:00	46.6	21.4	5.1	21.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.12.2023	7:15-7:15	44.4	20.6	4.9	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
29.12.2023	7:00-7:00	46.7	21.8	6.1	23.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
30.12.2023	7:15-7:15	46.8	21.4	5.6	23.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
05.01.2024	7:00-7:00	46.9	21.9	6.2	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
06.01.2024	7:15-7:15	45.3	22.4	5.3	22.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
12.01.2024	7:00-7:00	45.5	22.3	6.7	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
13.01.2024	7:15-7:15	46.6	21.7	6.9	23.8	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
19.01.2024	7:00-7:00	46.5	20.9	4.3	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
20.01.2024	7:15-7:15	45.8	22.4	4.4	23.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
26.01.2024	7:00-7:00	45.3	21.5	6.2	23.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
27.01.2024	7:15-7:15	46.6	21.1	6.1	23.4	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
02.02.2024	7:00-7:00	46.4	22.5	6.2	22.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
03.02.2024	7:15-7:15	45.9	22.9	6.7	21.2	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
09.02.2024	7:00-7:00	45.1	22.1	5.3	22.1	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
10.02.2024	7:15-7:15	45.7	22.4	4.8	22.3	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
16.02.2024	7:00-7:00	46.9	21.1	5.1	21.9	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
17.02.2024	7:15-7:15	46.5	22.2	5.9	22.5	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
23.02.2024	7:00-7:00	46.3	22.3	6.2	21.7	BDL(DL:5.0)	BDL(DL:1.0)	BDL(DL:1.14)
24.02.2024	7:15-7:15	44.1	21.1	5.4	22.4	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*****

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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.

TEST REPORT

Report No	EHS360/TR/2024-25/048	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 5182	Sample Drawn by	Laboratory
Sample Name	Air	Sample Code	EHS360/048
Sample Description	Ambient Air Quality Monitoring	Sample Condition	Good
Sampling Location	AAQ 1 – Core Zone-11° 5'0.39"N 77°33'27.58"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)
01.12.2023	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.12.2023	7:15-7:15	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
08.12.2023	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.12.2023	7:15-7:15	64.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
15.12.2023	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)
16.12.2023	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)
22.12.2023	7:00-7:00	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.12.2023	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)
29.12.2023	7:00-7:00	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
30.12.2023	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)
05.01.2024	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
06.01.2024	7:15-7:15	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
12.01.2024	7:00-7:00	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
13.01.2024	7:15-7:15	65.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
19.01.2024	7:00-7:00	65.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
20.01.2024	7:15-7:15	65.6	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
26.01.2024	7:00-7:00	66.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
27.01.2024	7:15-7:15	67.5	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
02.02.2024	7:00-7:00	67.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
03.02.2024	7:15-7:15	67.7	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
09.02.2024	7:00-7:00	67.3	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
10.02.2024	7:15-7:15	66.9	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
16.02.2024	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)
17.02.2024	7:15-7:15	67.1	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
23.02.2024	7:00-7:00	67.8	BDL (DL:0.1)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:0.1)	BDL (DL:0.1)
24.02.2024	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)
NAAQ* Standard		<200	<100	<60	<80	<80	<100

Note: BDL: Below Detection Limit ;DL: Detection Limit

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

*****End of Report*****

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Verified by



Authorised Signatory

A S J

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.

TEST REPORT

TC-9583

Report No	EHS360/TR/2024-25/055	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/055
Sample Description	Ambient Noise	Sample Collected Date	26.02.2024

Location	N1 – Core Zone- 11° 4'57.50"N 77°33'30.76"E			N2 – Near Existing Quarry – 11° 4'58.54"N 77°33'22.67"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	38.5	44.6	42.5	35.1	39.5	37.8
07:00-08:00	36.7	42.7	40.7	35.4	40.2	38.4
08:00-09:00	40.9	46.3	44.4	35.6	41.6	39.6
09:00-10:00	41.8	48.3	46.2	35.1	41.2	39.1
10:00-11:00	42.5	47.3	45.5	34.9	43.4	41.0
11:00-12:00	44.3	45.3	44.8	36.2	45.7	43.2
12:00-13:00	40.9	45.5	43.8	34.1	48.2	45.4
13:00-14:00	43.4	46.1	45.0	32.9	49.3	46.4
14:00-15:00	41.9	42.9	42.4	38.4	49.7	47.0
15:00-16:00	39.6	40.4	40.0	34.6	47.9	45.1
16:00-17:00	35.1	38.7	37.3	32.9	40.8	38.4
17:00-18:00	35.5	39.9	38.2	34.1	43.4	40.9
18:00-19:00	34.8	45.2	42.6	33.6	41.6	39.2
19:00-20:00	38.1	45.9	43.6	32.8	40.8	38.4
20:00-21:00	35.2	44.9	42.3	34.1	43.4	40.9
21:00-22:00	39.6	45.3	43.3	36.9	45.5	43.1
22:00-23:00	35.4	38.7	37.4	32.7	41.9	39.4
23:00-00:00	32.7	37.6	35.8	34.2	43.6	41.1
00:00-01:00	33.8	38.8	37.0	32.6	40.8	38.4
01:00-02:00	31.3	34.3	33.1	31.3	35.5	33.9
02:00-03:00	32.6	37.1	35.4	32.8	36.9	35.3
03:00-04:00	32.4	36.7	35.1	34.1	37.3	36.0
04:00-05:00	32.4	35.5	34.2	35.5	37.1	36.4
05:00-06:00	33.6	34.8	34.2	33.9	38.5	36.8
Result	Day Means		42.3	Day Means		41.4
	Night Means		35.0	Night Means		36.8
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

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.

TEST REPORT

Report No	EHS360/TR/2024-25/056	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/0556
Sample Description	Ambient Noise	Sample Collected Date	26.02.2024

Location	N3 – Keeranur -11° 4'38.11"N 77°33'0.67"E			N4 – Velayudhampalayam - 11° 4'28.03"N 77°36'43.76"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	31.2	39.9	37.4	34.5	43.2	40.7
07:00-08:00	33.7	41.5	39.2	33.7	40.4	38.2
08:00-09:00	34.5	42.8	40.4	32.8	41.8	39.3
09:00-10:00	35.5	44.5	42.0	33.9	38.1	36.5
10:00-11:00	36.1	45.1	42.6	34.7	40.6	38.6
11:00-12:00	38.2	43.3	41.5	34.1	40.2	38.1
12:00-13:00	38.3	41.7	40.3	32.8	38.5	36.5
13:00-14:00	36.7	42.4	40.4	34.7	43.2	40.8
14:00-15:00	32.7	45.9	43.1	32.6	40.6	38.2
15:00-16:00	31.5	40.5	38.0	31.3	38.9	36.6
16:00-17:00	32.5	41.7	39.2	32.6	41.2	38.8
17:00-18:00	36.5	44.3	42.0	33.5	42.7	40.2
18:00-19:00	34.2	43.7	41.2	34.4	43.2	40.7
19:00-20:00	33.8	41.4	39.1	32.9	40.6	38.3
20:00-21:00	31.2	39.5	37.1	33.6	41.4	39.1
21:00-22:00	32.8	40.6	38.3	31.5	38.6	36.4
22:00-23:00	33.9	41.4	39.1	32.5	40.1	37.8
23:00-00:00	31.4	38.5	36.3	31.7	38.2	36.1
00:00-01:00	32.8	40.1	37.8	32.3	39.3	37.1
01:00-02:00	33.5	36.2	35.1	33.9	38.4	36.7
02:00-03:00	35.7	39.5	38.0	31.5	35.5	33.9
03:00-04:00	36.1	39.2	37.9	32.4	36.3	34.8
04:00-05:00	35.2	38.1	36.9	34.1	35.8	35.0
05:00-06:00	34.6	36.9	35.9	32.6	33.6	33.1
Result	Day Means		40.0	Day Means		38.5
	Night Means		36.8	Night Means		35.2

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*****

Page 1 of 1

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.

TEST REPORT

Report No	EHS360/TR/2024-25/057	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/057
Sample Description	Ambient Noise	Sample Collected Date	26.02.2024

Location	N5 – Thammareddipalayam – 11° 5'37.40"N 77°30'34.05"E			N6 – Neikkarandalayam – 11° 1'57.06"N 77°33'46.81"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	37.9	41.6	40.1	31.5	38.1	35.9
07:00-08:00	38.9	42.8	41.3	32.6	40.7	38.3
08:00-09:00	39.6	42.6	41.4	33.9	41.4	39.1
09:00-10:00	38.9	45.5	43.3	31.4	39.5	37.1
10:00-11:00	38.5	47.3	44.8	32.5	40.2	37.9
11:00-12:00	38.1	48.7	46.1	33.8	41.4	39.1
12:00-13:00	37.6	43.1	41.2	35.6	43.6	41.2
13:00-14:00	37.6	39.2	38.5	31.8	38.4	36.2
14:00-15:00	37.2	45.2	42.8	33.9	41.7	39.4
15:00-16:00	38.5	49.5	46.8	32.5	40.9	38.5
16:00-17:00	39.2	46.3	44.1	34.8	43.6	41.1
17:00-18:00	41.6	41.7	41.7	32.6	40.4	38.1
18:00-19:00	41.8	39.1	40.7	35.1	43.1	40.7
19:00-20:00	42.5	40.7	41.7	36.1	40.2	38.6
20:00-21:00	33.7	41.3	39.0	34.2	43.6	41.1
21:00-22:00	38.2	44.7	42.6	36.5	47.1	44.5
22:00-23:00	34.4	36.2	35.4	33.8	41.2	38.9
23:00-00:00	34.6	36.1	35.4	33.9	42.1	39.7
00:00-01:00	35.8	37.8	36.9	31.5	39.4	37.0
01:00-02:00	36.2	39.9	38.4	32.9	40.2	37.9
02:00-03:00	35.6	39.4	37.9	33.4	41.7	39.3
03:00-04:00	34.8	38.5	37.0	31.7	38.5	36.3
04:00-05:00	35.5	36.9	36.3	32.6	40.8	38.4
05:00-06:00	36.4	38.4	37.5	31.3	38.6	36.3
Result	Day Means		41.8	Day Means		39.2
	Night Means		37.1	Night Means		37.9

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*****

Page 1 of 1

Verified by



Authorised Signatory

A 57

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.

TEST REPORT

Report No	EHS360/TR/2024-25/058	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	IS 9989	Sample Drawn by	Laboratory
Sample Name	Noise Level Monitoring	Sample Code	EHS360/058
Sample Description	Ambient Noise	Sample Collected Date	26.02.2024

Location	N7 - Ayyampalayam - 11° 8'33.20"N 77°33'24.99"E		
Parameter	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)
06:00-07:00	32.6	38.8	36.7
07:00-08:00	34.9	37.6	36.5
08:00-09:00	32.6	34.5	33.7
09:00-10:00	33.6	36.8	35.5
10:00-11:00	32.8	40.2	37.9
11:00-12:00	31.2	41.5	38.9
12:00-13:00	36.4	43.5	41.3
13:00-14:00	33.9	41.4	39.1
14:00-15:00	32.7	43.9	41.2
15:00-16:00	36.5	42.2	40.2
16:00-17:00	32.3	40.9	38.5
17:00-18:00	34.2	43.2	40.7
18:00-19:00	34.7	44.9	42.3
19:00-20:00	31.6	40.7	38.2
20:00-21:00	32.8	40.3	38.0
21:00-22:00	33.6	41.4	39.1
22:00-23:00	32.5	40.3	38.0
23:00-00:00	36.4	45.2	42.7
00:00-01:00	33.6	35.0	34.4
01:00-02:00	34.9	35.8	35.4
02:00-03:00	31.5	34.2	33.1
03:00-04:00	32.3	35.5	34.2
04:00-05:00	31.7	34.8	33.5
05:00-06:00	32.2	34.5	33.5
Result	Day Means		38.6
	Night Means		35.2

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*****

Page 1 of 1

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.

TEST REPORT

Report No	EHS360/TR/2024-25/059	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 059
Sample Description	Soil 1	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 KG	Sample Received On	27.02.2024
Sample Condition	Good	Test Commenced On	05.03.2024
Sampling Location	Core Zone		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.56
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	461 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.5 %
04	Bulk Density	By Cylindrical Method	1.02 g/cm ³
05	Porosity	By Gravimetric Method	45.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	51.6 mg/kg
07	Magnesium as Mg		35.5 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	60.8 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0014 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	4.4 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	370.5 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.67 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	0.97 %

*****End of Report*****

Page 1 of 1

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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.



TEST REPORT

TC-9583

Report No	EHS360/TR/2024-25/059	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 059
Sample Description	Soil 1	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 KG	Sample Received On	27.02.2024
Sample Condition	Good	Test Commenced On	05.03.2024
Sampling Location	Core Zone		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	31.7 %
	Sand		32.5 %
	Silt		35.8 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	17 mg/kg
16	Zinc as Zn		3.3 mg/kg
17	Boron as B		3.9 mg/kg
18	Potassium as K		31.7 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		1.57
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.7 mg/kg
23	Iron as Fe		3.33 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****
Page 1 of 1

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Authorised Signatory

A S
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.

TEST REPORT

Report No	EHS360/TR/2024-25/060	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 060
Sample Description	Soil 2	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 KG	Sample Received On	27.02.2024
Sample Condition	Good	Test Commenced On	05.03.2024
Sampling Location	Keeranur		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.24
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	500 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	47.6 %
04	Bulk Density	By Cylindrical Method	1.05 g/cm ³
05	Porosity	By Gravimetric Method	48.8 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	56.7 mg/kg
07	Magnesium as Mg		41 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	25.6 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0014 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	2.2 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	425 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.62 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.52 %

*****End of Report*****

Page 1 of 1

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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.

TEST REPORT

Report No	EHS360/TR/2024-25/060	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 060
Sample Description	Soil 2	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 KG	Sample Received On	27.02.2024
Sample Condition	Good	Test Commenced On	05.03.2024
Sampling Location	Keeranur		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	33.4 %
	Sand		31.6 %
	Silt		35.0 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	22.4 mg/kg
16	Zinc as Zn		5.64 mg/kg
17	Boron as B		5.1 mg/kg
18	Potassium as K		42 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		1.13 mg/kg
23	Iron as Fe		2.12 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

Page 1 of 1

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Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/061	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 061
Sample Description	Soil 3	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 KG	Sample Received On	27.02.2024
Sample Condition	Good	Test Commenced On	05.03.2024
Sampling Location	Velayudhampalayam		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.17
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	430 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	49.4 %
04	Bulk Density	By Cylindrical Method	1.01 g/cm ³
05	Porosity	By Gravimetric Method	48.8 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	49 mg/kg
07	Magnesium as Mg		35.5 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	42.3 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0025 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	2.66 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	6.1 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.02 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.17 %

*****End of Report*****

Page 1 of 1

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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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TEST REPORT

Report No	EHS360/TR/2024-25/061	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 061
Sample Description	Soil 3	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 KG	Sample Received On	27.02.2024
Sample Condition	Good	Test Commenced On	05.03.2024
Sampling Location	Velayudhampalayam		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	29.8 %
	Sand		33.6 %
	Silt		36.6 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	25.8 mg/kg
16	Zinc as Zn		3.24 mg/kg
17	Boron as B		4.1 mg/kg
18	Potassium as K		6.5 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		2.02
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.6 mg/kg
23	Iron as Fe		1.05 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

Page 1 of 1



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Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/062	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 062
Sample Description	Soil 4	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 KG	Sample Received On	27.02.2024
Sample Condition	Good	Test Commenced On	05.03.2024
Sampling Location	Thammareddipalayam		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.57
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	456 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	46.3. %
04	Bulk Density	By Cylindrical Method	0.99 g/cm ³
05	Porosity	By Gravimetric Method	46.6 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	76.5 mg/kg
07	Magnesium as Mg		61 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	52.6 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0028 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	4.4 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	425.5 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.91 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.11 %

*****End of Report*****

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A S K
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.

TEST REPORT

Report No	EHS360/TR/2024-25/062	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 062
Sample Description	Soil 4	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 KG	Sample Received On	27.02.2024
Sample Condition	Good	Test Commenced On	05.03.2024
Sampling Location	Thammareddipalayam		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	31.1 %
	Sand		32.4 %
	Silt		36.5 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C - 2000	20.5 mg/kg
16	Zinc as Zn		5.1 mg/kg
17	Boron as B		2.44 mg/kg
18	Potassium as K		30 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		3.54
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.1 mg/kg
23	Iron as Fe		4.5 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****
Page 1 of 1

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Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/063	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 063
Sample Description	Soil 5	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 KG	Sample Received On	27.02.2024
Sample Condition	Good	Test Commenced On	05.03.2024
Sampling Location	Neikkaranpalayam		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.74
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	485 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	46.7 %
04	Bulk Density	By Cylindrical Method	1.1 g/cm ³
05	Porosity	By Gravimetric Method	46.5 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	74.5 mg/kg
07	Magnesium as Mg		52 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	31.1 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0019 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	3.55 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	400 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.98 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.15 %

*****End of Report*****
Page 1 of 1

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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TEST REPORT



TC-9583

Report No	EHS360/TR/2024-25/063	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 063
Sample Description	Soil 5	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 KG	Sample Received On	27.02.2024
Sample Condition	Good		05.03.2024
Sampling Location	Neikkaranpalayam		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	31.6 %
	Sand		32.8 %
	Silt		35.6 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C – 2000	27.1 mg/kg
16	Zinc as Zn		4.9 mg/kg
17	Boron as B		6.6 mg/kg
18	Potassium as K		17 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		5.2
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		2.01 mg/kg
23	Iron as Fe		8.08 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****

Page 1 of 1

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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.

TEST REPORT

Report No	EHS360/TR/2024-25/064	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 064
Sample Description	Soil 6	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 KG	Sample Received On	27.02.2024
Sample Condition	Good	Test Commenced On	05.03.2024
Sampling Location	Ayyampalayam		

S.No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff:2016)	8.19
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	467 µmhos/cm
03	Water Holding Capacity	By Gravimetric Method	46.14 %
04	Bulk Density	By Cylindrical Method	1.08 g/cm ³
05	Porosity	By Gravimetric Method	47.1 %
06	Calcium as Ca	Food and Agriculture organization of the united Nation Rome 2007 : 2018	64.4 mg/kg
07	Magnesium as Mg		28.6 mg/kg
08	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	61.4 mg/kg
09	Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff:2015)	0.0019 %
10	Total Phosphorus as P	IS 10158 : 1982 (Reaff: 2019)	7.26 mg/kg
11	Total Nitrogen as N	IS 14684 : 1999 (Reaff:2019)	405.9 mg/kg
12	Organic Matter	IS : 2720 Part 22: 1972 (Reaff: 2015)	2.10 %
13	Organic Carbon	IS : 2720 Part 22: 1972 (Reaff: 2015)	1.22 %

*****End of Report*****
Page 1 of 1

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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.
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TEST REPORT

Report No	EHS360/TR/2024-25/ 064	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Soil	Sample Code	EHS360/ 064
Sample Description	Soil 6	Sample Collected Date	20.02.2023
Qty. of Sample Received	2 KG	Sample Received On	21.02.2023
Sample Condition	Good	Test Commenced On	05.03.2024
Sampling Location	Ayyampalayam		

S.No	Test Parameters	Protocols	Results
14	Texture :		
	Clay	Gravimetric Method	30.9 %
	Sand		34.6 %
	Silt		34.5 %
15	Manganese as Mn	USEPA 3050 B – 1996 & USEPA 6010 C – 2000	30.2 mg/kg
16	Zinc as Zn		5.66 mg/kg
17	Boron as B		1.24 mg/kg
18	Potassium as K		20.4 mg/kg
19	Cadmium as Cd		BDL (DL : 1.0 mg/kg)
20	Total Chromium as Cr		7.12
21	Copper as Cu		BDL (DL : 1.0 mg/kg)
22	Lead as Pb		1.01 mg/kg
23	Iron as Fe		2.26 mg/kg
24	Cation Exchange Capacity		USEPA 9080 – 1986

*****End of Report*****
Page 1 of 1

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A-S-A
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.

TEST REPORT

Report No	EHS360/TR/2024-25/ 065	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/065
Sample Description	Surface Water (SW-1)	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	27.02.2024
Sample Condition	Fit for Analysis	Test Commenced On	05.03.2024
Sampling Location	Noyyal River		

S.No.	Parameters	Test Method	RESULTS
Discipline: Chemical			
1	Colour	IS 3025 Part 4:1983	10 Hazen
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983	7.66
4	Conductivity @ 25°C	IS 3025 Part 14:2013	994 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984	5.2 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984	586 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009	209.99 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991	37.2 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994	28.5 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986	191 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988	102 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986	62.7 mg/l
13	Iron as Fe	IS 3025 Part 53:2003	0.22 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.21 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988	11.2 mg/l

*****End of Report*****
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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.

TEST REPORT

PRIVATE LIMITED

Report No	EHS360/TR/2024-25/ 065	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/065
Sample Description	Surface Water (SW-1)	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	27.02.2024
Sample Condition	Fit for Analysis	Test Commenced On	05.03.2024
Sampling Location	Noyyal River		

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 ₆ H ₅ OH	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)	8.4 mg/l
32	Chemical Oxygen Demand	IS 3025 Part 58:2006 (Reaff:2017)	40 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)	1.5 mg/l
36	Sulphide as H ₂ S	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)	15.1 mg/l
	Discipline: Biological	Group: Water	
40	Total Coliform	APHA 23 rd Edn. 2017:9221B	510 MPN/100ml
41	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	142 MPN/100ml

*****End of Report*****

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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.

TEST REPORT

Report No	EHS360/TR/2024-25/ 066	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Customer Name			
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/066
Sample Description	Ground Water (WW-1)	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	27.02.2024
Sample Condition	Fit for Analysis	Test Commenced On	05.03.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.09
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	913 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.1 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	539 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	194.53 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	36.6 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	25.1 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	170 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	102.2 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	55.4 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.31 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.22 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	7.7 mg/l

*****End of Report*****

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Authorised Signatory



Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/ 066	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/066
Sample Description	Ground Water (WW-1)	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	27.02.2024
Sample Condition	Fit for Analysis	Test Commenced On	05.03.2024
Sampling Location	Near Project Area		

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 ₆ H ₅ OH	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 ₂ S	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 23 rd Edn. 2017:9221B	174 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****

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Authorised Signatory

A S K

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.

TEST REPORT

Report No	EHS360/TR/2024-25/ 067	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Customer Name			
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/067
Sample Description	Ground Water (WW-2)	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	27.02.2024
Sample Condition	Fit for Analysis	Test Commenced On	05.03.2024
Sampling Location	Ayyampalayam		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.17
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	865 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	510 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	188.66 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	30.3 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	27.5 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	157.6 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	110 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	41.7 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.37 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.26 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	5.5 mg/l

*****End of Report*****
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Authorised Signatory

A S K
Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/ 067	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/067
Sample Description	Ground Water (WW-2)	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	27.02.2024
Sample Condition	Fit for Analysis	Test Commenced On	05.03.2024
Sampling Location	Ayyampalayam		

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 ₆ H ₅ OH	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 ₂ S	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 23 rd Edn. 2017:9221B	150 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****

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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.

TEST REPORT

Report No	EHS360/TR/2024-25/ 068	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Customer Name			
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/068
Sample Description	Ground Water (WW-3)	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	27.02.2024
Sample Condition	Fit for Analysis	Test Commenced On	05.03.2024
Sampling Location	Velayudhampalayam		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.03
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	992 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	585 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	224.05 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	39.7 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	30.4 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	177 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	124 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	60 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.27 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.26 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	5.1 mg/l

*****End of Report*****
Page 1 of 1

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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.

TEST REPORT

Report No	EHS360/TR/2024-25/ 068	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur District.		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/068
Sample Description	Ground Water (WW-3)	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	27.02.2024
Sample Condition	Fit for Analysis	Test Commenced On	05.03.2024
Sampling Location	Velayudhampalayam		

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 ₆ H ₅ OH	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 ₂ S	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 23 rd Edn. 2017:9221B	155 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****

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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.

TEST REPORT



TC-9583

Report No	EHS360/TR/2024-25/ 069	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur		
Customer Name			
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/069
Sample Description	Ground Water (BW-1)	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	27.02.2024
Sample Condition	Fit for Analysis	Test Commenced On	05.03.2024
Sampling Location	Near Project Area		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.60
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	800 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	471 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	185.18 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	32.2 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	25.5 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	140 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	81 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	52.4 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.37 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.15 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	7.5 mg/l

*****End of Report*****

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Verified by



Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

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TEST REPORT



TC-9583

Report No	EHS360/TR/2024-25/ 069	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/069
Sample Description	Ground Water (BW-1)	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	27.02.2024
Sample Condition	Fit for Analysis	Test Commenced On	05.03.2024
Sampling Location	Near Project Area		

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 ₆ H ₅ OH	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 ₂ S	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 23 rd Edn. 2017:9221B	111 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****

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Verified by



Authorised Signatory

Name: Santhosh Kumar A
Designation: Quality Manager

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TEST REPORT

Report No	EHS360/TR/2024-25/ 070	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur		
Customer Name			
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/070
Sample Description	Ground Water (BW-2)	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	27.02.2024
Sample Condition	Fit for Analysis	Test Commenced On	05.03.2024
Sampling Location	Neikkaranpalayam		

S.No.	Parameters	Test Method	RESULTS
	Discipline: Chemical	Group: Water	
1	Colour	IS 3025 Part 4:1983 (Reaff:2017)	5
2	Odour	IS 3025 Part 5:2018	Agreeable
3	pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.53
4	Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	1006 µmhos/cm
5	Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	1.0 NTU
6	Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	593 mg/l
7	Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	199.12 mg/l
8	Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	33.5 mg/l
9	Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	28.1 mg/l
10	Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	170 mg/l
11	Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	149 mg/l
12	Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	70.2 mg/l
13	Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.31 mg/l
14	Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
15	Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.22 mg/l
16	Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff:2019)	6.3 mg/l

*****End of Report*****

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Authorised Signatory



Name : Santhosh Kumar A
Designation : Quality Manager

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PRIVATE LIMITED

TEST REPORT

Report No	EHS360/TR/2024-25/ 070	Report Date	05.03.2024
Site Location	KEERANUR ROUGH STONE AND GRAVEL QUARRY S.F.Nos. 441/A1 (P), A2 (P), A3 (P) & A4 (P), 449 (P) & 450 Keeranur Village, Kangayam Taluk, Tiruppur		
Sampling Method	SOP Method	Sample Drawn by	Laboratory
Sample Name	Water	Sample Code	EHS360/070
Sample Description	Ground Water (BW-2)	Sample Collected Date	26.02.2024
Qty. of Sample Received	2 Litres	Sample Received On	27.02.2024
Sample Condition	Fit for Analysis	Test Commenced On	05.03.2024
Sampling Location	Neikkaranalayam		

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 ₆ H ₅ OH	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 ₂ S	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 23 rd Edn. 2017:9221B	168 MPN/100ml
38	<i>Escherichia coli</i>	APHA 23 rd Edn. 2017:9221F	< 1.8 MPN/100ml

*****End of Report*****

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Verified by



Authorised Signatory

Name : Santhosh Kumar A
Designation : Quality Manager

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National Accreditation Board for Education and Training



Certificate of Accreditation

Geo Exploration & Mining Solutions, Salem

No. 17, Advaita Ashram Road, Fairlands, Salem – 636 004, Tamilnadu, India.

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S.No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals opencast only	1	1 (a) (i)	A
2	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	B
3	Building and construction projects	38	8(a)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Jan 06, 2023 and posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2684 dated Feb 20, 2023. The accreditation needs to be renewed before the expiry date by Geo Exploration & Mining Solutions, Salem following due process of assessment.

Sr. Director, NABET
Dated: Feb 20, 2023

Certificate No.
NABET/EIA/2225/RA 0276

Valid up to
August 06, 2025

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