

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENT MANAGEMENT PLAN

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

“B1” CATEGORY – MINOR MINERAL – CLUSTER – NON-FOREST LAND-
EXISTING QUARRY

M/s. S.G. GRANITES MULTI COLOUR GRANITE QUARRY

CLUSTER EXTENT = 7.74.23 Ha

Location Details	Project Detail	
S.F. No: 911/1A1, 911/1B1, 913/1A1 (P) & 913/1B1 Extent: 2.81.5 ha Alambadi Village, Gujliamparai Taluk, Dindigul District, Tamil Nadu State	For entire lease period (20 years)	
	Total ROM :	2,05,281m ³
	Granite Recovery (25%):	51,320m ³
	Proposed Depth :	28m bgl
	For Mining plan period (5 years)	
	Total ROM :	1,15,685m ³
	Granite Recovery (25%):	28,922m ³
	Proposed Depth :	28m bgl

ToR obtained vide

Lr.No. SEIAA-TN/F.No.10310/SEAC/ToR-1620/2023 Dated 22.11.2023

Project Proponent

M/s. S.G. Granites,
S.P. Sonaisamy- Partner & Authorised Signatory

No. 3, East 2nd Street, Behind ICICI Bank,
K.K. Nagar, Madurai District - 625020.

<p>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: ifthiahmed@gmail.com, geothangam@gmail.com Web: www.gemssalem.com</p>	<p>Laboratory CHENNAI METTEX LAB PRIVATE LIMITED, (ISO/IEC 17025:2017) No.83, M.K.N. Road, Jothi Complex, Guindy, Chennai – 600 032 Tamil Nadu, INDIA.</p>
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Baseline Monitoring Period: March 2022 to May 2022

MAY 2024

UNDERTAKING

I M/s.S.G. Granites given undertaking that this EIA & EMP report prepared for our Multi Colour Granite quarry situated in S.F. No 911/1A1, 911/1B1, 913/1A1 (P) & 913/1B1 over an extent of **2.81.5 Ha** in Alambadi Village, Gujliamparai Taluk, Dindigul District, Tamil Nadu State based on the ToR issued by the State Level Environmental Impact Assessment Authority (SEIAA), Tamil Nadu vide Lr.No. SEIAA-TN/F.No.10310/SEAC/ToR-1620/2023 Dated 22.11.2023.

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 Lessee for

M/S.S.G.Granites



(S.P.Sonaisamy)

Partner

Place: Namakkal

Dated:

DECLARATION

I Dr. M. Ifthikhar Ahmed– EIA Co Ordinator declare that the Draft EIA & EMP report for the Multi Colour Granite quarry in S.F. No 911/1A1, 911/1B1, 913/1A1 (P) & 913/1B1 over an extent of **2.81.5 Ha** in Alambadi Village, Gujliamparai Taluk, Dindigul District, Tamil Nadu State has been prepared by Geo Exploration and Mining Solutions, Salem, Tamil Nadu.

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

Signature of the EIA Co Ordinator



Dr. M. Ifthikhar Ahmed

EIA Coordinator

M/s. Geo Exploration and Mining Solutions

Place: Salem

Dated:

For the easy representation the proposed quarries and existing lease quarries are designated as below –

CLUSTER QUARRIES				
PROPOSED QUARRY				
CODE	Name of the Owner	S.F.Nos	Extent	Status
P1	M/s.S.G. Granites, Door No. 3, East 2 nd Floor, Behind ICICI Bank, K.K. Nagar, Madurai 625 020	911/1A1, 911/1B1, 913/1A1 (P) & 913/1B1	2.81.5	Obtained ToR vide Lr.No. SEIAA- TN/F.No.10310/SEAC/ToR- 1620/2023 Dated 22.11.2023
PRESENT PROPOSED QUARRIES				
P-2	M/s. Shri Sai Sabari Enterprises No. 54A, R.R. Tower 2nd Floor, Sengunathapuram Main road, Karur	864/2(P), 864/3(P), 864/4(P), 864/5, 864/6(P), 864/9(P), 864/10(P), 864/12 & 864/13	2.79.73	EC granted Lr.No.SEIAA-TN/F.No.7529/1(a) /EC.No:4672/2021.dated : 05.07.2021
		Total	5.61.23	
EXISTING QUARRY				
CODE	Name of the Owner	S.F. Nos	Extent	Status
E-1	Tvl.S.G.Granites, Door No. 3, East 2 nd Floor, Behind ICICI Bank, K.K. Nagar, Madurai 625 020	913/2B	2.13.0	EC granted Lr.No.SEIAA-TN/F.No.8798/ 2021/(a)/EC.No:6087/2023.dated : 29.09.2023
E-2	Tvl.Ultratech Cement Limited. Reddipalayam Cement works, Reddipalayam Post, Ariyalur	913/3, 913/4, etc..	15.95.0	Applied area
			2.13.0	
ABANDONED/EXPIRED QUARRY				
CODE	Name of the Owner	S.F. Nos	Extent	Lease Period
EX-1	M/s Sree Sakthi Mines, A.M.S Building, Akkaraipatti Sankar, Salem.	854,855,857/1	0.77.0	23.12.1998 to 22.12.2018
TOTAL CLUSTER EXTENT			7.74.23	

As per the Cluster Notification 2269 (E) 1st July 2016 total Extent of the Cluster **Extent – 7.74.23 Ha**

E-2 is not included in the cluster extent due to change in the mineral. The cluster extent to be considered for the same mineral as per notification 2269 (E) 1st July 2016.

TERMS OF REFERENCE (ToR) COMPLIANCE

M/s. S.G Granites

“ToR issued vide Letter No. SEIAA- TN/F.No.10310/SEAC/ToR-1620/2023 Dated 22.11.2023”

ADDITIONAL CONDITIONS		
1	The proponent shall give an Affidavit before the issuance of ToR from SEIAA-TN stating that the mining operations will remain suspended till they obtain the EC granted by the SEIAA after the reappraisal process as per MoEF &CC OM F.No, IA3-22/11/2023-IA.III(E-208230), dated. 28.04.2023	Noted and agreed
2	The project proponent shall submit a Certified Compliance Report obtained from the office of the concerned DEE/TNPCB (or) IRO, MoEF & CC, Chennai as per the MoEF&CC O.M dated: 08.06.2022 for the previous EC dated. 29.01.2018 and appropriate mitigating measures for the non-compliance items, if any.	The Certified Compliance Report will be submitted during appraisal.
3	The PP shall furnish valid CTO copy obtained from the TNPCB.	CTO from TNPCB- Dindigul Proceeding No.: F.1156DGL/RS/DEE/TNPCB/DGL/A/2022 Dated; 29/01/2022
4	The PP shall furnish letter from AD mines including the following details, i. Existing pit dimension through precise mine surveying (DGPS) ii. Quantity achieved Vs EC Approved Quantity iii. Balance Quantity as per Mineable Reserve calculated. iv. Mined out Depth as on date Vs EC Permitted depth v. Details of illegal/illicit mining carried out in the proposed quarry site vi. Violation in the quarry during the past working. vii. Quantity of material mined out outside the mine lease area viii. Condition of Safety zone/benches as on date	<ul style="list-style-type: none"> • It is an existing quarry, operating since 2018 after obtaining Environmental Clearance • Mining lease was granted in the year of 2017 operated in the mining plan period i.e., 2018-19 to 2022-23 total quantity Excavated is 115900m³ of ROM. Production (28,975m³ 25%) • Existing pit dimension – 104m (Length) X 124m (Width) X 17m (Depth). • Non-Violation in this quarry
5	The PP shall furnish the letter received from DFO concerned stating the proximity details of Reserve Forests. Protected Areas. Sanctuaries. Tiger reserve etc., up to a radius of 25 km from the proposed site.	Nearest Reserve Forest is Thoppasamymalai R.F- 11.5km SE
6	The PP shall submit the stability status of the existing quarry wall and slope stability action plan by carrying out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore. Division of Geotechnical Engineering IIT- Madras. NIT-Dept of Mining Engg, Surathkal. and Anna University Chennai- CEG Campus.	The Slope stability report will be submitted during Final EIA/EMP report.
7	The Project Proponent shall furnish the revised EMP based on the study carried out on impact of the dust & other environmental impacts due to	The details of EMP in chapter - 10

	proposed quarrying operations on the nearby agricultural lands for remaining life of the mine in the format prescribed by the SEAC considering the cluster situation.	
8	The structures within the radius of (i) 50 m. (ii) 100 m. (iii) 200 m and (iv) 300 m & up to 1 km 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..	Structure Map included in the Chapter-3 Socioeconomic environment Report.
9	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc. are located within 1km 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
10	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	EB Expert Approved by NABET EIA Consultant.
Annexure-1		
1	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	<ul style="list-style-type: none"> • It is an existing quarry, operating since 2018 after obtaining Environmental Clearance • Mining lease was granted in the year of 2017 operated in the mining plan period i.e., 2018-19 to 2022-23 total quantity Excavated is 1,15,900m³ of ROM. Production (28,975m³ 25%) • Existing pit dimension – 104m (Length) X 124m (Width) X 17m (Depth). • The quarry operation is proposed to carry out with conventional open cast mechanized mining with 5.0meter bench height with a bench width of 5.0meter. • Non-Violation in this quarry. • Scheme of Quarrying plan showing Production for the Scheme period – 2023 – 24 to 2027-28 • 1,15,685m³ of ROM (28,922m³ of Granite @ 25% recovery)
2	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	VAO letter stating the details of habitations, temples etc., is enclosed as Annexure
3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the	Structure Map included in the Chapter-3 Socioeconomic environment Report.

	building, number of residents, their profession and income, etc.	
4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the Waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.	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
5	The Proponent shall carry out Bio diversity study through reputed Institution 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 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.	Nearest Reserve Forest is Thoppasamymalai R.F- 11.5km SE
7	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the pp shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	Noted and agreed Existing Lease
8	However, in case of the fresh/virgin quarries, The Proponent shall submit a conceptual 'Slope Stability Assessment' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the proposed working is extended beyond 30 m below ground level.	For the first five years plan period the mining operation is proposed to carry out up to the depth of 28m bgl. It is ensured that the slope stability will be carried out after 30m bgl.
9	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, III/ I Class mines manager appointed by the proponent.	Proponent given affidavit stating that the blasting will be carried out under the supervision of Competent person.
10	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	Noted and agreed
11	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	Noted and agreed. There are three quarries in this cluster two quarries belongs to proponent in the name of M/s .S.G. Granite and Tvl. Ultratech Cement Limited.
12	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines	<ul style="list-style-type: none"> It is an existing quarry, operating since 2018 after obtaining Environmental Clearance

		<ul style="list-style-type: none"> • Mining lease was granted in the year of 2017 operated in the mining plan period i.e., 2018-19 to 2022-23 total quantity Excavated is 1,15,900m³ of ROM. Production (28,975m³ 25%) • Existing pit dimension – 104m (Length) X 124m (Width) X 17m (Depth). • The quarry operation is proposed to carry out with conventional open cast mechanized mining with 5.0meter bench height with a bench width of 5.0meter. • Non-Violation in this quarry. • Scheme of Quarrying plan showing Production for the Scheme period – 2023 – 24 to 2027-28 1,15,685m³ of ROM (28,922m³ of Granite @ 25% recovery)
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	Existing Lease
14	<p>Quantify of minerals mined out</p> <p>A. Highest production achieved in any one year</p> <p>B. Detail of approved depth of mining.</p> <p>C. Actual depth of the mining achieved earlier.</p> <p>D. Name of the person already mined in that leases area.</p> <p>E. If EC and CTO already obtained, the copy of the same shall be submitted.</p> <p>F. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.</p>	<p>Mineable reserves ROM – 2,05,281m³</p> <p>Ultimate Depth 130m(L) x 144m (W) x 28m (D)</p> <p>Year wise production for first five years ROM – 1,15,685m³</p> <p>Multicolour Granite-28,922m³ @ 25% Granite Recovery</p> <p>Peak Production – 8,008m³ of ROM</p> <p>Depth – 28m bgl</p>
15	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet. Topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	<p>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>
16	The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc..	Noted and agreed
17	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	The area has been fenced and plantation activities carried out within the project site.
18	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned	The details of mineral reserves have been provided in Chapter No 1,

	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.	Mineable reserves ROM – 2,05,281m ³ Ultimate Depth 130m(L) x 144m (W) x 28m (D) Year wise production for first five years ROM – 1,15,685m³ Multi Color Granite-28,922m ³ @ 25% Recovery Peak Production – 8,008m ³ of ROM Depth – 28m bgl
19	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Total Employment is 32Nos inclusive of Competent persons. Mines Manager & Foreman Details are given in the Chapter No.2. Page No.28.
20	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3,
21	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic vehicular movement study.	Baseline Data were collected for One Season (Summer season) March to May 2022 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3
22	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts- Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Cumulative impact study due to mining operations is explained in chapter - 7
23	Rain water harvesting management with recharging details along with water balance (both) monsoon & non-monsoon) be submitted.	Noted and agreed
24	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	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, Page No. 17.

25	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use. R&R issues, if any, should be provided.	The details of Dump and disposal of Granite waste is discussed in the Chapter No.4 Page No. 96.
26	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required. clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable. Project area / Study area is not declared in 'Critically Polluted' Area and does not come under 'Aravalli Range.
27	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Part of the working pit will be allowed to collect rain water during the spell of rain will be used for greenbelt development and dust suppression. The Mine Closure Plan is prepared for converting the excavated pit into rain water harvesting structure and serve as water reservoir for the project village during draught season.
28	Impact on local transport infrastructure due to the Project should be indicated.	Transportation details mentioned in Chapter -2
29	A tree survey study shall be carried out (nos., name of the species, age, diameter etc..) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	Details of the trees in the buffer zone given in Chapter No.3&4
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	After the completion of mining operation, the part of the quarried-out land will be utilized as temporary storage reservoir. The details are given in the Chapter No.4
31	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	The flora and fauna study along with local students will be carried during final EIA report.
32	The purpose of green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, & State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	Noted & agreed. It is proposed to plant a 1410 nos of trees in the 7.5m safety barrier and village roads.
33	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner.	It is an Existing Lease. No trees within the project site. it is proposed to plant 1410Nos of Trees in the safety barrier and Village roads.

34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Disaster management Plan details in Chapter-7
35	A Risk Assessment and management Plan shall be prepared and included in the ELA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	A Risk Assessment and management Plan Chapter- 7
36	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts chapter- 10
37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	No Public Health Implications anticipated due to this project. Details of CER are discussed under Chapter 8, Page No. 148-149.
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	It is explained in Chapter -3
39	Details of litigation pending against the project, if any, with direction /Order passed by any Court of Law against the Project should be given.	No, Litigation against the project
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Chapter-8 discussed about benefits of projects.
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC. Regional Office, Chennai (or) the concerned DEE/TNPCB.	It is an Existing lease Previous EC Letter Lr.No. DEIAA-DGL/EC.No.063/2017 Dated 29.1.2018.
42	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The EMP prepared for the life of the mine.
43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted & agreed.
NORMAL 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.	Cluster management committee has been formed with mutual agreement with the proponents including Existing quarry at present are framed.

2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc..	As per the committee agreement proponents will coordinates for the Greenbelt development, Water sprinkling and tree plantation activities combinedly.
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.	The formation of committee with list of members has been submitted to the AD mines office, Dindigul and the same will be update in every year.
4	Detailed operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	As per the committee agreement the blasting frequency will be discussed and carryout by the Mines Manager appointed by the proponents and the same will be updated in the committee minutes. Transport details in chapter-2
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Details discussed in chapter 7 of Draft EIA report
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Details discussed in chapter-6 of Draft EIA report
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 plan within the cluster.	Details discussed in chapter 7.
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health 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.
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 arca communication order issued from reputed research institutions on the following a) Soil health & bio-diversity b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature' & Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health. e) Agriculture, Forestry & Traditional practices.	Details of Soil health is given in Chapter No 3 and biodiversity is given in Chapter No 3. The project will not cause any significant changes in the climate Climatic changes and GHG are described in Chapter No 4. Details of water contamination and impact on aquatic ecosystem is given in Chapter No 4. Hydrothermal/ Geothermal effects due to destruction in the environment, Bio geochemical process and sediment geo chemistry given in the Chapter No 7.

	f) Hydrothermal/Geothermal effect due to destruction in the Environment. g) Bio-geochemical processes and its foot prints including environmental stress. h) Sediment geochemistry in the surface steams.	
Agriculture & Agro-Biodiversity		
13	Impact on surrounding agricultural fields around the proposed mining Area.	Detailed discussed in chapter 4.
14	Impact on soil flora & vegetation around the project site.	Detailed discussed in chapter 4.
15	Details of type 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.	The area is proposed Lease & Few trees present with in lease.
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 dry barren land no agriculture activities carried out. This is an Existing lease area.
Forest		
19	The project proponent shall detail study on impact of mining on Reserve forests free ranging wildlife.	Nearest Reserve Forest is Thoppasamymalai R.F-11.5km SE
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The area is surrounded by Barren land. Details of flora and fauna studies given in the Chapter No.3.
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	No major trees within the project area.
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	Kadavur Slender Loris Sanctuary 7km SE
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.	The hydro-geological study was conducted to evaluate the possible impact on the ground water table. No significant impacts are anticipated on the water bodies around the project area. Details are discussed under Chapter No. 3.
24	Erosion Control measures.	Noted & agreed
25	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease	Details in Chapter 2

	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.	Noted & agreed
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.	No Archaeological site near the project area, no proposal for the disposal of mine pit water in the nearby water bodies.
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.	Discussed in the Draft EIA/EMP Report in Chapter No.3.
Energy		
31	The measures taken to control Noise. Air, Water. Dust Control and steps adopted to efficiently utilize the Energy shall be furnished.	It is explained in Chapter 4
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.	Discussed in the Draft EIA/EMP Report in Chapter No.3.
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.	Project Cost = Rs. 3,27,50,000/- CER Cost = Rs 5,00,000/ Disaster Management plan & mine closure plan is discussed in chapter no.4 & 7
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	Details in Study 7.3 Disaster Management Plan in Chapter -7

	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.	VAO certificate is attached as Annexure There is no habitation 300m radius attached Structure map in chapter-3 Socioeconomic environment.
40	As per the MoEF& CC office memorandum F.No.22-65/2017-1A.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	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, it is a fresh project.
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 patta land owned by Project Proponent. Patta copy, other land documents are enclosed 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 corners coordinate of the mine lease area, superimposed on 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).	Satellite imagery of the project area along with boundary coordinates is given in the Chapter No 2 Figure No.2.3 Page No.12 Geomorphology of the area is given in Chapter No 2 Figure No 2.9. Page No.20 Land use pattern of the project area is tabulated in the Chapter No.2. Table No.2.3 Page No.17 Land use pattern of the Study area is tabulated in the Chapter No.3 Table No 3.2 Page No.30.
5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map	Geomorphological features are incorporated in the Toposheet map covering 10km radius

	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.	around the project area Figure No. 2.9, Page No. 20.
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 its Environmental Policy and the same is discussed in the Chapter No 10, Page No 114
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.
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.
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land use and land cover of the study area is discussed in Chapter No. 3, Page No. 30.
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.
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.
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.

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.
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	Nil within 10km Radius
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.	No wildlife sanctuary located within 10 km Radius from the periphery of the project area.
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 KM of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished	Kadavur Slender Loris Sanctuary -7km SE
18	A detailed biological study of the study area [core zone and buffer zone (10 KM radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	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, Page No. 67-75.
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,	The proposed project area is devoid of major cultivations and there are no habitations within a radius of 300 meters.

	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, 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.	Baseline Data were collected for One Season (Summer season) March to May 2022 as per CPCB Notification and MoEF & CC Guidelines. Details in Chapter No. 3, Page No.30 - 766.
23	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing predominant wind direction may also be indicated on the map.	Air Quality Modelling for prediction of incremental GLC's of pollutant was carried out using AERMOD view 9.6.1 Model.
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: 2.0 KLD
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 sourced from accumulated rainwater/seepage water in mine pits.
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 4, Page No. 80.

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 inferred 58m below ground level.
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.	There is no stream, seasonal or other water bodies passing within the project area. Therefore, no modification/ diversion of water bodies is anticipated.
30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.	Highest elevation of the project area is 220m AMSL. Ultimate depth of the mine is 28 m BGL. Water level of the area is 58m BGL
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	Recommended Species proposed for Greenbelt Development are given in the Chapter 4, Page No.90.
32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	Traffic density survey was carried out to analyse the impact of Transportation in the study area as per IRC guidelines 1961 and it is inferred that there is no significant impact due to the proposed transportation from the project area. Details in Chapter 2, Page No.25.
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Infrastructure & other facilities will be provided to the Mine Workers after the grant of quarry lease and the same has been discussed in the Chapter No. 2 Page No. 26.
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.	The details of conceptual plan is discussed in Approved Mining Plan enclosed as Annexure Volume 1
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation	Details in Chapter 10, Page No. 120.

	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.	Details in Chapter 4, Page No. 90.
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.	Details in Chapter-8 , Page No. 112
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.	Environment Management Plan Chapter 10, Page No. 114-124
39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	The outcome of public hearing will be updated in the final EIA/AMP report
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No litigation is pending in any court against this project.
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	The project cost and EMP cost are detailed in Chapter 2, Page No. 27
42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report.	Details in Chapter 7, Page No. 102.
43	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Details in Chapter 8, Page No. 112.
44	Besides the above, the below mentioned general points are also to be followed: -	
a)	Executive Summary of the EIA/EMP Report	Enclosed as Separate Booklet
b)	All documents to be properly referenced with index and continuous page numbering.	All the documents are properly referenced with index and continuous page numbering.
c)	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	List of Tables and source of the data collected are 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.	Original Baseline monitoring reports will be submitted in the final EIA report during appraisal.
e)	Where the documents provided are in a language other than English, an English translation should be provided.	Not Applicable.
f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Will be enclosed in 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)	Instructions issued by MoEF & CC O.M. No. J-11013/41/2006-IA. II (I) Dated: 4th August, 2009 are followed.

	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	It is a fresh proposal.
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.	Enclosed as Approved Mining Plan as Annexure Volume 1
45	The project proponent shall carry out detailed hydro geological study through intuitions / NABET Accredited agencies.	Hydrogeological study was carried out in the core and buffer zone by competent NABET accredited agency. Details given in chapter no: 3, Pg. No:41 and Chapter:12
46	A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.	Not applicable. It is a fresh quarry proposal.
47	The proponent shall propose the suitable control measures to control the fugitive emissions during the operations of the mines.	Noted and agreed
48	A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.	Carried out detailed in Chapter No 3
49	Reserve funds should be earmarked for proper closure plan.	Detailed in Chapter No 2
50	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 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. In this connection, the project proponent has to furnish the action plan.	The mine management shall strictly adhere to and comply with Tamil Nadu Government Order (Ms) No. 84 Environment and forest (EC.2) Department dated 25.06.2018.

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CHAPTER – 1: INTRODUCTION

1.1 PREAMBLE

Granite is the major requirements for construction and ornamental and monumental stone industries. This EIA report is prepared for M/s. S.G. Granites applied for Multicolour Granite quarry lease in S.F.No. 911/1A1, 911/1B1, 913/1A1 (P) & 913/1B1 over an extent of 2.81.5Ha in Alambadi Village, Gujiliamparai Taluk, Dindigul District, Tamil Nadu.

This EIA report is prepared by considering Cumulative load of proposed & existing multi-colour Granite Cluster Quarries consisting of one Proposed and two proposed present quarries, one Existing quarry, the total extent of Cluster is 7.74.23 ha and the cluster area calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016.

Environmental Impact Assessment (EIA) study is a process, used to identify the Environmental, Social and Economic impacts of a project prior to decision-making. EIA systematically examines both beneficial and adverse consequences of the proposed project and ensure that these impacts are considered during the project designing.

This EIA Report is prepared in compliance with ToR obtained vide letter No SEIAA-TN/F.No.10310/SEAC/ToR-1620/2023 Dated 22.11.2023.

The Baseline Monitoring study has been carried out during Summer season (March - May 2022) 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) individually to minimize those adverse impacts.

1.2 PURPOSE OF THE REPORT

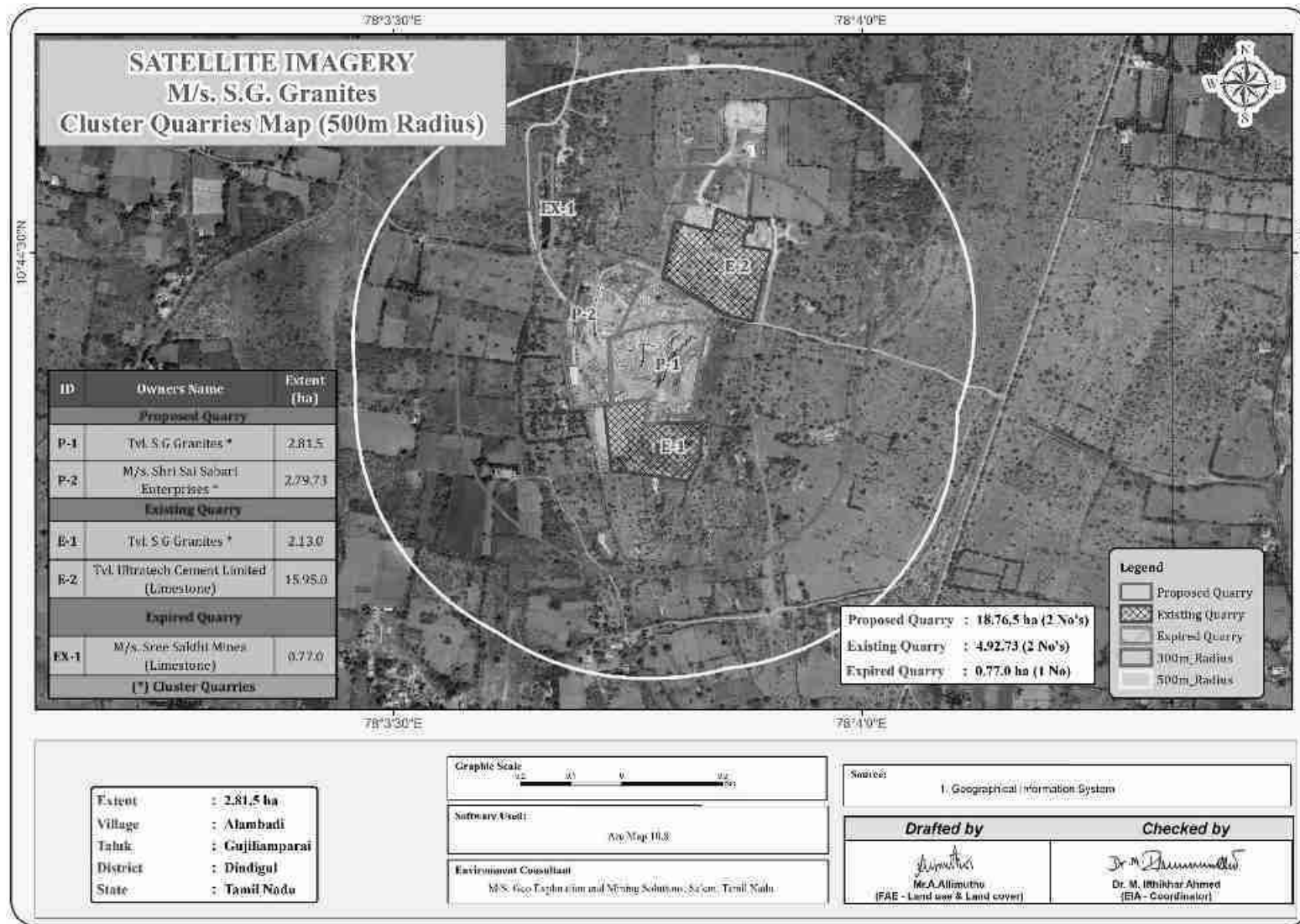
The Ministry of Environment and Forests, Govt. of India, through its EIA notification S.O. 1533(E) of 14th September 2006 and its subsequent amendments as per Gazette Notification S.O. 3977 (E) of 14th August 2018, Mining Projects are classified under two categories i.e., A (> 100 Ha) and B (≤ 100 Ha),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

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

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

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

FIGURE 1.1: SATELLITE IMAGERY OF CLUSTER QUARRIES



1.3 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

1.3.1 Identification of Project

- The Project area is located in S.F.No. 911/1A1, 911/1B1, 913/1A1 (P) & 913/1B1, Alambadi Village, Gujiliamparai Taluk, Dindigul District.
- Quarry lease applied on 03.04.2017,09.05.2017 and 01.08.2017.
- Lease granted vide G.O. (3D) No.6, Industries (MMB.2) Department Dated: 19.02.2018 for 20 years (08.03.2018 to 07.03.2038).
- Mining plan got approved by the Commissioner of Geology and Mining Industrial Estate Guindy, Chennai vide Rc.No.8717/MM2/2017, Dated 06.12.2017 for the period of 20 years vide (Production schedule for the period of 2018-19 to 2022-23).
- Frist Scheme of Mining plan for the period 08.03.2023 to 07.03.2028 prepared and approved vide Letter Rc.No.1866/MM2/2023-1 dated: 30.03.2023.

1.3.2 Identification of Project Proponent

Name of the Project Proponent	:	M/s. S.G. Granites
Address	:	No. 3, East 2 nd Street, Behind ICICI Bank, K.K. Nagar, Madurai.
State	:	Tamil Nadu
Pin code	:	625 020
Mobile No	:	+91 87783 89007 & 90470 91001

M/s. S.G.Granite is a partnership firm and the Partnership deed executed and duly registered on 18.07.2017 with three partners under the Indian Partnership act, 1932

TABLE 1.1: LIST OF PARTNERS

S.Nos	Name	Designation
1	Thiru. S.P. Sonaisamy, S/o. C. Subbiah	Partner
2	Thiru. S. Baala Murugan, S/o. S.P.Sonaisamy	Partner

Source: Partnership deed made on 21.06.2017

Thiru. S.P. Sonaisamy is one of the partner and authorized signatory of this firm.

1.4 BRIEF DESCRIPTION OF THE PROJECT

1.4.1 Nature and Size of the Project

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

Proposed production for the Scheme of Quarrying and PQCP Period (5 years) is described below–

Total Mineable Reserves of Granite @ 25%	=	51,320 m ³
Average Production per year @ 25%	=	28,922 m ³ / 5Years = 5,784 m ³
Estimated Life of the quarry	=	51,320 m ³ / 5,784 m ³
Life of the quarry	=	9 Years

TABLE 1.2: RESOURCES AND RESERVES OF PROJECT

Description	ROM in m ³	Granite recovery @ 25% in m ³	Granite waste @ 75% recovery in m ³	Side burden in m ³	Top Soil in m ³
Geological Resources	4,09,781	1,02,445	3,07,336	1,57,290	54,514
Mineable Reserves	2,05,281	51,320	1,53,961	26,190	34,306
Year wise Production	1,15,685	28,922	86,763	Nil	2,325

TABLE 1.3: SALIENT FEATURES OF THE PROPOSED PROJECT

Salient features of the project		
Name of the Quarry	M/s. S.G. Granites	
Scheme of Mining Plan Period	5 Years	
Lease period & life of the mine	20 years & 5 years	
Toposheet No	58- J/02	
Latitude between	10 ⁰ 44'19.0401" N to 10 ⁰ 44'25.7523" N	
Longitude between	78 ⁰ 03'43.8078" E to 78 ⁰ 03'50.3856" E	
Topography & MSL	Almost Plain topography with gentle sloping towards Western. AMSL of the area = 220m	
Machinery proposed	Jack Hammer	4 nos
	Diesel Generator	1 no
	Compressor	1 no
	Diamond Wire saw	2 nos
	Hydraulic Crane	1 no
	Excavator	2 nos
	Tipper	2 nos
Blasting method	Controlled blasting using Small dia slurry explosives only for overburden and weathered rock removal.	
Proposed manpower deployment	32	
Proposed Depth (Scheme of Mining plan period – 5 Years)	28m Below Ground level	
Ultimate depth of mining	28m Below Ground level	
Project cost	Operational cost	Rs.3,23,70,000/-
	Monitoring Cost	Rs.3,80,000/-
	Total project cost	Rs.3,27,50,000/-
Nearest Habitation	450m-S	
Wildlife Sanctuary	Kadavur Slender Loris Sanctuary 11.5km SE Kodaikanal Wildlife Sanctuary-67.5km SW	
Reserved Forest	Thoppasamymalai R.F-11.5km SE	

Source: First Scheme of Approved Mining Plan

1.4.2 Location of the Project

The Project area is located 2Km on the South East from the Alambadi village and 500m west CCR Road (Chettinad Cements Quarry Road) which connects to Palayam – Aravakurichi Road at a distance of 2km North Side.

FIGURE 1.2: KEY MAP SHOWING THE LOCATION OF THE PROJECT SITE

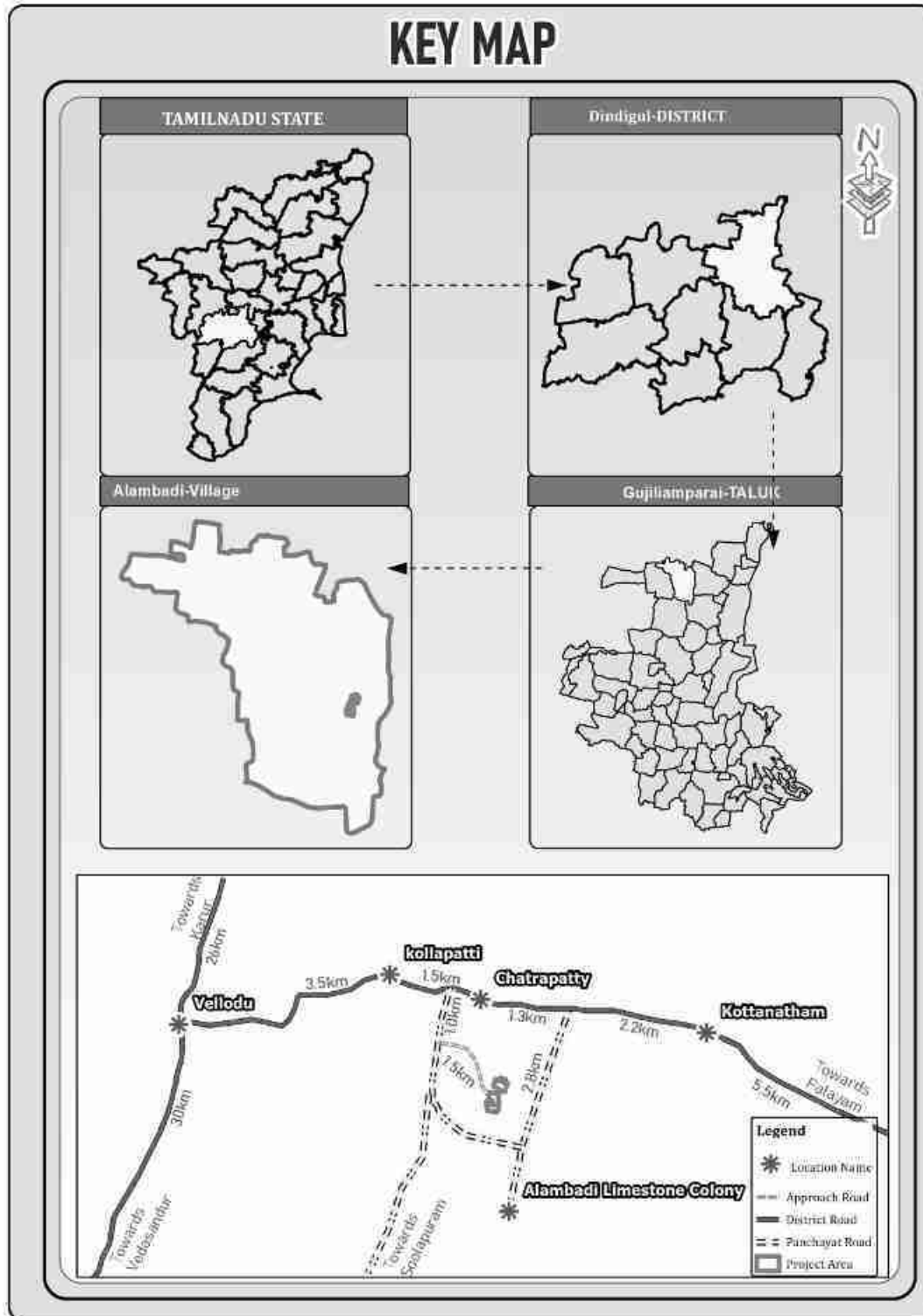
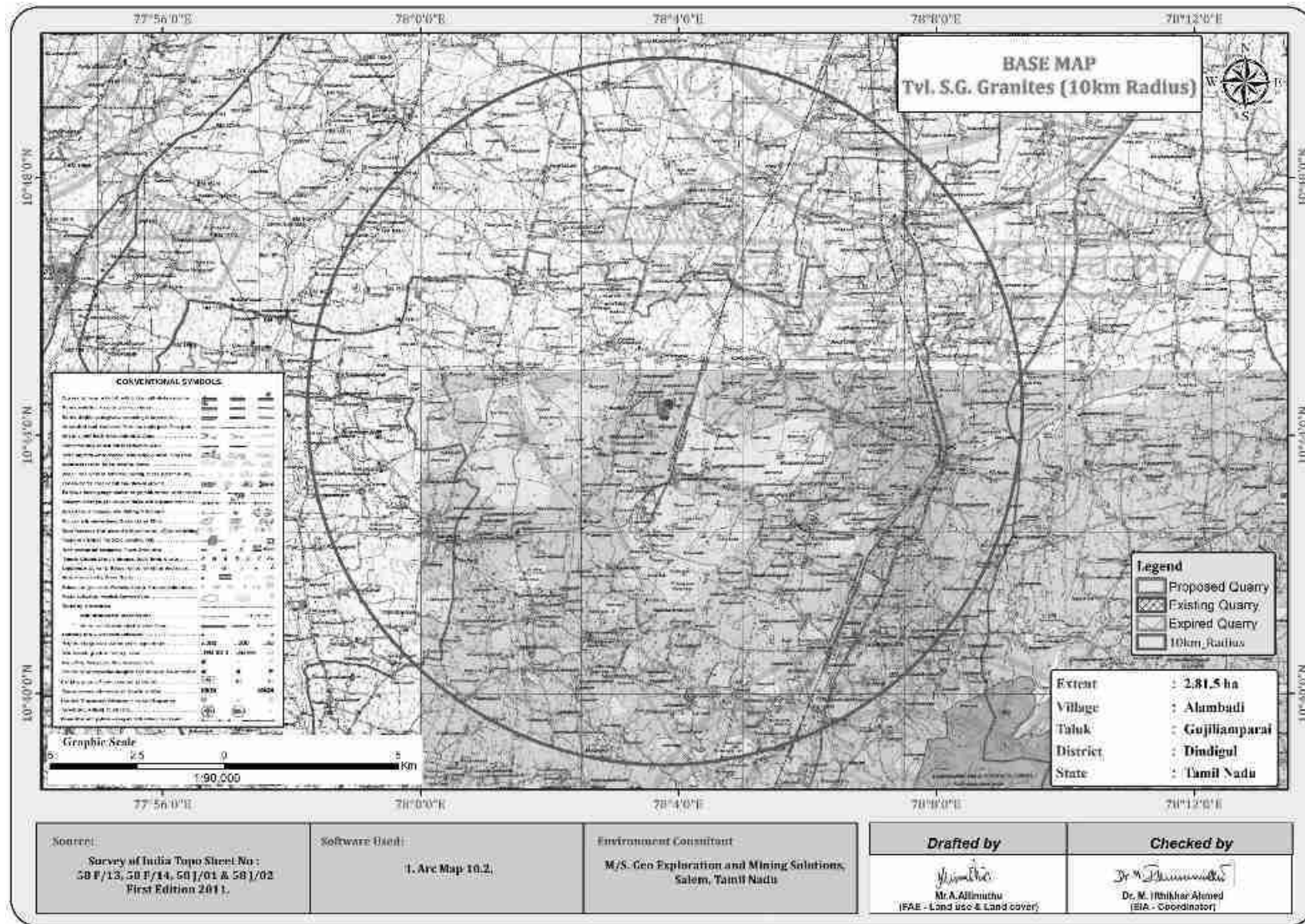


FIGURE 1.3: TOPOSHEET MAP OF THE STUDY AREA 10 KM RADIUS



1.5 ENVIRONMENTAL CLEARANCE

The Proponent had applied for ToR for Environmental Clearance vide online Proposal No. SIA/TN/MIN/430659/2023, Dated 25.05.2023

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

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

SCREENING –

- The proponent applied for Granite Quarry Lease, Dated: 03.04.2017,09.05.2017 and 01.08.2017.
- Precise Area Communication Letter was issued by G.O. (3D) No.6, Industries (MMB.2) Department Dated: 19.02.2018 for 20 years (08.03.2018 to 07.03.2038).
- Mining plan got approved by the Commissioner of Geology and Mining Industrial Estate Guindy, Chennai vide Rc.No.8717/MM2/2017, Dated 06.12.2017 for the period of 20 years vide (Production schedule for the period of 2018-19 to 2022-23).
- Frist Scheme of Mining plan for the period 08.03.2023 to 07.03.2028 prepared and approved vide Letter Rc.No.1866/MM2/2023-1 dated: 30.03.2023
- Proponent applied for ToR to get Environmental Clearance vide online Proposal No. SIA/TN/MIN/430659/2023, Dated 25.05.2023.

SCOPING –

- The proposal was placed in 409th SEAC meeting held on 21.09.2023 and the committee recommended for issue of ToR.
- The proposal was considered in 675th SEIAA meeting held on 22.11.2023 and issued ToR vide Lr.No. SEIAA-TN/F.No.10310/SEAC/ToR-1620/2023 Dated 22.11.2023.

PUBLIC CONSULTATION –

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

APPRAISAL –

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

The report has been prepared using the following references:

- Guidance Manual of Environmental Impact Assessment for Mining of Minerals, Ministry of Environment and Forests, February, 2010
- EIA Notification, 14th September, 2006
- Lr.No. SEIAA-TN/F.No.10310/SEAC/ToR-1620/2023 Dated 22.11.2023
- Approved Mining Plan of this project
- In addition, other relevant standards for individual activities such as Sampling and Testing of Environmental attributes have been followed

1.6 POST ENVIRONMENT CLEARANCE MONITORING

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

1.7 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 Summer season (March to May) 2022 for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suggest suitable mitigation measures for likely adverse impacts due to the proposed project.

TABLE 1.4: ENVIRONMENT ATTRIBUTES

Sl.No.	Attributes	Parameters	Source and Frequency
1	Ambient Air Quality	PM10, PM 2.5, SO ₂ , NO ₂	Continuous 24-hourly samples twice a week for three months at 8 locations (1 Core & 7 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 5 ground water and 1 surface water locations once during study period.
4	Ecology	Existing terrestrial and aquatic flora and fauna within 10 km radius circle.	Limited primary survey and secondary data was
5	Noise levels	Noise levels in dB(A)	8 locations – data monitored once for 24 hours during EIA study
6	Soil Characteristics	Physical and Chemical Parameters	Once at 6 locations during study period
7	Land use	Existing land use for different categories	Based on Survey of India topographical sheet and satellite imagery and primary survey.
8	Socio-Economic Aspects	Socio-economic and demographic characteristics, worker characteristics	Based on primary survey and secondary sources data like census of India 2011.
9	Hydrology	Drainage pattern of the area, nature of streams, aquifer characteristics, recharge and discharge areas	Based on data collected from secondary sources as well as hydro-geology study report prepared.
10	Risk assessment and Disaster Management Plan	Identify areas where disaster can occur by fires and explosions and release of toxic substances	Based on the findings of Risk analysis done for the risk associated with mining.

Source: Onsite Monitoring Data/Sampling by Chennai Mettex Lab Private Limited

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

1.8.1 Regulatory Compliance & Applicable Laws/Regulations

- Application for Quarrying Lease as per Tamil Nadu Minor Mineral Concession Rules, 1959
- Obtained Precise Area Communication Letter as per Tamil Nadu Minor Mineral Concession Rules, 1959 for Preparation of Mining Plan and obtaining Environmental Clearance.
- The Mining Plan of Granite quarry has been approved under Rule 41 & 42 as amended of Tamil Nadu Minor Mineral Concession Rules, 1959
- ToR from SEIAA-TN.

2. PROJECT DESCRIPTION

2.1 GENERAL

This Multi Colour Granite Quarry project requires prior Environmental Clearance. The project falls in the cluster situation as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is 7.74.23 ha. As the extent of cluster are more than 5 ha, the proposal falls under B1- Category as per the Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green Tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018, and requirement for EIA, EMP and Public Consultation for obtaining Environmental Clearance.

2.2 DESCRIPTION OF THE PROJECT

The project area is Existing quarry, mining activities carried out before, Topography of the area is exhibits flat terrain with gentle gradient towards west side. No major vegetation or trees within the project area, the project is site specific and there is no additional area required for this project. There is no effluent generation/discharge from the Existing quarry.

Multi-Colour Granite is existing quarry by opencast mechanized method involving Eco-friendly Diamond Wire Saw Cutting. Heavy earth moving machineries like Excavators, Trucks will be deployed in this quarrying operation for Granite exploitation. Shot hole drilling with controlled blasting using slurry explosives for removal of overburden and Weathered portions during initial stage of quarry operation.

2.3 LOCATION OF THE PROJECT

- 📍 The project area is located in Alambadi Village, Gujiliamparai Taluk, Dindigul District and Tamil Nadu State.
- 📍 The project falls in Toposheet No: 58 J/02
- 📍 The cluster areas fall in the Latitude between 10^o44'19.0401" N to 10^o44'25.7523" N and Longitude between 78^o03'43.8078" E to 78^o03'50.3856" E
- 📍 The project area is patta land (Non-Forest Land).

TABLE 2.1: SITE CONNECTIVITY TO THE PROJECT AREA

Nearest Roadway	(SH-74) Karur- Dindigul -7.25Km- East (NH- 44) Salem – Madurai- 14.71 Km- SW Bodipatti village road 850m West side of the project area. Chettinadu Cements mines road 500m East.
Nearest Village	Chatrapati village – 1.5km North
Nearest Town	Aravakurichi – 17.0 Km- North East
Nearest Railway Station	Palayam Railway station - 8.0Km- East
Nearest Airport	Trichy – 71.0 Km- North East
Seaport	Tuticorin - 220Km-South East

Source: Survey of India Toposheet

The area is bounded by thirteen corners the coordinates are given below –

TABLE 2.2: BOUNDARY CO-ORDINATES OF PROPOSED PROJECTS

Boundary Pillar No.	Latitude	Longitude
1	10 ⁰ 44' 20.2673" N	78 ⁰⁰ 3' 44.0192"E
2	10 ⁰ 44' 24.3918"N	78 ⁰⁰ 3' 43.8078"E
3	10 ⁰ 44' 24.9732" N	78 ⁰⁰ 3' 44.8428"E
4	10 ⁰ 44' 25.4880"N	78 ⁰⁰ 3' 46.9498"E
5	10 ⁰ 44' 25.7523"N	78 ⁰⁰ 3' 50.3856"E
6	10 ⁰ 44' 24.8953"N	78 ⁰⁰ 3' 49.9352"E
7	10 ⁰ 44' 21.2510"N	78 ⁰⁰ 3' 49.2855"E
8	10 ⁰ 44' 20.0401"N	78 ⁰⁰ 3' 49.1149"E
9	10 ⁰ 44' 19.5939"N	78 ⁰⁰ 3' 49.6719"E
10	10 ⁰ 44' 19.5189"N	78 ⁰⁰ 3' 46.8779"E
11	10 ⁰ 44' 19.0637"N	78 ⁰⁰ 3' 46.8826"E
12	10 ⁰ 44' 19.0401"N	78 ⁰⁰ 3' 46.0941"E
13	10 ⁰ 44' 20.6609"N	78 ⁰⁰ 3' 46.3397"E

Datum: UTM-WGS84, Zone 44N

FIGURE 2.1: PHOTOGRAPH OF THE PROJECT AREA



FIGURE 2.1A: FENCING AND SOIL BUND OF THE PROJECT AREA



FIGURE 2.2: GOOGLE IMAGE SHOWING PROJECT AREA

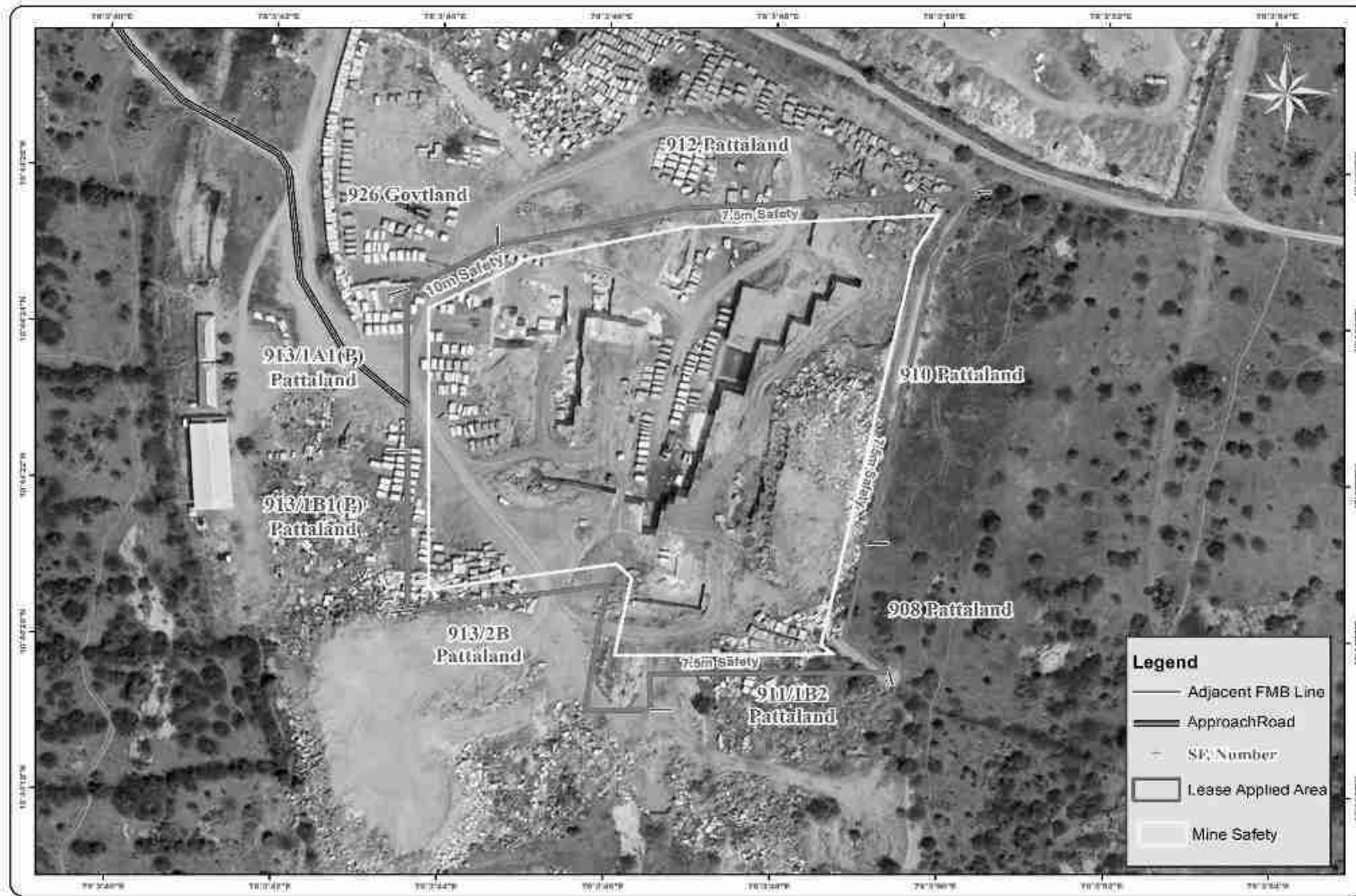
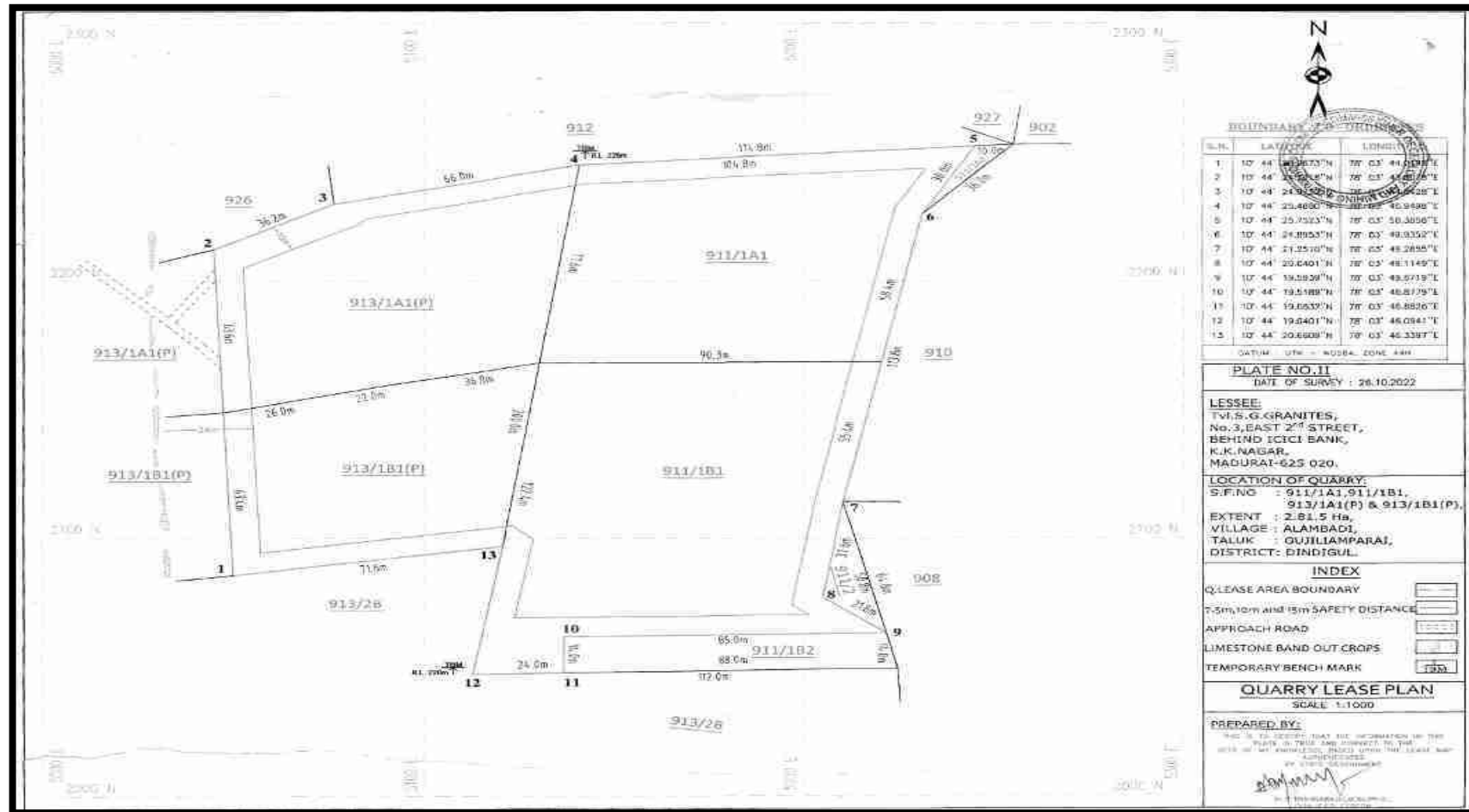


FIGURE 2.3: QUARRY LEASE PLAN / SURFACE PLAN



Source: Approved Scheme of Mining Plan

FIGURE 2.4: VILLAGE MAP SUPERIMPOSED ON GOOGLE EARTH IMAGE

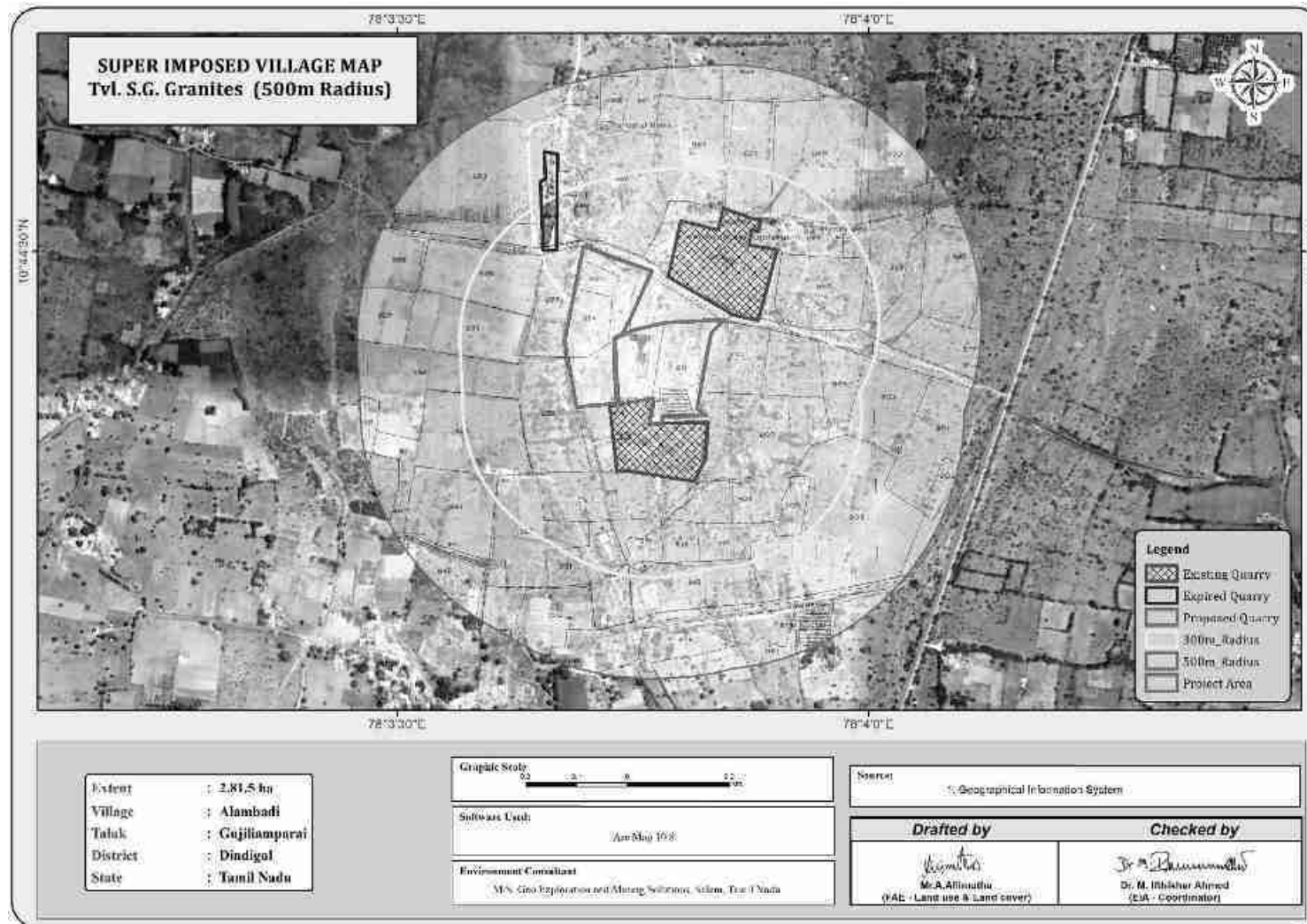


FIGURE 2.5: IMAGE SHOWING SURFACE FEATURES AOUND 10 KM RADIUS

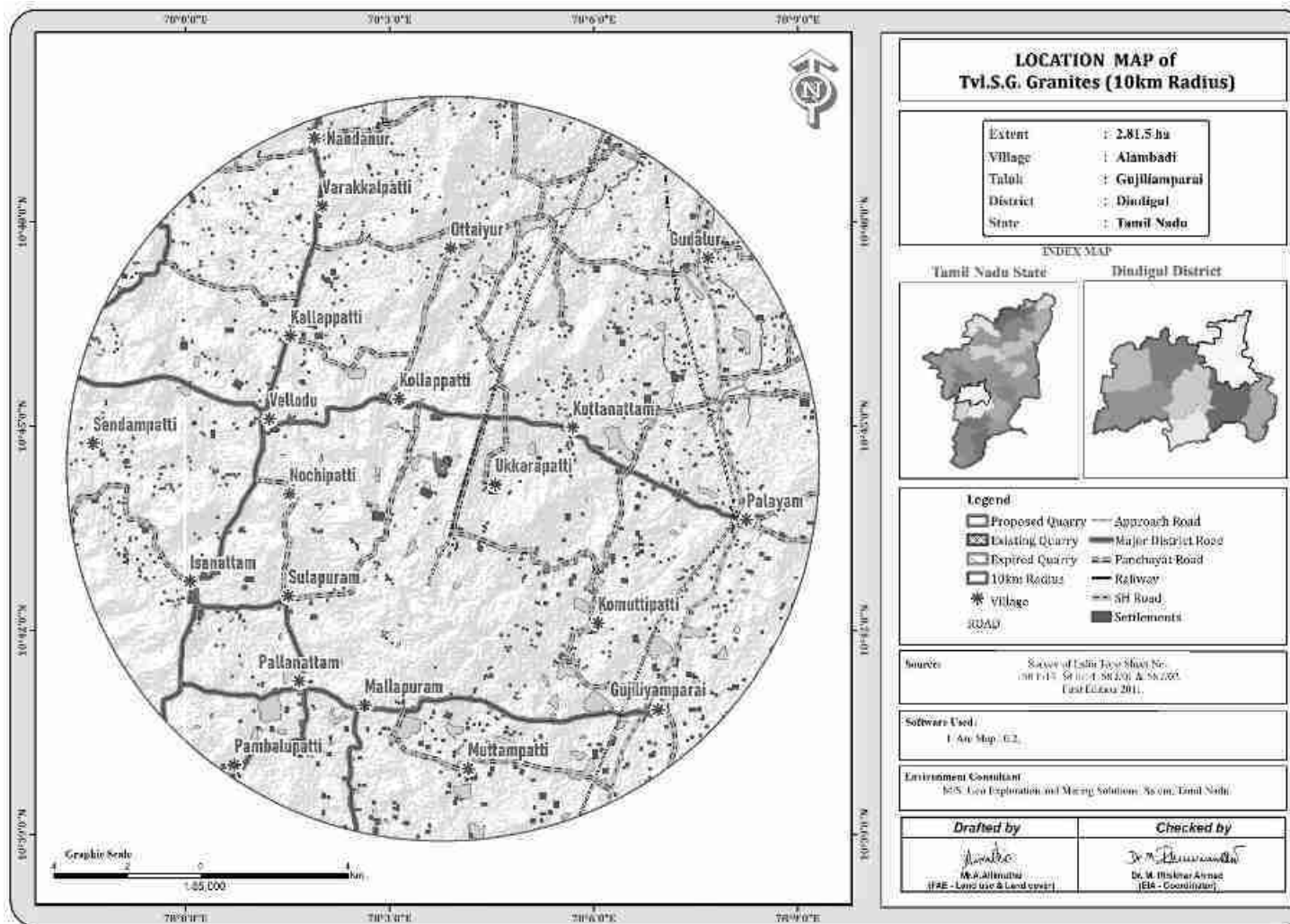


FIGURE 2.6: IMAGE SHOWING SURFACE FEATURES AROUND 5KM RADIUS

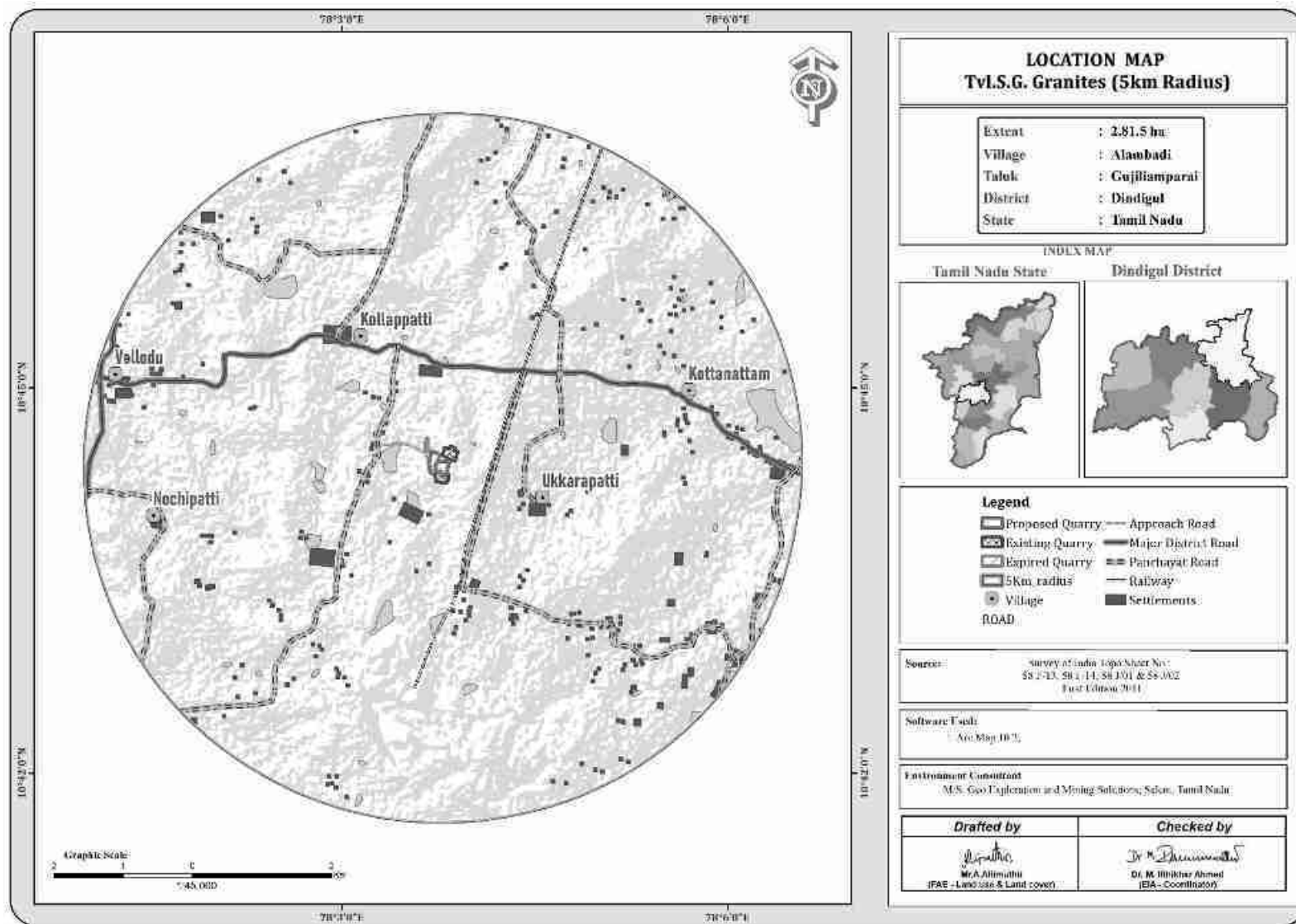
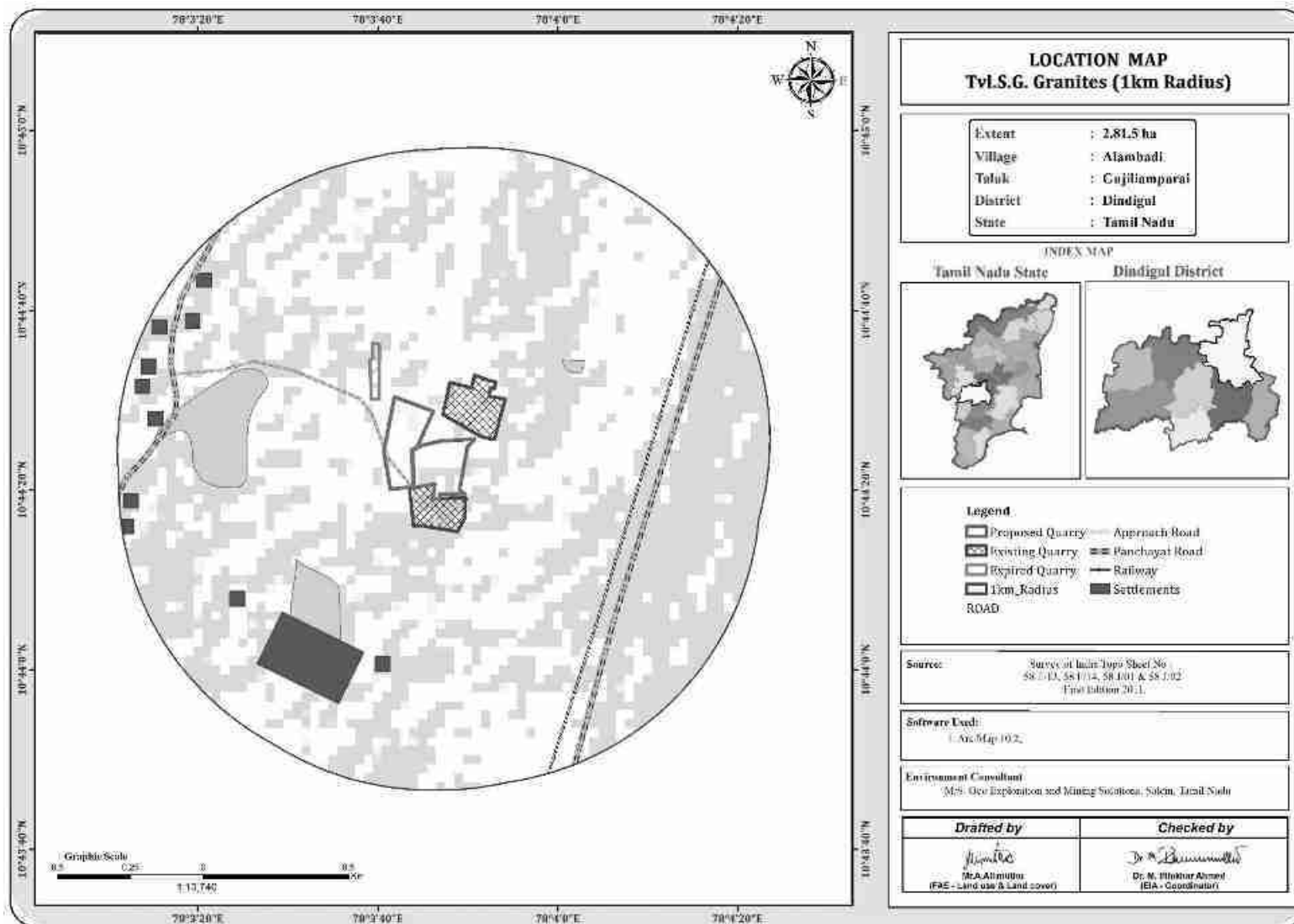


FIGURE 2.7: IMAGE SHOWING SURFACE FEATURES AROUND 1 KM RADIUS



2.3.1 Project Area

- The project is site specific, which is site specific, non – Captive use, opencast Mechanized quarry
- There is No beneficiation or processing proposed in the project area.
- Elevation is 220m above from MSL, with gentle gradient towards West.
- There is no forest land involved in the proposed project area and the area is devoid of major cultivation.

TABLE 2.3: LAND USE PATTERN OF THE PROPOSED PROJECT

Description	Present Area (Ha.)	Area required during this Scheme period(ha)	Area at the end of life of quarry (ha)
Area under Quarry	1.09.27	0.43.26	2.23.70
Waste dump	0.71.46	0.19.07	#Backfilled
Infrastructure	*Nil	*Nil	*Nil
Roads	0.02.00	0.01.00	0.03.00
Green Belt	Nil	Nil @ (0.16.05)	0.50.80
Stocking Blocks	0.98.77	0.35.44	0.04.00
Total	2.81.50	0.98.77	2.81.50

Source: Approved Scheme of Mining plan

2.3.2 Size or Magnitude of Operation

TABLE 2.4: OPERATIONAL DETAILS

Description	ROM in m ³	Granite recovery @ 25% in m ³	Granite waste @ 75% recovery	Side burden in m ³	Top Soil in m ³
Geological Resources	4,09,781	1,02,445	3,07,336	1,57,290	54,514
Mineable Reserves	2,05,281	51,320	1,53,961	26,190	34,306
Year-wise Production	1,15,685	28,922	86,763	Nil	2,325
Number of Working Days	300 days				
Production per day	77	19	58	Nil	8
No of Lorry loads (12m ³ per load)	6	2 loads per week	4-5	Nil	Will be preserved in the safety barrier

Source: Approved Scheme of Mining plan

2.4 GEOLOGY

2.4.1 Regional Geology

The Multicolour Granite proposed to quarry is medium to coarse grained with quartz, alkali feldspar and plagioclase feldspar is major constituents, hornblende, biotite and other mafic minerals are accessories. The petrological setting of the area is simple and not a complicated phenomenon. There are no major minerals observed in the vicinity of the proposed quarry. A brief description of the regional Geology is discussed below.

This area a part of peninsular gneiss the widest spread group of rocks in many parts of Tamil Nadu. The southern domain of Tamil Nadu is characterized by the khondalite group of rocks (with subordinate amounts of charnockite) and marked by the absence of BMQ and dolerite dyke system. The most common varieties of granite are pink, grey and coloured ones. In the granites, feldspar forms about 50%. Quartz a little less and the rest accounted for by amphiboles and pyroxenes. This type occurs in the form of large massive bodies (Batholiths, laccoliths) spreading over hundreds of square kilometres exhibiting variation in colour and texture. Other types occur as lenses and bands within the gneisses and other metamorphic rocks. In these cases, the molten magma of granite has been emplaced into the earlier rocks as narrow, small bodies and partly interacting.

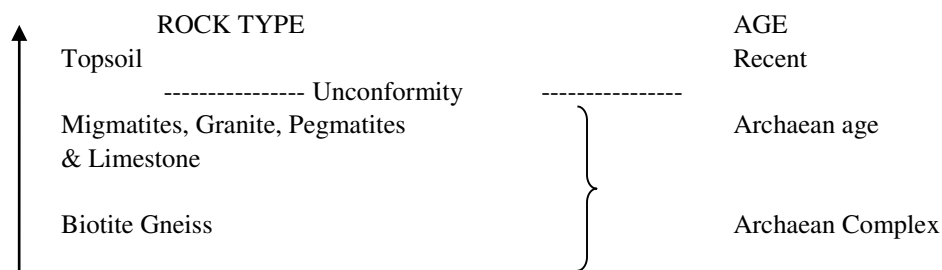
Anorthosites, syenites, porphyries and like that generally considered along with the coloured granite. In these rocks quartz is nearly absent when hornblende or biotite abundant, the rock may be dark green or almost black.

2.4.2 Geology of the project area: -

The rock formation is popularly known as “Granite Gneiss” essentially made up of a supra crustal assemblages of quartz, Plagioclase feldspar and Calcite is major constituents, Hornblende, Biotite, and other mafic minerals are accessories, closely inter banded with Granite gneiss, occurring within a vast area of Hornblende biotite gneiss is the country rock but, the rock formation of the entire applied area is covered by multi colour granite with trending of N10⁰E – S10⁰W with dipping towards NW80⁰.

STRUCTURAL SETTINGS OF DINDIGUL DISTRICT:

The general geological sequence of the rock types is given in the following Order of super position.



2.4.3. Geology of the lease applied area

Hornblende biotite gneiss is the country rock but, the rock formation of the entire applied area is covered by multi-colour granite with trending of N10⁰E – S10⁰W with dipping towards NW 80⁰. The fresh Multi Colour granite is mostly concealed under reddish soil having an average thickness of 2m below from the ground level.

Exploration studies

State Geology and Mining Department 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 Dindigul District, besides the Functional Area Experts (FAE) in Geology and Hydrogeology carried out detailed Geological studies in the area. The Granite outcrop is clearly visible in some places within the study area.

2.4.4 Hydrogeology

Dindigul district is underlined by Archaean crystalline formations with recent alluvial deposits of limited areal extent and thickness along the courses of major rivers. The occurrence and movement of ground water are controlled by various factors such as physiography, climate, geology and structural features. Weathered, and fractured crystalline rocks constitute the important aquifer systems in the district. Ground water generally occurs under phreatic conditions in the weathered mantle and under semi-confined conditions in the fractured zones at deeper levels.

FIGURE 2.8: REGIONAL GEOLOGY MAP

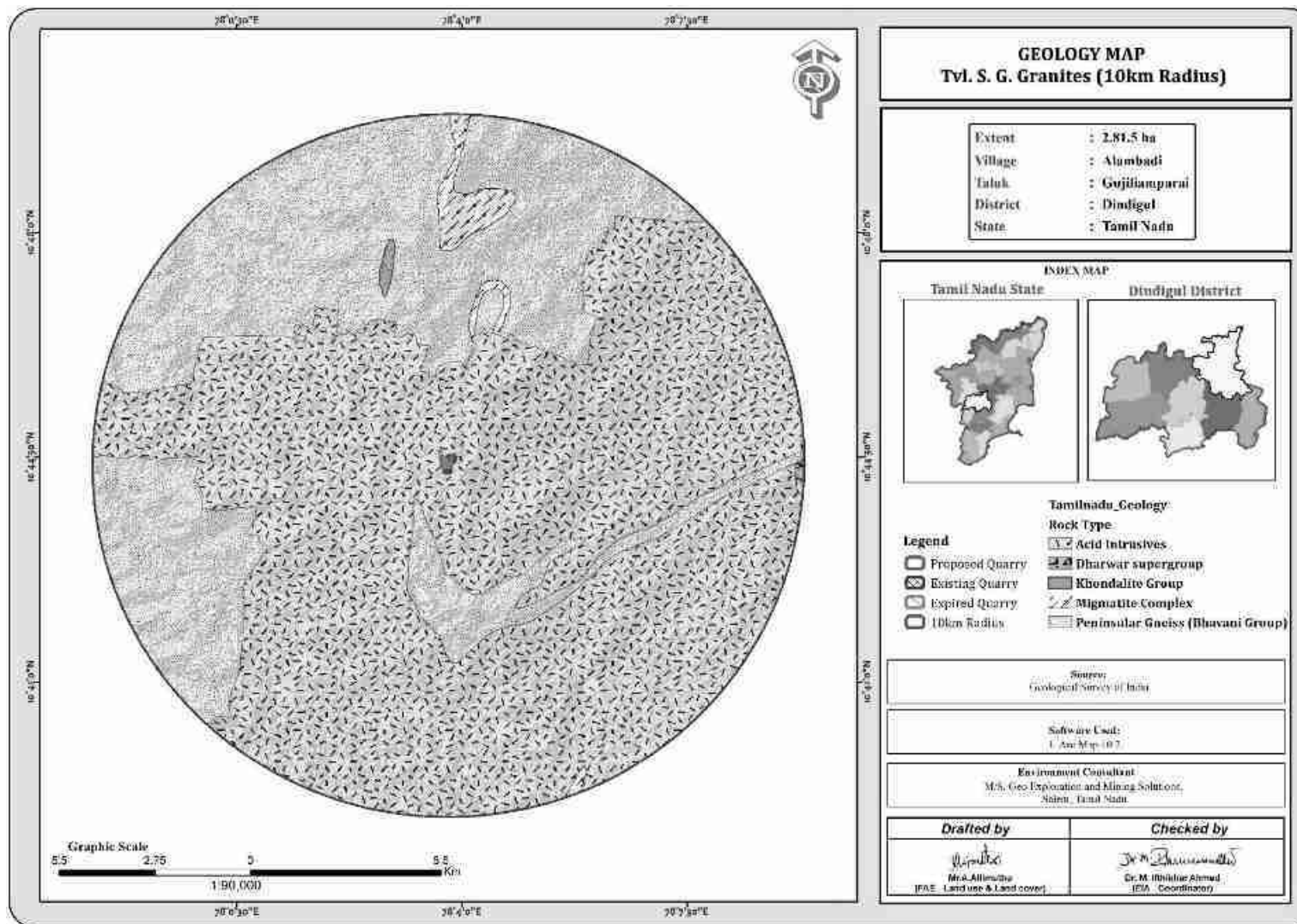


FIGURE 2.9: GEOMORPHOLOGY MAP OF THE STUDY AREA

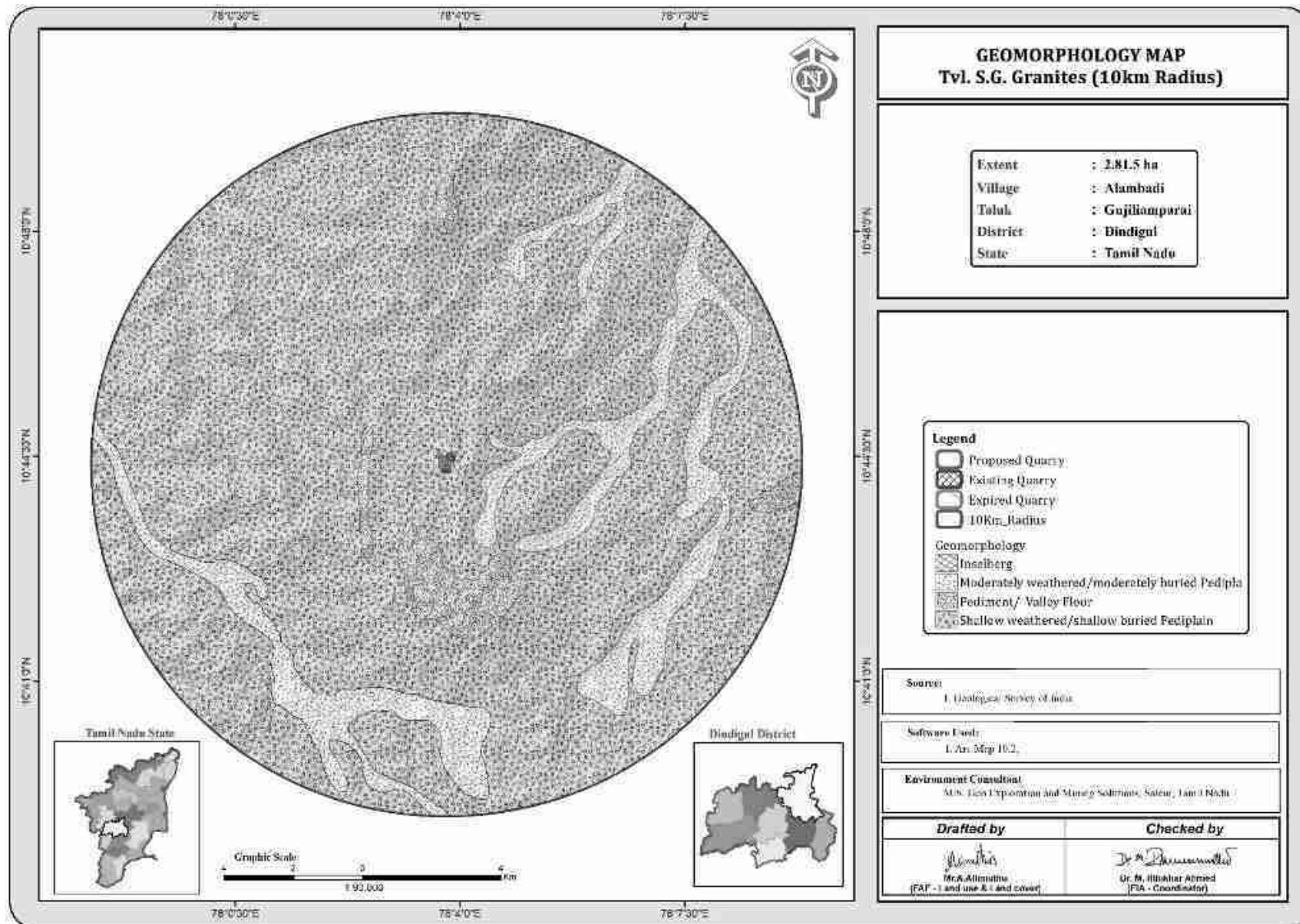


FIGURE 2.10: GEOLOGICAL PLAN AND SECTION

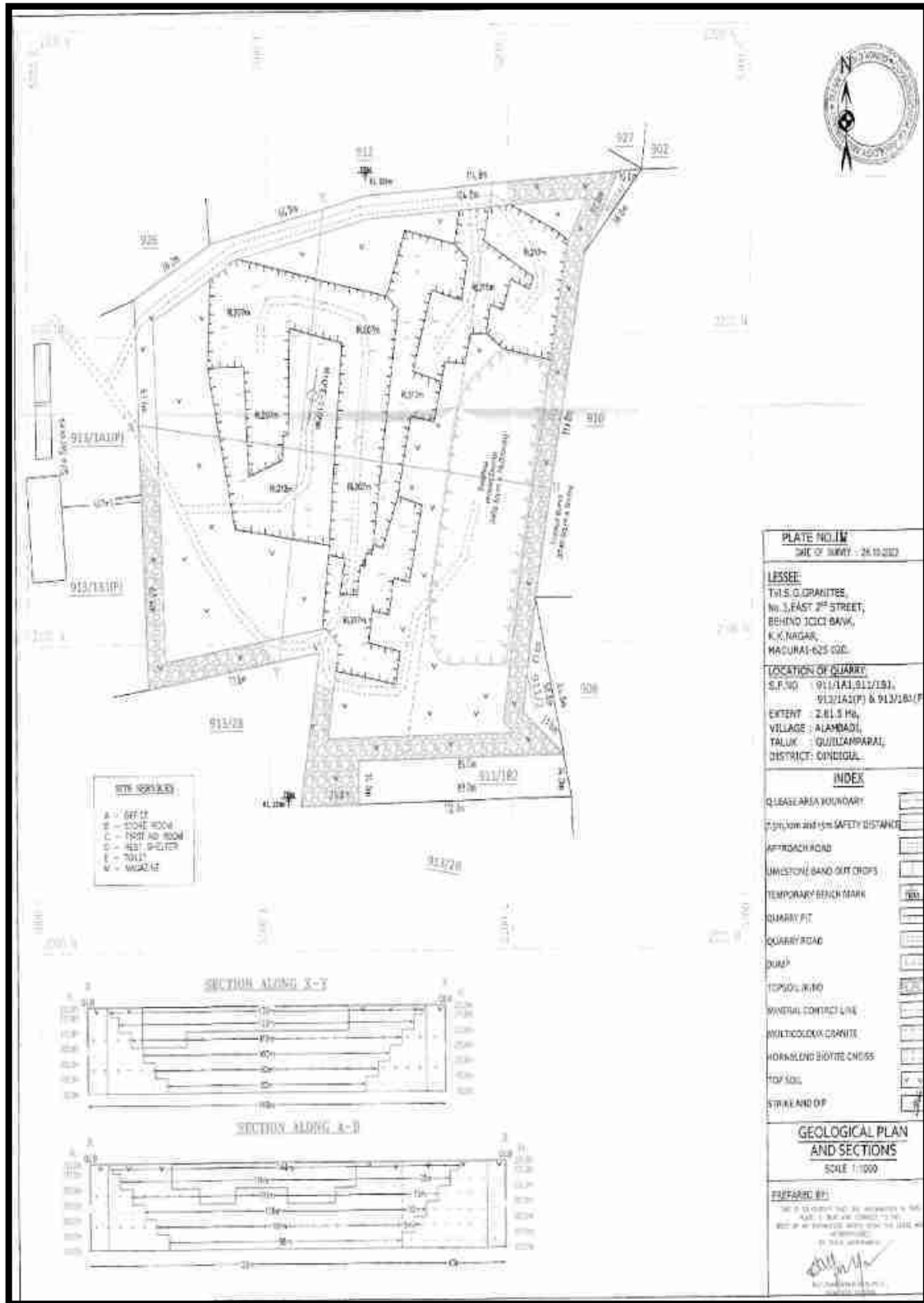
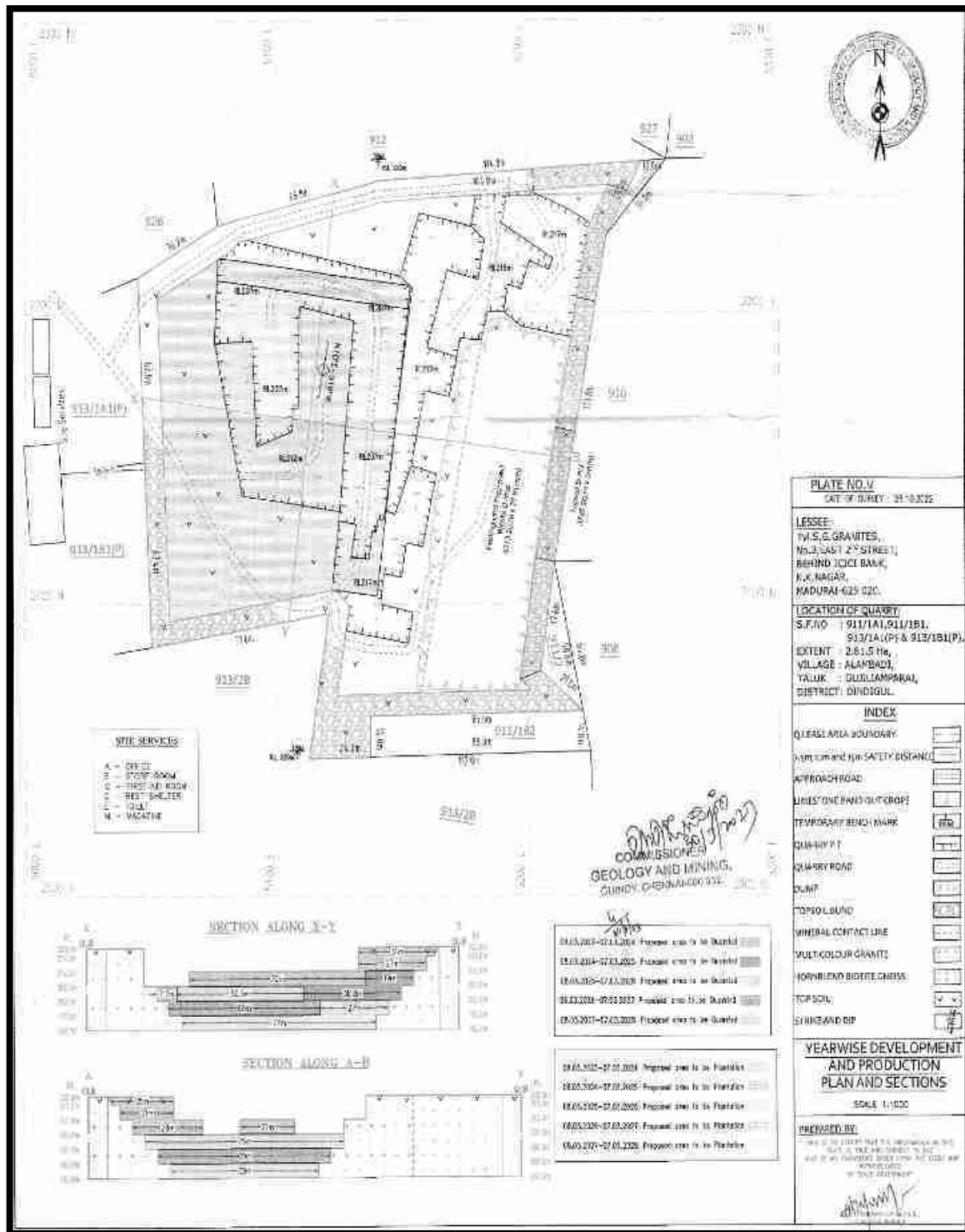


FIGURE 2.11: YEAR-WISE DEVELOPMENT PRODUCTION PLAN AND SECTION



2.5 RESOURCES AND RESERVES

The resources and reserves are calculated by cross section method.

TABLE 2.5 RESOURCES AND RESERVES

Description	ROM in m ³	Granite recovery @ 25% in m ³	Granite waste @ 75% recovery	Side burden in m ³	Top Soil in m ³
Geological Resources	4,09,781	1,02,445	3,07,336	1,57,290	54,514
Mineable Reserves	2,05,281	51,320	1,53,961	26,190	34,306
Year-wise Production for this mining plan period	1,15,685	28,922	86,763	Nil	2,325

TABLE 2.6 YEARWISE PRODUCTION PLAN

Year	ROM in m ³	Granite Recovery @ 25 % in m ³	Granite Waste @ 75 % in m ³	Topsoil in m ³
I	19,985	4,996	14,989	2325
II	19,981	4,996	14,985	Nil
III	19,948	4,987	14,961	Nil
IV	23,741	5,935	17,806	Nil
V	32,030	8,008	24,022	Nil
Total	1,15,685	28,922	86,763	2,325

Source: Approved Scheme of Mining plan

Stacking of Granite Rejects and Disposal of Waste

It is proposed to remove 2,325 m³ of Top soil during this plan period. It will be preserved all along the safety zone and utilized for construction of bund and greenbelt development purpose.

Total waste produced during this scheme period will be around 86,763m³. The quarried out waste will be proposed to dump over the existing waste dump situated on the Eastern side with an area 5313m² x (H)27.91m.

Conceptual Mining Plan/ Final Mine Closure Plan

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

TABLE 2.7 ULTIMATE PIT DIMENSION

Length in m	Width in m	Depth in m
130	144	28

2.6 METHOD OF MINING

- The method of mining is Opencast mechanized method
- Eco-friendly dimensional wire saw cutting for liberation and splitting up of blocks from parent sheet rocks
- Splitting of rock body of considerable volume from the parent rock formation by carefully avoiding visibly seen defects such as patches veins, etc., is done by adopting the method of “Diamond wire cutting” along the horizontal as well as two vertical sides on the front face of the formation.
- Jackhammer drilling with 32mm dia, this huge portion is further split into several blocks of required dimensions, only slurry explosives are used for secondary fragmentation and handling of waste.
- Hydraulic Excavator coupled with tippers is deployed for the formation of benches and loading
- There is no mineral processing or ore beneficiation proposed

- Proposed bench height is 5m and 5m width with 90° slope
- The waste material generated during quarrying activity includes rock fragments of different sizes, and waste chips during dressing of the blocks. The waste materials are taken in tippers and proposed to be dumped in the respective approved places ear-marked for the purpose and the same will be utilized for backfilling in the northern side of the lease area during conceptual stage.

2.6.1 Drilling

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

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

2.6.2 Blasting

Blasting will be done as per details below:-

(i) Controlled blasting parameter: -

Spacing – 1m

Burden – 0.8 m

Depth of hole – 1.5 m

Charge per hole – 125 gms

Powder factor – 7.0 tonnes/kg

Dia of hole – 32 mm

Details of blasting design and parameters are discussed in Approved Scheme of Mining plan.

2.6.3 Extent of Mechanization

Table 2.8: MACHINERY DETAILS PROPOSED
Drilling Equipment's

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
1	Compressor	1	-	450/150 psi	Atlas Copco	Diesel Drive
2	Jack hammer	4	32	1.2m to 6m	Atlas Copco	Compressed air
3	Diesel Generator	1	-	125kva	Kirloskar	Diesel
4	Diamond Wire saw	2	-	20m ³ /day	Optima	Diesel Generator
5	Wagon Drill	1	30-35	60hp	Tamrock	Diesel drive

Loading Equipment

Type	No of Unit	Capacity	Motive Power
Hydraulic Crane	1	855	Diesel Drive
Excavator	2	300	Diesel Drive

Haulage within the Mine & Transport Equipment

Type	No of Unit	Capacity	Motive Power
Tipper	2	20 tons	Diesel Drive

Source: Approved Scheme of Mining plan

2.7 GENERAL FEATURES

2.7.1 Existing Infrastructures

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

2.7.2 Drainage Pattern

There are no streams, canals or water bodies crossing within the project area, hence there is no requirement of stream or canals diversion.

2.7.3 Traffic Density

The traffic survey conducted based on the transportation route of material, the Granite will be transported mainly through the SH-74- road located 5Km-North East side of the area and Palayam – Aravankurichi- District road - 3Km-S.

Traffic density measurements were performed at two locations

1. (SH-74) Karur-Dindigul -5Km-North East
2. Palayam – Aravankurichi -District road -3Km-South

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

FIGURE.2.12: MINERAL TRANSPORTATION ROUTE MAP

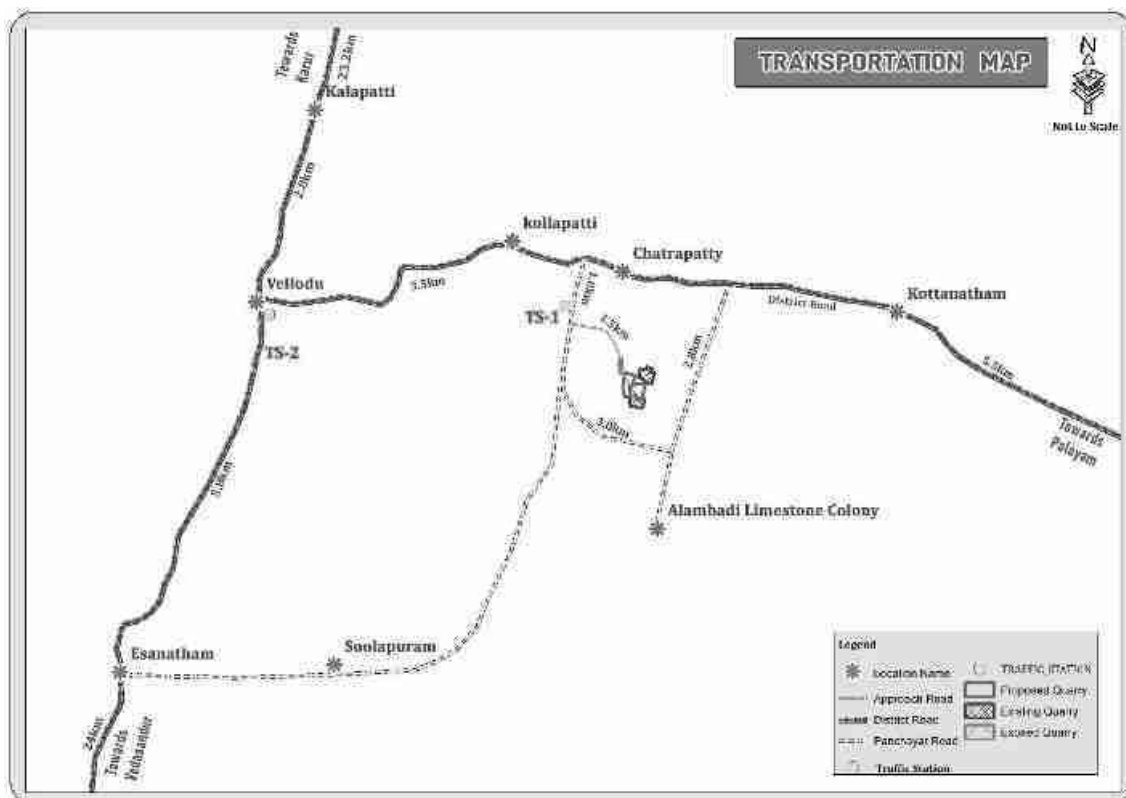


TABLE.2.9: TRAFFIC SURVEY LOCATIONS

Station Code	Road Name	Distance and Direction	Type of Road
TS1	Karur-Dindigul	2Km-North	SH-74
TS2	Palayam – Aravankurichi	1 Km West	District road

Source: On-site monitoring by GEMS FAE & TM

TABLE 2.10: EXISTING TRAFFIC VOLUME

Station Code	HMV		LMV		2/3 Wheelers		Total PCU
	Number	PCU	Number	PCU	Number	PCU	
TS1	27	81	57	41	164	82	204
TS2	3	9	7	7	36	18	34

Source: On-site monitoring by GEMS FAE & TM

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

TABLE 2.11: GRANITE HOURLY TRANSPORTATION REQUIREMENT

Capacity of Trucks	No of trips per day	Volume in PCU
20Ton	11	3

Source: Data analysed from Approved Scheme of Mining plan

TABLE 2.12: SUMMARY OF TRAFFIC VOLUME

Route	Existing Traffic Volume in PCU	Incremental Traffic Due to the cluster in PCU	Total Traffic Volume in PCU	Hourly Capacity in PCU as per IRC - 1960
Karur-Dindigul	204	33	237	1500
Palayam – Aravankurichi	34	33	67	1200

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

Due to this project the existing traffic volume will not significantly exceed

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

2.7.4 Mineral Beneficiation and Processing

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

2.8 PROJECT REQUIREMENT

2.8.1 Water Source & Requirement

Detail of water requirements in KLD as given below:

TABLE 2.13 WATER REQUIREMENT FOR THE PROJECT

Purpose	Quantity	Source
Domestic & Drinking purpose	0.5KLD	From Existing, bore wells and drinking water will be sourced from Approved Water vendors.
Dust Suppression	0.8KLD	From Existing bore wells from nearby area
Green Belt	0.7KLD	From Existing bore wells from nearby area
Total	2.0 KLD	

Source: Prefeasibility report

* Drinking water will be sourced from Approved Water Vendors

2.8.2 Power and Other Infrastructure Requirement

The project does not require power supply for the mining operations. The quarrying activity is proposed during day time only (General Shift 8 AM – 5 PM, Lunch Break 1 PM – 2 PM). Electricity for use in office and other internal infrastructure will be obtained from TNEB.

The temporary infrastructures such as Mine Office, First Aid Room, Rest Shelter etc., will be constructed within the project area after execution of lease deed. 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.

2.8.3 Fuel Requirement

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

One Hydraulic Excavator will excavate and loading into the tippers about 10m³/Hour

Hydraulic Excavator will consume about 16Ltrs per hour

Per hour Excavator will excavate	=	10 m ³
For 1,15,685m ³ (for the entire life period)	=	1,15,685/10
Diesel consume 11,568 working hours	=	11,568 hours x 16 liters
	=	1,85,088 liters of HSD for scheme period of five years

Source: PFR..

2.9 EMPLOYMENT REQUIREMENT:

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

TABLE 2.14: EMPLOYMENT POTENTIAL FOR THIS PROPOSAL

S.Nos	Description	Numbers
1	Mines Manager	1
2	Mines Foreman	1
3	Machinery Operators	5
Workers		
4	Skilled Labour	5
5	Semi-Skilled Labour	12
6	Unskilled	8
Total		32

Source: Approved Scheme of Mining plan

2.10 PROJECT IMPLEMENTATION SCHEDULE

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

TABLE 2.15 EXPECTED TIME SCHEDULE

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

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

TABLE 2.16 CAPITAL COST ESTIMATION

S.No	Description	Expenditure
1	Total Project Cost	Rs.3,23,70,000/-
2	Environmental Monitoring Program Cost	Rs. 3,80,000/-
	Total cost	Rs.3,27,50,000/-

Source: Approved Scheme of Mining plan & Prefeasibility Report *

3. DESCRIPTION OF ENVIRONMENT

3.1 GENERAL

This chapter presents a regional background to the baseline data at the very onset, which will help in better appreciation of micro-level field data, generated on several environmental and ecological attributes of the study area. The baseline environment quality represents the background environmental scenario of various environmental components such as Land, Water, Air, Noise, Biological and Socio-economic status of the study area. Field monitoring studies to evaluate the base line status of the project site were carried out covering March – May 2022 with CPCB guidelines. Environmental data has been collected with reference to cluster quarries by Chennai Mettix Lab Private Limited Approved by MoEF, for the below attributes –

- Land
- Water
- Air
- Noise
- Ecology and biodiversity
- Socio-economic status

Study Area

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

Study Period

The baseline study was conducted during the Summer season i.e. March – May 2022.

Study Methodology

- The boundary coordinates were superimposed on the satellite imagery to understand the relief of the area, besides Land use pattern of the area was studied through the Bhuvan (ISRO)
- Soil samples were collected and analysed for relevant physio-chemical characteristics, exchangeable Cations, nutrients & micro nutrients etc., in order to assess the impact due to mining activities and to recommend saplings for Greenbelt development
- Ground water samples were collected during the study period from the existing bore wells, while surface water was collected from lake in the buffer zone. The samples were analysed for parameters necessary to determine water quality (based on IS: 10500:2012 criteria) and those which are relevant from the point of view of environmental impact of the proposed mines
- Onsite meteorological station was setup in project area, to collect data about wind speed, wind direction, temperature, relative humidity, rainfall and general weather conditions were recorded throughout the study period.
- In order to assess the Ambient Air Quality (AAQ), samples of ambient air were collected by installation of Respiratory Dust Samplers (RDS) for Fugitive dust, 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
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data's from census handbook 2011 and from the satellite imagery	Study Area
*Soil	Physio - Chemical Characteristics	Once during the study period	6 (1 core & 5 buffer zone)
*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (1 surface water & 5 ground water)
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Automatic Weather Station	1
*Ambient Air Quality	PM ₁₀ PM _{2.5} SO ₂ NO _x Fugitive Dust	24 hourly twice a week (March – May 2022)	8 (1 core & 7buffer)
*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	8 (1 core & 7 buffer zone)
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area
Socio Economic Aspects	Socio-Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area

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

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

3.2 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.

3.2.1 Land Use/ Land Cover

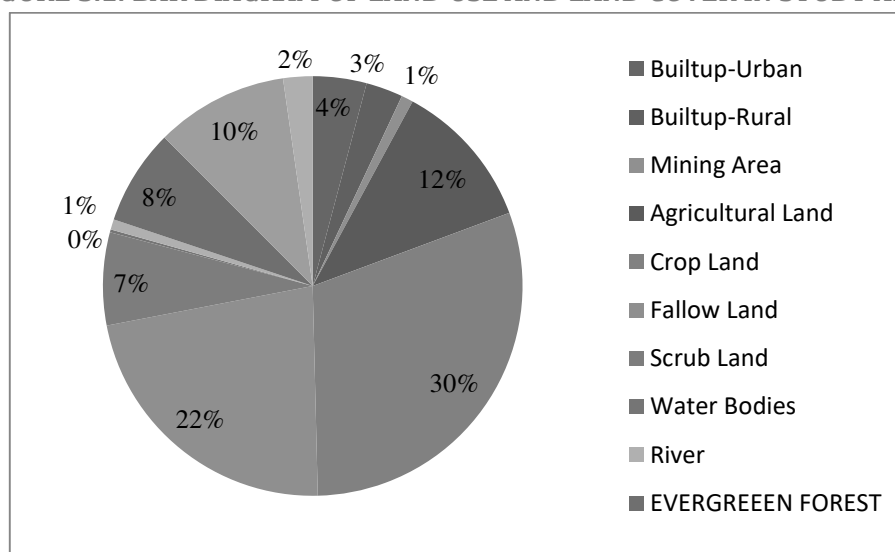
A visual interpretation technique has been adopted for land use classification based on the keys suggested in the guidelines issued by NNRMS Bangalore & Level III classification with 1:50,000 scale for the preparation of land use mapping.

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 and Land cover.

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

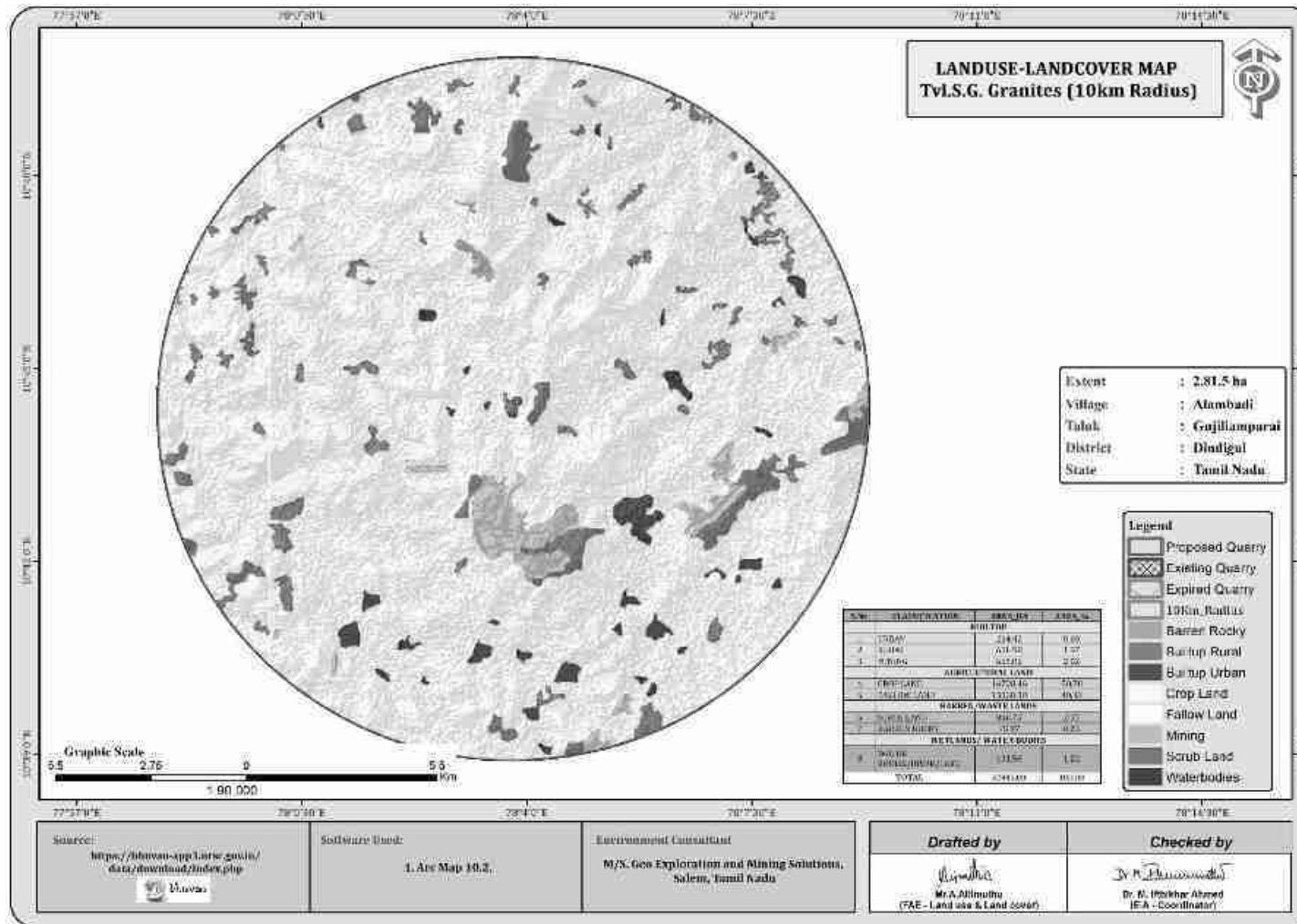
S. No	Classification	Area in Ha	Area_%
1	Built-up-Urban	1358.39	4.13
2	Built-up-Rural	934.248	2.84
3	Mining Area	300.208	0.91
4	Agricultural Land	3772.1	11.4
5	Crop Land	9915.57	30.2
6	Fallow Land	7346.85	22.3
7	Scrub Land	2343.12	7.13
8	Water Bodies	74.51	0.22
9	River	262.073	0.79
10	Evergreen Forest	2415.36	7.35
11	Deciduous Forest	3357.31	10.2
12	Shrub Forest	742.679	2.26
	Total	32822.42	100

Source: Survey of India Toposheet and Landsat Satellite Imagery

FIGURE 3.1: BAR DIAGRAM OF LAND USE AND LAND COVER IN STUDY AREA

From the above table and bar diagram, it is inferred that the majority of the land in the study area is Crop and fallow land 52.5 % followed by Built-Up land 6.97%, Shrub land 7.13%. The total mining area within the study area is 300.20 ha i.e., 0.91 %. The cluster area of 7.74.23 ha contributes about 2.57 % of the total mining area within the study area. This percentage of Mining Activities shall not have any significant impact on the environment.

FIGURE 3.2: LAND USE LAND COVER MAP 10KM RADIUS



3.2.2 Topography

The topography of the area is almost exhibits flat terrain with gentle sloping towards west the altitude of the area is 220m AMSL.

3.2.3 Drainage Pattern of the Area

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

The area is studded with few tanks that serve as the source of drinking water and also their surplus feeds adjoining tanks. The area is mostly dry in all seasons except rainy seasons.

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

3.2.4 Seismic Sensitivity

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

(Source: https://moes.gov.in/writereaddata/files/LS_EN_20032020_385.pdf)

3.2.5 Environmental Features in the Study Area

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

TABLE 3.3: DETAILS OF ENVIRONMENT SENSITIVITY AROUND THE CLUSTER

No	Sensitive Ecological Features	Name	Arial Distance in km from Cluster
1	National Park / Wild life Sanctuaries	Kadavur Slender Loris Sanctuary Kodaikanal Wildlife Sanctuary	11.5km SE 67km-SW
2	Reserve Forest	Thoppasamymalai R.F Sembianatham R.F	11 km SE 12km-SE
3	Water bodies	Karumakavundankulam	460m-SW
		Tank	500m -W
		Tank	4.2km-E
4	Tiger Reserve/ Elephant Reserve/ Biosphere Reserve	None	Nil within 10KM Radius
5	Critically Polluted Areas	None	Nil within 10 km Radius
6	Mangroves	None	Nil within 10 km Radius
7	Mountains/Hills	None	Nil within 10 km Radius
8	Notified Archaeological Sites	None	Nil within 10 km Radius
9	Industries/Thermal Power Plants	Chettinad Cements	4km SE
		Raajco Spinners Pvt Ltd	9.5km NE
10	Defence Installation	None	Nil within 10 km Radius

Source: Survey of India Toposheet

3.2.6 Soil Environment

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

TABLE 3.4: SOIL SAMPLING LOCATIONS

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	S-1	Core Zone	Project Area	10°44'16.50"N 78° 3'48.05"E
2	S-2	Kottanattam (Ukkarapatti)	1.5km SE	10°44'7.36"N 78° 4'35.61"E
3	S-3	Kollapatti	2.4km NW	10°45'24.39"N 78° 3'1.49"E
4	S-4	Vasanthakathirpalayam	4.2km NE	10°46'27.22"N 78° 4'39.35"E
5	S-5	Soolapuram	5.2km SW	10°42'33.78"N 78° 1'29.85"E
6	S-6	Poosaripatty	5.7km NE	10°45'23.89"N 78° 6'47.57"E

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

The objective of the soil sampling is -

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

Methodology –

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

TABLE 3.5: METHODOLOGY OF SAMPLING COLLECTION

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 Chennai Mettlex Lab 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 and physio-chemical characteristics of the soils are presented below in Table 3.6 & Test Results in Table 3.7.

FIGURE 3.3: SOIL SAMPLING LOCATIONS AROUND 10 KM RADIUS

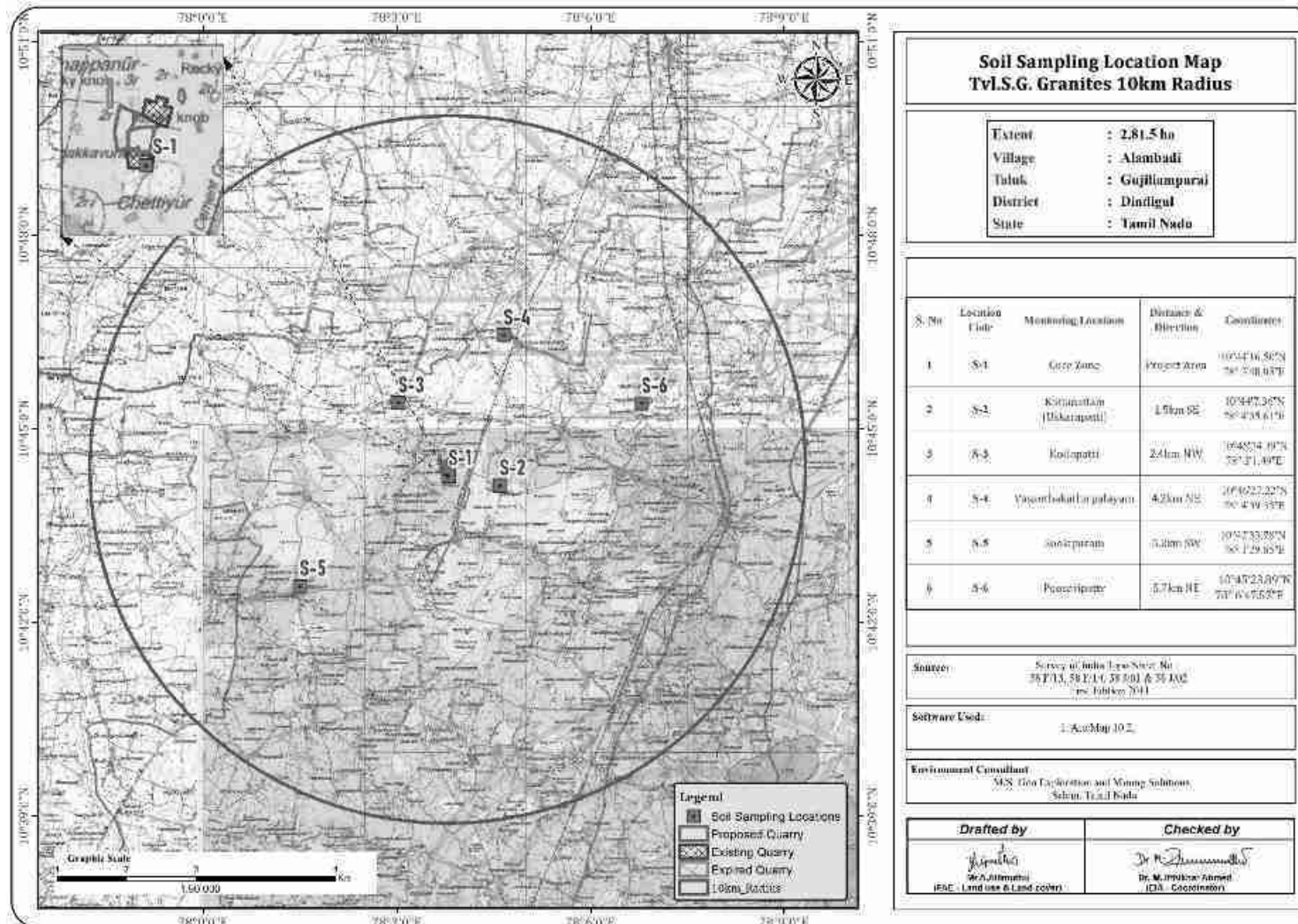


FIGURE 3.4: SOIL MAP

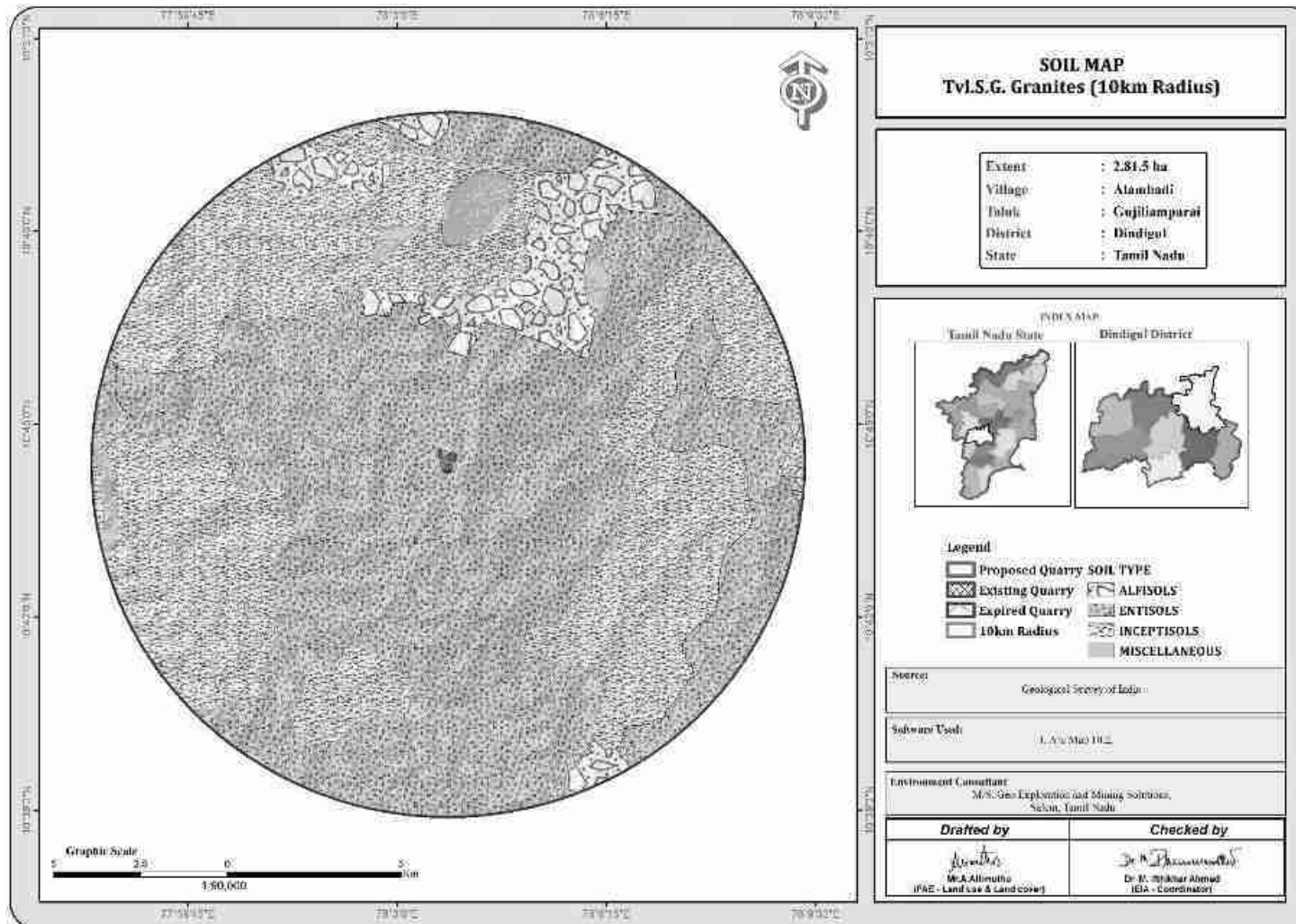


TABLE 3.6: SOIL QUALITY OF THE STUDY AREA

S.No	Parameters	Units	S1	S2	S3	S4	S5
1	pH at 27°C	-	8.36	8.14	8.05	8.10	8.42
2	Electrical Conductivity 25 C	µs/cm	610	598	577	572	638
3	Texture	-	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam
4	Clay	%	43.8	31.0	42.2	39.5	37.5
5	Sand	%	26.0	30.4	27.5	27.6	41.6
6	Silt	%	30.2	38.56	30.3	32.9	20.9
7	Water Holding Capacity	%	55.4	50.8	51.5	53.5	48.2
8	Bulk Density	g/cm ³	1.14	1.13	1.12	1.12	1.11
9	Porosity	%	36.8	32.8	35.6	37.4	41.6
10	Exchangeable Calcium (as Ca)	mg/Kg	192	178	186	230	252
11	Exchangeable Magnesium (as Mg)	mg/Kg	40	43.2	42	160	135
12	Exchangeable Manganese (as Mn)	mg/Kg	36.4	32.8	37.5	39.6	31.2
13	Exchangeable Zinc as Zn	mg/Kg	1.02	0.98	1.33	1.36	1.08
14	Available Boron (as B)	mg/Kg	1.20	1.24	1.20	1.33	1.55
15	Soluble Chloride (as Cl)	mg/Kg	196	178	182	177	179
16	Soluble Sulphate (as SO ₄)	mg/Kg	0.017	0.018	0.014	0.015	0.013
17	Available Potassium (as K)	mg/Kg	40.2	42.6	43.6	39.1	43.4
18	Available Phosphorous (as P)	mg/Kg	1.14	1.40	1.32	1.33	1.32
19	Available Nitrogen (as N)	mg/Kg	196	204	188	207	182
20	Cadmium (as Cd)	mg/Kg	BDL	BDL (DL:0.003)	BDL (DL:0.003)	BDL	BDL (DL:0.003)
21	Chromium (as Cr)	mg/Kg	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
22	Copper (as Cu)	mg/Kg	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
23	Lead (as Pb)	mg/Kg	0.72	0.78	0.84	0.81	0.86
24	Total Iron	mg/Kg	3.2	2.7	2.4	3.5	4.43
25	Organic Matter	%	2.94	3.21	2.33	3.36	3.02
26	Organic Carbon	%	1.70	1.86	1.56	2.25	1.98
27	CEC	meq/100g	52.4	48.6	49.2	51.8	47.6

Source: Sampling Results by Chennai Mettex Lab Private Limited

Interpretation & Conclusion

Physical Characteristics –

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay Loam Soil and Bulk Density of Soils in the study area varied between 1.11 to 1.14 g/cm³. The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e. ranging from 48.2 to 55.4%.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline with pH range 8.05 to 8.42
- The available Nitrogen content range between 182 to 207 mg/kg
- The available Phosphorus content range between 1.14 to 1.40 mg/kg
- The available Potassium range between 39.1 to 43.6 mg/kg

Whereas, the micronutrient as zinc (Zn) and iron (Fe) were found in the range of 0.98 to 1.36 mg/kg; 2.42 to 4.43 mg/kg.

3.3 WATER ENVIRONMENT

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

3.3.1 Surface Water Resources:

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

TABLE 3.7: WATER BODIES IN THE BUFFER ZONE

Sl.No.	Water Bodies	Distance
1	Odai	110m
2	Karumakavundankulam	450m
3	Tank Near project Area	530m
4	Chatrapathy tank	1.5km
5	Kandedutha Manickam Lake	3km
6	Odai Near Esanatham	7km
7	Muthampatty tank	7km

3.3.2 Ground Water Resources:

Dindigul district is underlain entirely by Archaean Crystalline formations with recent alluvial deposits occurring along the river and streams courses and colluvium of valley-fills. The important aquifer systems in the district are constituted by weathered, fissured and fractured crystalline rocks and the recent alluvial deposits.

Ground water occurs under phreatic conditions. The maximum saturated thickness of these aquifers is up to 5 m depending upon the topographic conditions. The study area falls in the dindigul which is categorized as Semi-Critical (70% - 90%) as per G.O (MS) No 113 dated 09.06.2016.

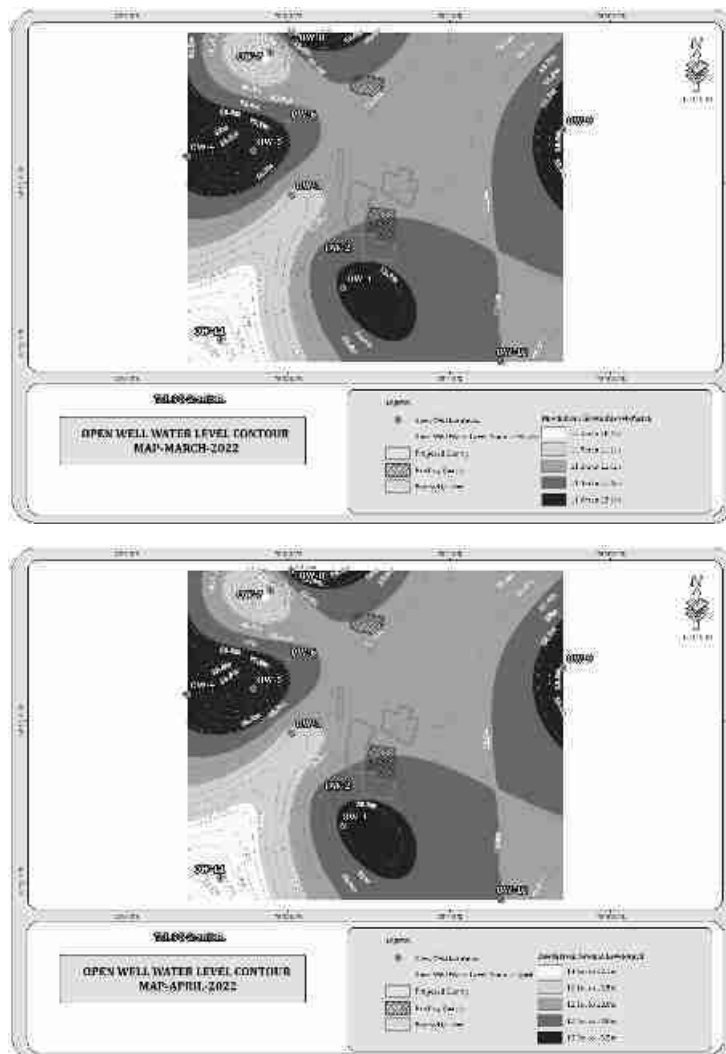
There are Eight (8) bore well Eleven (11) open wells within the radius of 1km Most of the wells are almost in dry conditions in the summer season. The details of the well and depth in monsoon and non-monsoon is described below:

TABLE 3.8: DETAILS OF OPEN WELL IN 1KM RADIUS

Label	Longitude	Latitude	Mar-22	Apr-22	May-22
OW1	78° 03' 40.21"E	10° 44' 10.33"N	11.7	13.1	12.5
OW2	78° 03' 36.14"E	10° 44' 16.12"N	11.5	12.9	12.3
OW3	78° 03' 30.68"E	10° 44' 27.72"N	11	12.4	11.8
OW4	78° 03' 11.18"E	10° 44' 34.88"N	11.8	13.2	12.6
OW5	78° 03' 23.48"E	10° 44' 35.89"N	12.2	13.6	13
OW6	78° 03' 29.75"E	10° 44' 41.01"N	11.6	13	12.4
OW7	78° 03' 26.64"E	10° 44' 54.23"N	10.7	12.1	11.5
OW8	78° 03' 30.61"E	10° 44' 57.86"N	12	13.4	12.8
OW9	78° 04' 21.07"E	10° 44' 39.81"N	11.9	13.3	12.7
OW10	78° 04' 09.64"E	10° 43' 56.77"N	11.4	12.8	12.2
OW11	78° 03' 17.40"E	10° 44' 00.67"N	10.4	11.8	11.2

Source: Data obtained by the FAE & Team Members

FIGURE 3.5: WATER LEVEL OF OPEN WELLS 1 KM RADIUS



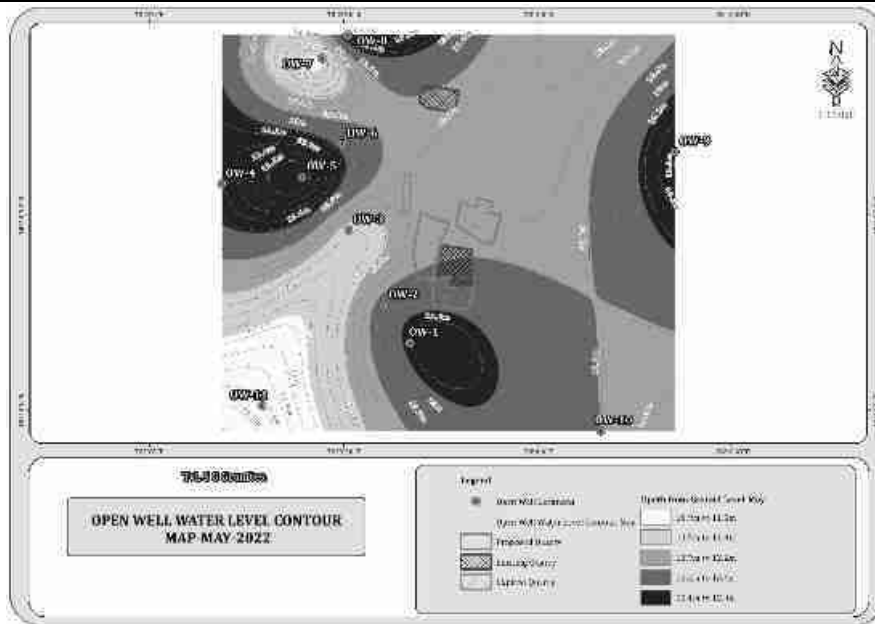
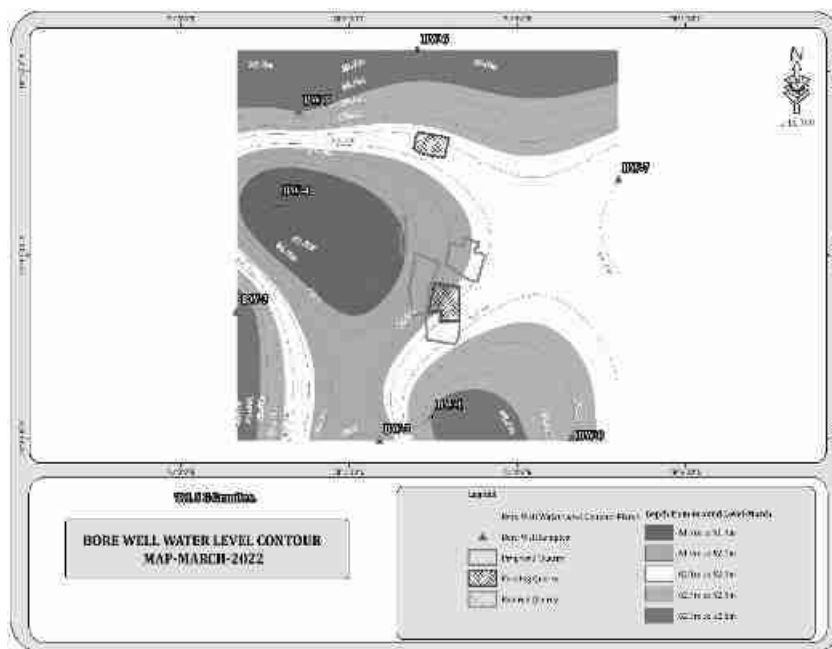


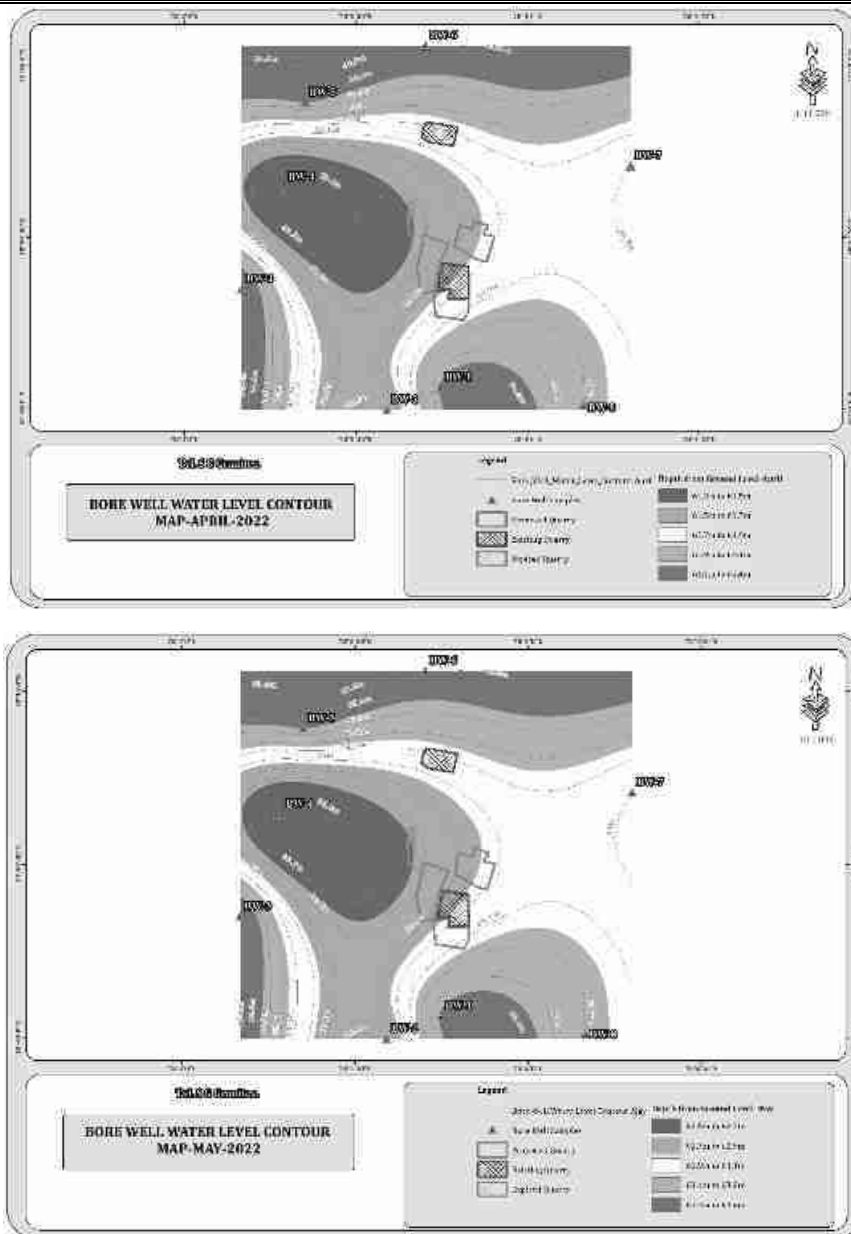
TABLE 3.9 : DETAILS OF BORE WELL IN 1KM RADIUS

Label	Longitude	Latitude	Mar-22	Apr-22	May-22
BW1	78° 03' 44.87"E	10° 44' 03.67"N	62.6	64.2	63.4
BW2	78° 03' 35.45"E	10° 43' 59.68"N	62	63.6	62.8
BW3	78° 03' 10.07"E	10° 44' 20.89"N	62.8	64.4	63.6
BW4	78° 03' 17.43"E	10° 44' 38.68"N	61.7	63.3	62.5
BW5	78° 03' 21.12"E	10° 44' 53.53"N	62.6	64.2	63.4
BW6	78° 03' 42.21"E	10° 45' 03.54"N	62.7	64.3	63.5
BW7	78° 04' 18.06"E	10° 44' 42.47"N	62.2	63.8	63
BW8	78° 04' 09.92"E	10° 44' 00.42"N	62.4	64	63.2

Source : Data obtained by the FAE & Team Members

FIGURE 3.6: WATER LEVEL OF BOREWELL





3.3.3 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

One (1) surface water and Five (5) 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 Waste water’ published by American Public Health Association (APHA). The water sampling locations are given in Table 3.8 and shown as Figure 3.5.

TABLE 3.10: WATER SAMPLING LOCATIONS

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	SW-1	Muthampatty Lake	7.2km SE	10°41'1.32"N 78° 6'5.41"E
2	WW-1	Core Zone	200m SW	10°44'10.30"N 78° 3'40.27"E
3	WW-2	Kollapatti	2.4km NW	10°45'21.62"N 78° 2'51.94"E

4	WW-3	Poosaripatty	5.5km NE	10°45'14.54"N 78° 6'42.54"E
5	BW-1	Core Zone	380m South	10°44'3.52"N 78° 3'44.89"E
6	BW-2	Soolapuram	5.2km SW	10°42'31.43"N 78° 1'27.69"E

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

TABLE 3.11: SURFACE WATER SAMPLING RESULTS

Sl. No.	Parameter	Unit	SW1	CPCB Designated Best Use
1	Color	Hazen	15	300
2	Odour	-	Agreeable	Not specified
3	pH@ 25°C	-	7.31	6.5-8.5
4	Electrical Conductivity @ 25°C	µs/cm	1086	-
5	Turbidity	NTU	1.5	Not specified
6	Total Dissolved Solids	mg/l	630	1500
7	Total Hardness as CaCO ₃	mg/l	248	Not specified
8	Calcium as Ca	mg/l	77	Not specified
9	Magnesium as Mg	mg/l	13.6	Not specified
10	Total Alkalinity as CaCO ₃	mg/l	253	Not specified
11	Chloride as Cl ⁻	mg/l	206	600
12	Sulphate as SO ₄ ⁻	mg/l	71	400
13	Iron as Fe	mg/l	0.08	50
14	Free Residual Chlorine	mg/l	BDL (DL: 0.1)	400
15	Fluoride as F	mg/l	0.84	1.5
16	Nitrates as NO ₃	mg/l	24	50
17	Copper as Cu	mg/l	BDL (DL:0.01)	1.5
18	Manganese as Mn	mg/l	BDL (DL:0.02)	Not specified
19	Mercury as Hg	mg/l	(BDL (DL: 0.0005))	Not specified
20	Cadmium as Cd	mg/l	BDL (DL:0.001)	0.01
21	Selenium as Se	mg/l	BDL (DL: 0.005)	Not specified
22	Aluminium as Al	mg/l	BDL (DL: 0.005)	Not specified
23	Lead as Pb	mg/l	BDL (DL:0.005)	0.1
24	Zinc as Zn	mg/l	BDL (DL:0.05)	15
25	Total Chromium	mg/l	BDL (DL: 0.02)	0.1
26	Boron as B	mg/l	BDL (DL:0.05)	Not specified
27	Mineral Oil	mg/l	BDL (DL:0.01)	Not specified
28	Phenolic Compounds as	mg/l	0.0005	15
29	Anionic Detergents as	mg/l	BDL (DL:0.01)	4
30	Cyanide as CN	mg/l	BDL (DL:0.01)	Not specified
31	Biological Oxygen	mg/l	7.0	3
32	Chemical Oxygen	mg/l	21	5000
33	Dissolved Oxygen	mg/l	6.1	4
34	Barium as Ba	mg/l	BDL (DL:0.05)	300
35	Ammonia-n (as Total	mg/l	BDL (DL:0.01)	Not specified
36	Sulphide as H ₂ S	mg/l	BDL (DL:0.01)	Not specified
37	Molybdenum as Mo	mg/l	BDL (DL:0.02)	Not specified
38	Total Arsenic as As	mg/l	BDL (DL:0.05)	0.2
39	Total Suspended Solids	mg/l	16	-
40	Total Coliform	MPN/100ml	1600	5000
41	E-Coli		110	

Source: Sampling Results by Chennai Mettix Lab Private Limited

* 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.

TABLE 3.12: GROUND WATER SAMPLING RESULTS

S.NO	Parameter	Unit	WW1 Core Zone	WW2 Kollapatti	WW-3 Poosaripatty	BW1 Core Zone	BW2 Soolapuram	IS 10500 :2012	
								Acceptable Limit	Permissible Limit
1	Color	Hazen	5 Hazen	5 Hazen	5 Hazen	5 Hazen	5 Hazen	5	15
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Not specified	
3	pH@ 25°C	-	7.22	7.22	7.36	7.05	7.16	6.5 to 8.5	No relaxation
4	Electrical Conductivity @ 25°C	-	986 µmhos/cm	931 µmhos/cm	992 µmhos/cm	895 µmhos/cm	874 µmhos/cm	Not specified	Not specified
5	Turbidity	NTU	Less than 0.5 NTU	Less than 0.5 NTU	Less than 0.5 NTU	Less than 0.5 NTU	Less than 0.5 NTU	1	5
6	Total Dissolved Solids	mg/l	572 mg/l	540 mg/l	578 mg/l	520 mg/l	511 mg/l	500	2000
7	Total Hardness as CaCO ₃	mg/l	208 mg/l	196 mg/l	216 mg/l	182 mg/l	172 mg/l	300	600
8	Calcium as Ca	mg/l	56 mg/l	56 mg/l	49 mg/l	42 mg/l	45 mg/l	75	200
9	Magnesium as Mg	mg/l	16.5 mg/l	13.6 mg/l	22.8 mg/l	18.7 mg/l	14.6 mg/l	30	100
10	Total Alkalinity as CaCO ₃	mg/l	184 mg/l	178 mg/l	177 mg/l	172 mg/l	164 mg/l	200	200
11	Chloride as Cl ⁻		192 mg/l	186 mg/l	189 mg/l	168 mg/l	180 mg/l	250	250
12	Sulphate as SO ₄ ⁻		32 mg/l	38 mg/l	39 mg/l	43 mg/l	37 mg/l	200	200
13	Iron as Fe		0.34 mg/l	0.45 mg/l	0.44 mg/l	0.57 mg/l	0.57 mg/l	0.3	0.3
14	Free Residual Chlorine		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)	0.2	0.2
15	Fluoride as F		0.51 mg/l	0.66 mg/l	0.65 mg/l	0.82 mg/l	0.68 mg/l	1.0	1.0
16	Nitrates as NO ₃		18.6 mg/l	14.2 mg/l	23.5 mg/l	16.5 mg/l	15.2 mg/l	45	45
17	Copper as Cu		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)	0.05	0.05
18	Manganese as Mn		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)	0.1	0.1
19	Mercury as Hg		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)	0.001	0.001
20	Cadmium as Cd		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)	0.003	0.003
21	Selenium as Se		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)	0.01	0.01
22	Aluminium as Al		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)	0.03	0.03
23	Lead as Pb		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)	0.01	0.01

24	Zinc as Zn		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)	5	5
25	Total Chromium		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)	0.05	0.05
26	Boron as B		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)	0.5	0.5
27	Mineral Oil		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)	0.5	0.5
28	Phenolic Compunds as C ₆ H ₅ OH		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)	0.001	0.001
29	Anionic Detergents as		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)	0.2	0.2
30	Cynaide as CN		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)	0.05	0.05
	Barium as Ba		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)	0.7	0.7
	Ammonia (as Total		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)	0.5	0.5
	Sulphide as H ₂ S		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)	0.05	0.05
	Molybdenum as Mo		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)	0.07	0.07
	Total Arsenic as As		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)	0.01	0.01
	Total Suspended Solids		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)	-	-
31	Total Coliform		170 MPN/100ml	120 MPN/100ml	140 MPN/100ml	150 MPN/100ml	110 MPN / 100 ml		
32	E-Coli		< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml	< 1.8 MPN/100ml		

3.3.4 Interpretation & Conclusion

Surface Water

pH:

The pH is 7.31 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 is 630 mg/l, the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter.

Other parameters:

Chloride is 206 mg/l. Nitrates is 24 mg/l, while sulphates is 71 mg/l.

Ground Water

The pH of the water samples collected ranged from 7.05 to 7.36 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 511 to 578 mg/l in all samples. The Total hardness varied between 172 to 216 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.

3.3.5 Hydrology and Hydro-geological studies

The district is underlain by hard rock formation fissured and fractured crystalline rocks constitute the important aquifer systems in the district. Geophysical prospecting was carried out in that area by SSRMP-80 Instrument by qualified Geo physicist with the help of IGIS software and it was inferred that the low resistance encountered at the depth between 50-58m. The maximum depth of the proposed project is 28m BGL for the entire lease period. Hence there is no possibilities of water table intersection during the entire mine life period besides it is also inferred topographically that there are no major water bodies intersecting the project area. There is no necessity of stream, channel diversion due to these proposed projects.

During the rainy season there is a possibility of collection of seepage water from the subsurface levels this is due to the high intensity of fracture and weathered portion up to a depth of 15m thus the collected seepage water will be stored in the mine sump pits and will be used for dust suppression and greenbelt development and during the end of the life of the mine this collected water will act as a temporary reservoir.

FIGURE 3.7: WATER SAMPLE COLLECTIONS PHOTOGRAPHS



FIGURE 3.8 DRAINAGE MAP AROUND 10 KM RADIUS FROM PROJECT SITE

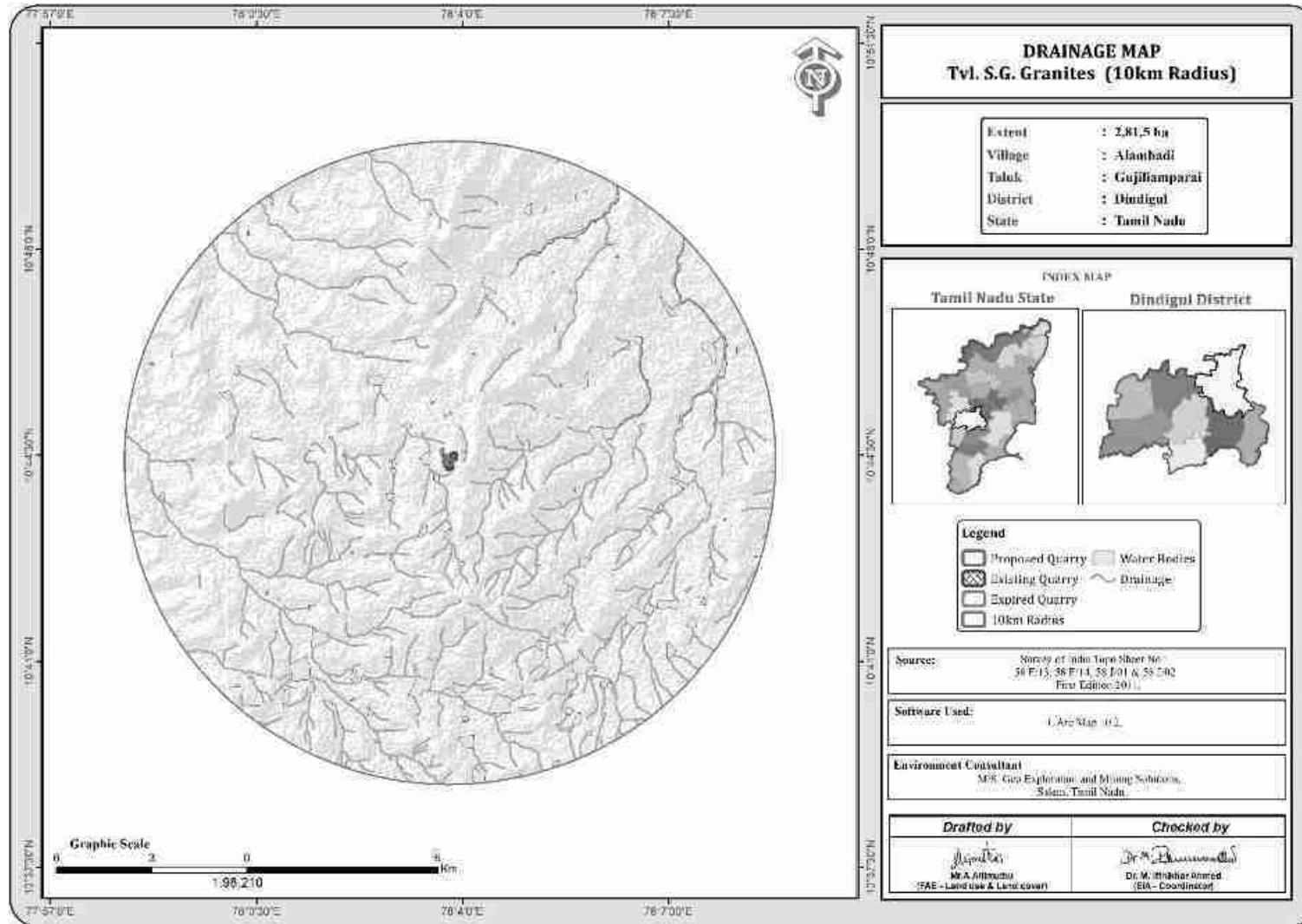
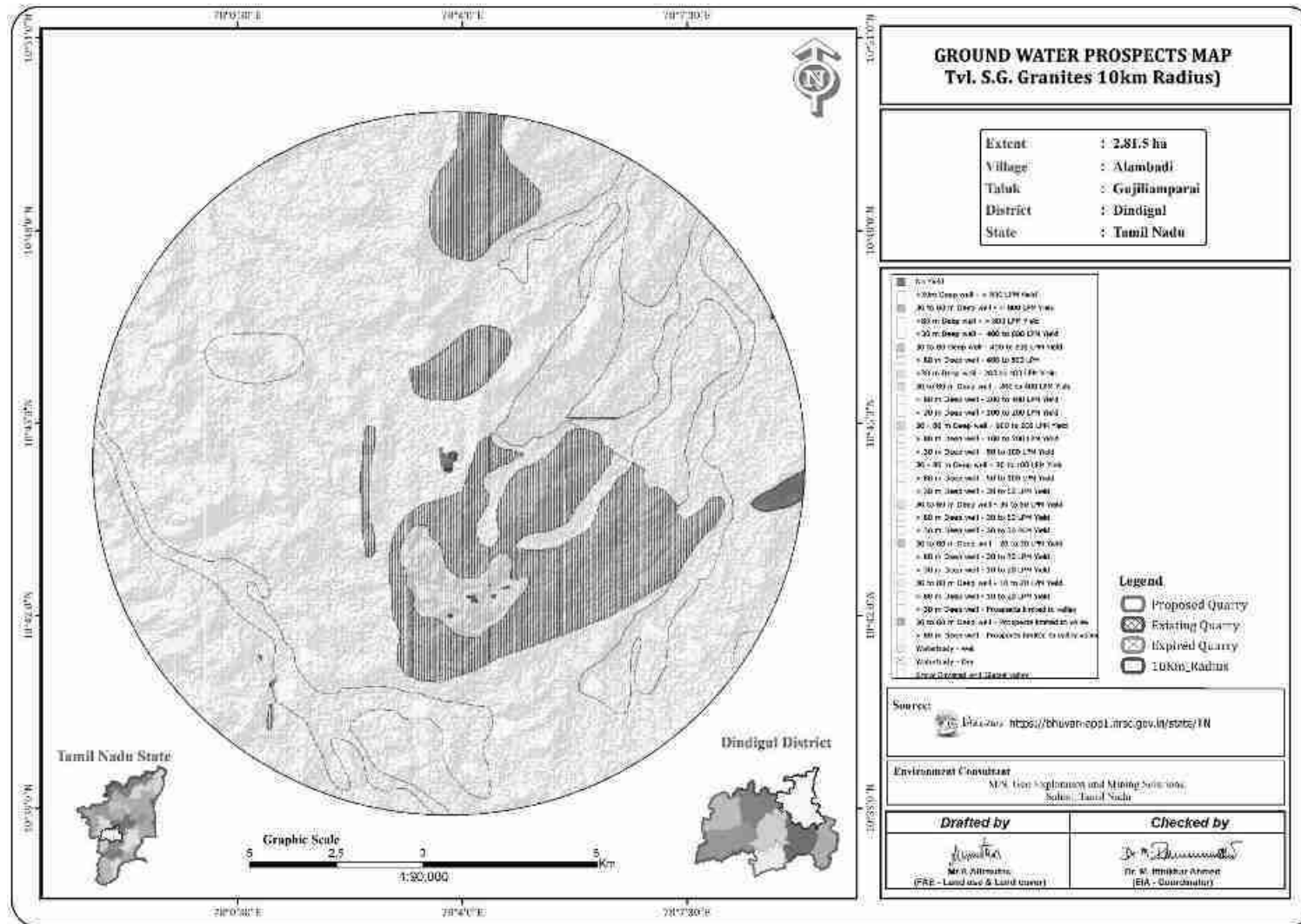


FIGURE 3.9: GROUND WATER PROSPECT MAP



3.4 AIR ENVIRONMENT

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

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

3.4.1 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 –

- ✓ Dindigul has a tropical climate. The summers are much rainier than the winters in Dindigul. This climate is considered to be Aw according to the Köppen-Geiger climate classification.
- ✓ In Dindigul, the average annual temperature is 27.2 °C | 80.9 °F. The rainfall here is around 1480 mm | 58.3 inch per year.
- ✓ The driest month is January, with 25 mm | 1.0 inch of rainfall. The greatest amount of precipitation occurs in October, with an average of 259 mm | 10.2 inch.
- ✓ The warmest month of the year is April, with an average temperature of 30.4 °C | 86.7 °F. The lowest average temperatures in the year occur in December, when it is around 23.8 °C | 74.8 °F.
- ✓ The difference in precipitation between the driest month and the wettest month is 234 mm | 9 inch. The variation in temperatures throughout the year is 6.6 °C | 11.9 °F.

Source: <https://en.climate-data.org/asia/india/tamil-nadu/dindigul-24012/>

Rainfall –

TABLE 3.13: RAINFALL DATA

Actual Rainfall in mm					Normal Rainfall in mm
2017	2018	2019	2020	2021	
925.5	799.9	712.8	959.4	1238.5	985

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

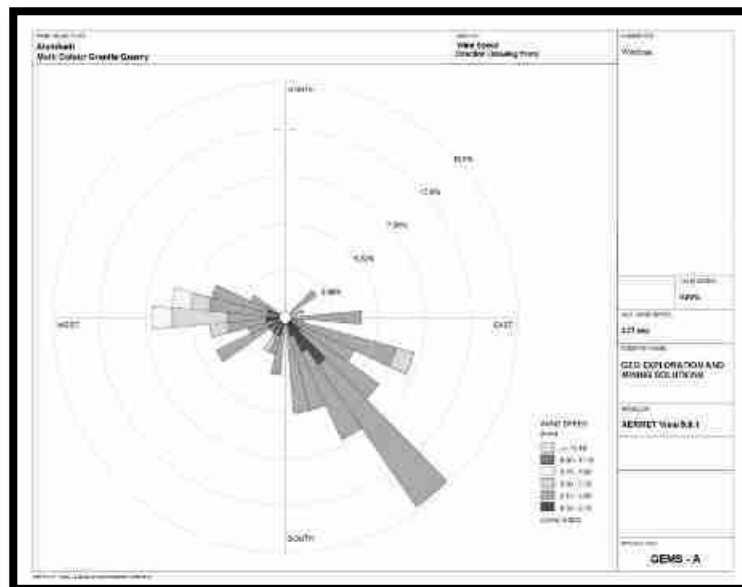
TABLE 3.14: METEOROLOGICAL DATA RECORDED AT SITE

S.No	Parameters		Mar – 2022	Apr – 2022	May - 2022
1	Temperature (°C)	Max	30.09	30.28	30.45
		Min	22.98	27.11	23.79
		Avg	26.535	28.695	27.12
2	Relative Humidity (%)	Avg	66.94	69.03	69.71
3	Wind Speed (m/s)	Max	3.38	3.21	6.88
		Min	2.05	1.45	1.92
		Avg	2.715	2.33	4.4
4	Cloud Cover (OKTAS)		0-8	0-8	0-8
5	Wind Direction		ESE,SE	SE,SSE	W,WNW

Correlation between Secondary and Primary Data

The meteorological data collected at the site is almost similar to that of secondary data collected from IMD station. A comparison of site data generated during the three months with that of IMD, Wind rose diagram of the study site is depicted in Figure. 3.10. Predominant downwind direction of the area during study season is North - West to South East.

FIGURE 3.10: WINDROSE DIAGRAM



Source: Wind Rose plot view, Lake Environmental Software

In the abstract of collected data wind rose were drawn on presented in figure No.3.9 during the monitoring period in the study area

- Predominant winds were from NW - SE
- Wind velocity readings were recorded between 0.50 to 5.70 m/s
- Temperature readings ranging from 22.9 to 30.45 °C
- Relative humidity ranging from 66.94 to 69.71 %

3.4.2 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.,

3.4.3 Sampling and Analytical Techniques

TABLE 3.15: SAMPLING AND ANALYTICAL TECHNIQUES

Parameter	Method	Sampling instrument ID & Calibration Date
PM _{2.5}	Gravimetric Method Beta attenuation Method	CML/ENV/RDS/026 & 25.01.2023
PM ₁₀	Gravimetric Method Beta attenuation Method	CML/ENV/RDS/026 & 25.01.2023
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 Chennai Mettex Lab Private Limited

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	20.0
			80.0	80.0
2	Nitrogen Dioxide ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0	30.0
			80.0	80.0
3	Particulate matter (size less than $10\mu\text{m}$) PM ₁₀ ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	60.0	60.0
			100.0	100.0
4	Particulate matter (size less than $2.5\mu\text{m}$) PM _{2.5} ($\mu\text{g}/\text{m}^3$)	Annual Avg. 24 hours	40.0	40.0
			60.0	60.0

Source: NAAQSCPCB 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.

3.4.4 Frequency & Parameters for Sampling

Ambient air quality monitoring has been carried out with a frequency of two samples per week at Eight (8) locations, adopting a continuous 24 hourly (3 shift of 8-hour) schedule for the period March to May, 2022. 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.

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

3.4.5 Ambient Air Quality Monitoring Stations

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

TABLE 3.17: AMBIENT AIR QUALITY (AAQ) MONITORING LOCATIONS

S. No	Location Code	Monitoring Locations	Distance & Direction	Coordinates
1	AAQ-1	Core Zone	Project Area	10°44'18.93"N 78° 3'49.57"E
2	AAQ-2	Kottanattam (Ukkarapatti)	1.5km SE	10°44'6.29"N 78° 4'35.31"E
3	AAQ-3	Near Kollapatti	2.0km NW	10°45'18.99"N 78° 3'25.32"E
4	AAQ-4	Vasanthakathirpalayam	4.2km NE	10°46'28.59"N 78° 4'38.41"E
5	AAQ-5	Kalapatti	4.8km NW	10°46'18.03"N 78° 1'58.74"E
6	AAQ-6	Soolapuram	5.2km SW	10°42'32.07"N 78° 1'28.63"E
7	AAQ-7	Poosaripatty	6km NE	10°45'27.16"N 78° 6'53.77"E
8	AAQ-8	Alambadi	900m West	10°44'22.32"N 78° 3'12.65"E

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

FIGURE 3.11: SITE PHOTOGRAPHS OF AMBIENT AIR QUALITY MONITORING

FIGURE 3.12: AMBIENT AIR QUALITY LOCATIONS AROUND 10 KM RADIUS

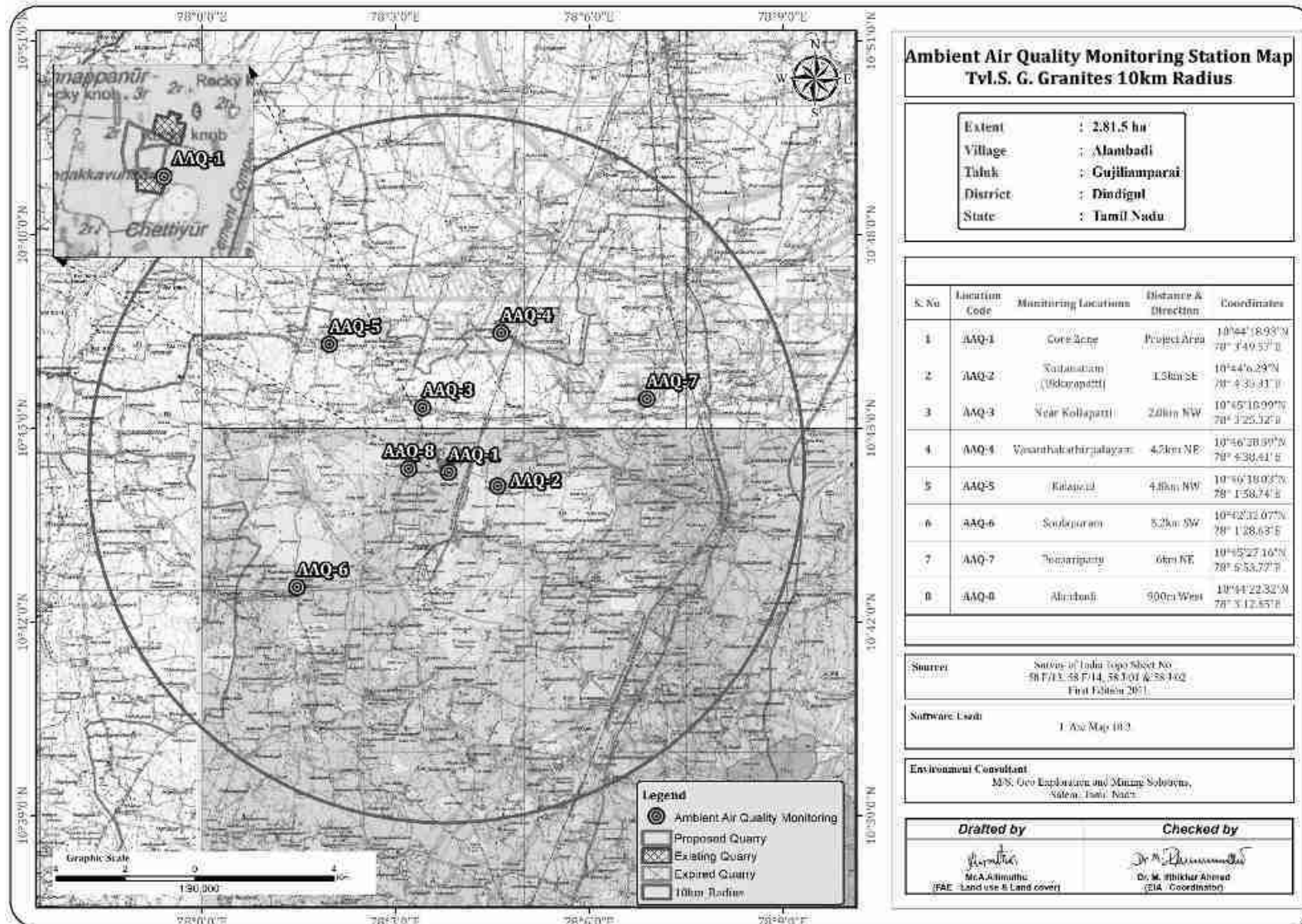


TABLE 3.18: AAQ1 - CORE ZONE

Period: March – May 2022

Location: AAQ1- Core Zone

Sampling Time: 24-hourly

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	5:30-5:30	109	54.1	26.9	9.8	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	5:45-5:45	112	58.6	27.1	9.2	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	5:30-5:30	103	57.4	25.8	8.7	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	5:45-5:45	110	62.0	30.2	10.3	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	5:30-5:30	105	65.3	31.4	8.7	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	5:45-5:45	108	63.7	33.8	9.8	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	5:30-5:30	117	59.2	27.1	9.2	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	5:45-5:45	120	62.8	29.0	8.7	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	5:30-5:30	116	57.4	30.1	8.7	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	5:45-5:45	115	56.3	25.9	9.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	5:30-5:30	113	57.2	28.2	10.3	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	5:45-5:45	120	53.6	26.4	9.8	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	5:30-5:30	123	58.7	29.3	9.8	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	5:45-5:45	108	54.0	30.1	10.3	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	5:30-5:30	112	58.2	31.4	8.7	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	5:45-5:45	121	55.3	27.0	9.2	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	5:30-5:30	109	59.8	27.3	9.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	5:45-5:45	106	62.1	31.4	9.8	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	5:30-5:30	115	63.0	33.7	8.7	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	5:45-5:45	109	60.8	31.1	9.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	5:30-5:30	105	68.2	30.5	9.8	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	5:45-5:45	117	54.5	28.0	9.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	5:30-5:30	112	59.7	29.2	10.3	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	5:45-5:45	116	60.3	32.1	9.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	5:30-5:30	103	64.6	29.8	9.8	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	5:45-5:45	109	61.0	32.6	10.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	5:30-5:30	120	57.2	30.0	9.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	5:45-5:45	119	59.7	29.6	8.7	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit; DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

TABLE 3.19: AAQ2 – KOTTANATTAM VILLAGE

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	9:30-9:30	109	58.2	27.1	8.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	9:45-9:45	106	56.6	26.9	9.3	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	9:30-9:30	115	55.3	25.2	7.6	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	9:45-9:45	108	59.6	28.4	9.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	9:30-9:30	117	57.5	27.6	7.1	20.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	9:45-9:45	109	62.0	31.3	8.7	22.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	9:30-9:30	121	60.8	33.2	8.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	9:45-9:45	119	61.3	30.1	7.6	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	9:30-9:30	106	56.2	29.7	10.3	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	9:45-9:45	113	57.0	28.4	8.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	9:30-9:30	120	59.5	26.2	9.8	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	9:45-9:45	114	60.2	28.6	7.6	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	9:30-9:30	112	63.7	29.9	8.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	9:45-9:45	107	57.0	25.2	8.7	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	9:30-9:30	115	55.2	26.1	10.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	9:45-9:45	112	61.1	30.5	7.1	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	9:30-9:30	106	63.5	32.2	9.8	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	9:45-9:45	122	59.3	30.6	8.7	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	9:30-9:30	109	57.7	28.4	7.6	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	9:45-9:45	114	58.2	26.9	10.3	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	9:30-9:30	110	60.1	29.7	7.6	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	9:45-9:45	106	62.0	30.6	8.2	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	9:30-9:30	114	58.6	27.3	7.1	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	9:45-9:45	102	54.7	25.4	8.4	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	9:30-9:30	108	54.6	25.9	9.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	9:45-9:45	106	58.7	27.4	10.3	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	9:30-9:30	103	59.2	28.2	8.7	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	9:45-9:45	114	54.1	25.3	7.6	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit; DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

TABLE 3.20: AAQ3 - KOLLAPATTI

Period: March – May 2022

Location: AA3- Kollapatti

sampling Time: 24-hourly

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	6:30-6:30	116	61.3	29.4	7.6	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	6:45-6:45	109	58.1	27.5	8.7	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	6:30-6:30	112	55.7	25.3	10.3	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	6:45-6:45	115	58.8	29.8	9.8	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	6:30-6:30	106	57.9	26.1	8.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	6:45-6:45	109	58.2	27.0	8.7	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	6:30-6:30	118	62.6	30.2	7.1	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	6:45-6:45	112	60.3	32.4	10.3	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	6:30-6:30	105	61.4	30.8	9.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	6:45-6:45	116	59.7	28.2	8.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	6:30-6:30	115	58.3	29.4	10.3	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	6:45-6:45	119	57.1	28.6	7.6	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	6:30-6:30	120	62.0	31.3	8.7	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	6:45-6:45	109	60.2	32.4	9.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	6:30-6:30	106	59.3	30.2	10.3	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	6:45-6:45	113	57.0	26.9	9.8	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	6:30-6:30	117	59.6	28.1	7.1	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	6:45-6:45	118	57.1	27.6	8.7	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	6:30-6:30	107	58.7	29.7	8.2	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	6:45-6:45	116	59.0	30.2	9.8	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	6:30-6:30	105	62.6	32.0	10.3	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	6:45-6:45	114	62.6	31.8	7.6	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	6:30-6:30	118	60.4	28.2	8.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	6:45-6:45	108	57.3	30.4	8.7	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	6:30-6:30	103	59.2	31.7	10.3	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	6:45-6:45	109	62.1	31.5	7.6	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	6:30-6:30	115	61.5	30.2	7.2	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	6:45-6:45	120	59.1	28.4	8.7	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

TABLE 3.21: AAQ4 - VASANTHAKATHIRPALAYAM –

Period: March – May 2022

Location: AA4- Vasanthakathirpalayam

Sampling Time: 24-hourly

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	6:30-6:30	106	57.1	26.3	8.7	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	6:45-6:45	109	58.4	26.7	7.6	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	6:30-6:30	114	57.5	25.8	8.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	6:45-6:45	108	60.1	30.2	9.8	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	6:30-6:30	102	61.3	33.2	10.3	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	6:45-6:45	114	62.4	30.8	7.1	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	6:30-6:30	110	60.8	31.5	10.3	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	6:45-6:45	109	59.3	27.6	8.2	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	6:30-6:30	113	58.4	26.8	8.7	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	6:45-6:45	108	57.5	28.5	9.8	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	6:30-6:30	120	61.2	30.0	7.6	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	6:45-6:45	124	6.6	31.7	8.7	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	6:30-6:30	118	60.2	29.5	7.1	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	6:45-6:45	103	57.4	27.2	9.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	6:30-6:30	115	58.6	25.6	9.8	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	6:45-6:45	117	59.0	27.3	7.6	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	6:30-6:30	109	56.2	26.2	8.2	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	6:45-6:45	114	59.7	27.4	10.3	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	6:30-6:30	107	58.2	29.0	8.7	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	6:45-6:45	120	59.6	30.1	8.2	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	6:30-6:30	112	61.3	31.8	7.6	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	6:45-6:45	118	60.1	31.2	9.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	6:30-6:30	105	59.7	28.9	7.1	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	6:45-6:45	109	58.9	30.	8.7	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	6:30-6:30	111	57.6	26.4	8.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	6:45-6:45	105	56.2	27.2	7.6	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	6:30-6:30	117	54.7	29.7	10.3	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	6:45-6:45	113	60.3	27.5	8.7	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

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

TABLE 3.22: AAQ5 - KALAPATTI

Period: March – May 2022

Location: AA5- Kalapatti

Sampling Time: 24-hourly

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	6:30-6:30	120	60.2	28.4	9.8	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	6:45-6:45	115	56.7	26.1	7.6	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	6:30-6:30	118	59.2	29.5	10.3	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	6:45-6:45	103	60.1	30.3	8.7	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	6:30-6:30	112	57.5	26.2	9.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	6:45-6:45	109	58.2	25.7	7.1	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	6:30-6:30	107	61.6	29.4	10.3	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	6:45-6:45	115	60.1	28.1	9.2	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	6:30-6:30	118	59.4	26.0	8.2	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	6:45-6:45	117	55.9	28.0	9.8	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	6:30-6:30	113	58.5	29.2	7.1	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	6:45-6:45	120	59.9	30.6	10.3	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	6:30-6:30	116	60.1	32.4	7.6	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	6:45-6:45	119	56.8	28.8	9.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	6:30-6:30	105	58.0	27.4	8.7	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	6:45-6:45	112	59.6	26.2	9.8	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	6:30-6:30	108	57.1	27.6	7.1	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	6:45-6:45	114	56.3	28.3	9.8	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	6:30-6:30	113	58.2	29.5	10.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	6:45-6:45	109	60.4	31.1	8.2	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	6:30-6:30	114	57.6	30.2	7.6	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	6:45-6:45	112	55.8	26.2	9.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	6:30-6:30	115	57.5	25.9	10.3	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	6:45-6:45	117	59.0	27.8	9.2	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	6:30-6:30	113	56.3	28.4	7.6	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	6:45-6:45	109	60.0	29.0	9.8	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	6:30-6:30	108	57.2	27.4	7.6	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	6:45-6:45	114	59.4	28.7	7.1	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

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

TABLE 3.23: AAQ6 - SOOLAPURAM -

Period: March – May 2022

Location: AA6-Soolapuram Sampling Time: 24-hourly

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	8:00-8:00	108	57.1	26.5	7.6	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	8:15-8:15	109	59.5	58.1	9.8	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	8:00-8:00	114	60.3	29.7	10.3	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	8:15-8:15	119	61.6	30.8	7.1	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	8:00-8:00	108	60.7	31.7	9.8	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	8:15-8:15	106	58.2	30.5	8.2	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	8:00-8:00	115	59.5	29.0	6.5	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	8:15-8:15	118	60.1	28.9	8.7	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	8:00-8:00	113	54.3	27.6	9.7	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	8:15-8:15	118	58.0	28.4	10.3	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	8:00-8:00	115	56.2	26.5	7.1	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	8:15-8:15	114	54.6	29.3	8.2	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	8:00-8:00	116	58.4	30.0	9.8	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	8:15-8:15	112	59.5	28.6	9.8	20.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	8:00-8:00	108	57.1	27.1	7.6	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	8:15-8:15	107	56.9	25.4	9.2	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	8:00-8:00	115	57.0	26.2	6.5	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	8:15-8:15	118	60.8	29.6	7.1	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	8:00-8:00	109	57.1	30.2	8.7	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	8:15-8:15	106	58.2	27.2	9.8	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	8:00-8:00	110	60.5	30.2	8.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	8:15-8:15	112	61.2	31.4	8.7	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	8:00-8:00	106	59.1	30.6	7.1	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	8:15-8:15	102	61.5	29.7	10.3	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	8:00-8:00	109	60.3	29.9	9.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	8:15-8:15	118	58.0	30.2	8.7	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	8:00-8:00	106	59.4	29.4	6.5	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	8:15-8:15	117	56.2	27.8	9.2	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

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

TABLE 3.24: AAQ7 - POOSARIPATTY -

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant						Metals Pollutant			Organic Pollutant
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period.hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	8:30-8:30	116	58.4	26.7	8.7	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	8:45-8:45	109	56.1	25.6	10.3	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	8:30-8:30	118	59.2	28.0	9.2	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	8:45-8:45	114	60.4	30.5	7.6	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	8:30-8:30	110	56.6	26.4	6.5	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	8:45-8:45	108	56.1	27.1	8.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	8:30-8:30	112	59.8	28.0	9.8	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	8:45-8:45	104	61.0	30.5	8.2	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	8:30-8:30	118	59.1	28.2	6.5	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	8:45-8:45	107	58.6	25.9	10.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	8:30-8:30	105	62.0	30.2	7.6	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	8:45-8:45	117	60.2	28.4	9.8	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	8:30-8:30	119	61.8	29.2	8.7	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	8:45-8:45	106	60.4	30.6	9.8	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	8:30-8:30	120	62.0	29.4	6.5	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	8:45-8:45	119	59.2	28.0	8.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	8:30-8:30	120	62.1	31.6	7.6	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	8:45-8:45	102	58.3	30.2	8.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	8:30-8:30	105	59.2	28.9	10.3	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	8:45-8:45	118	56.1	27.4	9.8	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	8:30-8:30	104	54.6	27.5	7.6	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	8:45-8:45	118	58.0	26.3	8.7	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	8:30-8:30	117	60.2	29.6	8.2	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	8:45-8:45	104	59.9	30.2	7.1	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	8:30-8:30	118	58.4	29.5	7.6	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	8:45-8:45	121	59.6	28.4	9.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	8:30-8:30	103	56.0	29.1	8.7	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	8:45-8:45	114	57.1	28.6	7.6	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0);

Pb: BDL (DL:0.1); Ni: BDL (DL:1.0);

As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

Period: March – May 2022

Location: AA7-Poosaripatty Sampling Time: 24-hourly

TABLE 3.25: AAQ8 - ALAMBADI -

Period: March - May 2022

Location: AA8-Alambadi Sampling Time: 24-hourly

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period's	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	9:00-9:00	114	58.1	26.6	8.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	9:15-9:15	115	56.7	25.5	10.3	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	9:00-9:00	109	59.4	27.7	7.6	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	9:15-9:15	105	60.1	28.2	6.5	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	9:00-9:00	112	57.3	29.6	8.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	9:15-9:15	113	56.2	28.0	7.6	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	9:00-9:00	118	59.6	30.1	9.8	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	9:15-9:15	111	55.0	26.3	8.2	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	9:00-9:00	120	61.8	30.4	9.8	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	9:15-9:15	121	62.6	31.2	7.6	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	9:00-9:00	120	60.7	29.7	6.5	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	9:15-9:15	115	57.3	26.3	9.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	9:00-9:00	117	58.6	29.8	10.3	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	9:15-9:15	116	59.4	30.1	9.8	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	9:00-9:00	108	60.2	31.8	7.1	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	9:15-9:15	117	57.0	30.3	8.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	9:00-9:00	112	56.8	27.0	10.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	9:15-9:15	111	58.4	28.4	6.5	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	9:00-9:00	109	57.6	29.7	9.2	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	9:15-9:15	118	59.1	30.0	7.6	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	9:00-9:00	115	57.3	31.4	10.3	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	9:15-9:15	109	59.0	30.1	9.8	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	9:00-9:00	105	58.3	29.2	8.2	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	9:15-9:15	114	55.5	27.5	9.8	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	9:00-9:00	113	55.7	25.6	10.3	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	9:15-9:15	119	56.2	26.0	8.7	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	9:00-9:00	120	59.6	28.2	9.2	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	9:15-9:15	108	60.1	29.5	7.6	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ;DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

TABLE 3.26: ABSTRACT OF AMBIENT AIR QUALITY DATA

Sl. No.	Parameter	Pollutant Concentration, $\mu\text{g}/\text{m}^3$			
		PM _{2.5}	PM ₁₀	SO ₂	NO _x
1	No. of Observations	224	224	224	224
2	10th Percentile Value	26.20	56.10	7.10	19.40
3	20th Percentile Value	27.00	57.00	7.60	20.30
4	30th Percentile Value	27.60	57.50	7.60	20.70
5	40th Percentile Value	28.34	58.20	8.20	21.20
6	50th Percentile Value	28.90	59.00	8.70	21.60
7	60th Percentile Value	29.60	59.50	8.70	22.00
8	70th Percentile Value	30.06	60.05	9.73	22.50
9	80th Percentile Value	30.30	60.30	9.80	22.90
10	90th Percentile Value	31.34	61.45	10.30	23.30
11	95th Percentile Value	31.80	62.00	10.30	23.70
12	98th Percentile Value	32.40	62.60	10.30	23.70
13	Arithmetic Mean	29.41	59.43	8.94	21.94
14	Geometric Mean	29.35	59.39	8.86	21.89
15	Standard Deviation	2.01	2.10	1.21	1.44
16	NAAQ Norms*	60	100	80	80
17	% Values exceeding Norms*	0	0	0	0

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

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

FIGURE 3.13: BAR DIAGRAM OF PARTICULATE MATTER (PM₁₀& PM_{2.5})

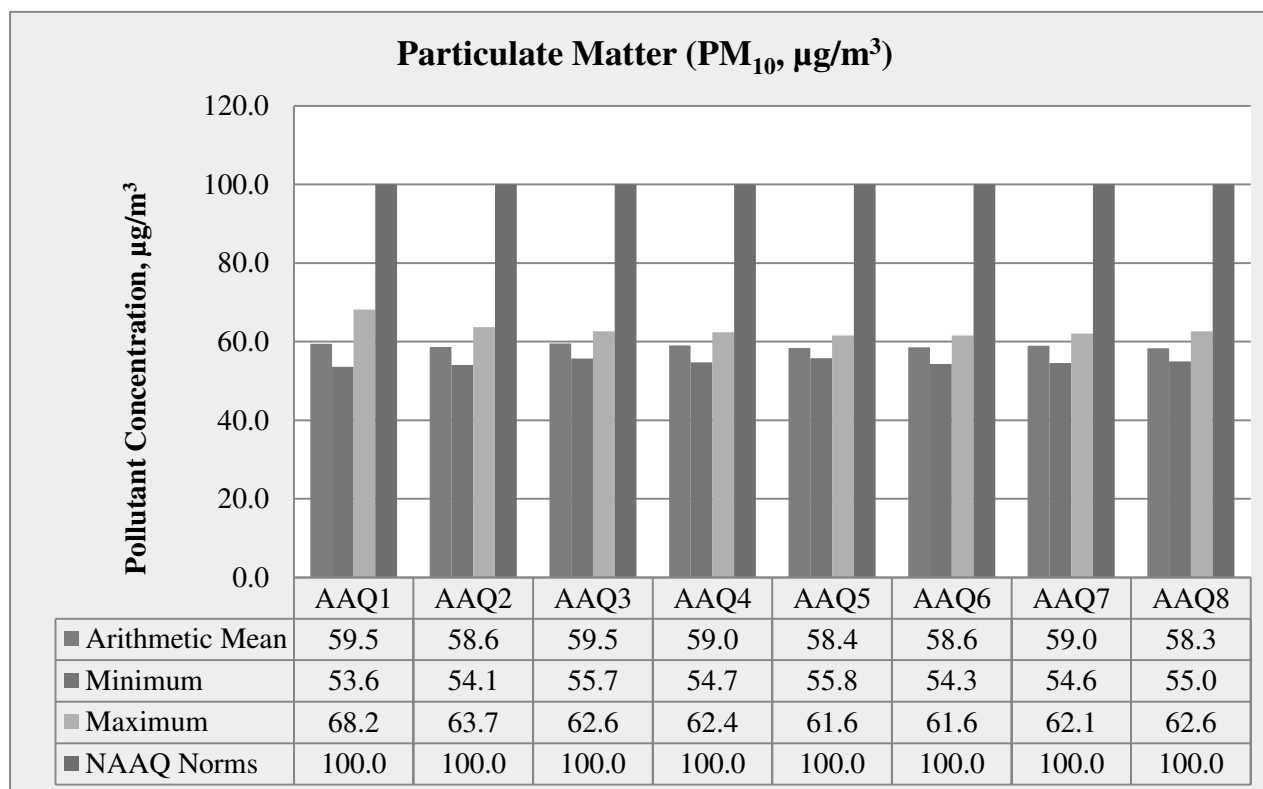
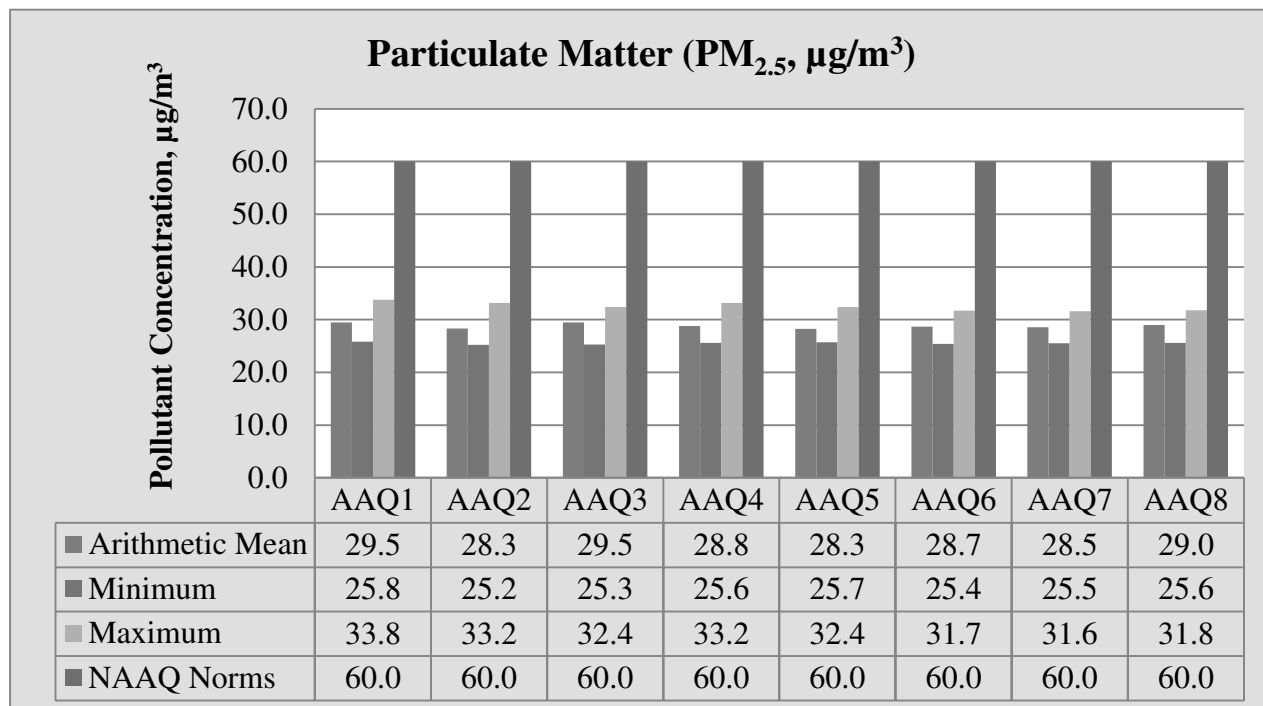
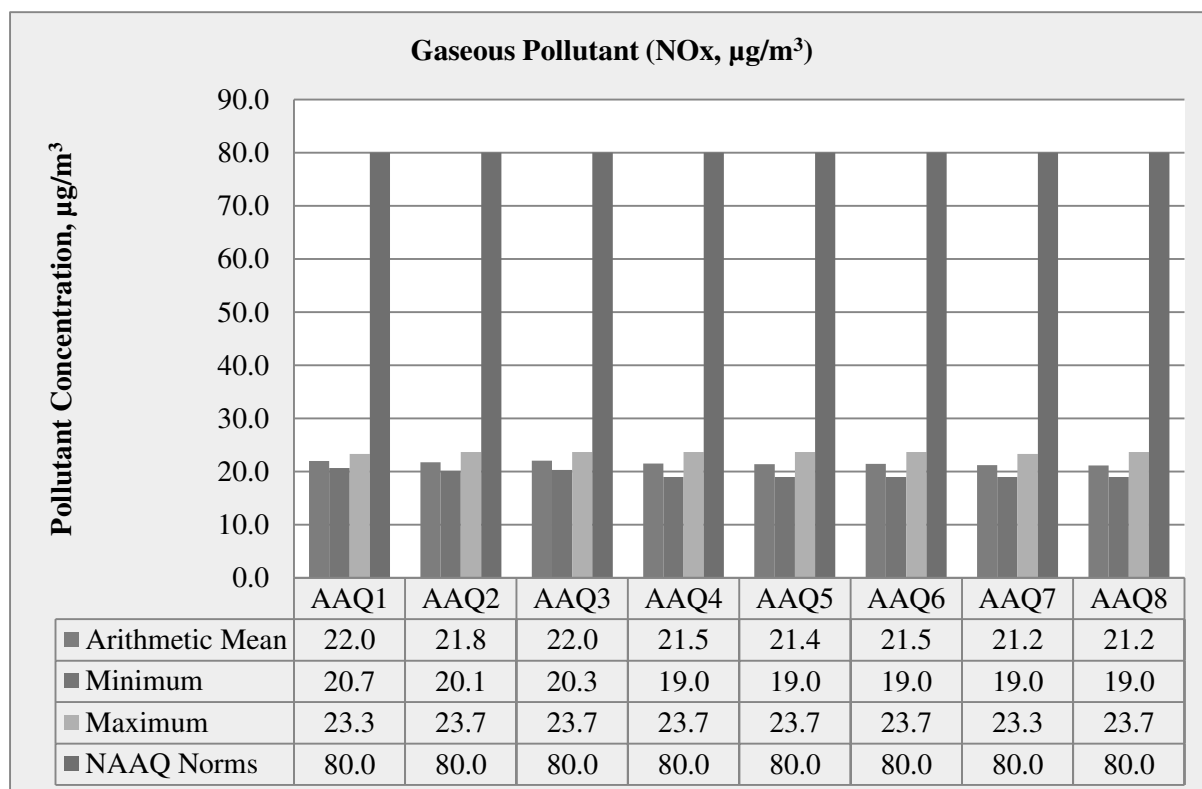
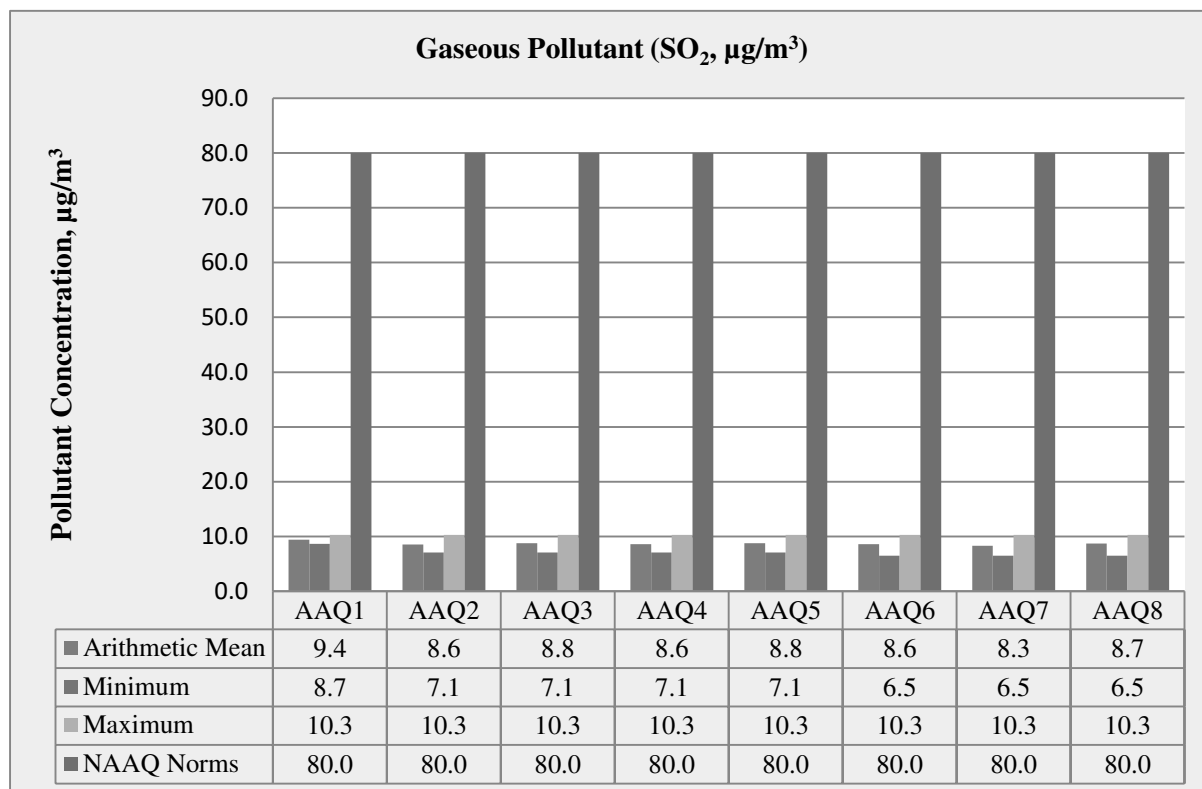


FIGURE 3.14: BAR DIAGRAM OF PARTICULATE MATTER (SO₂& NO₂)



3.3.6 Interpretations & Conclusion

As per monitoring data, PM₁₀ ranges from 53.6 µg/m³ to 68.2/m³, PM_{2.5} data ranges from 25.2µg/m³ to 33.8 µg/m³, SO₂ ranges from 6.5 µg/m³ to 10.3 µg/m³ and NO₂ data ranges from 19.0 µg/m³ to 23.7 µg/m³. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

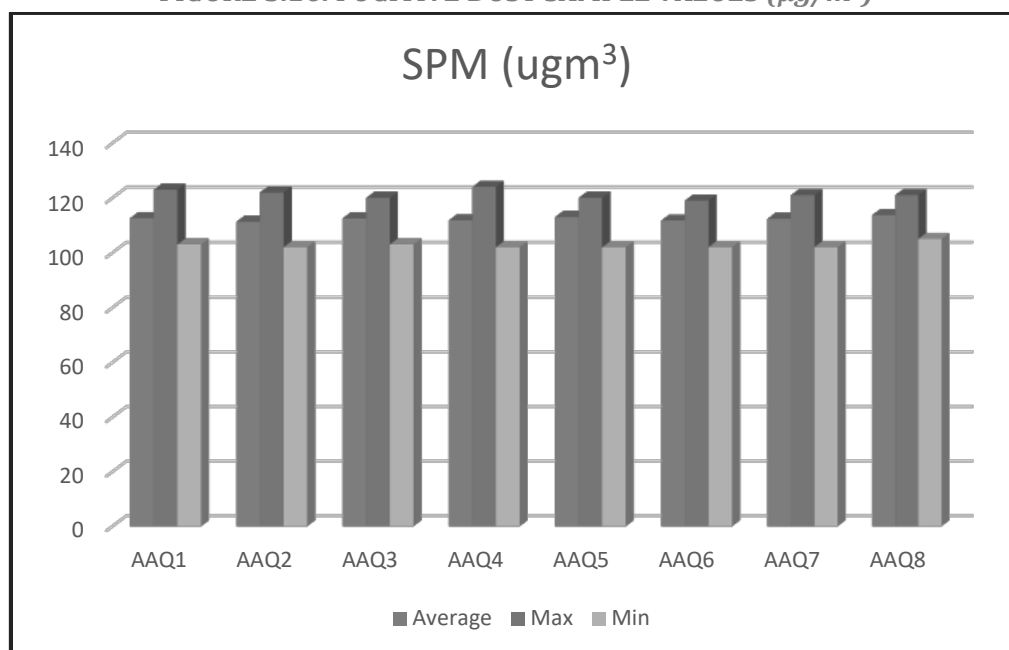
3.3.7 FUGITIVE DUST EMISSION –

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

TABLE 3.27 : FUGITIVE DUST SAMPLE VALUES IN µg/m³

SPM	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8
Average	112.6	111.3	112.5	111.8	113	111.7	112.36	113.71
Max	123	122	120	124	120	119	121	121
Min	103	102	103	102	102	102	102	105

FIGURE 3.16: FUGITIVE DUST SAMPLE VALUES (µg/m³)



3.5 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.

3.5.1 Identification of Sampling Locations

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

TABLE 3.28: DETAILS OF NOISE MONITORING LOCATIONS

S. No	Location code	Monitoring Locations	Distance & Direction	Coordinates
1	N-1	Core Zone	Project Area	10°44'16.49"N 78° 3'44.88"E
2	N-2	Alambadi	900m West	10°44'21.44"N 78° 3'12.00"E
3	N-3	Kottanattam (Ukkarapatti)	1.5km SE	10°44'5.79"N 78° 4'36.40"E
4	N-4	Kollapatti	2.5km NW	10°45'25.28"N 78° 2'59.94"E
5	N-5	Vasanthakathirpalayam	4.2km NE	10°46'27.93"N 78° 4'39.50"E
6	N-6	Kalapatti	4.8km NW	10°46'17.76"N 78° 1'58.86"E
7	N-7	Soolapuram	5.2km SW	10°42'33.28"N 78° 1'28.62"E
8	N-8	Poosaripatty	5.7km NE	10°45'19.68"N 78° 6'48.15"E

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

3.5.2 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.

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

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

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

T = Time interval of observation

3.5.3 Analysis of Ambient Noise Level in the Study Area

The Digital Sound pressure level have been measured by a sound level meter (Model : HTC SL-1352) An analysis of the different Leq data obtained during the study period has been made. Variation was noted during the day-time as well as night-time. The results are presented in below Table 3.30

Day time: 6:00 hours to 22.00 hours.

Night time: 22:00 hours to 6.00 hours.

TABLE 3.29: AMBIENT NOISE QUALITY RESULT

S. No	Locations	Noise level (dB (A) Leq)		Ambient Noise Standards
		Day Time	Night Time	
1	Project Area	60.1	48.1	Industrial Day Time- 75 dB (A) Night Time- 70 dB (A)
2	Alambadi	58.4	47.9	
3	Koottanattam	50.2	40.2	Residential Day Time- 55 dB (A) Night Time- 45 dB (A)
4	Kollapatti	49.4	40.0	
5	Vasanthakathirpalayam	49.6	41.0	
6	Kalapatti	49.6	39.6	
7	Soolapuram	49.7	39.5	
8	Poosaripatty	49.1	39.5	

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

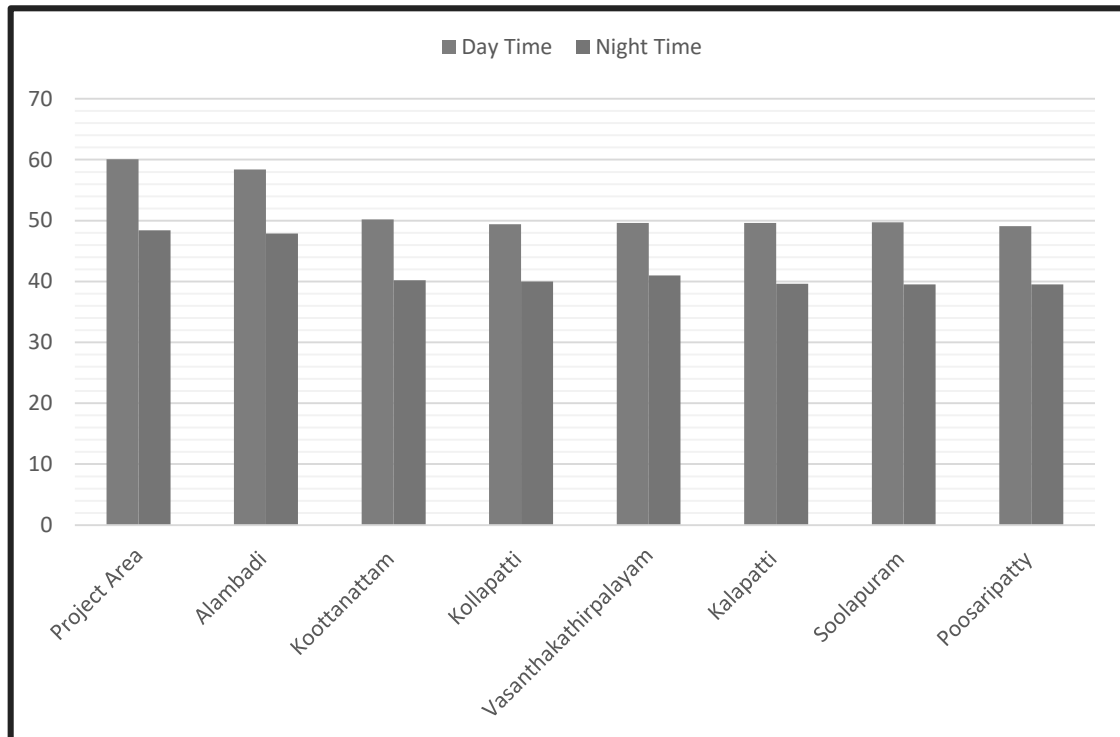
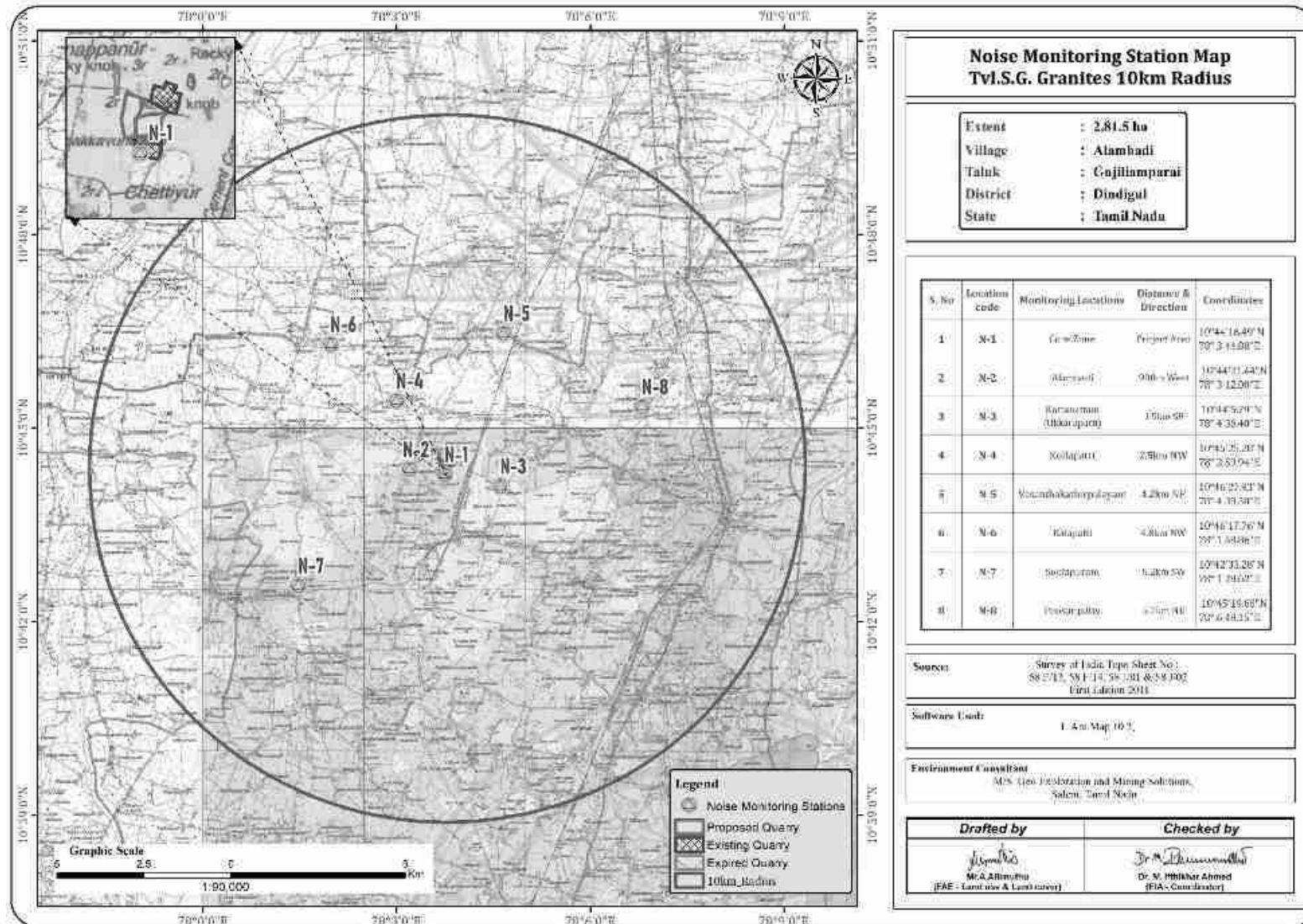
FIGURE 3.17: DAY AND NIGHT TIME NOISE LEVELS IN CORE AND BUFFER

FIGURE 3.18: NOISE MONITORING STATIONS AROUND 10 KM RADIUS



3.5.4 Interpretation & Conclusion:

Ambient noise levels were measured at 8 (Eight) locations around the proposed project area. Noise levels recorded in core zone during day time were from 58.4-60.1 dB (A) Leq and during night time 48.1 – 47.9 dB (A) Leq. Noise levels recorded in buffer zone during day time were from 49.1 -50.2dB (A) Leq and during night time were from 39.5 – 41.0 dB (A) Leq.

The values of noise observed in some of the areas are primarily owing to quarrying activities due to cluster of quarries within 500m radius, movement of vehicles and other anthropogenic activities. Thus, the noise level for Industrial and Residential area meets the requirements of CPCB.

3.6 ECOLOGICAL ENVIRONMENT

There is no Forest land, National Parks, Eco sensitive areas, Wild life sanctuaries within the radius of 10 km. An ecological survey of the study area was conducted particularly with reference to the listing of species and assessment of the existing baseline ecological (terrestrial) condition in the study area.

3.6.1 Methodology Adopted & Objective

To achieve the above objective, a detailed study of the area was undertaken in 10 km radius from the proposed project area. The different methods adopted were as follows:

- Primary field surveys to establish primary baseline of the study area; and
- Compilation of information available in published literatures and as obtained from Forest survey of India, Environmental Information Centre, Botanical Survey of India and Zoological Survey of India.
- The present report gives the review of published secondary data and the results of field sampling conducted during Pre-monsoon Season i.e. March – May, 2022 and there are no forest blocks in study area. The detailed ecological assessment of the study area has been carried out with the following objectives:
 - Identification of flora and fauna within the study area;
 - Preparation of checklist of species which also include endangered, endemic and protected (both floral and faunal categories); and Evaluation of impact of proposed expansion on flora and fauna of the area.

3.6.2. Study area Ecology

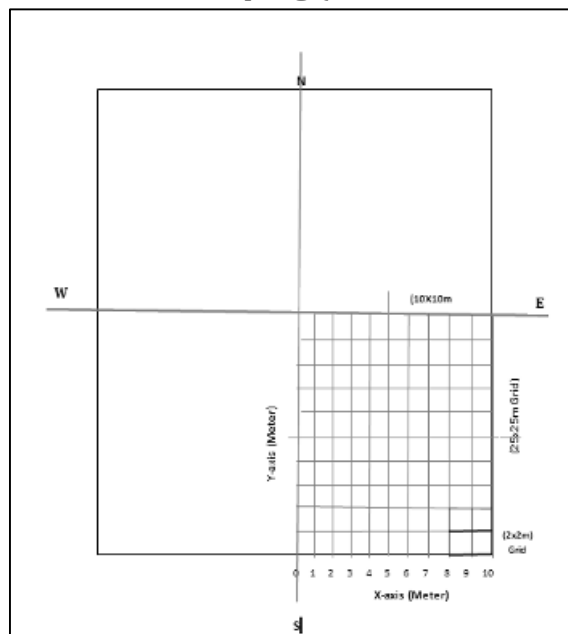
The Core mining area is dry land with scanty vegetation whereas in buffer zone agricultural land is dominated. The following methods were applied during the baseline study of flora, fauna and diversity assessment.

3.6.3. Objectives of Biological Studies

- Generation of primary data by undertaking systematic ecological studies in the area.
- Discussion with local people so as to elicit information about local plants, animals
- Generation of Primary Data.

To prepare a general checklist of all plants encountered in study area. This would indicate the biodiversity for wild and cultivated plants.

Fig No: 3.19. A schematic diagram shows 10-km radius buffer area into 4 quadrates for floral Random sampling (SE, SW, NE, and NW)



3.6.4. Phyto-sociological Survey method

Phyto-sociological parameters, viz., Abundance, Density, Frequency (%) were measured. A total of 10 quadrats were laid down randomly within core area and 40 quadrats were laid down within four quartiles randomly (10/quartile) in buffer area. In core area 10 quadrats were laid randomly to enumerated trees, shrubs, and herbs as per the Following formulae used for calculating the frequency (%), abundance and density of the floral species encountered in the 10 quadrats studied.

3.6.5. Quadrats method

Quadrats of 25 × 25-m were laid down randomly within core and 5-km buffer area; each quadrat was laid to assess the trees (>5 cm GBH) and one, 10 × 10-m sub-quadrat nested within the quadrat for shrubs. The quadrats were laid randomly to cover the area to maximize the sampling efforts and minimize the species homogeneity, such as small stream area, trees in agricultural bunds, tank bunds, farm forestry plantations, wildlife areas, natural forest area, avenue plantations, house backyards, etc. In each quadrat individuals belonging to tree (25 × 25-m) and shrub (10 × 10-m) were recorded separately and have been identified on the field. quadrates sampling methods is given in Fig no.3.19.

3.6.6 Flora in Core Zone

Taxonomically a total of 13 species belonging to 12 families have been recorded from the core mining lease area. Baseline study of cluster area showed that very low species (12) comprising of four trees 4 (30.76%), shrub 3 (23.07%) and herbs 4 (30.76%), Climber 2 (15.38%) The result of core zone of flora studies shows that very less species, because of dry land with scanty vegetation. Details of flora with the scientific name were mentioned in Table No. 3.30. No species found as threatened category. The diversity of flora families is given in Fig No.3.20.

3.6.7. Flora in Buffer Zone

Similar type of environment also in buffer area but with more flora diversity compare than core zone area because nearby agriculture land. It contains a total of 39 species belonging to 28 families have been recorded from the buffer zone. The floral (39) varieties among them twenty-two tree 22 (56.41%) followed by shrubs 6 (15.38%), Herbs 7 (17.94%) and Climber 4 (10.25%) were identified. The result of buffer zone of flora studies shows that Fabaceae and Moraceae, Mimosaceae are the main dominating species in the study area it mentioned in Table No.3.30

There is no Rare, Endangered and Threatened Flora species in mining area and their surrounding area. Details of flora with the scientific name were mentioned in Table No.3.30. The diversity of flora families is given in Fig No.3.20.

FIG NO.3.20. FLORA DIVERSITY PATTERN IN CORE ZONE AREA. (3.19 DOWN)

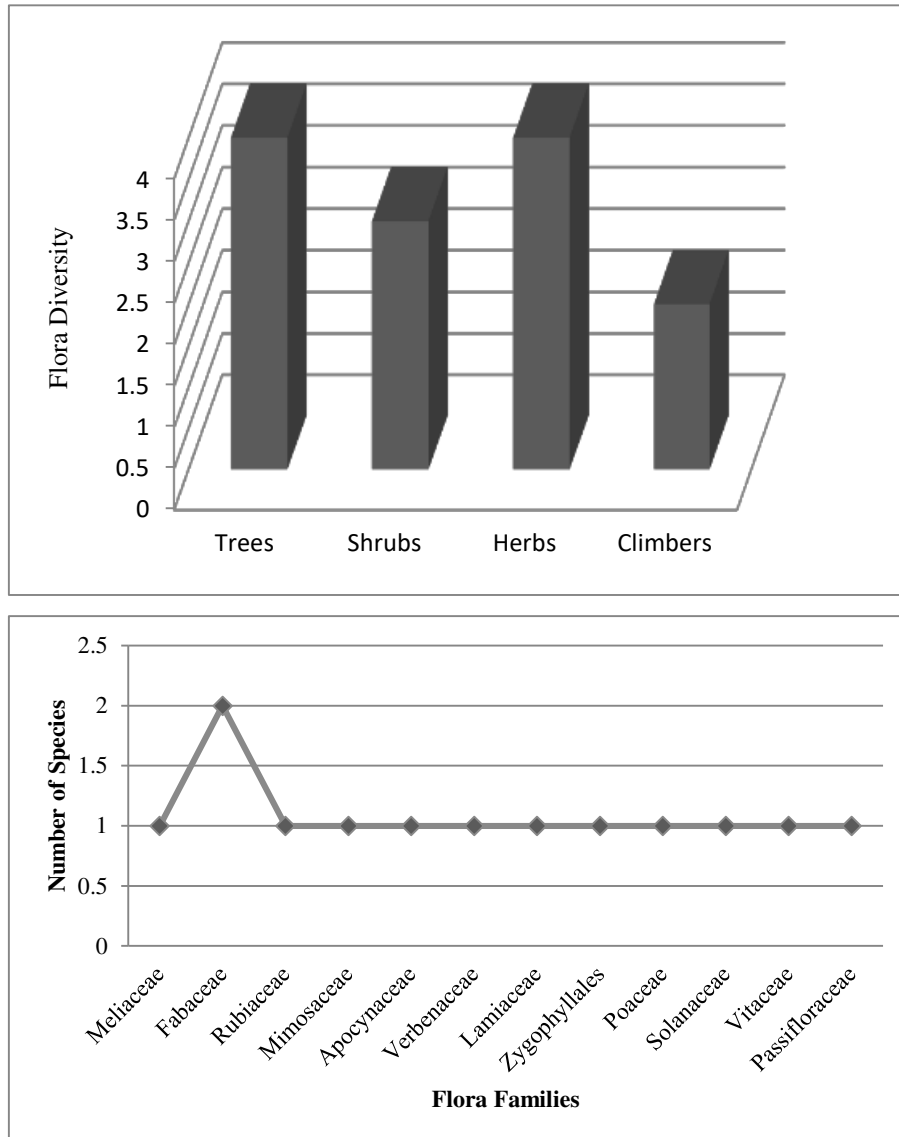


FIG NO.3.21. FLORA DIVERSITY PATTERN IN BUFFER ZONE AREA

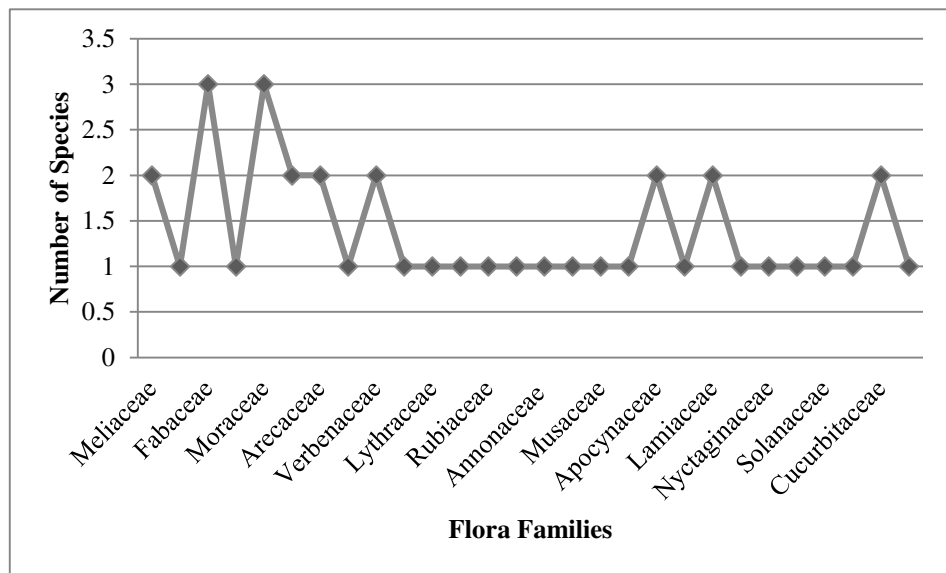
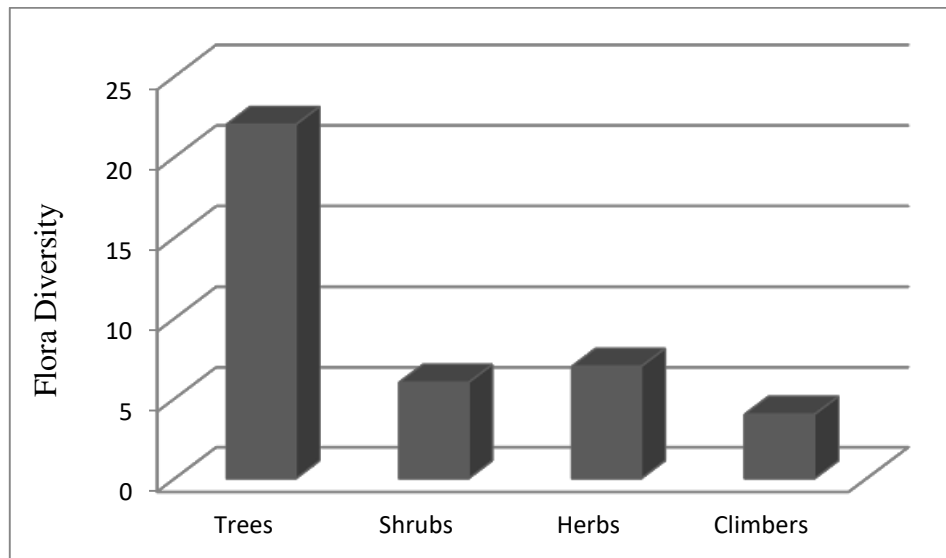


TABLE NO: 3.30. FLORA IN CORE AND BUFFER ZONE

Sl.No	English Name	Vernacular Name	Scientific Name	Family Name	Resource use type *(E,M,EM)
TREES					
1	Neem or Indian lilac	Vembu	<i>Azadirachta indica</i>	Meliaceae	M
2	Tamarind	Puliyamaram	<i>Tamarindus indica</i>	Legumes	EM
3	Millettia pinnata	Pongam	<i>Pongamia pinnata</i>	Fabaceae	M
4	Acacia Nilotica	Karuvelam maram	<i>Vachellia nilotica</i>	Fabaceae	E
5	Mango	Manga	<i>Mangifera indica</i>	Anacardiaceae	E
6	Indian fig tree	Athi	<i>Ficus recemosa</i>	Moraceae.	EM
7	gum arabic tree	Karuvelam	<i>Acacia nilotica</i>	Mimosaceae	NE
8	Coconut	Thennai maram	<i>Cocos nucifera</i>	Arecaceae	EM
9	Jack fruit	Palamaram	<i>Artocarpus heterophyllus</i>	Moraceae	E
10	Asian Palmyra plam	Panai maram	<i>Borassus flabellifer</i>	Arecaceae	E
11	banyan tree	Alamaram	<i>Ficus benghalensis</i>	Moraceae	E
12	Guava	Koyya	<i>Psidium guajava</i>	Myrtaceae	EM
13	Teak	Thekku	<i>Tectona grandis</i>	Verbenaceae	E
14	Lemon	Ezhumuchaipalam	<i>Citrus lemon</i>	Rutaceae	EM
15	Henna	Marudaani	<i>Lawsonia inermis</i>	Lythraceae	EM
16	Chinese chaste tree	Nochi	<i>Vitex negundo</i>	Verbenaceae	E
17	Papaya	Pappali maram	<i>Carica papaya L</i>	Caricaceae	EM
18	Noni	Nuna maram	<i>Morinda citrifolia</i>	Rubiaceae	M
19	Manilkara zapota	Sapota	<i>Manilkara zapota</i>	Sapotaceae	E
20	Custard apple	seethapazham	<i>Annona reticulata</i>	Annonaceae	E
21	Curry tree	Velipparuthi	<i>Murraya koenigii</i>	Asclepiadaceae	EM
22	Banana tree	Vazhaimaram	<i>Musa</i>	Musaceae	EM
SHRUBS					
23	Avaram	Avarai	<i>Senna auriculata</i>	Fabaceae	M
24	Indian mallow	Thuthi	<i>Abutilon indicum</i>	Meliaceae	M
25	Shoe flower.	Chemparuthi	<i>Hibiscus rosa-sinensis</i>	Malvaceae	EM
26	Milk Weed	Erukku or Crown flower	<i>Calotropis gigantea</i>	Apocynaceae	M
27	Indian Oleander	Arali	<i>Nerium indicum</i>	Apocynaceae	M
28	Touch-me-not	Thottalchinungi	<i>Mimosa pudica</i>	Mimosaceae	M
HERBS					
29	Carrot grass	Partiniyam	<i>Parthenium hysterophorus</i>	Asteraceae	NE
30	Holy basil	Thulasi	<i>Ocimum tenuiflorum</i>	Lamiaceae	M
31	Common leucas	Thumbai	<i>Leucas aspera</i>	Lamiaceae	M
32	Indian Copperleaf	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae	M
33	Red Hogweed	Mukurattai	<i>Boerhavia diffusa</i>	Nyctaginaceae	M
34	Indian doab	Arugampul	<i>Cynodon dactylon</i>	Poaceae	E
35	European Black nightshade	Manathakkali	<i>Solanum nigrum</i>	Solanaceae	EM
CLIMBER					
36	Wild water lemon	Sirupnaikkali	<i>Passiflora foetida</i>	Passifloraceae	M
37	Pointed gourd	Kovakkai	<i>Trichosanthes dioica</i>	Cucurbitaceae	EM
38	Bottle Guard	Sorakkai	<i>Lagenaria siceraria</i>	Cucurbitaceae	EM
39	Stemmed vine	Perandai	<i>Cissus quadrangularis</i>	Vitaceae	M

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

3.6.8 Fauna

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

3.6.8.1. Fauna methodology

The study of fauna takes substantial amount of time to understand the specific faunal characteristics of the area. The assessment of fauna has been done on the bases of primary data collected from the lease sites. The presence was also confirmed from the local inhabitants depending on the animal sightings and the frequency of their visits in the project area. In addition, officials, local peoples were another source of information for studying the fauna of the area. Field activities are physical/active search, covering rocks, burrows, hollow inspection and location of nesting sites and habitat assessment etc. Taxonomical identification was done by the field guide book and wildlife envis data base (wiienviis.nic.in/Database/Schedule Species Database) and Zoological Survey of India (ZSI). Detailed faunas are mentioned in the Table No. 3.6 and 3.7.

a) Survey and Monitoring of Mammals

Intensive survey has been done by line transect methods (Walking and in vehicle) for all major habitats for surveying of mammals by direct and indirect evidence. Indirect methods such as faecal matter (i.e., scat) and pug mark by establishing 10 × 100-m linear transects depending on the habitat (i.e., existing wildlife game routes/forest trails used).

Direct observation technique has been used for surveying large and medium sized mammals. But this technique is perfectly suitable for surveying of diurnal mammals; however, good photographs were also taken for species identification.

b) Survey and Monitoring of Birds

Birds are sampled by using point count methods, and opportunistic bird sightings. By this bird vocal sounds and photographs, the species were identified in consultation with village local people.

Point count: in these methods, the observer will stand in a randomly chosen point and birds seen or heard in 50m radius are recorded for 5-min. this observation is repeated in another point at least 30m from the first point. We have enumerated 20 point – counts in each quartile, which constitute a total of 80 points-count (20 x 4) within 10 km radius area

Opportunistic bird sightings: while traveling in study area, many bird species will be detected in survey time. Such species are recoded by their appearance or by their call.

c) Survey and Monitoring of reptiles

Several survey techniques such as standard walk transect visual encounter survey methods were used to sampling reptiles in each and every habitat of the study area. While doing this survey, photographs were taken for identification of species. Species identification was done by using standard field guides in consultation with village people expert.

The **butterfly** was enumerated by 2 linear transects of 10 × 100 m were laid within each quartile at minimum interval of 1 km. Further, **amphibians and fishes** documented in existing literature and secondary information in consultation with local people and wildlife experts.

3.6.8.2. Fauna in Core Zone

Baseline study reported that there is very low species richness (20) species belonging to 17 families have been recorded from the cluster area of mining. Based on habitat classification the majority of species were Insects 9 (45%), Birds 7 (35%), Reptiles 3 (15%) and Mammals 1 (5%) in core zone of Alambadi village Cluster area Multicolour Granite quarry, dindigul Tamil Nadu. The result of core zone of fauna studies shows that Nymphalidae (3) and Agamidae (2) are the main dominating species in the core zone area it mentioned in Table No.3.32. The

diversity of faunal family's pattern is given in Fig No. 3.26. No species is under endemic, endangered or vulnerable status in around the mining lease.

Dominant species are mostly birds and insects no amphibians were observed during the extensive field visit. 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. 3.31

TABLE NO: 3.31. FAUNAL DIVERSITY IN CORE AREA

Sl. No	Common name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
INSECTS					
1	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	NL	NL
2	Acraea violae	Nymphalidae	<i>Acraea violae</i>	NL	LC
3	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
4	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NL	LC
5	Mottled emigrant	Peridae	<i>Catopsilia pyranthe</i>	NL	LC
6	Praying mantis	Mantidae	<i>mantis religiosa</i>	NL	NL
7	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
8	Termite	Blattodea	<i>Hamitermes silvestri</i>	NL	LC
9	Stick insect	Lonchodidae	<i>carausius morosus</i>	NL	LC
REPTILES					
10	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
11	Common house gecko	Gekkonidae	<i>Hemidactylus frenatus</i>	NL	LC
12	Fan-Throated Lizard	Agamidae	<i>Sitanaponticeriana</i>	NL	LC
MAMMALS					
13	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	NL
AVES					
14	Asian green bee-eater	Meropidae	<i>Meropsorientalis</i>	NL	LC
15	Two-tailed Sparrow	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
16	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
17	common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
18	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC
19	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NL	LC
20	Koel	Cucalidae	<i>Eudynamys</i>	Schedule IV	LC

***NL- Not listed, LC- Least Concern**

3.6.9. Fauna in Buffer Zone

Baseline study reported that there are more species richness 32 species belonging to 24 families have been recorded from the buffer mining lease area. Based on habitat classification the majority of species were Birds 13 (40.62%) followed by Insects 11 (34.37%), Mammals 2 (6.25%) and Reptiles 3 (9.37%) in Buffer Zone of Alambadi village Cluster area Multicolour Granite quarry dindigul Tamil Nadu. The result of Buffer zone of fauna studies shows that Nymphalidae (6) and *Dicruridae* (2) and *Agamidae* (2) are the main dominating species in the buffer zone area it mentioned in Table No.3.33. There is no schedule I&II, III Species in study area. A detail of fauna diversity of family's pattern is given in Fig No.3.22. There are no critically endangered, vulnerable and endemic species were observed. Details of faunal diversity in buffer zone are given in Table No.3.31.

TABLE NO: 3.32. FAUNAL DIVERSITY IN BUFFER AREA

SI.No	Common name/English Name	Family Name	Scientific Name	Schedule list wildlife Protection act 1972	IUCN Red List data
INSECTS					
1	Striped tiger	Nymphalidae	<i>Danaus plexippus</i>	Schedule IV	LC
2	Tawny coster	Nymphalidae	<i>Danaus chrysippus</i>	Schedule IV	LC
3	Common Tiger	Nymphalidae	<i>Danaus genutia</i>	Schedule IV	LC
4	Red-veined darter	Libellulidae	<i>Sympetrum fonscolombii</i>	NL	LC
5	Ant	Formicidae	<i>Camponotus Vicinus</i>	NL	NL
6	Milkweed butterfly	Nymphalidae	<i>Danainae</i>	NL	LC
7	Common Indian crow	Nymphalidae	<i>Euploea core</i>	Schedule IV	LC
8	Praying mantis	Mantidae	<i>mantis religiosa</i>	NL	NL
9	Grasshopper	Acrididae	<i>Hieroglyphus sp</i>	NL	LC
10	Lesser grass blue	Lycanidae	<i>Zizina Otis indica</i>	Schedule IV	LC
11	Blue tiger	Nymphalidae	<i>Tirumala limniace</i>	Schedule IV	LC
REPTILES					
12	Garden lizard	Agamidae	<i>Calotes versicolor</i>	NL	LC
13	Common house gecko	Gekkonidae	<i>Hemidactylus frenatus</i>	NL	LC
14	Fan-Throated Lizard	Agamidae	<i>Sitanaponticriana</i>	NL	LC
MAMMALS					
15	Indian palm squirrel	Sciuridae	<i>Funambulus palmarum</i>	Schedule IV	LC
16	Indian Field Mouse	Muridae	<i>Mus booduga</i>	Schedule IV	LC
AVES					
17	Koel	Cuculidae	<i>Eudynamys</i>	Schedule IV	LC
18	Cattle egret	Ardeidae	<i>Bubulcus ibis</i>	NL	LC
19	Common myna	Sturnidae	<i>Acridotheres tristis</i>	NL	LC
20	House crow	Corvidae	<i>Corvus splendens</i>	NL	LC
21	Asian green bee-eater	Meropidae	<i>Merops orientalis</i>	NL	LC
22	Red-vented Bulbul	Pycnonotidae	<i>Pycnonotus cafer</i>	Schedule IV	LC
23	Rose-ringed parakeet	Psittaculidae	<i>Psittacula krameri</i>	NL	LC
24	Shikra	Accipitridae	<i>Accipiter badius</i>	NL	LC
25	Common quail	Phasianidae	<i>Coturnix coturnix</i>	Schedule IV	LC
26	Black drongo	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
27	Two-tailed Sparrow	Dicruridae	<i>Dicrurus macrocercus</i>	Schedule IV	LC
28	White-breasted waterhen	Rallidae	<i>Amauromis phoenicurus</i>	NL	LC
29	Common Coot	Rallidae	<i>Fulica atra</i>	Schedule IV	LC
AMPHIBIANS					
30	Indian Burrowing frog	Dicroglossidae	<i>Sphaerotheca breviceps</i>	IV	LC
31	Green Pond Frog	Ranidae	<i>Rana hexadactyla</i>	IV	LC
32	Tiger Frog	Chordata	<i>Hoplobatrachus tigerinus</i> (<i>Rana tigerina</i>)	IV	LC

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

FIG NO.3.22. FAUNA DIVERSITY PATTERN IN CORE ZONE AREA

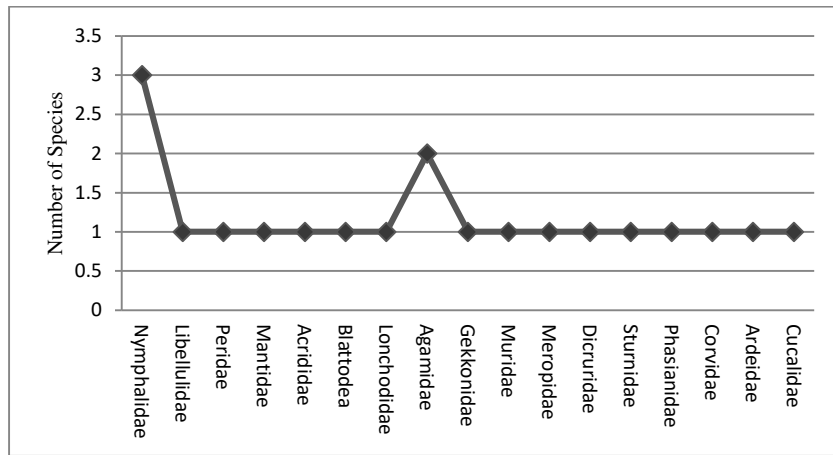
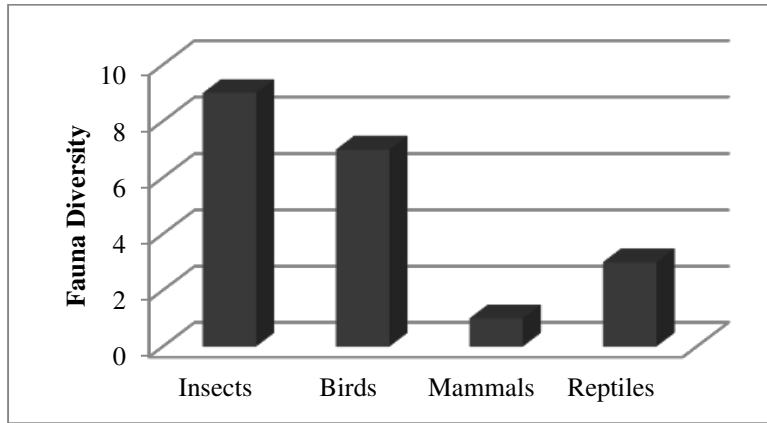
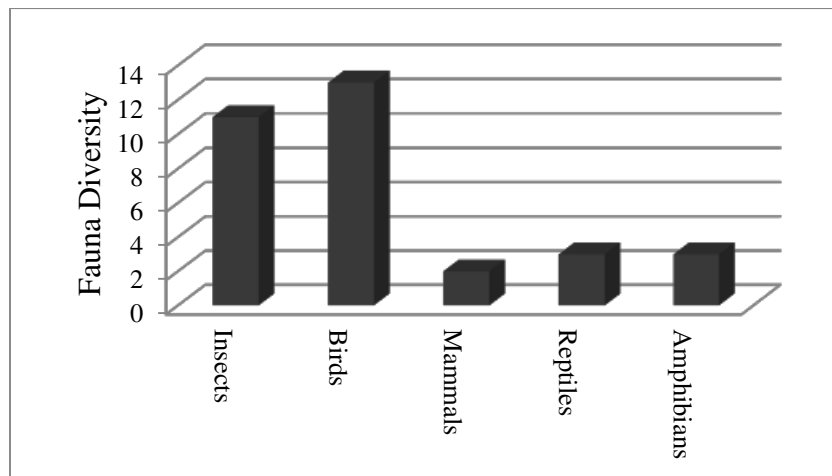
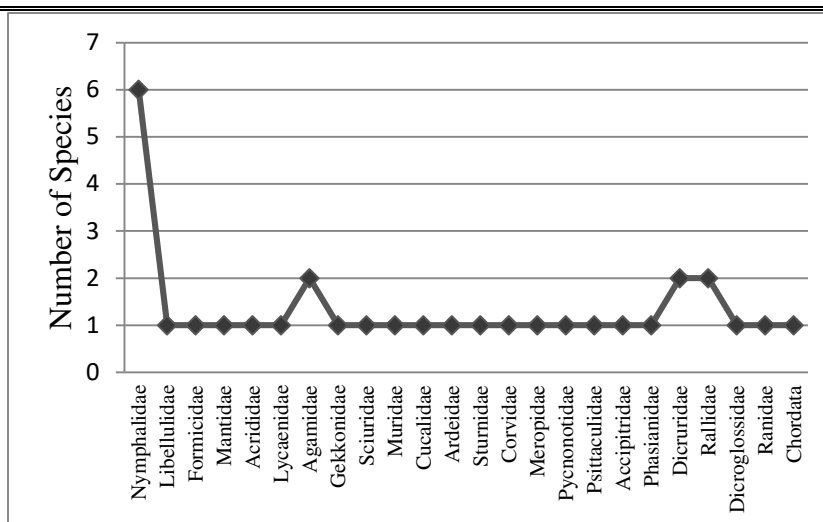


FIG NO.3.23. FAUNA DIVERSITY PATTERN IN BUFFER ZONE AREA





3.6.10 Interpretation

The result of core & Buffer zone of fauna studies shows. There is no schedule I & II Species in study area. A detail of fauna diversity of family's pattern is given in Fig No.3.23. There are no critically endangered, endangered, vulnerable and endemic species were observed. Details of faunal diversity in buffer zone are given in Table No.3.32.

3.7 SOCIO ECONOMIC ENVIRONMENT

The major developmental activities in Mining sector are required for economic development as well as creation of employment opportunities (direct and indirect) and to meet the basic/modern needs of the society, which ultimately results in overall improvement of the quality of life through upliftment of social, economic, health, education and nutritional status in the project region, state as well as the country. In this manner all developmental projects have direct as well as indirect relationships with socioeconomic aspects, which also include public acceptability for new/proposed/Existing projects.

The study of these parameters helps in identification, prediction and evaluation of the likely impacts on the socio economics and parameters of human interest due to the project.

3.7.1 Objectives

The primary objectives of the Social Impact Assessment study are:

- To assess the impact on socio-economic environment due to the project
- Understanding the baseline socio-economic environment obtaining in the impact zone.
- Identifying the key stakeholders who are likely to be impacted by the establishment of the proposed project.
- Predicting the positive and negative impacts of the project on the socioeconomic environment in the area.
- Suggesting mitigation measures to minimize the negative impacts.

3.7.2 Scope of Work

In keeping with its objectives, the scope of the study extends to:

- Making a reconnaissance of the villages and human settlements within the 10km radius from the Existing project site.
- Understanding the overall socio-economic profile of the impact area.
- Assessing the baseline socio-economic environment prevailing in the impact area focusing the core and buffer zones.
- Identifying key economic sectors and major sources of livelihood in the study area.
- Understanding social structures and lifestyles of people in the area who are likely to be affected the most by the Existing project.

-
-
- Assessing physical and social infrastructure facilities accessible to inhabitants in the project impact area.
 - Predicting the likely socio-economic impacts as a consequence of establishing the project.
 - Suggesting adverse impact mitigation measures in line with the felt needs, aspirations and expectations of the project affected population.
 - Preparing an appropriate Socio-Economic Environment Management Plan.

3.7.3 Approach & Methodology

The basic approach for carrying out the SIA is focused on:

- Zeroing-in on the project impact area, covering all the villages and other habitations falling within the 10 km radius from the project site.
- Collecting basic information with respect to constituent villages in terms of census village code, name of the Tehsil in which a particular village falls, number of households, population level (as per Census 2011) and growth of village population during the last decade, distance from the proposed project site etc.
- Identifying critical knowledge/information gaps which impede an objective and reliable assessment of the socio-economic impacts of the project.
- Zeroing-in on the data/information to be collected for a fair impact assessment and deciding upon the sources and means to collecting the same.
- Identifying the key stakeholders and potential respondents for collecting the required information.
- Drawing a sampling frame and sample size specifying villages and number of households to be contacted for primary data/information collection and agencies to be contacted for eliciting information on various aspects relevant to the study.

3.7.4 Methodology

- The Social Impact Assessment (SIA) of the proposed project is relied on a judicious mix of Secondary (i.e., Census 2011, Govt. Dept., Maps and Literature Research) and Primary data (i.e., Field survey and Interview / Interactions) collected from different sources.
- Various socio-economic aspects considered for impact assessment include livelihoods, relocation and rehabilitation, incomes, employment, skills, education, health and overall lifestyles. The cultural aspects considered are archaeological, historical, religious and aesthetic places of importance, arts and crafts etc.

The SIA was carried out in the three distinct stages:

- Desktop review / research
- Field Survey
- Data Analysis & its interpretation

3.7.5 Project Impact Zones

The geographical area for impact assessment extends over 10 Kms. Radius from the project site and comprises of 14 Villages and towns. To facilitate a more realistic and objective assessment, the 14 villages / towns Panchayat are categorized into three zones:

- Core zone (within 0 -3 Kms.) Radial distance from the project site)
- Buffer zone (> 3 – 7 Kms.)
- Transition/Outer zone (> 7 – 10 Kms.)

It is obvious from the above data that only 1 no. of villages fall in core impact zone, accounting for just 6.4 % of the total population in the study area. 5 no. of villages accounting for 24.3 % of the total population fall in buffer impact zone, while 8 no. of villages accounting for 69.3 % of the total population fall in transition zone.

Impact Zone	in %
0-3km	6.4
3-7km	24.3
7-10km	69.3
Total	100%

Source: census 2011.

Given the nature of the project, its socio-economic impacts will be more pronounced on the people inhabiting the core and buffer impact zones rather than on the transition zone. Hence the study focus was more on the socio-economic conditions obtaining among the households in the core and buffer zones.

The key demographic features of the villages / towns in the three impact zones are shown below:

Table.3.33 Demographic characteristics (0-10km Radius)

Sn o	Name	Total/Rural/Urban	Total Households	Total Population	Male Population	Female Population	0-6y Population	0-6y Male Population	0-6y Female Population	SC Population	Male SC	Female SC	Literate Population	Male Literate	Female Literate	Average Literate %
0-3km																
1	Alambadi	Rural	1339	5335	2704	2631	514	280	234	873	450	423	3151	1811	1340	65.4
	Total		1339	5335	2704	2631	514	280	234	873	450	423	3151	1811	1340	65.4
3-7km																
1	Vellodu (R)	Rural	814	3147	1554	1593	275	145	130	791	370	421	1933	1102	831	67.3
2	Kottanatham	Rural	1456	5792	2837	2955	537	273	264	1276	641	635	3467	1997	1470	66.0
3	Dhalipatti	Rural	187	730	370	360	84	40	44	127	66	61	374	216	158	57.9
4	Karikali	Rural	1195	4691	2399	2292	496	264	232	960	461	499	2882	1747	1135	68.7
5	Mallapuram	Rural	1527	5933	2983	2950	601	332	269	1612	852	760	3507	2049	1458	65.8
	Total		5179	20293	10143	10150	1993	1054	939	4766	2390	2376	12163	7111	5052	66.5
7-10km																
1	Gudalur	Rural	1856	7110	3533	3577	698	369	329	1145	573	572	4475	2546	1929	69.8
2	Karungal	Rural	932	3966	2014	1952	437	238	199	1048	537	511	2381	1429	952	67.5
3	Ulliyakottai	Rural	761	3169	1621	1548	311	170	141	710	342	368	1748	1016	732	61.2
4	Chinnaluppai	Rural	358	1397	724	673	159	91	68	315	160	155	865	515	350	69.9
5	Vadugambadi	Rural	1587	6515	3260	3255	668	341	327	2758	1370	1388	3864	2227	1637	66.1
6	Palayam (TP)	Urban	3686	15336	7715	7621	1709	902	807	1525	768	757	9802	5487	4315	71.9
7	Vedasandur (Gujiliamparai)	Rural	3715	14998	7174	7824	1391	751	640	2616	1206	1410	10625	5498	5127	78.1
8	Esanatham	Rural	1490	5311	2604	2707	468	252	216	820	425	395	3638	2030	1608	75.1
	Total		14385	57802	28645	29157	5841	3114	2727	10937	5381	5556	37398	20748	16650	72.0
	G.Total		20903	83430	41492	41938	8348	4448	3900	16576	8221	8355	52712	29670	23042	63.2

Source: Census 2011, Dindigul district, Tamil Nadu.

Table.3.34 Occupational characteristics (0-10km Radius)

Sno	Name	Total workers	Male Workers	Female Workers	Main workers	Male Main workers	Female Main workers	Main Cultivators	Male_Main cultivators	Female_Main cultivators	Main Agriculture Persons	Male Main Agriculture Persons	Female Main Agriculture Persons	Main HH Persons
0-3km														
1	Alambadi	2912	1703	1209	2354	1504	850	463	315	148	1047	527	520	23
	Total	2912	1703	1209	2354	1504	850	463	315	148	1047	527	520	23
3-7km														
1	Vellodu (R)	2237	1166	1071	2095	1095	1000	897	470	427	910	416	494	39
2	Kottanatham	3622	1931	1691	3545	1908	1637	656	380	276	2240	1052	1188	97
3	Dhalipatti	443	243	200	443	243	200	89	46	43	272	137	135	1
4	Karikali	2630	1594	1036	2396	1516	880	478	286	192	759	376	383	29
5	Mallapuram	3028	1794	1234	2808	1707	1101	873	542	331	1280	658	622	76
	Total	11960	6728	5232	11287	6469	4818	2993	1724	1269	5461	2639	2822	242
7-10km														
1	Gudalur	3908	2259	1649	3637	2152	1485	890	588	302	1689	722	967	20
2	Karungal	2266	1246	1020	1993	1127	866	299	171	128	1025	448	577	35
3	Ulliyakottai	1908	1068	840	1830	1034	796	450	304	146	997	430	567	26
4	Chinnaluppai	828	443	385	824	442	382	233	126	107	355	146	209	12
5	Vadugambadi	3941	2071	1870	2859	1574	1285	734	372	362	1293	602	691	12
6	Palayam (TP)	8097	4813	3284	7435	4576	2859	1820	996	824	2141	1050	1091	113
7	Vedasandur (Gujiliamparai)	7740	4370	3370	6881	4129	2752	1066	697	369	1767	815	952	175
8	Esanatham	2708	1661	1047	2287	1457	830	550	331	219	758	400	358	21
	Total	31396	17931	13465	27746	16491	11255	6042	3585	2457	10025	4613	5412	414
	G.Total	46268	26362	19906	41387	24464	16923	9498	5624	3874	16533	7779	8754	679

Male_Household	Female_Household	Main_Other workers	Main_Male Other workers	Main_Female Other workers	Marginal workers	Male Marginal workers	Female Marginal workers	Nonworkers	Male Nonworkers	Female Nonworkers
0-3km										
10	13	821	652	169	558	199	359	2423	1001	1422
10	13	821	652	169	558	199	359	2423	1001	1422
3-7km										
29	10	249	180	69	142	71	71	910	388	522
67	30	552	409	143	77	23	54	2170	906	1264
0	1	81	60	21	0	0	0	287	127	160
16	13	1130	838	292	234	78	156	2061	805	1256
41	35	579	466	113	220	87	133	2905	1189	1716
153	89	2591	1953	638	673	259	414	8333	3415	4918
7-10km										
11	9	1038	831	207	271	107	164	3202	1274	1928
17	18	634	491	143	273	119	154	1700	768	932
19	7	357	281	76	78	34	44	1261	553	708
6	6	224	164	60	4	1	3	569	281	288
10	2	820	590	230	1082	497	585	2574	1189	1385
53	60	3361	2477	884	662	237	425	7239	2902	4337
107	68	3873	2510	1363	859	241	618	7258	2804	4454
11	10	958	715	243	421	204	217	2603	943	1660
234	180	11265	8059	3206	3650	1440	2210	26406	10714	15692
397	282	14677	10664	4013	4881	1898	2983	37162	15130	22032

Source: Census 2011, Dindigul district, Tamil Nadu

3.7.5.1 Desktop Review / Research

A fairly comprehensive desk research to understand the socio-economic setting of the project area was the first initiative towards carrying out SIA. Accordingly, published and unpublished information available on the subject was referred, reviewed and critical information gaps identified by the SIA team.

It was during this stage, the key stakeholders were identified and study instruments – schedules and checklists – prepared, tested and finalised. Similarly, the sampling frame and sample size were also designed and finalised. The sampling frame for the study consisted of villages, households and District and Tehsil level officials, key informants as also local opinion leaders.

3.7.5.2 Baseline Data and Analysis of Surveyed Villages

A proportional random sampling technique was followed to select the sample villages and households. Accordingly, the sample villages were picked up at random from the three impact zones considered – Core, Buffer and Transition. The number of households to be contacted in each sample village was determined on the basis of the size of population of the respective village. In the absence of household level information, the respondent households were selected randomly during the course of visit to the respective village. However, while selecting the respondent households, emphasis was on contacting households, who are economically poor, susceptible to shifts in livelihood patterns and belonged to vulnerable social communities.

To ensure the accuracy of the primary data collected from the study area, all the village specific information was verified from the data of Census 2011 and secondary information collected from various Govt. Dept., Map, Literature etc.

Accordingly following no. of 8 villages have been selected:

Table 3.35 Selection of sample village

Sno	Name of the Village	Population	Distance and direction
1	Alambadi	5335	2.5km-NW
2	Vellodu (R)	3147	4.4km-W
3	Kottanatham	5792	4.6km-E
4	Karikali	4691	5.0km-SE
5	Gudalur	7110	9.0km-NE
6	Uliyakottai	3169	8.0km-S
7	Vedasandur (Gujiliamparai)	14998	8.3km-SE
8	Esanatham	5311	7.5km-SW
	Total	20,309	

Source: Google earth image and Census 2011.

3.7.6 Field survey

Field survey helped in collecting fairly reliable primary data with respect to the major livelihood sources, education, health status, basic amenities and standard of living. It also helped in eliciting information from the natives about the negative environmental impacts of industrial units already existing in the area and the measures initiated by them (industrial units) to mitigate the impacts.

The potential respondents in the sample households were approached personally by members of the core **study team and Field Investigators** who explained the purpose of the visit and asked their participation by sharing the intended information unbiasedly. The study team clarified the doubts and addressed the apprehensions expressed by the respondents. Once the respondents were willing and ready to participate,

household level socio-economic information was collected with the help of a structured questionnaire. A number of questions were open ended to facilitate capturing perceptions of the respondents objectively.

In addition, Participatory Rapid Assessment (PRA) tools comprising Villages / Town Transect Walks, Focus Group Discussions (FGD), Key Informant Interviews and Local Opinion Leader interviews were used for collecting qualitative information with regards to key socio-economic challenges of the area.

3.7.7 Data Analysis & Its Interpretation

3.7.7.1 Population Distribution and Composition of Study Area

The population as per 2011 Census records is 83430 (for 10 km radius buffer zone). Total no. of household is 1339, 5,179 and 14,385 respectively, in primary, secondary and tertiary zone. Sex ratio is 973, 1001 and 1018 (females per 1000 males) observed in primary, secondary and tertiary zone respectively. SC population distribution is 873, 4766 and 10937 respectively in primary, secondary and tertiary zone. ST population distribution is 4,0 and 6 respectively in primary, secondary and tertiary. Average household size is 4. Zone wise Demographic profile of study area is given in the table below:

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

Table 3.36 Zone wise Demographic Profile of Study Area

Zone	No. of Villages	Total Household	Total Population	Male Population	%	Female Population	%
Primary Zone (0 - 3 Km)	1	1339	5335	2704	50.68	2631	49.32
Secondary Zone (3 - 7 Km)	5	5179	20293	10143	49.98	10150	50.02
Tertiary/Outer Zone (7 - 10 km)	8	14385	57802	28645	49.56	29157	50.44
Study Area (0-10 km)	14	20903	83430	41492	49.73	41938	50.27

Source: Census of India, 2011

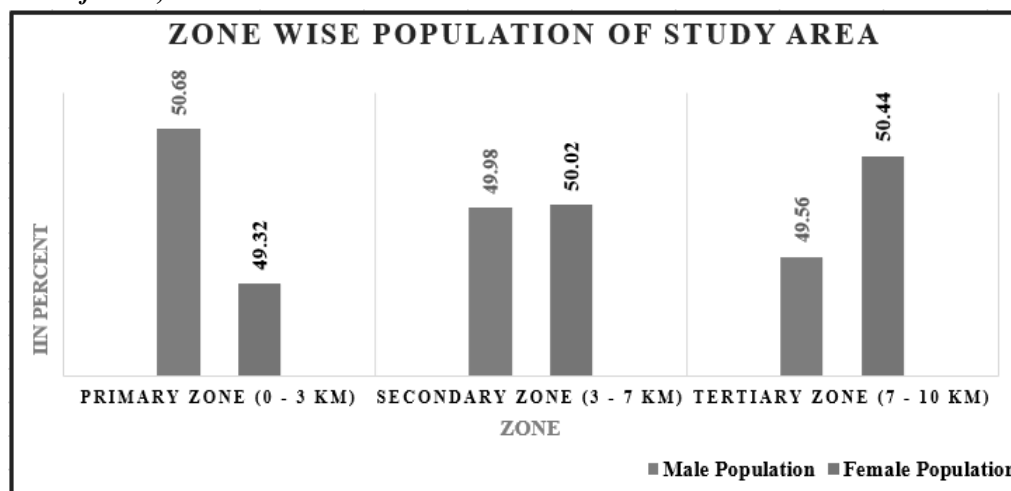


Figure.3.24 Population of study area

- ✓ Above table identifies the presence of villages and their subsequent population divided under three zones from Mine lease boundary (i.e., Primary, secondary and Outer zone)
- ✓ Primary zone has 1 village where as much as 1339 households with 5335 population are located. Mostly lying on Built-up land for their livelihood and substance.
- ✓ Secondary and tertiary zone both comprise of 5 and 8 villages having a total population of 20,293 and 57,802 respectively.

3.7.7.2 Gender and Sex Ratio

Sex ratio is used to describe the number of females per 1000 of males. Sex ratio is a valuable source for finding the population of women in India and what is the ratio of women to that of men in India. In the Population Census of 2011, it was revealed that the population ratio in India 2011 is 940 females per 1000 of males. The study area has 1011 females per 1000 males. Gender and sex ratio determine the Human Development Index (HDI) of an area thereby understanding the status of women in that region. Following table entails information about sex ratio of 14 villages lying in study area (buffer zone) as primary, secondary and tertiary zone.

Table 3.37 Sex ratio of the study area

S. No.	Buffer Zone	Sex Ratio of Study area Female/ 1000 Male
--------	-------------	--

1	Primary Zone (0-3 km)	973
2	Secondary zone (3-7 km)	1001
3	Tertiary/Outer Zone (7-10 km)	1018

Source: Census of India, 2011

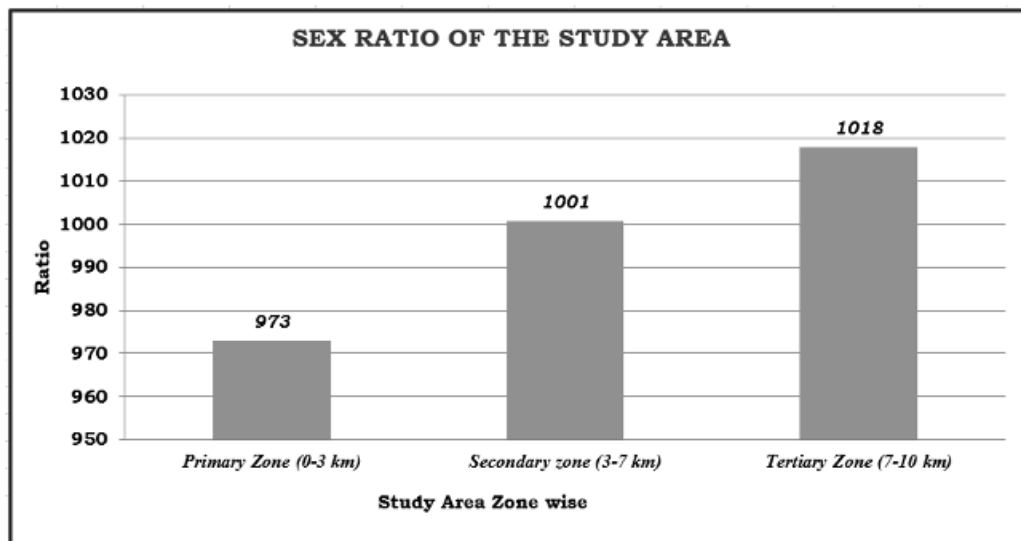


Figure.3.25 Sex Ratio within 10 Km study area

3.7.7.3 Literacy Rate in Study Area

Literacy Rate is the percentage of people in a country with the ability to read and write. The analysis of the literacy levels is done in the study area. The 10 km radius of study area demonstrates a literacy rate of 70% as per census data 2011. The male literacy rate in the study area indicates 80% whereas the female literacy rate, which is an important indicator for social change, is observed to be 61% as per the census data 2011. This needs to focus on the region and enhance further development focusing on education.

Table.3.38 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)	1	1811	74.71	1340	55.90	3151	65.36
Secondary Zone (3 - 7 Km)	5	7111	78.24	5052	54.85	12163	66.46
Tertiary/Outer Zone (7 - 10 Km)	8	20748	81.27	16650	63.00	37398	71.97
Study Area (0-10km)	14	29670	80.09	23042	60.58	52712	70.21

Source: Census of India, 2011

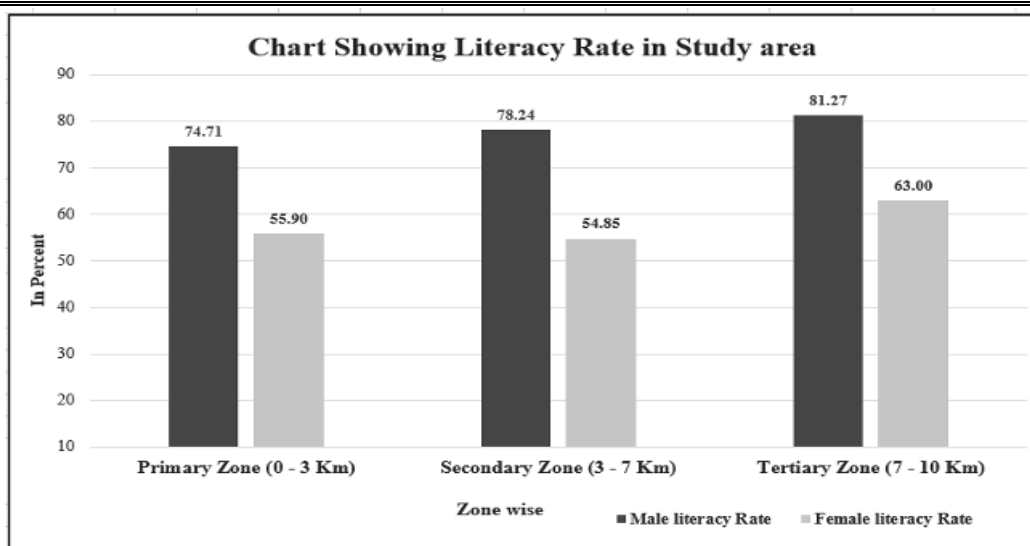


Figure.3.26 Gender wise Literacy Rate in the study area

3.7.7.4 Family Size

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

3.7.7.5 Vulnerable Group

While developing an action plan, it is very important to identify the population who fall under the marginalized and vulnerable groups and special attention has to be given towards these groups while making action plans. Special provisions should be made for them. In the observed villages schedule caste (SC) population is 20% and Schedule Tribe population 0.01%, Other Population is 80% in the total study area.

Table. 3.39 vulnerable groups of the study area

Zone	No. of Villages	Vulnerable Groups					
		SC Population	%	ST Population	%	Other Population	%
Primary Zone (0 - 3 Km)	1	873	16.36	4	0.07	4458	83.56
Secondary Zone (3 - 7 Km)	5	4766	23.49	0	0.00	15527	76.51
Tertiary Zone (7 - 10 Km)	8	10937	18.92	6	0.01	46859	81.07
Total area (10km)	14	16576	19.87	10	0.01	66844	80.12

Source: Census of India, 2011

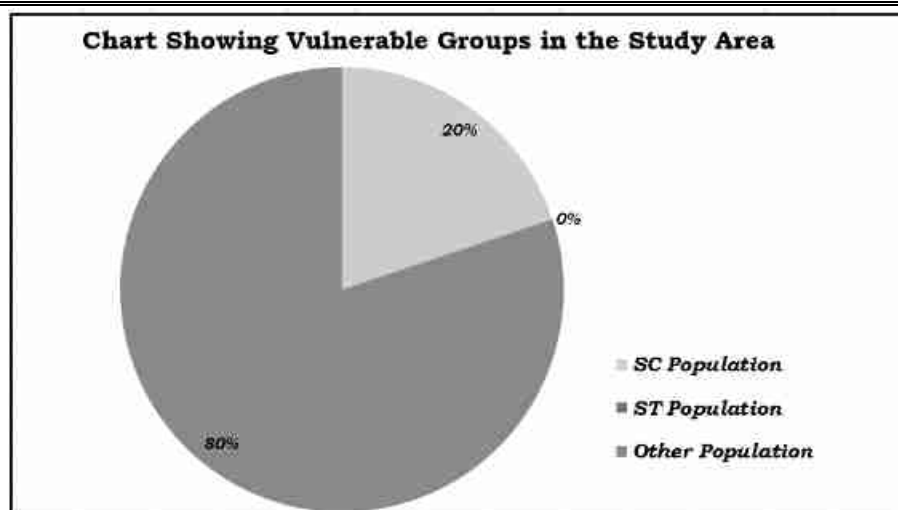


Figure.3.27 vulnerable groups

3.7.7.6 Economic Activities

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

Table. 3.40 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)	1	2912	54.58	2354	44.12	558	10.46	2423	45.42
Secondary Zone (3 - 7 Km)	5	11960	58.94	11287	55.62	673	3.32	8333	41.06
Tertiary/Outer Zone (7 - 10 Km)	8	31396	54.32	27746	48.00	3650	6.31	26406	45.68
Study Area (10 Km)	14	46268	55.46	41387	49.61	4881	5.85	37162	44.54

Source: Census of India, 2011

The above table shows that out of the total working population, the percentage of main workers is 50 % while 6% are marginal workers. Number of working populations is 55% and non-working population is 45% in the study area. As per the data obtained from the survey (as mentioned previously in occupational structure) most of these people are employed for major period of the year. Also, to mention the natural environment also restricts the people in finding stable business is performed for only certain months. Thus, proposed project will act as possible exposure for them to get enrol and earn sustain livelihood.

Figure.3.28 Working population in the study area



3.7.7.7 Structure Map around 300m Radius

Figure.3.29 Structure Map 300m Radius-P1



Table 3.35 Structure details 300m radius

Distance Range	No. of Structures	Type of Structures (Kuchcha/ Brick/ Cement/ RCC/ Framed Structures)	Usage/ Purpose	No. of occupants	Ownership (Belongs to PP/ Not belongs to PP)	Remarks
0-50m-NIL						
50-100m	2	Shed – 1 No Mine shed-1 No	Used to store mines documents labour	Nil	Belongs to PP	Nil
100-200m-NIL						
200-300m	2	Cattle Shed – 1 No Farm House-1 No	Agriculture purpose with cattle, farming land	Nil	Belongs to PP	NIL

Source: Field survey on project site.

3.7.8 Other Issues in the Study Area

1. Agriculture Land decreases
2. Lack of awareness among vulnerable groups for their welfare
3. Medical facilities and PHC need for the impact zone area
4. Environmental clean with solid wastage pin each village.
5. Need proper drainage system with public toilet men and women separately.
6. Road damage when load carriage way.
7. Employment and wages issue during quarry operation.

3.7.9 Interpretation

Based on the data, following inferences could be drawn:

- Total literacy rate in the study area is 70%.
- The study area had average educational facilities. The overall status depicts that the education is limited to primary and middle level.
- The schedule tribe community forms 0.01% and Scheduled Caste forms 20% of the total population of study area.
- The Other Population forms 80% of the total population of study area.
- The study area is well connected by District/Village Road.
- The study area not well health facilities of primary level.
- Considering the above facts, the Existing project will boost the socio-economic development activities in the area and hence will leave positive impact.
- The study area has mobile connectivity.

3.7.10 Recommendation and Suggestions

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

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

3.7.11 Conclusion

To evaluate the impacts of existing quarry project on the surrounding area, it is vital to assess the baseline status of the environmental quality in the locality of the site. Hence it can be concluded that the present environment status of the study area will not be affected by the project as **M/s. S. G Granites** will adopt adequate control measures to protect the surrounding environment and will contribute in development of the study areas.

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

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 GENERAL

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

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

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

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

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

4.2 LAND ENVIRONMENT

4.2.1 Anticipated Impact

The main anticipated impact on the Land Environment due to quarrying operation is change in Landscape, change in Land – use Pattern. The total area applied for quarry lease is 2.81.5 ha, the total extent of the cluster is 7.74.23 ha including existing and proposed quarries. The proposed project area is a patta land registered in the name of company. No forest land involved in this lease applied area. The ultimate depth of the proposed project is 28m (2m topsoil + 26m Multi-coloured granite) below the ground level and will not intersect the ground water table. The project is site specific.

4.2.2 Mitigation measures

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

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

4.2.4 Soil Environment

4.2.4.1 Impact on Soil Environment

The thickness of the top soil is 3m, Total quantity of Top soil will be generated upto the life of the mine is 34,306m³ and Topsoil generated during this scheme period will be around 2,325m³. This Top soil will be stored in the safety barrier in moisture condition and utilized for Greenbelt development purpose.

4.2.4.2 Mitigation measures for Soil Conservation

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

4.2.4.3 Waste Dump Management

4.2.5 Anticipated Impact

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

There is generation of topsoil is about 34,306m³ for the entire period and 2,325m³ during this five-year mining plan period. The top soil will be preserved all along the safety barrier and utilized for construction of bund and afforestation purpose. The total waste to be produced during this plan period is around 86,763m³ (Granite waste (75%), the same will be temporarily dump on the East side with Dimensions of (L) 99m x (W) 29m x (H) 8.09m, As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose.

4.2.6 Mitigation measures

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

4.3 WATER ENVIRONMENT (IMPACT & MITIGATION MEASURES)

4.3.1 Anticipated Impact on Surface and ground water

The impact due to mining on the water quality is expected to be insignificant because of no use of chemicals or hazardous substances during quarrying process. For the quarrying activity water will be utilized for wire saw cutting (which will be recycled), water sprinkling on haul roads and greenbelt development. The quarrying activity will not intersect ground water table as ultimate depth of the quarry is 28m BGL and water table is found at a depth of 58m BGL.

4.3.2 Mitigation measures

The following mitigation measures are suggested for water management

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

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

Detail of water requirements in KLD as given below:

TABLE 4.1 WATER REQUIREMENT FOR THE PROJECT

Purpose	Quantity	Source
Domestic & Drinking purpose	0.5KLD	From Existing, bore wells and drinking water will be sourced from Approved Water vendors.
Dust Suppression	0.8KLD	From Existing bore wells from nearby area
Green Belt	0.7KLD	From Existing bore wells from nearby area
Total	2.0 KLD	

Source: Prefeasibility report

- Mine pit water will be used for Greenbelt development and other domestic purposes.
- Rainwater will be collected in sump in the mining pit and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression onwards and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judiciously utilize the rainwater as part of rainwater harvesting.
- Construction of garland drains to divert surface run-off into the quarrying area.
- Retaining walls with weep hole will be constructed around the dump to arrest silt wash off.
- Periodic analysis of quarry pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits.
- Wastewater discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
- De-silting will be carried out before and immediately after the monsoon season.
- Regular monitoring and analysing the quality of water in open well, bore wells and surface water.

4.4 AIR ENVIRONMENT (IMPACT & MITIGATION MEASURES)

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

4.4.1. Anticipated Impact

The air borne particulate matter is generated by quarrying operation, and transportation. The emissions of Sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are marginal. Loading - unloading and transportation of Granite and overburden, wind erosion of the exposed area and movement of light vehicles will be the main polluting source in the mining activities releasing Particulate Matter (PM₁₀) affecting Ambient Air of the area. Prediction of impacts on air environment has been carried out taking into consideration proposed production of 1,15,685cbm (ROM) on air environment and net increase in emissions by Open pit source modelling in AERMOD Software.

4.4.2 AERMOD Frame work of Computation & details

By using the above-mentioned inputs, ground level concentrations due to the quarrying activities have been estimated to know the incremental concentration in ambient air quality and impact in the study area. The effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere. Air quality modelling is an important tool for prediction, planning and evaluation of air pollution control activities besides identifying the requirements for emission control to meet the regulatory standards and to apply mitigation measures to reduce impact caused by quarrying activities. PM₁₀ was the major pollutant occurred during quarrying activities. The prediction included the impact of Excavation, Drilling, Blasting (Occasionally), loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

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

4.4.2.1 Emission Rate

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

The general equation for emissions estimation is:

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

Where:

E = Emissions;

A = Activity rate;

EF = Emission factor, and

ER = Overall emission reduction efficiency, %

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

TABLE 4.2: ESTIMATED EMISSION RATE FOR PM₁₀

Activity	Source type	Value	Unit
Drilling	Point Source	0.048447504	g/s
Blasting	Point Source	0.000064561	g/s
Mineral Loading	Point Source	0.035371952	g/s
Haul Road	Line Source	0.002483763	g/s
Overall Mine	Area Source	0.057899243	g/s

TABLE 4.3: ESTIMATED EMISSION RATE FOR SO₂

Activity	Source type	Value	Unit
Drilling	Point Source	0.00011278	g/s

TABLE 4.4: ESTIMATED EMISSION RATE FOR NO_x

Activity	Source type	Value	Unit
Overall Mine	Area Source	0.000006838	g/s

4.4.2.2 Frame work of Computation & Model details

By using the above-mentioned inputs, ground level concentrations due to the quarrying activities have been estimated to know the incremental concentration in ambient air quality and impact in the study area. The effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere. Air quality modelling is an important tool for prediction, planning and evaluation of air pollution control activities besides identifying the requirements for emission control to meet the regulatory standards and to apply mitigation measures to reduce impact caused by quarrying activities. PM₁₀ was the major pollutant occurred during quarrying activities. The prediction included the impact of Excavation, Drilling, Blasting, loading and movement of vehicles during transportation and meteorological parameters such as wind speed, wind direction, temperature, rainfall, humidity and Cloud cover.

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

FIGURE 4.1: AERMOD TERRAIN MAP

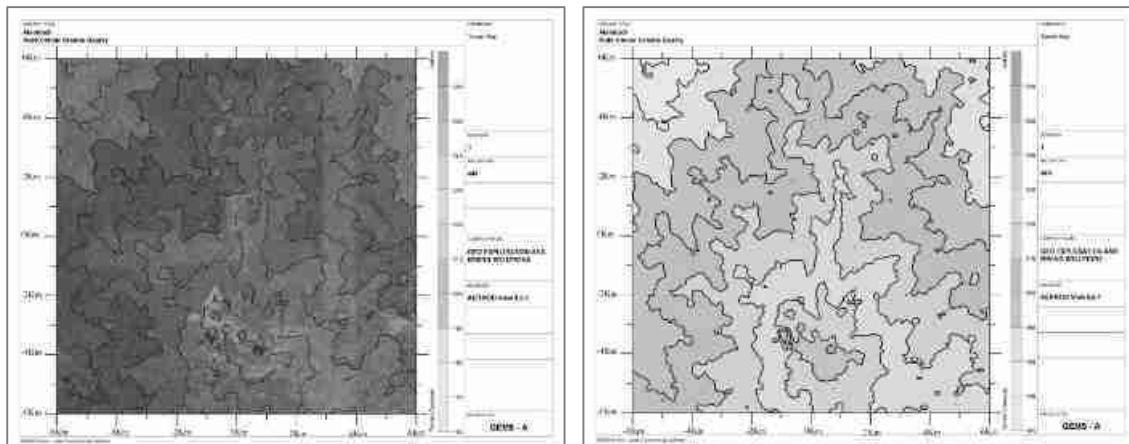


FIGURE 4.2: PREDICTED INCREMENTAL CONCENTRATION OF FUGITIVE DUST

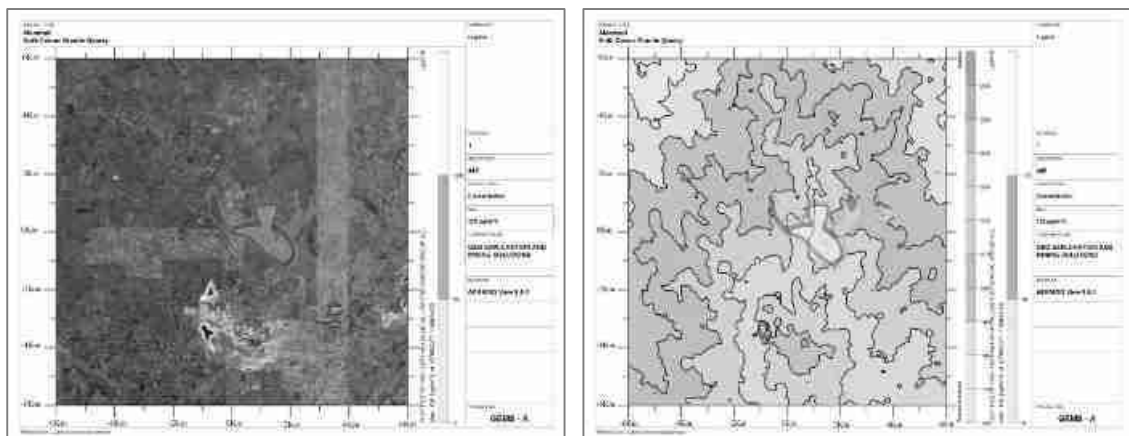


FIGURE 4.3: PREDICTED INCREMENTAL CONCENTRATION OF PM₁₀

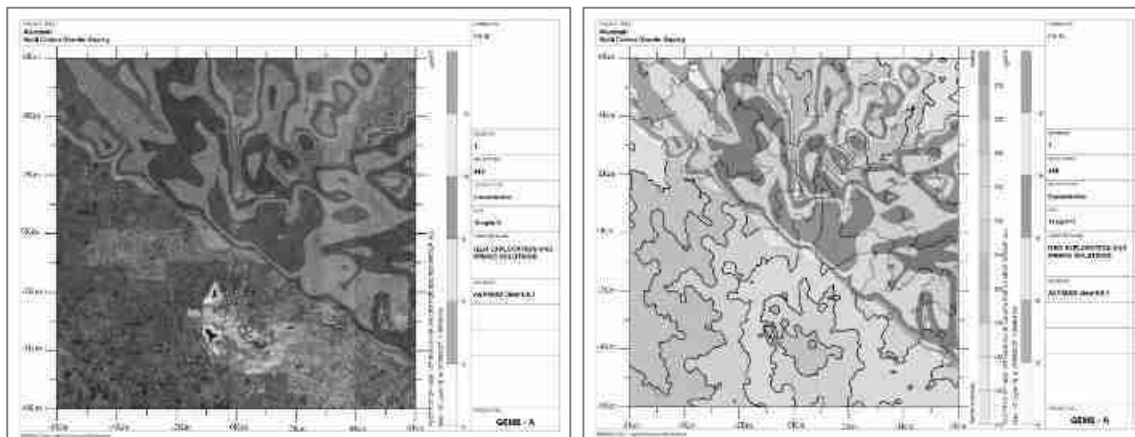


FIGURE NO 4.4: PREDICTED INCREMENTAL CONCENTRATION OF PM_{2.5}

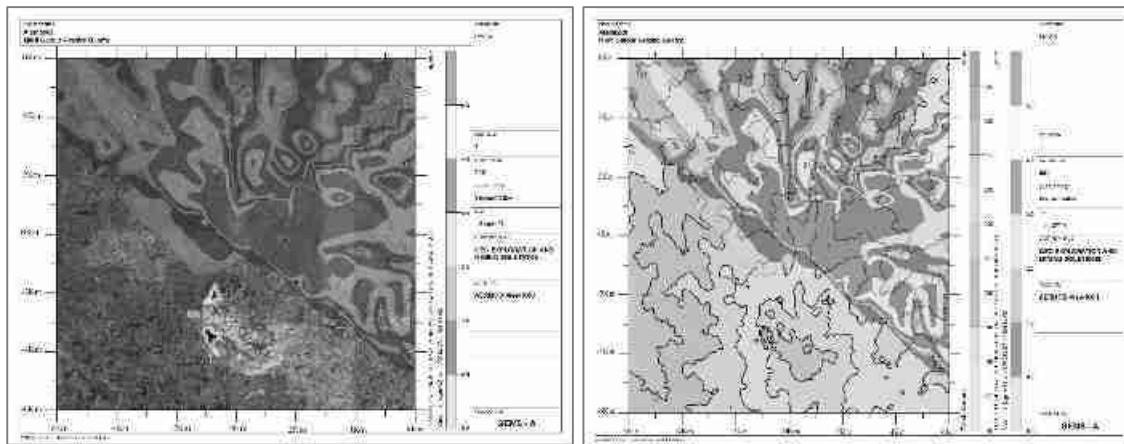


FIGURE NO 4.5: PREDICTED INCREMENTAL CONCENTRATION OF SO₂

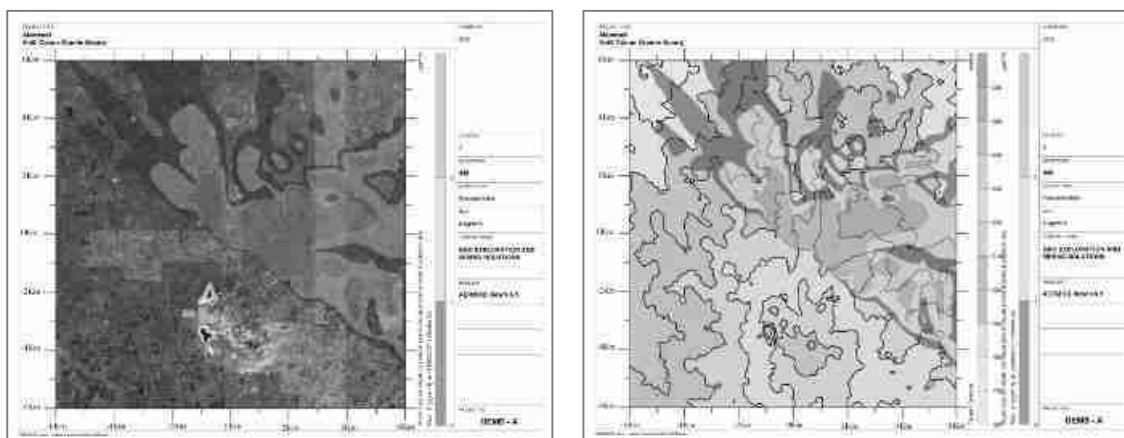
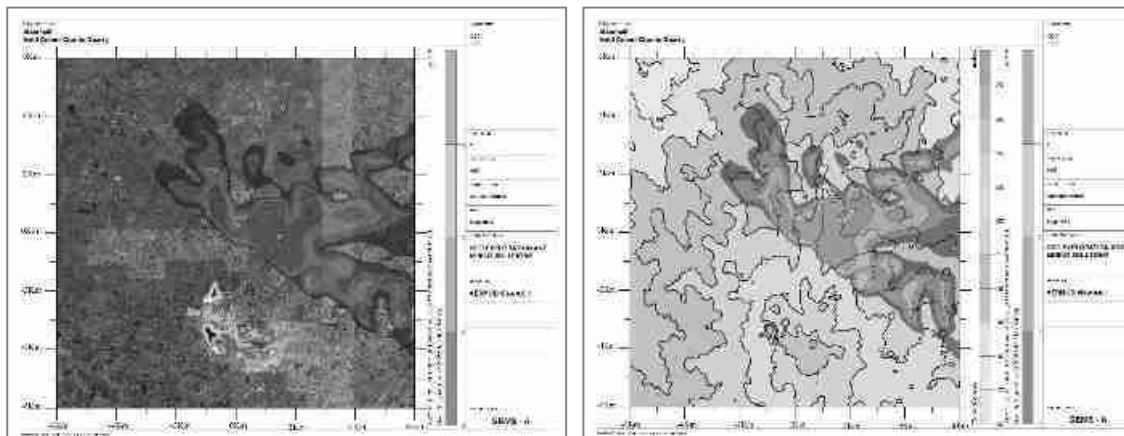


FIGURE NO 4.6: PREDICTED INCREMENTAL CONCENTRATION OF NO_x



4.3.2.1 Model Results

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

TABLE 4.5: INCREMENTAL & RESULTANT GLC OF FUGITIVE DUST

Location	Fugitive Dust in $\mu\text{g}/\text{m}^3$		
	Background (Maximum)	Incremental	Cumulative result
Core zone	123	129	252
NAAQ Standards	500 $\mu\text{g}/\text{m}^3$		

TABLE 4.6: INCREMENTAL & RESULTANT GLC OF PM₁₀ & PM_{2.5}

Location	PM ₁₀ in $\mu\text{g}/\text{m}^3$			PM _{2.5} in $\mu\text{g}/\text{m}^3$		
	Background (Arithmetic Mean value)	Incremental	Cumulative result	Background (Arithmetic Mean value)	Incremental	Cumulative result
Core zone	59.5	12	71.5	29.5	5	34.5
NAAQ Standards	100 $\mu\text{g}/\text{m}^3$			60		

TABLE 4.7: INCREMENTAL & RESULTANT GLC OF SO₂ & NO_x

Location	SO ₂ in $\mu\text{g}/\text{m}^3$			NO _x in $\mu\text{g}/\text{m}^3$		
	Background (Arithmetic Mean value)	Incremental	Cumulative result	Background (Arithmetic Mean value)	Incremental	Cumulative result
Core zone	9.4	2	11.4	22	8	30
NAAQ Standards	80 $\mu\text{g}/\text{m}^3$			80 $\mu\text{g}/\text{m}^3$		

From the resultant of cumulative concentration i.e., Background + Incremental Concentration of pollutant in all the receptor locations without effective mitigation measures are still within the prescribed NAAQ limits of 100, 60, 80 & 80 $\mu\text{g}/\text{m}^3$ for PM₁₀, PM_{2.5}, SO₂ & NO_x respectively. By adopting suitable mitigation measures, the pollutant levels in the atmosphere can be further being controlled.

4.4.3. Mitigation Measures

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

Advantages of Wet Drilling: -

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

Blasting –

- Blasting will be carried out only to remove the overburden and weathered portion
- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Controlled blasting includes Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e., at the time lunch hours, controlled charge per hole as well as charge per round of hole

Haul Road & Transportation –

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

Green Belt –

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

Occupational Health –

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

4.5 NOISE ENVIRONMENT

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

Predictions have been carried out to compute the noise level at various distances around the working pit due to these major noise-generating sources.

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

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

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

Where:

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

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

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

4.5.1 Anticipated Impact

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

- Source data
- Receptor data
- Attenuation factor

Source data has been computed considering of all the machinery and activities used in the mining process. Same has been listed in Table 4-10.

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

TABLE 4.8: PREDICTED NOISE INCREMENTAL VALUES

	N1	N2	N3	N4	N5	N6	N7	N8
Maximum Monitored Value (Day) dB(A)	70.1	72.1	54.5	54.6	54.8	54.5	54.6	54.6
Incremental Value dB(A)	60.1	44.5	39.3	38.5	37.2	36.3	35.8	35.5
Total Predicted Noise level dB(A)	70.	72.1	54.6	54.7	54.9	54.7	54.7	43.2
NAAQ Standards	Industrial Day Time- 75 dB (A) & Night Time- 70 dB (A) Residential Day Time- 55 dB (A) & Night Time- 45 dB (A)							

The incremental noise level is found within the range of 44.1 – 60.1 dB (A) in Core Zone and 35.5 – 39.3 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).

4.5.2 Mitigation measures for Control of Noise

The following noise mitigation measures are proposed for control of Noise

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

4.5.3 Ground Vibrations

Ground vibrations due to mining activities in the project area are anticipated due to operation of Mining Machines like Excavators, drilling and blasting, transportation vehicles, etc. However, the major source of ground vibration from the proposed mine is moving of Heavy Earth Moving Machineries vibration due to blasting is very minimal since the blasting will not carried out frequently in this type of Granite quarry operation. The major impact of the ground vibrations is observed on the domestic houses located in the villages nearby the mine lease area. The kuchha houses are more prone to cracks and damage due to the vibrations induced by blasting whereas RCC framed structures can withstand more ground vibrations. Apart from this, the ground vibrations may develop a fear factor in the nearby settlements.

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

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

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

Where –

V = peak particle velocity (mm/s)

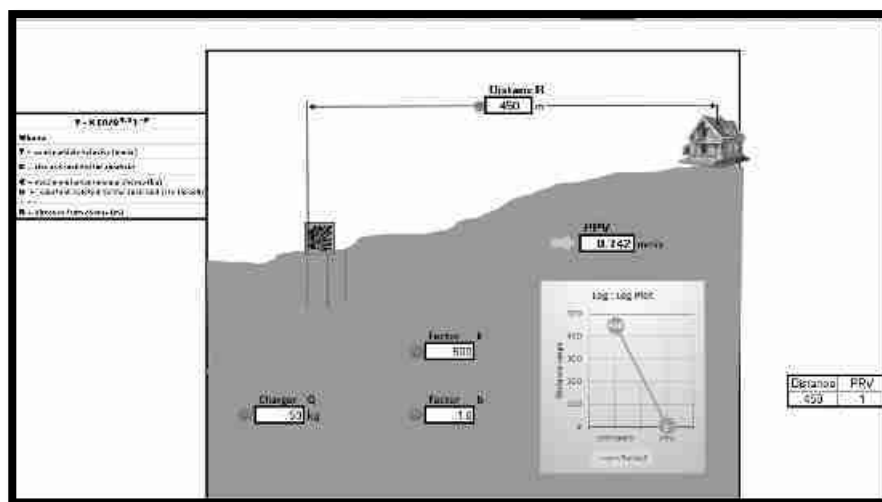
K = site and rock factor constant

Q = maximum instantaneous charge (kg)

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

R = distance from charge (m)

FIGURE NO 4.7: GROUND VIBRATION PREDICTION



From the above graph, the charge at one blast should not exceed more than 20kg at any point of time. However, as per statutory requirement control measures will be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting. Per blast of 20 kg is well below the Peak Particle Velocity of 0.742mm/s as per Directorate General of Mines Safety for safe level criteria through Circular No. 7 dated 29/8/1997. It should be ensured that the explosives used for blasting.

4.5.3.1 Mitigation measures for Control of Vibration

- The blasting operations in the mine are proposed to be carried out by jackhammer drilling and blasting using delay detonators, which reduces the ground vibrations;
- Proper quantity of explosive, suitable stemming materials and appropriate delay system should be adopted to avoid overcharging and for safe blasting;
- Adequate safe distance from blasting should be maintained as per DGMS guidelines;
- Blasting shelter will be provided as per DGMS guidelines;
- Blasting operations will be carried out only during day time;
- The charge per delay will be minimized and preferably a greater number of delays will be used per blasts;
- During blasting, other activities in the immediate vicinity shall be temporarily stopped;
- Drilling parameters like depth, diameter and spacing will be properly designed to give proper blast;
- A fully trained explosives blast man (Mining Mate, Mines Foreman, 2nd Class Mines Manager/ 1st Class Mines Manager) will be appointed.

4.6 ECOLOGY AND BIODIVERSITY

4.6.1. Anticipated Impact on Flora

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

4.6.2 Mitigation Measures

4.6.2.1. Green Belt Development

The project site has a land to develop greenbelt within the lease area, along roads and other vacant areas. The main objective of the green belt is to capture the fugitive dust emission and to attenuate the noise generation in addition to improve the aesthetics of the environment. Although, the project will not lead to any tree cutting, it is proposed to improve the greenery of the locality by plantation services. To avoid dust emissions, the mined materials will be covered with tarpaulin during transportation.

- Plants that grow fast will be preferred.
- Preference for high canopy covers plants with local varieties.
- Perennial and evergreen plants will be preferred.
- The development of Green Belt is an important aspect for any plant because:
- It helps in noise abatement for the surrounding area.
- It maintains the ecological balance.
- It increases the aesthetic value of site.

4.6.2.2. Afforestation

At present there is no trees in the project area. Due to this project about 1410 Nos of trees will be planted in the boundary barrier and village road. However, the afforestation should always be carried out in a systematic and scientific manner. Regional trees like Neem, Pongamia Pinnata and Palm trees will be planted along the Lease boundary and avenues. A retaining wall will be constructed around the dumping yard. The rate of survival expected to be 85% in this area. Afforestation Plan is given in Table No.4.1 and preparation of green belt details are given in Table No.4.2.

TABLE NO: 4.9. GREENBELT DEVELOPMENT PLAN

Year	No. of trees proposed to be planted	Survival %	Area	Name of the species
I	1410	80%	safety zone & village roads	Neem, Pongamia Pinnata, etc.,

TABLE NO: 4.10. PREPARATION OF GREEN BELT DETAILS

ACTIVITY	YEAR					RATE	AMOUNT (Rs.)
	2023-24	2024-25	2025-26	2026-27	2027-28		
Plantation (In Nos.)	40	40	40	40	40	@200 Rs	40,000/-
Plantation (Safety zone) Cost	8,000	8,000	8,000	8,000	8,000	Per sapling	
Barbed wire fencing (In Mtrs) 780 Mtrs	2,34,000	-	-	-	-	@300 Rs Per Meter	2,34,000/-
Garland drain (In Mtrs) 660 Mtrs	1,98,000	-	-	-	-	@300 Rs Per Meter	1,98,000/-
TOTAL							4,72,000/-

Note:

- 1st five years greenbelt will be proposed on the safety zones.
- 2nd & 3rd five years greenbelt will be proposed on the approach roads and village road.
- 4th Five years greenbelt will be backfilled area of the proposed project.

4.6.2.2.1. Species Recommendation for Plantation

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

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

TABLE NO: 4.11 RECOMMENDED SPECIES TO PLANT IN THE GREENBELT

SI.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, Puliyamaram	Tree
3	<i>Borassus Flabellifer</i>	Arecaceae	Palmyra Palm	Tree

4.6.3. Anticipated Impact on Fauna

- There is no Wildlife Sanctuary and Biosphere Reserve within 10 km radius of the project site.
- No Rare, Endemic & Endangered species in the buffer zone. However, during the course of mining, the management will practice scientific method of mining with proper Environmental Management Plan including pollution control measures especially for air and noise, to avoid any adverse impact on the surrounding wildlife.
- Fencing around the mine lease area to restrict the entry of stray animals.
- Green belt development will be carried out which will help in minimizing adverse impact on the flora found in the area.

TABLE NO 4.12. ECOLOGICAL IMPACT ASSESSMENTS

Sl.No	Attributes	Assessment
1	Activities of the project affects the breeding/nesting sites of birds and animals	No breeding and nesting site was identified in project area (Core zone). The fauna sighted mostly migrated from buffer area.
2	Located near an area populated by rare or endangered species	No endangered, critically endangered, vulnerable species sighted in core area.
3	Proximity to national park/wildlife sanctuary/reserve forest /mangroves/ coastline/estuary/sea	No national park or eco-sensitive zone around 10km radius.
4	Proposed project restricts access to waterholes for wildlife	'NO'
5	Proposed mining project impact surface water quality that also provide water to wildlife	'NO' scheduled or threatened wildlife animal sighted regularly core in core area.
6	Proposed mining project increase siltation that would affect nearby biodiversity area.	Surface runoff management such as drains is constructed properly so there will be no siltation affect in nearby mining area.
7	Risk of fall/slip or cause death to wild animals due to project activities	'NO'
8	The project release effluents into a water body that also supplies water to a wildlife	No water body near to core zone so chances of water become polluted is low.
9	Mining project effect the forest-based livelihood/ any specific forest product on which local livelihood depended	'NO'
10	Project likely to affect migration routes	'NO' migration route observed during monitoring period.
11	Project likely to affect flora of an area, which have medicinal value	'NO'
12	Forestland is to be diverted, has carbon high sequestration	'NO' There was no forest land diverted.
13	The project likely to affect wetlands, Fish breeding grounds, marine ecology	'NO' Wetland was not present in near core area. No breeding and nesting ground present in core mining area.

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

4.7 SOCIO ECONOMIC IMPACT

4.7.1 Anticipated Impact

Employment generation (Direct and Indirect) due to the project has generated direct and indirect employment for more than 24 persons. Preference will be given to the local population for employment in all categories including semi-skilled and unskilled. The villages and their inhabitants in the buffer zone will not be disturbed from their settlements due to the mining operations.

It is obvious to assume that the activities of the mining operations will improve the socio-economic levels in the study area. The anticipated impact of this project on various aspects is described in the following sections: **Impact on human settlement:** Overall, due to employment generation and economic progress, there will be positive changes in the socio-economic condition of the people residing in the vicinity of the project site. The local population will have preference to get an employment. No resettlement occurred due to mining activity. Built up land has been increased marginally.

Impact on Population Growth: Thousand populations will grow annually and demand of primary needs and employment will increase due to population growth. It will provide some direct and indirect employment to the people in and around the villages.

Impact on Vegetation: No decline in agricultural land. It has been increased over a period of time by utilizing the water stored in the working pits. No deforestation will be happened.

Therefore, due to mining, per capita income of local people will be improved. The local people have been provided with either direct employments or indirect employment such as business, contract works and development work like roads, etc. and other welfare amenities such as Sanitary facilities, Solar Lighting to Govt school, Health Care to the villages in buffer zone, Maintenance of village road or Providing funds to local body or Prime minister's fund on Socio economic Development and relief measures.

4.7.2 Mitigation Measures

- Good maintenance practices will be adopted for plant machinery and equipment, which will help to avert potential noise problems.
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines.
- Drilling, blasting etc at specified location will be followed with proper schedule.
- Appropriate air pollution control measure will be taken so as to minimize the environmental impact within the core zone.

For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices has been provided which meet „BIS“ (Bureau of Indian Standards). Thus, no significant impact on health and safety will be occurred due to this project.

4.7.3 Impact Evaluation:

Table 4.13 Socio Economic Impact Evaluation

Impact Evaluation Element	Impact on socio economics due to the applied for Alambadi Multicolour granite quarry over an extent of 2.81.5 ha of Patta lands of Alambadi Village, Vedasandur (Gujiliamparai) Taluk, Dindigul District, Tamil Nadu State.		
Potential Effect/ Concern	Existing project will provide direct & indirect employment opportunities to the local residents, which will help to increase their earning and better living standard as well as further up-liftment of socio-economic status of the area.		
Characteristics of Impacts			
Nature	Positive	Negative	Neutral
	✓		
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
			✓	

4.8 OCCUPATIONAL HEALTH AND SAFETY

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

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

4.8.1 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

4.8.2 Noise

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

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

4.8.3 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

4.8.4 Occupational Health Survey

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

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

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

4.8.5 Post COVID Health Management Plan for Workers

The following Health Management plan will be strictly implemented in the Mines, mine officials like Mines Manager and Foreman will be Act as a Controller of Health Management of the workers.

- Temperature will be checked to all the workers while arriving to work on each day
- If any persons/employees have fever of 100.4 or higher, chills, shortness of breath will be sent to Hospital and the persons will be employed after fourteen days
- All the persons inside the mine area instructed to wear fabric or disposable pleated masks covering Nose and Mouth
- Social distancing of 6feet will be maintained all the time
- Temporary Hand washing points will be installed near the working places, workers will be initiated to Wash hands frequently with soap and water for a minimum of 20 seconds and advised to avoid touching face. This is an essential contagion-control mechanism

4.8.6 Plastic Waste Management

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

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

TABLE NO 4.13: ACTION PLAN FOR PLASTIC WASTE MANAGEMENT:

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

4.9 MINE CLOSURE

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

Objective of Mine closure

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

4.9.1 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 will 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 discharges 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 (Annexure I)

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.1 INTRODUCTION

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

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

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

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

6. ENVIRONMENTAL MONITORING PROGRAMME

6.1 GENERAL

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

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 CTE/CTO.

6.2 METHODOLOGY OF MONITORING MECHANISM

Implementation of EMP and periodic monitoring will be carried.; Environmental protection measures like dust suppression, control of noise and blast vibrations, maintenance of machinery and vehicles, housekeeping in the mine premises, plantation, implementation of Environmental Management Plan and environmental clearance conditions will be monitored by the Mine Management. On the other hand, implementation of area level protection measures like green belt development, environmental quality monitoring etc., are taken up by competent person to the mine management.

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

The responsibilities of this cell will be:

- Implementation of pollution control measures
- Monitoring programme implementation
- Post-plantation care
- Any other activity as may be related to environment

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

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

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

6.3 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

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

TABLE 6.1: IMPLEMENTATION SCHEDULE

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

6.4 MONITORING SCHEDULE AND FREQUENCY

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

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

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

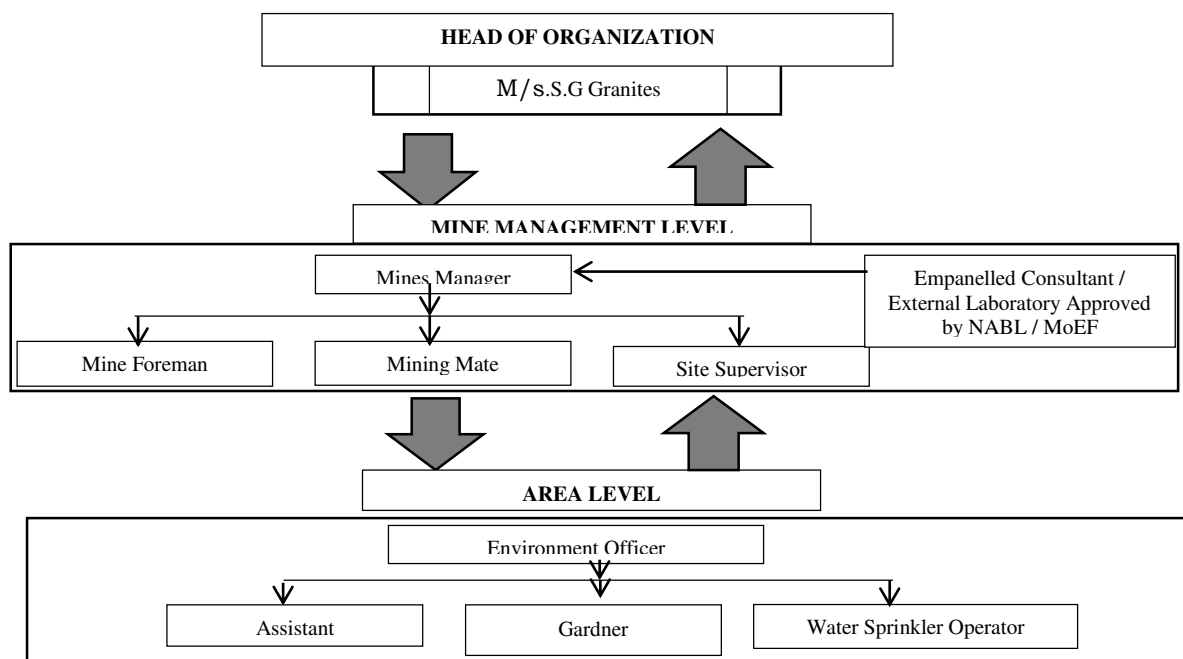
The details of monitoring are detailed in Table 6.2

TABLE 6.2: MONITORING SCHEDULE FOR THE PROJECT AREA

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, 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 (1 SW & 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



6.5 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 (Baseline Data compliance monitoring) for M/s. S.G. Granites is Rs. 3,80,000/- for five years to conduct Air Quality, Water Quality, Noise Quality & ground vibration monitoring.

TABLE 6.3: ENVIRONMENTAL MONITORING BUDGET

Sl.No.	Parameter	Total Charges for six months	Total Charges for per year
1	Ambient air quality monitoring	26,000/-	Rs 52,000/-
2	Noise level monitoring	1,000/-	Rs 2,000/-
3	Ground vibration monitoring	2,000/-	Rs 4,000/-
4	Water sampling analysis	9,000/-	Rs 18,000/-
	Total	-	Rs 76,000/-

6.6 REPORTING SCHEDULES OF MONITORED DATA

The monitored data on air quality, water quality, noise levels and other environmental attributes will be periodically examined by the Mine Management level and Head of Organization for taking necessary corrective measures. The monitoring data will be submitted to Tamil Nadu State Pollution Control Board in the Compliance

to CTO Conditions & environmental audit statements every year to MoEF & CC and Half-Yearly Compliance Monitoring Reports to MoEF & CC Regional Office and SEIAA.

Periodical reports to be submitted to: -

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

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

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

CHAPTER – 7: ADDITIONAL STUDIES

7.1 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
- Open Pit Slope Stability Analysis
- CAG Action Plan

7.2 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.

7.3 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 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 Mines manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening. Factors of risks involved due to human induced activities in connection with mining & allied activities with detailed analysis of causes and control measures for the mine is given in below Table 7.1.

TABLE 7.1 RISK ASSESSMENTS

S. No	Risk factors	Causes of risk	Control measures
1	Accidents due to explosives and heavy mining machineries	Improper handling and unsafe working practice	<ul style="list-style-type: none"> ▪ All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations; ▪ Entry of unauthorized persons will be prohibited; ▪ Fire fighting and first-aid provisions in the mine office complex and mining area; ▪ Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the employees and regular check for their use ▪ Working of quarry, as per approved plans and regularly updating the mine plans. ▪ Cleaning of mine faces shall be daily done in order to avoid any overhang or undercut;

			<ul style="list-style-type: none"> ▪ Handling of explosives, charging and firing shall be carried out by competent persons only under the supervision of a Mine Manager; ▪ Maintenance and testing of all mining equipment as per manufacturer guidelines.
2	OB / Waste Dump	Sliding of benches Height and slope of the benches Drainage facilities	<ul style="list-style-type: none"> ▪ Dumps benches are maintained with proper 3 m height and 37° slope to prevent slope failure and terraced. ▪ Dumping in the waste dump in layers and dozing daily. ▪ Vegetation of the top and slopes of the dump to prevent erosion and providing water drainage channels ▪ Providing proper drainage facilities in mine and dump area. ▪ Construction of retaining wall around dump area to stop sliding of material. ▪ Garland drain to be made around OB dump area
3	Drilling & Wire Saw Cutting	Due to improper and unsafe practices Due to high pressure of compressed air, hoses may burst Drill Rod may break	<ul style="list-style-type: none"> ▪ Safe operating procedure established for drilling (SOP) will be strictly followed. ▪ Only trained operators will be deployed. ▪ No drilling shall be commenced in an area where shots have been fired until the blaster/blasting foreman has made a thorough Examination of all places, ▪ Drill & Wire saw operator shall examine the drilling and wire saw equipment and satisfy himself ▪ Drilling & cutting operations shall not be carried on simultaneously on the benches at places directly one above the other. ▪ Periodical preventive maintenance and replacement of worn-out accessories in the compressor and drill equipment and wire saw equipment as per operator manual. ▪ All drills and wire saw unit shall be provided with wet drilling and cutting arrangement and it shall be maintained in efficient working in condition. ▪ Operator shall regularly use all the personal protective equipment.
4	Blasting	Fly rock, ground vibration, Noise and dust. Improper charging, stemming & Blasting/fining of blast holes Vibration due to movement of vehicles	<ul style="list-style-type: none"> ▪ The maximum charge per delay and by optimum blast hole pattern, vibrations will be controlled within the permissible limit and blast can be conducted safely. ▪ SOP for Charging, Stemming & Blasting/Firing of Blast Holes will be followed by blasting crew during initial stage of operation ▪ Shots are fired during daytime only. ▪ All holes charged on any one day shall be fired on the same day. ▪ The danger zone is and will be distinctly demarcated (by means of red flags)

5	Transportation	Potential hazards and unsafe workings contributing to accident and injuries Overloading of material While reversal & overtaking of vehicle Operator of truck leaving his cabin when it is loaded.	<ul style="list-style-type: none"> ▪ Before commencing work, drivers personally check the dumper/truck/tipper for oil(s), fuel and water levels, tyre inflation, general cleanliness and inspect the brakes, steering system, warning devices including automatically operated audio-visual reversing alarm, rear view mirrors, side indicator lights etc., are in good condition. ▪ Not allow any unauthorized person to ride on the vehicle nor allow any unauthorized person to operate the vehicle. ▪ Concave mirrors should be kept at all corners ▪ All vehicles should be fitted with reverse horn with one spotter at every tipping point ▪ Loading according to the vehicle capacity ▪ Periodical maintenance of vehicles as per operator manual
6	Natural calamities	Unexpected happenings	<ul style="list-style-type: none"> ▪ Escape Routes will be provided to prevent inundation of storm water ▪ Garland drains will be provided at the toe of dump ▪ 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.

7.4 DISASTER MANAGEMENT PLAN

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

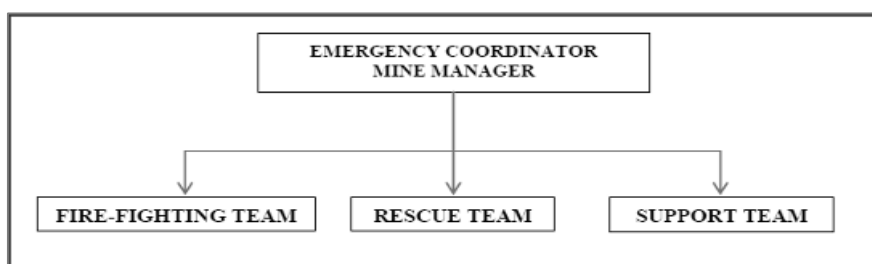
The objective of the Disaster Management Plan is to make use of the combined resources of the mine and the outside services to achieve the following:

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

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

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

FIGURE 7.1: KEY PERSONNEL DEALING WITH THE EMERGENCY SITUATIONS



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	Mines Manager
Team Member	Mines Foreman
Team Member	Mining Mate
Rescue Team	
Team Leader	Mines Manager
Team Member	Environment Officer
Team Member	Mining Foreman
Support Team	
Team Leader	Mines Manager
Assistant Team Leader	Environment Officer
Team Member	Mining Mate
Security Team	Mines Foreman

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

Roles and responsibilities of emergency team –

(a) Emergency coordinator (EC)

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

(b) Incident controller (IC)

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

(c) Communication and advisory team

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

(d) Roll call coordinator

The Mine Foreman shall be 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.

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
Location	Type of Fire Extinguishers

Alarm system to be followed during disaster –

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

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

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

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

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

7.5 CUMULATIVE IMPACT STUDY

There is an existing quarry within a radius of 500 meters from the proposed project area. The list of quarries in the cluster is given below –

TABLE 7.3: CLUSTER QUARRY DETAILS

CLUSTER QUARRIES				
PROPOSED QUARRY				
CODE	Name of the Owner	S.F.Nos	Extent	Status
P1	M/s.S.G. Granites, Door No. 3, East 2 nd Floor, Behind ICICI Bank, K.K. Nagar, Madurai 625 020	911/1A1, 911/1B1, 913/1A1 (P) & 913/1B1	2.81.5	Obtained ToR vide Lr.No. SEIAA- TN/F.No.10310/SEAC/ToR- 1620/2023 Dated 22.11.2023
PRESENT PROPOSED QUARRIES				
P-2	M/s. Shri Sai Sabari Enterprises No. 54A, R.R. Tower 2nd Floor, Sengunathapuram Main road, Karur	864/2(P), 864/3(P), 864/4(P), 864/5, 864/6(P), 864/9(P), 864/10(P), 864/12 & 864/13	2.79.73	EC granted Lr.No.SEIAA-TN/F.No.7529/1(a))EC.No:4672/2021.dated : 05.07.2021
		Total	5.61.23	
EXISTING QUARRY				
CODE	Name of the Owner	S.F. Nos	Extent	Status
E-1	Tvl.S.G.Granites, Door No. 3, East 2 nd Floor, Behind ICICI Bank, K.K. Nagar, Madurai 625 020	913/2B	2.13.0	EC granted Lr.No.SEIAA-TN/F.No.8798/ 2021/(a)/EC.No:6087/2023.dated : 29.09.2023
E-2	Tvl.Ultratech Cement Limited. Reddipalayam Cement works, Reddipalayam Post, Ariyalur	913/3, 913/4, etc..	15.95.0	Applied area
			2.13.0	
ABANDONED/EXPIRED QUARRY				
CODE	Name of the Owner	S.F. Nos	Extent	Lease Period
EX-1	M/s Sree Sakthi Mines, A.M.S Building, Akkaraipatti Sankar, Salem.	854,855,857/1	0.77.0	23.12.1998 to 22.12.2018
TOTAL CLUSTER EXTENT			7.74.23	

As per the Cluster Notification 2269 (E) 1st July 2016 total Extent of the Cluster Extent - **7.74.23 Ha.**

E-2 is not included in the cluster extent due to change in the mineral. The cluster extent to be considered for the same mineral as per notification 2269 (E) 1st July 2016.

TABLE 7.4A : SALIENT FEATURES OF PROPOSAL "P1"

Salient features of the project-P1		
Name of the Quarry	M/s. S.G. Granites	
Scheme of Mining Plan Period	5 Years	
Lease period & life of the mine	20 years & 5 years	
Toposheet No	58- J/02	
Latitude between	10 ⁰ 44'19.0401"N to 10 ⁰ 44'25.7523"N	
Longitude between	78 ⁰ 03'43.8078"E to 78 ⁰ 03'50.3856"E	
Topography & MSL	Almost Plain topography with gentle sloping towards Western. AMSL of the area = 220m	
Machinery proposed	Jack Hammer	4 nos
	Diesel Generator	1 no
	Compressor	1 no
	Diamond Wire saw	2 nos
	Hydraulic Crane	1 no
	Excavator	2 nos
	Tipper	2 nos
Blasting method	Controlled blasting using Small dia slurry explosives only for overburden and weathered rock removal.	
Proposed manpower deployment	32	
Proposed Depth (Scheme of Mining plan period – 5 Years)	28m Below Ground level	
Ultimate depth of mining	28m Below Ground level	
Project cost	Operational cost	Rs.3,23,70,000/-
	Monitoring Cost	Rs.3,80,000/-
	Total project cost	Rs.3,27,50,000/-
Nearest Habitation	450m-S	
Wildlife Sanctuary	Kadavur Slender Loris Sanctuary 11.5km SE Kodaikanal Wildlife Sanctuary-67.5km SW	
Reserve Forest	Thoppasamymalai R.F-11.5km SE	

SALIENT FEATURES OF PROPOSAL "E1" 2.13.0Ha		
Name of the Mine	Tvl. S.G. Granites	
ToR Granted	Lr.No.SEIAA-TN/F.No.8798/SEAC/TOR-1104/2021 Dated: 21.03.2022	
EC Clearance Letter copy	Lr.No. SEIAA-TN/F.No.8798/2021/(a)/EC. No:6087/2023.dated : 29.09.2023	
Survey Nos	913/2B (Part)	
Land Type	Company own patta land .	
Extent	2.13.0	
Mining Plan Period / Lease Period	20 years	
Ultimate Pit Dimension	124 L(m) X 125 W(m) x 42 D(m)	
Latitude between	10 ⁰ 44'15.28"N to 10 ⁰ 44'20.55"N	
Longitude between	78 ⁰ 03'43.52"E to 78 ⁰ 03'49.78"E	
Highest Elevation	220m AMSL	
Machinery Proposed	Jack Hammer	6
	Diesel Generator	1
	Compressor	2
	Diamond Wire saw	1
	Hydraulic Crane	1
	Excavator	1
	Tipper	2

Proposed Blasting Method	Controlled blasting
Manpower Proposed	34
Total Project Cost	Rs.2,36,77,000/-

TABLE 7.4 B: SALIENT FEATURES OF PROPOSAL “P2”

SALIENT FEATURES OF PROPOSAL “P-2”		
Name of the Mine	Shri Sai Sabari Enterprises	
Survey Nos	864/2 (P), 3(P), 4(P), 5, 6(P), 9(P), 10(P), 12 & 13	
Land Type	Patta land	
Extent	2.79.73 Ha	
Mining Plan Period / Lease Period	5years/20 years	
Restricted Depth in Environmental Clearance	22m bgl	
Latitude between	10 ^o 44’25.52103” N to 10 ^o 44’32.75594” N	
Longitude between	78 ^o 03’47.24684” E to 78 ^o 03’54.13167” E	
Highest Elevation	223m AMSL	
Machinery Proposed	Jack Hammer	2
	Compressor	1
	Diamond Wire Saw	2
	Hydraulic Excavator	1
	Tipper	2
Proposed Blasting Method	Controlled blasting	
Manpower Proposed	20	
Total Project Cost	Rs.47,00,000/-	

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

TABLE 7.5: CUMULATIVE PRODUCTION LOAD OF GRANITE

Quarry	Mineable Reserves ROM In m ³	Mineable Reserves of Granite	Proposed production (ROM) for five-year period	Production of ROM Per Day	Production of Granite Per day in m ³	Number of Lorry loads per day
P1	2,05,281 m ³	51,320 m ³	1,15,685 m ³	77m ³	19 m ³	2 trip
P2	3,78,200 m ³	94,550 m ³	1,15,900 m ³	77 m ³	19 m ³	3 trips
E1	1,29,605 m ³	45,361 m ³	35,750 m ³	24 m ³	8m ³	1 trips
Total	7,13,086 m³	1,91,231 m³	2,67,335 m³	178 m³	46 m³	6 trips

On a cumulative basis considering the 3 quarries it can be seen that the overall production of Granite ROM per day is 178 m³ and overall production of Granite is 46 m³ per day (recovery percentage varies from one quarry to another), No of Lorry loads per day is 6.

Air Environment –

Calculating the Cumulative Load of Mining within the cluster is as shown in table 7.5. Based on the above production quantities the emissions due to various activities in all the 3 mines including 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 7.6.

TABLE 7.6: EMISSION ESTIMATION FROM QUARRIES WITHIN 500 METER RADIUS

Emission Estimation for quarry P1				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.048447504	g/s
	Blasting	Point Source	0.000064561	g/s

	Mineral Loading	Point Source	0.035371952	g/s
	Haul Road	Line Source	0.002483763	g/s
	Overall Mine	Area Source	0.057899243	g/s
Estimated Emission rate for SO ₂	Overall Mine	Area Source	0.00011278	g/s
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000006838	g/s
Emission Estimation for quarry E1				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.048387524	g/s
	Blasting	Point Source	0.000064163	g/s
	Mineral Loading	Point Source	0.037572585	g/s
	Haul Road	Line Source	0.002485092	g/s
	Overall Mine	Area Source	0.052008640	g/s
Estimated Emission rate for SO ₂	Overall Mine	Area Source	0.000185226	g/s
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000008762	g/s
Emission Estimation for quarry P2				
Estimated Emission Rate for PM ₁₀	Activity	Source type	Value	Unit
	Drilling	Point Source	0.064147518	g/s
	Blasting	Point Source	0.000262732	g/s
	Mineral Loading	Point Source	0.038505494	g/s
	Haul Road	Line Source	0.002485907	g/s
	Overall Mine	Area Source	0.058238800	g/s
Estimated Emission rate for SO ₂	Overall Mine	Area Source	0.00026582	g/s
Estimated Emission rate for NO _x	Overall Mine	Area Source	0.000016113	g/s

TABLE 7.7: INCREMENTAL & RESULTANT GLC WITHIN CLUSTER

PM ₁₀ in µg/m ³	
Location	CORE
Background	59.5
Highest Incremental	12
Resultant	71.5
NAAQ standard	100 µg/m ³
PM _{2.5} in µg/m ³	
Location	CORE
Background	29.5
Highest Incremental	5
Resultant	34.5
NAAQ standard	60 µg/m ³
SO ₂ in µg/m ³	
Location	CORE
Background	9.4
Highest Incremental	2
Resultant	11.4
NAAQ standard	80 µg/m ³
NO _x in µg/m ³	
Location	CORE
Background	22
Incremental	8
Resultant	30
NAAQ standard	80 µg/m ³

Noise Environment –

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

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

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

Where:

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

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

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

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

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

TABLE 7.8: 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	52	46.8	49.5	55
Habitation Near E1	49.5	43.6	47.0	
Habitation Near P2	53.8	48.5	51.5	

The incremental noise level is found within the range of 43.6 – 49.5 dB (A) in Core Zone. The noise level at different receptors in buffer zone is lower due to the distance involved and other topographical features adding to the noise attenuation. The resultant Noise level due to monitored values and calculated values at the receptors are based on the mathematical formula considering attenuation due to Green Belt as 4.9 dB (A) the barrier effect. From the above table, it can be seen that the ambient noise levels at all the locations near habitations are within permissible limits of Residential Area (buffer zone) as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (The Principal Rules were published in the Gazette of India, vide S.O. 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.).

Socio Economic Environment –

The 4 mines shall create employment to 68 peoples and revenue will be created to government. In which 80 were already employed in the existing quarry.

TABLE 7.9: SOCIO ECONOMIC BENEFITS FROM 4MINES

Location code	Employment	Project Cost	CER
P1	32	Rs.3,27,50,000/-	Rs. 5,00,000/-
E1	34	Rs.2,36,77,000/-	Rs. 5,00,000/-
P2	20	Rs.47,00,000/-	Rs.96,000/-
Total	86	Rs. 6,11,27,000/-	Rs.1,096,000/-

A total of 32 people will get employment from the proposed quarry. Allocation for Corporate Environment Responsibility (CER) shall be made as per Government of India, MoEF & CC Office Memorandum F.No.22-65/2017-IA.III, Dated: 01.05.2018 by all the mines

As per para 6 (II) of the office memorandum, the mine being a green field project & Capital Investment is ≤ 100 crores, they shall contribute 2% of Capital Investment towards CER as per directions of EAC/SEAC and the total CER amount from the Project Proponent is Rs. 1,096,000/-

CHAPTER – 8: PROJECT BENEFITS

8.1 GENERAL

Multi Colour Granite Quarry of M/s. S.G. Granites is expected to produce 28,922m³ of Granite @ 25% recovery (ROM 2,05,281m³ for the Life of mine is 9 years) for Lease period of 20 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
- To meet out the demand supply gap of Granite and enhance the foreign exports

8.2 EMPLOYMENT POTENTIAL

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

8.3 SOCIO-ECONOMIC WELFARE MEASURES PROPOSED

The impact of mining activity in the area will be more positive than negative on the socio-economic environment in the immediate project impact area. The employment opportunities both direct and indirect will contribute to enhanced money incomes to job seekers with minimal skill sets especially among the local communities.

8.4 IMPROVEMENT IN PHYSICAL INFRASTRUCTURE

The proposed mine is located in Alambadi Village, Gujiliamparai Taluk, Dindigul 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.

8.5 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.

8.6 OTHER TANGIBLE BENEFITS

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

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

8.6.1 Corporate Social Responsibility

The project proponent M/s. S.G.Granite will take responsibility to develop awareness among all levels of their staff about CSR activities and the integration of social processes with business processes. Those involved with the undertaking of CSR activities will be provided with adequate training and re-orientation.

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

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

8.6.2 Corporate Environment Responsibility–

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

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

It is proposed to Plant Rs 5,00,000/- towards improvement of Nearby Government School.

TABLE 8.1: CER ACTION PLAN

Activity	Beneficiaries	Total in Rs
Construction/ Renovation of existing toilet	Government school students	Rs 5,00,000
Providing Environmental related books to the school library		
Plantation in the school boundary		
	Total	Rs 5,00,000/-

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

CHAPTER – 9: ENVIRONMENTAL COST BENEFIT ANALYSIS

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

CHAPTER - 10: ENVIRONMENTAL MANAGEMENT PLAN

10.1 GENERAL

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

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

10.2 ENVIRONMENTAL POLICY

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

The Proponent will –

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

10.2.1 Description of the Administration and Technical Setup –

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

The said team will be responsible for:

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

10.3 LAND ENVIRONMENT MANAGEMENT –

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

TABLE 10.1: PROPOSED CONTROLS FOR LAND ENVIRONMENT

Control	Responsibility
Designing vehicle wash-down system so that all washed water is captured and passed through grease and oil separators.	Mines Manager
Refuelling will be carried out in a safe location, away from vehicle movement pathways	Mine Foreman & Mining Mate
No external dumping i.e., outside the project area	Mine Foreman
Greenbelt on dumps and its maintenance	Environment Officer
Garland drains with catch pits to be provided all around the project area to prevent run off affecting the surrounding lands.	Environment Officer
The periphery of Project area will be planted with thick plantation to arrest the fugitive dust, which will also act as acoustic barrier.	Mines Manager
Thick plantation using native flora species will be carried out on the backfilled area.	Mines Manager
There will be formation of a small surface water body in the mined-out area, which can be used for watering the greenbelt at the conceptual stages.	Environment Officer

10.4 SOIL MANAGEMENT

10.4.1 Top Soil Management –

It is anticipated to remove 34,306m³ of topsoil and preserve it to facilitate greenbelt development on the backfilled area during mine closure.

10.4.2 Overburden / Waste and Side Burden Management –

It is anticipating to remove 1,80,151m³ of waste (Granite waste + Side Burden) which will temporarily store at predetermined places as per mining plan and will be backfilled during mine closure.

TABLE 10.2: PROPOSED CONTROLS FOR SOIL MANAGEMENT

Control	Responsibility
backfilling process during mine closure as per mining plan	Mines Manager
The dump slopes will be planted with deep rooting shrubs, grasses and creepers for stabilizing them	Environment Officer
Garland drains are to be paved around the dump area to arrest possible wash off in the rainy seasons	Mines Manager
Surface run-off from the surface dumps via garland drains will be diverted to the mine pits	Mine Foreman & Mining Mate
The backfilled area shall be covered with the soil for green belt development	Environment Officer
Design haul roads and other access roads with drainage systems to minimize concentration of flow and erosion risk	Environment Officer
keeping records of mitigation of erosion events, to improve on management techniques	Environment Officer
The overall slope of the dump is maintained at angle of repose not exceeding 37° from horizontal	Mines Manager
The retaining wall has to be made to arrest the waste dump spills	Mines Manager
A monitoring map with information including their GPS coordinates, erosion type, intensity, and the extent of the affected area, as well as existing control measures and assessment of their performance	Environment Officer
Empty sediment from sediment traps Maintain, repair or upgrade garland drain system	Environment Officer
Test soils for pH, EC, chloride, exchangeable cations, particle size and water holding capacity	Mines Manager

10.5 WATER MANAGEMENT

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

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

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

TABLE 10.3: PROPOSED CONTROLS FOR WATER ENVIRONMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.6 AIR QUALITY MANAGEMENT

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

TABLE 10.4: PROPOSED CONTROLS FOR AIR ENVIRONMENT

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

Source: Proposed by FAE"s & EIA Coordinator

10.7 NOISE MANAGEMENT

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

Source: Proposed by FAE's & EIA Coordinator

10.8 GROUND VIBRATION AND FLY ROCK CONTROL

TABLE 10.6: PROPOSED CONTROLS FOR GROUND VIBRATION & FLY ROCKS

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 during initial stage will be carried under the supervision of qualified persons	Mines Manager
Proper stemming of holes should be carried out with statutory competent qualified blaster under the supervision of statutory mines manager to avoid any anomalies during blasting	Mines Manager
Prior to blasting within 500 meters of the lease boundary, establish a fly rock exclusion zone within adjacent properties and check with landholders that the area is not occupied by humans, blast clearance zones are applied for all blasts.	Environment Officer
Undertake vibration monitoring	Environment Officer

Source: Proposed by FAE's & EIA Coordinator

10.9 BIOLOGICAL ENVIRONMENT MANAGEMENT

The mine management will take all necessary steps to avoid the impact on the ecology of the area by adopting suitable management measures in the planning and implementation stage. During mining, thick plantation will be carried out around the project periphery, on safety barrier zone, on top benches of mined out area, backfilled area, etc., the water reservoir will be developed in lower benches of the mined-out area at conceptual stage will be used for the maintenance of green belt after the closure of mine.

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

- Greenbelt development all along the safety barrier of the project area
- The main attributes that retard the survival of sapling is fugitive dust, this fugitive dust can be controlled by water sprinkling on the haul roads and constructing a sprinkler near the newly planted area.
- Year wise plantation should be recorded and monitored
 - Based on the area of plantation.
 - Period of plantation
 - Type of plantation
 - Spacing between the plants
 - Type of manuring and fertilizers and its periods
 - Lopping period, interval of watering
 - Survival rate
 - Density of plantation

The ultimate reclamation planned leaves a congenial environment for development of flora & immigration of small fauna through green belt and water reservoir. The green belt and water reservoir developed within the Project at the end of mine life will attract the birds and animals towards the project area in the post mining period. The objectives of the greenbelt development plan are –

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

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

10.9.1 Species Recommended for Plantation

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

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

TABLE 10.7: RECOMMENDED SPECIES TO PLANT IN THE GREENBELT

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

Source: Proposed by FAE's & EIA Coordinator

10.10 OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

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

10.10.1 Medical Surveillance and Examinations –

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

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

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

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

10.10.2 Proposed Occupational Health and Safety Measures –

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

10.10.3 Health and Safety Training Programme

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

TABLE 10.8: LIST OF PERIODICAL TRAININGS PROPOSED FOR EMPLOYEES

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

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

Budgetary Provision for Environmental Management –

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

TABLE 10.9: CAPITAL AND RECURRING COST OF EMP

	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	28150	28150
	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 - 4 Units	100000	10000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed - 2 Units	10000	500
	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	56300
	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	75197
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	28150	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	563000	10000
	3. Progressive Closure Activity Green belt development - 500 trees per one hectare - Proposal for 1410Trees - (240 Inside Lease Area & 1170 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	48000	7200
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	435000	43500
	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	70800	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	170640	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 checkup for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	32000

	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	5630
	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	140750	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			2941050	1272477.2

Year	Total Cost	Year	Total Cost
1 st	₹. 42,13,527.2	11 th	₹. 38,01,846.7
2 nd	₹. 13,36,101.1	12 th	₹. 25,21,414
3 rd	₹. 14,02,906.1	13 th	₹. 26,47,484.7
4 th	₹. 14,73,051.4	14 th	₹. 27,79,858.9
5 th	₹. 16,17,504	15 th	₹. 29,18,851.9
6 th	₹. 31,68,904.2	16 th	₹. 45,35,319.5
7 th	₹. 18,56,824.4	17 th	₹. 32,91,560.4
8 th	₹. 19,49,665.6	18 th	₹. 34,56,138.5
9 th	₹. 20,47,148.9	19 th	₹. 36,28,945.4
10 th	₹. 22,20,306.3	20 th	₹. 38,10,392.7

Cost inflation 5% per annum

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

In order to implement the environmental protection measures, an amount of ₹.29.41 lakhs as capital cost and recurring cost as ₹.12.72 lakhs as recurring cost is proposed considering present market price considering present market scenario.

CHAPTER – 11: SUMMARY AND CONCLUSIONS

The Multi Coloured Granite quarry project over an extent of 2.81.5 ha falls under “B1” category as per MoEF & CC Notification (S.O. 3977 (E)).

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

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

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 individual project. 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 March to May 2022 (Baseline Data Used is as per MoEF & CC Office Memorandum No. J-11013/41/2006-IA-II (I) (Part) Dated 29th August 2017 & MoEF & CC Office Memorandum F. No. IA3-22/10/2022-IA.III [E 177258] Dated: 08.06.2022) for various environmental components so as to assess the anticipated impacts of the cluster quarry projects on the environment and suitable mitigation measures for likely adverse impacts due to the proposed project is suggested individually for the respective proposed project under Chapter 10.

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

Overall, the Draft 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 Multicolored Granite as per market demand.

Sustainable and modern mining leads us to see positive impact of mining operation and providing consistent employment for nearly 32 people directly in the two proposed projects and indirectly around 10 – 20 people.

As discussed, it is safe to say that the seven proposed quarry in cluster is 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 this project.

12. DISCLOSURE OF CONSULTANTS

M/s.S.G.Granites have engaged M/s Geo Exploration and Mining Solutions, an Accredited Organization under Quality Council of India – National Accreditation Board for Education & Training, New Delhi, for carrying out the EIA Study as per the ToR Issued and Standard ToR Deemed Approved.

Name and address of the consultancy:

GEO EXPLORATION AND MINING SOLUTIONS

No 17, Advaita Ashram Road,
Alagapuram, Salem – 636 004
Tamil Nadu, India
Email: infogeoexploration@gmail.com
Web: www.gemssalem.com
Phone: 0427 2431989.

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

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

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

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP

Declaration by experts contributing to the EIA/EMP for Multi colour Granite quarry over an Extent of 2.81.5 ha in Alambadi Village of Gujiliamparai Taluk, Dindigul District of Tamil Nadu. It is also certified that information furnished in the above EIA study are true and correct to the best of our knowledge.

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

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

Designation: **EIA Coordinator**

Date & Signature:




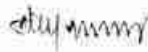

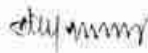














Period of Involvement: **October 2020 to till date**

Associated Team Member with EIA Coordinator:

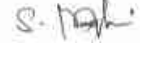
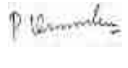

1. Mr. P.Viswanathan
2. Mr. M.Santhoshkumar
3. Mr. S. Ilavarasan

FUNCTIONAL AREA EXPERTS ENGAGED IN THE PROJECT

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

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

LIST OF TEAM MEMBERS ENGAGED IN THIS PROJECT

Sl.No.	Name	Functional Area	Involvement	Signature
1	Mr. S. Nagamani	AP; GEO; AQ	<ul style="list-style-type: none"> ▪ Site Visit with FAE ▪ Provide inputs & Assisting FAE with sources of Air Pollution, its impact and suggest control measures ▪ Provide inputs on Geological Aspects ▪ Analyse & provide inputs and assist FAE with meteorological data, emission estimation, AERMOD modelling and suggesting control measures 	
2	Mr. 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. Umamahesvaran</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>A. 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. Nathiya</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 EIA/EMP for Multicolour Granite quarry over an Extent of 2.81.5ha in Alambadi Village of Gujiliamparai Taluk, Dindigul 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:20-02-2023

Validity:

Valid till 06.8.2025

ANNEXURE

TVL.S.G. GRANITES MULTI COLOUR GRANITE QUARRY

S.F. No: 911/1A1, 911/1B1, 913/1A1 (P) & 913/1B1

Alambadi Village,
Gujiliamparai Taluk,
Dindigul District

EXTENT: 2.81.5 Ha

ToR obtained vide

Lr.No. SEIAA-TN/F.No.10310/SEAC/ToR-1620/2023 Dated 22.11.2023

Project Proponent

Tvl. S.G.Granites,

S.P. Sonaisamy- Partner & Authorised Signatory

No. 3, East 2nd Street,

Behind ICICI Bank,

K.K. Nagar,

Madurai District – 625020.

LIST OF ANNEXURES

ANNEXURES	DESCRIPTION	PAGE NOS
P1- Tvl. S.G.Granites,	COPY OF TERMS OF REFERENCE	1A-26A
	COPY OF 500M RADIUS QUARRIES DETAILS LETTER	27A-28A
	COPY OF MINING PLAN APPROVED LETTER	29A-33A
	COPY OF APPROVED MINING PLAN WITH PLATES	34A-171A
	COPY OF HYDROGEOLOGICAL REPORT	172A-180A
	COPY OF 300m & VAO ATTESTATION LETTER	181A-182A
	COPY OF PREVIOUS EC	183A – 191A
P2- M/s. Shri Sai Sabari Enterprises,	COPY OF ENVIRONMENTAL CLEARANCE	192A-210A
E1 Tvl. S.G.Granites	COPY OF ENVIRONMENTAL CLEARANCE	211A-245A
	COPY OF BASE LINE MONITORING DATA	246A-275A
	COPY OF CONSULTANT ACCREDITATION CERTIFICATE	276A



**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.10310/SEAC/ToR- 1620/2023 Dated:22.11.2023

To

M/s. S.G.Granites,
No.3, East 2nd Street,
Behind ICICI Bank, K.K. Nagar,
Madurai District-625020.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – **Terms of Reference with Public Hearing (ToR)** for the Proposed Multi Colour Granite Quarry over an extent of 2.81.5 Ha at S.F.Nos. 911/1A1, 911/1B1, 913/1A1 (Part) and 913/1B1 (Part) of Alambadi Village, Gujiliamparai Taluk, Dindigul District, Tamil Nadu by M/s. S.G.Granites - under project category – “B1” and Schedule S.No. 1(a) – ToR issued along with Public Hearing- preparation of EIA report – Regarding.

Ref:

1. Online proposal No. SIA/TN/MIN/430659/2023, Dated:25.05.2023.
2. Your application submitted for Terms of Reference dated: 12.08.2023.
3. Minutes of the 409th Meeting of SEAC held on 21.09.2023.
4. Minutes of the 675th meeting of Authority held on 22.11.2023.

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

The proponent, M/s. S.G.Granites has submitted application for ToR, in Form-I, Pre-Feasibility report for the Proposed Multi Colour Granite Quarry over an extent of 2.81.5 Ha at

**MEMBER SECRETARY
SEIAA-TN**

S.F.Nos. 911/1A1, 911/1B1, 913/1A1 (Part) and 913/1B1 (Part) of Alambadi Village, Gujiliamparai Taluk, Dindigul District, Tamil Nadu.

Discussion by SEAC and the Remarks:-

Proposed Multi Colour Granite Quarry over an extent of 2.81.5 Ha at S.F.Nos. 911/1A1, 911/1B1, 913/1A1 (Part) and 913/1B1 (Part) of Alambadi Village, Gujiliamparai Taluk, Dindigul District, Tamil Nadu by M/s. S.G.Granites -For Terms of Reference. (SIA/TN/MIN/430659/2023, Dated:25.05.2023).

The proposal was placed in the 409th Meeting of SEAC held on 21.09.2023. The details of the project furnished by the proponent are available in the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, M/s. S.G.Granites has applied for Terms of Reference for the Proposed Multi Colour Granite Quarry over an extent of 2.81.5 Ha at S.F.Nos. 911/1A1, 911/1B1, 913/1A1 (Part) and 913/1B1 (Part) of Alambadi Village, Gujiliamparai Taluk, Dindigul District, Tamil Nadu.
2. The proposed quarry/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. Lease granted for the period of 20 years. The lease deed was executed on 08.03.2018 and lease period is valid up to 07.03.2038.
4. Earlier, the project proponent has obtained EC from DEIAA vide EC.No: Lr.No.DEIAA-DGL/EC.No.063/2017/Mines, Dated: 29.01.2018 for the period of 5 years from the date of execution of the mining lease period.
5. This EC issued by the DEIAA has been filed before the SEIAA-TN for reappraisal in compliance to the order of the Hon'ble NGT in O.A142 of 2022 as per the Guidelines stipulated in MoEF &CC OM F.No. IA3-22/11/2023-IA.III (E-208230), dated, 28.04.2023.
6. As per the mining plan the lease period is 20 years valid upto 07.03.2038. The first scheme of mining plan is for the period of five years (2023 to 2028) & production should not exceed 115685 m³ of ROM, 28922 m³ of Recoverable Reserves@25% & 86763 m³ of Granite Waste@75% with ultimate depth of mining 28m.
7. Based on the KML file submitted by the proponent in Parivesh portal and Google imagery, Kadavur Slender Loris is approximately at a distance of 11.66Km from the proposed site.

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

1. The proponent shall give an Affidavit before the issuance of ToR from SEIAA-TN stating that the mining operations will remain suspended till they obtain the EC granted by the SEIAA after the reappraisal process as per MoEF & CC OM F.No. IA3-22/11/2023-IA.III (E-208230), dated. 28.04.2023.
2. The project proponent shall submit a Certified Compliance Report obtained from the office of the concerned DEE/TNPCB (or) IRO, MoEF & CC, Chennai as per the MoEF&CC O.M dated.08.06.2022 for the previous EC dated. 29.01.2018 and appropriate mitigating measures for the non-compliance items, if any.
3. The PP shall furnish valid CTO copy obtained from the TNPCB.
4. The PP shall furnish letter from AD, mines including the following details,
 - i. Existing pit dimension through precise mine surveying (DGPS)
 - ii. Quantity achieved Vs EC Approved Quantity
 - iii. Balance Quantity as per Mineable Reserve calculated.
 - iv. Mined out Depth as on date Vs EC Permitted depth
 - v. Details of illegal/illicit mining carried out in the proposed quarry site
 - vi. Violation in the quarry during the past working.
 - vii. Quantity of material mined out outside the mine lease area
 - viii. Condition of Safety zone/benches as on date
5. The PP shall furnish the letter received from DFO concerned stating the proximity details of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
6. The PP shall submit the stability status of the existing quarry wall and slope stability action plan by carrying out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering- IIT-Madras, NIT-Dept of Mining Engg, Surathikal, and Anna University Chennai-CEG Campus.

7. The Project Proponent shall furnish the revised EMP based on the study carried out on impact of the dust & other environmental impacts due to proposed quarrying operations on the nearby agricultural lands for remaining life of the mine in the format prescribed by the SEAC considering the cluster situation.
8. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m & upto 1km 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.
9. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
10. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.

ANNEXURE-I

1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:
 - (i) Original pit dimension
 - (ii) Quantity achieved Vs EC Approved Quantity
 - (iii) Balance Quantity as per Mineable Reserve calculated.
 - (iv) Mined out Depth as on date Vs EC Permitted depth
 - (v) Details of illegal/illicit mining
 - (vi) Violation in the quarry during the past working.
 - (vii) Quantity of material mined out outside the mine lease area
 - (viii) Condition of Safety zone/benches
 - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants.


MEMBER SECRETARY
SEIAA-TN



- whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
 6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
 7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
 8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
 9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
 10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that

- the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
 12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
 13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
 14. Quantity of minerals mined out.
 - Highest production achieved in any one year
 - Detail of approved depth of mining.
 - Actual depth of the mining achieved earlier.
 - Name of the person already mined in that leases area.
 - If EC and CTO already obtained, the copy of the same shall be submitted.
 - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
 15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
 16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
 17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
 18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.


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19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
28. Impact on local transport infrastructure due to the Project should be indicated.
29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner


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34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of

this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	விவரம்
2	<i>Adonanthera pavonina</i>	Marjadi	மஜாதி ஆயுதத்தெய்வம்
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usai	உசை
5	<i>Bauhinia purpurea</i>	Manthara	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathu	ஆத்து
7	<i>Bauhinia tomentosa</i>	Iruvadu	இருவாடு
8	<i>Buchanania axillaris</i>	Kattuma	கட்டிமா
9	<i>Borassus flabellifer</i>	Pana	பனை
10	<i>Butea monosperma</i>	Murukkanaram	முருக்காரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Purnai	புனை
13	<i>Casia fistula</i>	Serakondrai	சரகண்டிரை
14	<i>Casia roxburghii</i>	Sengondrai	செங்கண்டிரை
15	<i>Chloroxylon succitena</i>	Purasamaram	புரசம்மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manallavu	கொங்கு மஞ்சள் கொடி
17	<i>Corlia dichotoma</i>	Narvuli	நர்வூலி
18	<i>Cretica adansonii</i>	Mavalingum	மாவலிங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உவா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சீருவா
21	<i>Diospyro sebenuum</i>	Karungali	கரங்கலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகை
23	<i>Ficus amplissima</i>	Kalluchi	கல்சூசி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆத்ரபூவரசு
25	<i>Hardwickia bunata</i>	Aacha	ஆச்சை
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயிலி
27	<i>Lanun coromandelica</i>	Odhiam	ஒடியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மரூது
29	<i>Lepisanthus tetraphylla</i>	Neukottainuram	நெடு நெல்லூர் மரம்
30	<i>Limonia acidissima</i>	Vila maram	வில்லி மரம்
31	<i>Litsea glutinos</i>	Picarpattai	பிசாப்பட்டை
32	<i>Madhuca longifolia</i>	Iluppai	இலுப்பை
33	<i>Manilkara hexandra</i>	Ulakkaipalau	உலக்கைபழை
34	<i>Mimusops stongi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுனை
37	<i>Morinda citrifolia</i>	Vella Nuna	வெள்ளை நுனை
38	<i>Phoenix sylvestre</i>	Eachai	ஏச்சை
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்


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40	<i>Premna mollissima</i>	Munna	முள்ளை
41	<i>Premna serratifolia</i>	Narumunai	நறு முள்ளை
42	<i>Premna tomentosa</i>	Malapoovarasu	மலை பூவரசு
43	<i>Prosopis cinerea</i>	Varu maram	வள்ளி மரம்
44	<i>Pterocarpus marsipium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வேண்ணாந்து
46	<i>Pterospermum xylocarpum</i>	Polavu	பலவு
47	<i>Putterlickia raxburchii</i>	Karpala	கற்பாலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Manpungan Soapukai	மணிப்பங்கன் சோப்புக்காய்
50	<i>Sarcococa</i>	Asoca	அசோகா
51	<i>Strobilus asper</i>	Piray maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yetti	எட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தான் கொட்டை
54	<i>Syzygium cumum</i>	Naval	நாவல்
55	<i>Terminalia bellerica</i>	Thandri	தாண்டி
56	<i>Terminalia arjuna</i>	Ven marudhu	வேன் மருது
57	<i>Toona ciliata</i>	Sandhara vembu	சந்தா வேம்பு
58	<i>Thespesia populnea</i>	Fuvarasu	பூவரசு
59	<i>Walsuratrifoliata</i>	valsura	வாலசுரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்காப்பளி

Discussion by SEIAA and the Remarks:-

The subject was placed in the 675th Authority meeting held on 22.11.2023. The Authority noted that the subject was appraised in the 409th Meeting of SEAC held on 21.09.2023. Based on the presentation made by the proponent, **SEAC decided to recommend for grant of Terms of Reference (TOR) with Public Hearing**, subject to the TORs stated therein, 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. Subsequently, the subject was placed in the 660th Authority meeting held on 06.10.2023. After detailed discussions, the Authority decided to obtain the following details

1. The proponent shall give an Affidavit before the issuance of ToR from SEIAA-TN stating that the mining operations will remain suspended till they obtain the EC granted by the SEIAA after the reappraisal process as per MoEF &CC OM F.No. IA3-22/11/2023-IA.III (E-208230), dated. 28.04.2023.

Now, the PP had submitted a reply as sought by the Authority. Hence, the subject was placed in the 674th Authority meeting held on 22.11.2023. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions and conditions in **Annexure 'B'** of this minutes.

Annexure 'B'

Cluster Management Committee

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


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The role played by the committee in implementing the environmental policy devised shall be given in detail.

7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining

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

Agriculture & Agro-Biodiversity

13. Impact on surrounding agricultural fields around the proposed mining Area.
14. Impact on soil flora & vegetation around the project site.
15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.

16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

Forests

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

Water Environment

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.

28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

Energy

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

Climate Change

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

Mine Closure Plan

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

EMP

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

Risk Assessment

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

Disaster Management Plan

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward

accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

Others

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

A. STANDARD TERMS OF REFERENCE

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


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- indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
 - 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
 - 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
 - 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
 - 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
 - 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
 - 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of

- the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
 - 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
 - 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
 - 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
 - 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
 - 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
 - 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come


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

- on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
 - 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
 - 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 - 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
 - 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
 - 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
 - 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
 - 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be

- of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the 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.
- 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:

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 its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
 18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
 19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
 20. Likely impact of the project on air, water, land, flora-fauna and nearby population
 21. Emergency preparedness plan in case of natural or in plant emergencies
 22. Issues raised during public hearing (if applicable) and response given
 23. CER plan with proposed expenditure.
 24. Occupational Health Measures
 25. Post project monitoring plan
 26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
 27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
 28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
 29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
 30. Reserve funds should be earmarked for proper closure plan.
 31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment

(Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
 - After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
 - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
 - The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OM No. J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

Copy to:

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, MoEF& CC (SZ), 34, HEPC Building, 1st& 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai -34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
6. The District Collector, Dindigul District.
7. Stock File.

From

To

Thiru.K.Vijayaragavan, M.Sc.,
Assistant Director,
Geology and Mining,
Dindigul

M/s.SG Granites,
No.3, East 2nd street,
Behind ICICI Bank,
K.K.Nagar, Madurai

Rc.No. /2024 (Mines), dated: .06.2024.

Sir,

Sub: Mines and Quarries - Minor Mineral - Multi-colour Granite - Dindigul District - Gujilamparai Taluk, Alambadi Village, SF.Nos.911/1A1, 911/1B1, 913/1A1, 913/1B1 & 924 over an extent of 2.81.5 hectcs - quarry lease granted to Tvl.S.G.Granites - requested Existing/proposed/ abandoned quarries situated within 500mts radial distance - details furnished - Reg.

Ref: M/s.SG Granites, No.3, East 2nd street, Behind ICICI Bank, K.K.Nagar, Madurai letter dated: 14.06.2024

In the reference cited, Tvl.S.G.Granite has granted a quarry lease for quarrying Multicoloured Granite in SF.Nos. 911/1A1, 911/1B1, 913/1A1, 913/1B1 & 924 over an extent of 2.81.5 Hectare., of Alambadi Village, Gujilamparai Taluk, Dindigul District.

In this regard, Tvl.S.G.Granites has requested the Assistant Director of Geology and Mining, Dindigul the details of existing/proposed and expired/abandoned quarry with 500 meter radial distance from the lease granted area.

As requested by the lessee firm the particulars furnished as details below:

1. Proposed Area

S. No	Name of the applicant	Village & Taluk	S.F.No	Extent	Remarks
Multi Coloured Granite					
1	M/s. S G GRANITES DoorNo.3, East 2nd Street, Behind ICICI Bank, K.K.Nagar, Madurai - 625 020	Alambadi / Gujilamparai	SF.Nos. 911/1A1, 911/1B1, 913/1A1}(P), 913/1B1	2.81.5	08.03.2018 to 07.03.2038
LIMESTONE					
2.	Tvl.Ultratech Cemet Limited, Reddipalayam Cement Works, Reddipalayam Post, Ariyalur.	Alambadi / Gujilamparai	SF.Nos. 913/3, 913/4, etc	15.95.0	applied area


2) Existing Quarries:

S. No	Name of the Lessee / Permit Holder	Village & Taluk	S.F.No	Extent	Lease period
1.	M/s. Shri Sai Sabari Enterprises, No.54A, R.R.Tower 2 nd Floor, Sengunthapuram Main Road, Karur	Alambadi / Gujiliamparai	SF.Nos. 864/2(P), 864/3(P), 864/4(P), 864/5, 864/6(P), 864/9(P), 864/10(P), 864/12 & 864/13	2.79.73	09.09.2021 to 08.09.2041
2.	M/s. S G GRANITES DoorNo.3, East 2nd Street, Behind ICICI Bank, K.K.Nagar, Madurai - 625 020	Alambadi / Gujiliamparai	SF.No. 913/2B(P)	2.13.0	23.10.2023 to 22.10.2043

3) Lease Expired:

S. No	Name of the Lessee / Permit Holder	Village & Taluk	S.F.No	Extent	Lease period
Limestone					
1.	M/s.Sree Sakthi Mines, A.M.S Buildings, Akkarapatti Sonkar, Salem.	Alambadi / Gujiliamparai	854, 855, 857/1	0.77.0	23.12.1998 to 22.12.2018


Assistant Director,
Geology and Mining,
Dindigul



COMMISSIONERATE OF GEOLOGY AND MINING

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

To
M/s. S G Granite,
No.3, East 2nd street,
Behind ICICI Bank, K.K.Nagar,
Madurai-625020.

Rc. No.1866/MM2/2023-1, Dated: 30.03.2023

Sir,

Sub: Mines and Minerals - Minor Mineral - Multi Color Granite - Dindigul District - Gujiliamparai Taluk - Alambadi Village - S.F.Nos. 911/1A1, 911/1B1, 913/1A1(P) and 913/1B1(P) over an extent of 2.81.5 hecets of Patta lands - Quarry lease granted to M/s. S G Granites - 1st Scheme of Mining for the period 2023-24 to 2027-28 - Recommended and forwarded by the Assistant Director, i/c / Assistant Geologist (G&M), Dindigul -Approval accorded - Reg.

- Ref: 1. G.O.(3D) No.6, Industries (MMB-2) Department dated: 19.02.2018.
2. Mining plan approved by the Commissioner of Geology and Mining in letter No. 8717/MM2/2017 dated: 06.12.2017.
3. 1st Scheme of Mining plan for the period 2023-24 to 2027-28 submitted by the lessee at district office on 28.10.2022
4. Assistant Geologist, Geology and Mining inspection report dated: 10.03.2023.
5. Assistant Director, i/c / Assistant Geologist (G&M), Dindigul letter Roc. No.46/ Mines/2022, dated: 14.03.2023.

Kind attention is invited to the references cited above.

2) A Multi-Color Quarry lease had been granted in favour of M/s. S G Granites to quarry Granite over an extent of 2.81.5 hecets of patta lands in S.F.Nos. 911/1A1, 911/1B1, 913/1A1(P) & 913/1B1(P) of Alambadi Village, Gujiliamparai Taluk, Dindigul district vide G.O.(3D) No.6, Industries (MMB-2) Department dated 19.02.2018 for a period of 20 years. The lease deed was executed on 08.03.2018 and the lease period is from 08.03.2018 to 07.03.2038.

3) In the reference 5th cited, the Assistant Director, i/c / Assistant Geologist (G&M), Dindigul has forwarded the 1st scheme of mining for the period from 2023-24 to 2027-28 submitted by the lessee, M/s. S G Granites and reported that the total mineable reserves of Granite @ 25% recovery of about 2,04,161 cbm for a maximum depth of 28mts and the proposed recoverable reserves of Granite @ 25% during the plan period for five years production of about 28,922 cbm in the proposed 1st scheme of mining for period from 2023-24 to 2027-28 (08.03.2023 to 07.03.2028) is acceptable. Further, the lessee, M/s. SG Granites has complied the terms and conditions stipulated in the lease granting G.O and lease deed and there is no violations and litigation in the subject area. The Geological plan, Geomorphological and reserve details furnished in the scheme of mining plan are verified with the ground realities and they are found to be correct. Finally, the Assistant Director, i/c / Assistant Geologist (G&M), Dindigul has recommended the 1st scheme of mining for the period 2023-24 to 2027-28 submitted by the lessee M/s. SG Granites in S.F.Nos. 911/1A1, 911/1B1, 913/1A1(P) & 913/1B1(P) of Alambadi Village, Gujiliamparai Taluk, Dindigul District to the Commissioner of Geology and Mining for approval.

4) Based on the recommendation of the Assistant Director (i/c) (G&M), Dindigul and in exercise of the powers conferred under Rule, 18(4) of Granite Conservation and Development Rules, 1999 read with G.O. (Ms) No.89 Industries (MMC.2) Department, dated 12.02.2001, the 1st scheme of mining submitted by the lessee M/s. S G Granites is hereby approved for the period 2023-24 to 2027-28 (08.03.2023 to 07.03.2028) for the ROM of 1,15,685 Cbm of granite subject to the following conditions:

- i. 7.5 meters safety distance shall be provided and maintained to the adjacent patta lands from all along the boundary of the area applied for quarry lease.
- ii. 10 metres safety distance should be provided and maintained to the Government poramboke land in SF No.926 from the boundary of the area applied for quarry lease.

- iii. Safety distance of 15 metres has to be allowed and maintained to the Limestone bearing area in S.F.No.913/1A1(P) and 913/1B1(P).
- iv. No hindrance and damage shall be caused to the adjoining pattadhars or public while quarrying and transportation of granite.
- v. The waste materials generated during quarrying operation shall be dumped only in the area granted under lease.
- vi. This scheme of mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.
- vii. The approval of the scheme of mining (including progressive mine closure plan) does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957, or any other law including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1986, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- viii. This scheme of mining including progressive mine closure plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- ix. Provisions of the Mines Act, 1952 and the Rules and Regulations made there under including submission of notice of opening, appointment of manager and other statutory officials as required under Mines Act, 1952 shall be complied with.
- x. Provisions made under Mines and Minerals (Development & Regulation) Act, 1957, MMDR Amendment Act, 2015 and Granite Conservation and Development Rules, 1999 made there under shall be complied with.

- xi. This approval of scheme of mining is restricted to the mining lease area only. The mining lease area is as shown on the statutory plan under Granite Conservation and Development Rules, 1999. The Commissionerate of Geology and Mining does not take any responsibility regarding correctness of the boundaries of the lease shown on the ground with reference to the lease map and other plans furnished by the lessee.
- xii. If anything is found to be concealed as required by the Granite Conservation and Development Rules, 1999 and Tamil Nadu Minor Mineral Concession Rules, 1959 and proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- xiii. Relaxation to be obtained under Rule 106(2)(a)&(b) of Metalliferous Mines Regulations, 1961 from the Director of Mines Safety, if necessary.
- xiv. The lessee should obtain environmental clearance from the appropriate authority.
- xv. The lessee shall strictly adhere to the statutory and safety requirements.
- xvi. This 1st Scheme of Mining is approved for the proposal contained therein and is applicable from the date of approval of the document for the quarrying activities to be carried out within the leasehold area.
- xvii. The earlier instances of irregular / illegal quarrying, if any, shall not be regularized through the approval of this document.
- xviii. The lessee shall remit the penalty / cost of mineral /difference stamp duty/ other dues if any as arrived by the Deputy Director/ Assistant Director (G&M), Dindigul District later.
- xix. The quarry labourers shall be registered with the Labour Board and shall be enrolled under the Insurance Scheme.
- xx. Non adherence to any condition set-out above, the approval shall be deemed to have been withdrawn with immediate effect.

- xxi. The applicant should comply with the conditions stipulated in the Government of India, Ministry of Mines order no.11/02/2020, dated 14.01.2020 issued as per the orders of the Hon'ble Supreme Court of India dated 08.01.2020 states that, "the mining lease holders shall after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to this mining activities and restore the land to a condition which is fit for growth of fodders, flora and fauna etc."
- xxii. The child labourer should not be engaged in the quarry works.
- xxiii. The lessee has to pay the stamp duty for enhanced quantity in the 1st scheme of mining.

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

Encl: Approved scheme of mining

Signature
Commissioner of Geology and Mining
30/3/2023

Copy to:

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

Copy Submitted to:

Additional Chief Secretary to Government,
Industries, Investment Promotion &
Commerce Department, Secretariat,
Chennai-09.

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



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

Patta Lands / Lease Period: 08.03.2018 to 07.03.2038

Scheme Period: 08.03.2023 to 07.03.2028

IN

LOCATION OF QUARRY LEASE AREA

EXTENT : 2.81.5 Ha
S.F.No. : 911/1A1, 1B1, 913/1A1(P) and 1B1(P)
VILLAGE : ALAMBADI
TALUK : GUJILIAMPARAI (FORMERLY VEDASANDUR)
DISTRICT : DINDIGUL
STATE : TAMIL NADU.

FOR

APPLICANT / LESSEE

M/s. S G GRANITES

No.3, East 2nd Street,
Behind ICICI Bank, K.K. Nagar,
Madurai District,
Tamil Nadu state - 625 020.

PREPARED BY

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

Qualified Person

(Under Rule 15 (I) (a) and (b) of MCR,2016)

No.17, Advaita Ashram Road,
Alagapuram, Salem District,
Tamil Nadu - 636 004.

Cell: +91 94433 56539, 94422 78601

E-mail: infogeoexploration@gmail.com

M/s. S G GRANITES,
No.3, East 2nd Street,
Behind ICICI Bank, K.K. Nagar,
Madurai District,
Tamil Nadu state – 625 020.



CONSENT LETTER FROM LESSEE

The Scheme of quarrying along with Progressive Quarry Closure Plan in respect of Alambadi Multi Colour Granite Quarry over an extent 2.81.5 hectares of Patta lands in S.F.Nos. 911/1A1, 911/1B1, 913/1A1(Part) and 913/1B1(Part) of Alambadi Village, Gujiliamparai (Formerly Vendasandur) Taluk, Dindigul District, Tamil Nadu State has been prepared by

Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified Person

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

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

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

Signature of the lessee
For M/s. S G Granites

(S.P. Sonaisamy)
Partner

Place: Madurai

Date: 24.10.2022

M/s. S G GRANITES,
No.3, East 2nd Street,
Behind ICICI Bank, K.K. Nagar,
Madurai District,
Tamil Nadu state - 625 020.



DECLARATION OF MINE OWNER

The Scheme of quarrying along with Progressive Quarry Closure Plan in respect of Alambadi Multi Colour Granite Quarry over an extent 2.81.5 hectares of Patta lands in S.F.Nos. 911/1A1, 911/1B1, 913/1A1(Part) and 913/1B1(Part) of Alambadi Village, Gujiliamparai (Formerly Vedasandur) Taluk, Dindigul District, Tamil Nadu State has been prepared in full consultation with me by

Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified person

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

Signature of the lessee
For M/s. S G Granites

(S.P. Sonaisamy)
Partner

Place: Madurai

Date: 28.10.2022

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that I, **Dr. P. Thangaraju, M.Sc., Ph.D.**, having an office at No.17, Advaita Ashram Road, Alagapuram, Salem - 636 004, am a Post Graduate in Geology (Madras University) 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 degree in mining engineering or a post-graduate degree in geology granted by a university established" and (I)(b) "Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree". Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

Accordingly, I prepare this Scheme of Quarrying along with Progressive Quarry Closure Plan in respect of Alambadi Multi Colour Granite Quarry over an extent 2.81.5 hectares of Patta lands in S.F.Nos. 911/1A1, 911/1B1, 913/1A1(Part) and 913/1B1(Part) of Alambadi Village, Gujiliamparai (Formerly Vedasandur) Taluk, Dindigul District, Tamil Nadu State for **M/s. S G GRANITES**, No.3, East 2nd Street, Behind ICICI Bank, K.K. Nagar, Madurai District, Tamil Nadu state - 625 020. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person


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

Place : Salem

Date : 28.10.2022

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



CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of Granite Conservation and Development Rules, 1999 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Scheme of quarrying along with Progressive Quarry Closure Plan for Alambadi Multi Colour Granite Quarry over an extent 2.81.5 hectares of Patta lands in S.F.Nos. 911/1A1, 911/1B1, 913/1A1(Part) and 913/1B1(Part) of Alambadi Village, Gujiliamparai (Formerly Vedasandur) Taluk, Dindigul District, Tamil Nadu State has been prepared for

M/s. S G GRANITES,
No.3, East 2nd Street,
Behind ICICI Bank, K.K. Nagar,
Madurai District,
Tamil Nadu state - 625 020.

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

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

Signature of the Qualified Person


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

Place : Salem

Date : 28.10.2022



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

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations made there under have been observed in the preparation of Scheme of quarrying along with Progressive Quarry Closure Plan for Alambadi Multi Colour Granite Quarry over an extent 2.81.5 hectares of Patta lands in S.F.Nos. 911/1A1, 911/1B1, 913/1A1(Part) and 913/1B1(Part) of Alambadi Village, Gujiliamparai (Formerly Vedasandur) Taluk, Dindigul District, Tamil Nadu State has been prepared for

M/s. S G GRANITES,
No.3, East 2nd Street,
Behind ICICI Bank, K.K. Nagar,
Madurai District,
Tamil Nadu state - 625 020.

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

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

Signature of the Qualified Person


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

Place : Salem

Date : 28.10.2022



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

Lease Period = 08.03.2018 to 07.03.2038

Scheme Period = 08.03.2023 to 07.03.2028

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

1.0 INTRODUCTION:

The present Scheme of Quarrying is prepared in respect of Alambadi Multi Colour Granite quarry belongs to **M/s. S G Granites**, having an office at No.3, East 2nd Street, Behind ICICI Bank, K.K. Nagar, Madurai District, Tamil Nadu state – 625 020 for over an extent 2.81.5 hectares of Patta lands in S.F.Nos. 911/1A1, 911/1B1, 913/1A1(Part) and 913/1B1(Part) of Alambadi Village, Gujiliamparai (Formerly Vedasandur) Taluk, Dindigul District, Tamil Nadu State.

This scheme of Quarrying is prepared with a view of optimum exploitation of deposit by systematic quarrying with proper bench dimensions and safety measures, to enable the Multi Colour Granite deposit on a long run with consistent Multi Colour Granite to waste ratio and with a view to maintain uniform cost of Quarrying, profit margin, conservation and proper dumping of waste/rejects with minimum damage to the environment and society.

M/s. S G Granites is a Partnership firm. The partnership deed has executed and duly registered on 18.07.2017 and the Partnership firm reconstituted on 04.04.2018 and 30.09.2021 under the Indian Partnership act, 1932 with three partners. The details of partners is given below (Refer annexure No. X).

Table - 1

S. No.	Name	Designation
1.	Thiru. S.P. Sonaisamy, S/o. C. Subbiah	Partner
2.	Thiru. So. Baalaa Murugan, S/o. S.P. Sonaisamy	Partner

Thiru. S.P. Sonaisamy (Partner) is an authorized person for signing all the documents on behalf of the company (Please refer annexure No. XI).

The Company for the past five years has vast experience in safe and systematic quarrying, Trading and export of granite blocks.

1.1 Particulars of Approval of Mining Plan and Date of Commencement of Mining**Operation:**

The mining plan was prepared in respect of Multi Colour granite quarry and the same was approved by the Commissioner, Department of Geology and Mining, Guindy, Chennai vide **letter No.8717/MM2/2017, dated 06.12.2017** (Refer Annexure No. VII).

As per direction issued in the precise area communication letter the company has obtained Environmental Clearance from the District Level Environment Impact Assessment Authority, Dindigul District vide letter No. **DEIAA/DGI/EC.No.063/2017, Dated: 29.01.2018** (Refer Annexure No. VIII).

The quarry lease was granted vide **G.O. (3D) No.6, Industries (MMB.2) Department Dated: 19.02.2018** for a period of **twenty years** (Refer Annexure No. I). The quarry lease deed was **executed on 08.03.2018** and the lease period is **valid upto 07.03.2038** (Refer Annexure No. IX). The quarry operation was commenced after the execution of lease deed, i.e. 15.03.2018.

The mining plan period is valid upto 07.03.2023. Now, the first scheme of quarrying is prepared and submitted to obtain approval for the period of **08.03.2023 to 07.03.2028 (Five years)**.

1.2 Detail of lease particulars are given as under:

Table - 2

S. No.	GO. No.	Extent (Ha.)	Date of Execution	Lease Period	valid upto
1.	G.O. (3D) No.6 Dated: 19.02.2018	2.81.5	08.03.2018	20 Years	07.03.2038

1.3 Proposed and achieved Production particulars from the commencement of quarry operations are given below:

Table - 3

Year	Proposed			
	ROM (m ³)	Production @ 25% (m ³)	Granite Waste @ 75% (m ³)	Topsoil (m ³)
2018 - 19	20000	5000	15000	9152
2019 - 20	20000	5000	15000	8000
2020 - 21	20000	5000	15000	8000
2021 - 22	23850	5962	17888	-
2022 - 23	32050	8013	24037	-
Total	115900	28975	86925	25152

Table - 3A

Achieved

Year	ROM (m ³) (A)	Production (m ³)	Despatch (m ³)	Recovery (%)	Granite Waste & Rejected Blocks(m ³)	Topsoil (m ³) (B)	Side burden (m ³) (C)	Total Excavated Volume (A+B+C) (m ³)
2018-19	18970	1643.034	1643.034	9	17326.966	9040	-	28010
2019-20	Development Work					7800	690	8490
2020-21	17480	2070.548	2070.548	12	15409.452	5014	1120	23614
2021-22	16420	2148.123	2148.123	13	14271.877	-	-	16420
2022-23 (Upto 28.10.2022)	14649	2433.915	1199.842	17	12215.085	-	-	14649
Total	67519	8295.620	7061.547	12	59223.380	21854	1810	91183

Recovery anticipated @ 25% but achieved around 12%(Avg.) due to weathered joints, fractures and fissures of the top layer of the granite formation. There are about 195 undressed blocks stacked within the lease area, which may have a gross measurement of 1,234.073m³. These blocks when being approved by the buyer's overseas, the same will be dressed into desired dimensions size and will be despatch for sale, if any defect found during buyer's overseas it can be considered as waste.

1.4.0 REVIEW OF MINING PLAN:

- 1.4.1 Name of the Quarry : Alambadi Multi Colour Granite Quarry
- Name of Lessee : **M/s. S G Granites,**
- Present Address : No.3, East 2nd Street,
Behind ICICI Bank
K.K. Nagar
Madurai District.
- State : Tamil Nadu - 625 020
- E-mail : sggranitesalambadi2017@gmail.com
- Mobile No. : +91 87783 89007 and 90470 91001
- Aadhaar No. : 7579 6135 9825 (Refer Annexure No. XII).

1.4.2 REVIEW OF COMPLIANCE POSITION OF SALIENT FEATURES OF MINING PLAN:

All the condition stipulated in the G.O. and lease deed was maintained and mitigated during the course of quarrying operations.



1.5.0 REVIEW OF IMPORTANT CHAPTERS OF MINING PLAN:

1.5.1 EXPLORATION:

As far as Multi Colour granite deposits are concerned, the only practical method is the systematic geological mapping and delineation of commercial Multi Colour granite bodies with in the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.,

Such an exploration study has already been carried out regionally in this area by the Geological Survey of India (GSI) in the year 1966 and the same has been validated by the RQP and his team members during preparation of mining plan.

Even though the depth persistence of the Multi Colour Granite stone may be beyond 28m depth from the Petrogenetic character of the rock, only 28m (3m topsoil + 25m Multi colour granite) depth persistent has been taken as economically viable depth to calculate categories of proved, probable, and possible reserves during the Mining plan period.

The recovery of saleable Multi Colour Granite stones has been taken as 25% and if the recovery percentage is good it may enhance or bad it may decrease respectively.

The lessee did not carried out any detailed exploration, due to the mineable granite deposit may spoiled during drilling.

1.5.2 MINE DEVELOPMENT

During the approved Mining plan period the production and development has proposed on the Eastern side and progressed towards Western side with total dimension of (L) 104m x (W) 124m x (D) 17m.

The production and development for the first five years are given as under.

PROPOSAL GIVEN IN THE APPROVED MINING PLAN:

Table - 4

Proposed				
Year	ROM (m³)	Production @ 25% (m³)	Granite Waste @ 75% (m³)	Topsoil (m³)
2018 - 19	20000	5000	15000	9152
2019 - 20	20000	5000	15000	8000
2020 - 21	20000	5000	15000	8000
2021 - 22	23850	5962	17888	-
2022 - 23	32050	8013	24037	-
Total	115900	28975	86925	25152

Table - 4A

Achieved								
Year	ROM (m ³) (A)	Production (m ³)	Despatch (m ³)	Recovery (%)	Granite Waste & Rejected Blocks(m ³)	Topsoil (m ³) (B)	Side Burden (m ³)	Total Excavated Volume (A+B+C)
2018-19	18970	1643.034	1643.034	9	17326.966	9040	-	28010
2019-20	Development Work					7800	690	8490
2020-21	17480	2070.548	2070.548	12	15409.452	5014	1120	23614
2021-22	16420	2148.123	2148.123	13	14271.877	-	-	16420
2022-23 (Upto 28.10.2022)	14649	2433.915	1199.842	17	12215.085	-	-	14649
Total	67519	8295.620	7061.547	12	59223.380	21854	1810	91183

Recovery anticipated @ 25% but achieved around 12%(Avg.) due to weathered joints, fractures and fissures of the top layer of the granite formation. The lessee has proposed new innovative machineries and equipment with technically highly qualified personnel for improving the recovery percentage. In deep seated conditions the fissures and fractures got much reduced, which may enhance the recovery percentage due to absence of weathered joints and fractures of the deep seated granite formation. At present the lessee has fully developed the lease area and proposed to work in the sheet rock, the sheet rock is having good recovery due to very hard and massive in the area. Anyhow, as per approved mining plan the estimated anticipated recovery would be considered about 25% from the ROM during this scheme period. If there is any substantial change in the ROM or recovery percentage during operation the same will be intimate to the Concerned authority for subsequent clearance and approval.

In the interest of quarrying, the lessee worked out continuously and tried his maximum effort to market. The lessee was keen in carrying out the quarrying operations in a scientific and systematic manner to win the Grey Granite in all possible means.

1.5.3 REVIEW OF MINING DEVELOPMENT:

During the approved Mining Plan period the production and development has proposed on the Eastern side and progressed towards Western side with total dimension of (L) 104m x (W) 124m x (D) 17m. During the past five years, the lessee has carried out the production and development work as proposed in the approved mining plan. At present there are four different depth pits exists within the lease area. The maximum dimensions of the quarry pits are given table below (Refer Plate No. III).

Table - 5

PRESENT PIT DETAILS											
Pit ID	Existing R.L. (m)	Pit R.L. (m)	Area in (m ²)	Total Depth (m)	Depth (m)			Volume (m ³)			Total Excavation (m ³)
					Topsoil	Granite	Side Burden	Topsoil	Granite	Granite	
D-1	220	217	1150	3	2	1	-	2300	1150	-	3450
			1120	3	2	-	1	2240	-	1120	3360
D-2	220	216	732	4	2	2	-	1464	1464	-	2928
			345	4	2	-	2	690	-	690	1380
D-3	220	212	3695	8	2	6	-	7390	22170	-	29560
D-4	220	207	3885	13	2	11	-	7770	42735	-	50505
Total								21854	67519	1810	91183

Table - 5A

Excavation Details						
Total Excavation (m ³)	Production (m ³)	Despatch (m ³)	Stock (m ³)	Top soil Bund (m ³) [3740m ² x 5m (H)]	Waste Dump (3406m ² x 18.07m(H) (m ³))	Topsoil and Waste fragmentation and utilized for Leveling, Road and Ramp formation (m ³)
91183	8295.620	7061.547	1234.073	18700	61,546	2,641.380

The company has much conservation of the Multi Colour granite, invested a huge amount and his resources to win the Multi Colour granite from the lease area. The company has been carried out all possible ways and best effort to develop and exploit the Multi Colour granite continuously.

1.6.0 AFFORESTATION PROGRAMME:

Program of Afforestation as given in the first five years are given as under.

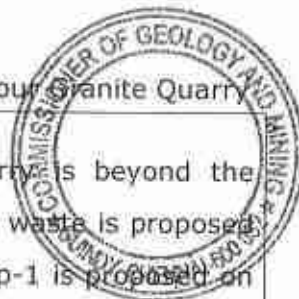
Proposal as given in the Mining Plan:

The safety distance along the South, East and Northern side lease boundary has to be utilized for Afforestation. Appropriate species will be planted in a phased manner as described below.

Table - 6

Year	No. of trees proposed to be planted	Area to be covered in m ²	Name of the species	Survival rate expected in %	No. of trees expected to be grown
2018 - 19	30	804	Casuarina, Eucalyptus, Teak, Neem and other Regional Trees.	80	24
2019 - 20	30	804		80	24
2020 - 21	30	804		80	24
2021 - 22	30	804		80	24
2022 - 23	30	804		80	24

Total number of trees planted during the approved mining plan period is 150 numbers around the quarry with the survival rate of 80%. The afforestation program carried out during the mining plan period is affected due to failure of monsoon and water scarcity. The company ensures to compensate the afforestation during the present scheme period.



1.7. LAND RECLAMATION AND REHABILITATION:

Due to nature of occurrence of the granite body in this quarry is beyond the workable limits. During the approved mining plan period the quantum of waste is proposed about $86,925\text{m}^3$ the same was proposed to dump with two dumps, Dump-1 is proposed on the Eastern side with maximum dimension of (L) 110m x (W) 30m x (H) 15m ($49,500\text{m}^3$), Dump-2 is proposed on the Southern side with maximum dimension of (L) 62.375m x (W) 40m x (H) 15m ($37,425\text{m}^3$) and quarried out topsoil ($25,152\text{m}^3$) was proposed to preserve all along the safety barrier and utilized for construction of bund and afforestation purpose. During the mining plan period the generated waste has dumped on the Eastern side and quarried out topsoil has dumped all along the safety barrier. The maximum dimension of the existing waste dump is given table below (Refer plate No. III).

Table - 7

Existing Dump dimensions in meters				
Dump ID	Area (m^2)	Height	Volume (m^3)	Location
Existing Waste Dump	3406	18.07	61,546	East
Topsoil Bund	3740	5	18,700	Safety zone

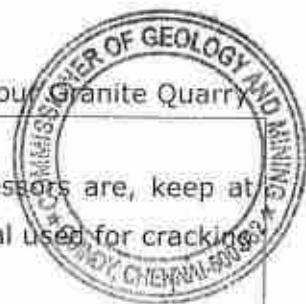
Remaining volume of $2,641.380\text{m}^3$ of waste was fragmentation during transportation and utilized for leveling of undulated floor of the lease area also for road and ramp formation purpose (Refer Plate No. III).

During the approved mining plan period 28m depth has been envisaged as workable depth for safe and systematic quarrying operations. Now the quarry attained a maximum depth of 13m only in a small portion of the area and the entire quarry area is an active hence, no reclamation has carried out and immediate backfilling does not arise.

1.8 CONTROL OF DUST, NOISE AND VIBRATION:

The quarrying operation has carried out by mechanized means HEMM were deployed. Hence, the effects due to dust, noise and vibration were minimal and well within the prescribed limits during the course of quarry operation besides the Ambient quality of Air respect of dust concentration, respirable dust, SO_2 , NO_2 were tested periodically for every season around 1km radius for core and buffer zones as per the guidance of TNPCB. The dust prone areas of the Mine are blasting site, Loading, Hauling and dumping. All such areas were closely monitored as per the guidelines.

The quarry operation has carried out by mechanized method with small dia drilling and low intense blasting. Dressing carried out manually with portable compressor and Jack Hammers. Hence, the effects due to dust (only development and bench formation), noise and vibration were minimal.

**NOISE:**

The ambient Noise Level ranges must be <80dB. As the compressors are, keep at high levels, the impact of noise to the workers is less. Expanding Chemical used for cracking the rough blocks and therefore noise of blasting was minimal.

VIBRATION:

Blasting induced ground vibration is the only source of vibration in Mining area. Since chemicals @ 1kg for 3 feet being used for 8 hours retention time for cracking the solid rock along the line of drilling. Minimal vibration has observed in this quarry.

1.9.0 SIGNIFICANT FEATURES:

Being the lessee who is much concerned above the environment, the company closely monitored the environmental factors systematically without degrading the land, water and air. Related tests carried out to show the actual performance of mine on environmental issues which would be complying in the present scheme period.

PART - I**2.0 PROPOSAL UNDER SCHEME OF QUARRYING FOR THE NEXT FIVE YEARS:****2.1 NAME OF THE APPLICANT WITH ADDRESS:**

Name of the Lessee : **M/s. S G Granites,**
 Present Address : No.3, East 2nd Street,
 Behind ICICI Bank
 K.K. Nagar
 Madurai District.
 State : Tamil Nadu - 625 020
 E-mail : sggranitesalambadi2017@gmail.com
 Mobile No. : +91 87783 89007 and 90470 91001
 Aadhaar No. : 7579 6135 9825 (Refer Annexure No. XII).

2.2 NAME AND ADDRESS OF THE QUALIFIED PERSON WHO PREPARED THE SCHEME OF MINING:

Name : Dr. P. THANGARAJU, M.Sc., Ph.D.
 Qualified Person (As per Rule 15(I)(a) and (b) of MCR 2016)
 Address : No.17, Advaita Ashram Road,
 Alagapuram,
 Salem District,
 Tamil Nadu - 636004.
 Telephone(Office) : 0427- 2431989
 Mobile : +91 94422 78601, 94433 56539.
 E-mail ID : infogeoexploration@gmail.com

(Refer Annexure No. XIII and XIV)

2.3 DETAIL OF LEASE PARTICULARS ARE GIVEN AS UNDER:

Table - 8

S. No.	GO. No.	Extent (Ha.)	Date of Execution	Lease Period	valid upto
1.	G.O. (3D) No.6 Dated: 19.02.2018	2.81.5	08.03.2018	20 Years	07.03.2038

The quarry lease has granted vide G.O.(3D) No.6, Industries (MMB.2) Department Dated 19.02.2018 for a period of twenty years. The quarry lease was executed on 08.03.2018 and the lease period is valid upto 07.03.2038.

2.4 DETAILS OF THE AREA

- The area is marked in the Geological Survey of India, Topo sheet no. 58 J/02.
- The details of the land covered by the area is given below
- There is no change in the extent as mentioned in the Approved Mining Plan.

Table - 9

District & State	Taluk	Village	S.F.Nos.	Area in Ha.	Patta No.	Classification
Dindigul & Tamil Nadu	Gujiliamparai	Alambadi	911/1A1	0.74.0	2811	Company's own Patta lands, Classified as Punjal. (Refer annexure No. IV - VI)
			911/1B1	0.99.0		
			913/1A1(P)	0.61.5		
			913/1B1(P)	0.47.0		
Total				2.81.5		

The area lies between the Latitudes of 10°44'19.0401"N to 10°44'25.7523"N and Longitudes of 78°03'43.8078"E to 78°03'50.3856"E in WGS Datum-1984 (Refer Plate No. I & IA).

3.0 EXPLORATION AND RESERVES**3.1. Physiography**

The area exhibits flat terrain. The gradient is gentle towards Western side and altitude of the area is 220m above from MSL. The Multi Colour granite is concealed under reddish soil. The area receives rainfall 985mm/annum and the ground water occurs at a depth of 58m. The Multi Colour granite is medium to coarse grained with orthoclase feldspar and quartz is major constituents, Garnet, biotite and other mafic minerals are accessories.



Topographical view of Alambadi Multi Colour Granite Quarry Lease Area



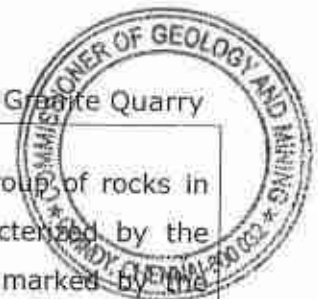


Fencing and Soil Bund



Site Services





3.1.1 REGIONAL GEOLOGY:

This area forms a part of peninsular gneiss the most wide spread group of rocks in many parts of Tamil Nadu. The southern domain of Tamil Nadu is characterized by the khondalite group of rocks (with subordinate amounts of Charnockite) and marked by the absence of BMQ and dolerite dyke systems. The most common varieties of granite are pink, grey and Multi Colour ones. In the granites feldspar forms about 50%, quartz a little less and the rest accounted for by amphiboles and pyroxenes. This type occurs in the form of large massive bodies (Batholiths, laccoliths) spreading over hundreds of square kilometers exhibiting variation in colour and texture. Other types occur as lenses and bands within the gneisses and other metamorphic rocks. In these cases, the molten magma of granite has been emplaced into the earlier rocks as narrow, small bodies and partly interacting.

Anorthosites, syenites and porphyries and like that generally considered along with the Multi Colour granites. In these rocks quartz is nearly absent when hornblende or biotite abundant, the rock may be dark green or almost black.

3.1.2 Geology of the area:

The rock formation is popularly known as "Granite Gneiss" essentially made up of a supra crustal assemblages of quartz, Alkali feldspar and Plagioclase feldspar is major constituents, Hornblende, Biotite, Garnet and other mafic minerals are accessories and closely inter banded with Hornblende Biotite Gneiss.

The Hornblende Biotite Gneiss forms the country rock of the area with trending of North - South with dipping towards SE70° and "Multi colour Granite" (Granite Gneiss) intruded between the batholithic formation of pre-existing country rock of Hornblende Biotite Gneiss discordantly with trending of N10°E - S10°W with almost vertical dipping with maximum width of 129m which stretches about the entire area. The fresh Multi-Colour granite is concealed under reddish soil having an average thickness of 3m below from the ground level.

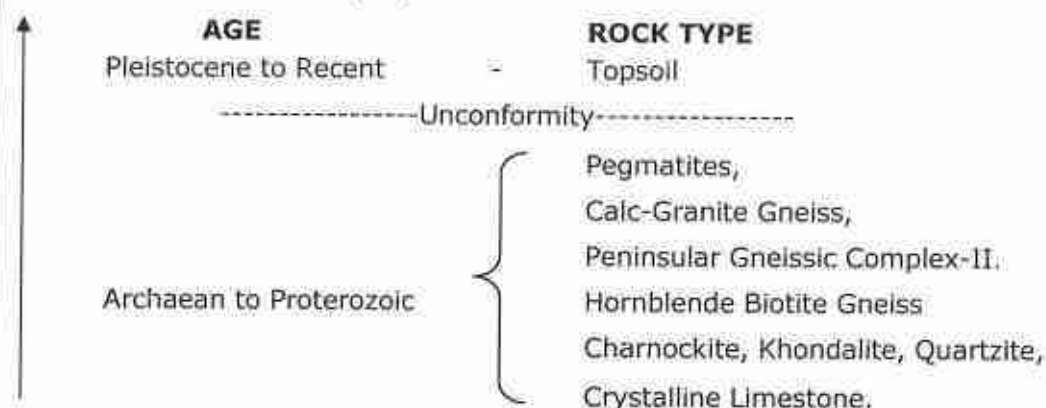
The Multi-Colour granite is leucocratic, euhedral, medium to coarse grained, equigranular and the flow pattern of the rock mass in NE - SW. The Multi-Colour Granite is observed on the surface level is pale pink in colour due to alkali feldspar domination and deep seated condition it may pale yellowish in colour with pale grey background. Some slender pegmatite veins are intruded in a crisscross fashion which is likely to be reduced at deeper levels. However, the other geological parameters such as shear, joints concentration of melanocratic (pyroxene) minerals traversing of pegmatite veins and hard solid relic patches of xenoliths are the controlling recovery factor which decides the fate of the quarry. Well-developed strike and dip joints observed at the surface level which is likely to decrease in deep seated condition. Taking in to consideration of the above geological factors, over burden, inter burden wastage during quarrying, other flaw and flower patches etc., the average recovery percentage has been computed as 25% upto 28m depth below from the existing ground profile.



STRUCTURAL SETTINGS OF DINDIGUL

The general geological sequence of the rock types in the area is:-

Order of super position:-



The Physical attitude of the Multi-colour Granite deposit of this area is given below:-

Strike Direction	-	N10°E - S10°W
Dip amount and direction	-	Almost Vertical

3.2 DETAILS OF EXPLORATION

3.2.1. ALREADY CARRIED OUT

As far as Multi Colour Granite deposits are concerned, the only practical method is the systematic geological mapping and delineation of commercial Multi Colour Granite bodies within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.

Such an exploration study has already been conducted in this area during the course of quarrying operations.

Based on the valuable geological information and by the field experience and the quarry already attained a maximum depth of 13m, the estimation of geological resources, mineable reserve is arrived at considering to waste and market potential.

3.2.2. PROPOSED STUDY TO BE CARRIED OUT

Even though the depth persistence of the Multi Colour Granite stone may be beyond 28m (3m topsoil + 25m Multi Colour Granite) below from the existing ground profile from the Petrogenetic character of the rock, only 28m depth persistent has been taken as economically viable depth to calculate categories of proved, probable, and possible reserves.

The recovery of saleable Multi colour Granite stones has been taken as about 25% and if the recovery percentage is good, it may enhance.

No definite programs for future exploration have been drawn. The quarrying activities for the proposed scheme period with deep cut as envisaged in the scheme of quarrying may render additional data as may be required for future planning.



3.3 METHOD OF ESTIMATION OF RESERVES:

The geological plan demarcating the commercially viable Multi Colour granite body has been prepared in 1:1000 scale (Plate No. IV). Totally two sections have been drawn, one along the strike direction as (X-Y) Length wise and another cross section is drawn perpendicular to strike as (A-B) width wise which is suitably chosen to cover the maximum area in the scale of 1:1000 (Refer Plate No. IV).

The cross sectional area for the proved depth persistence of Multi Colour has been worked out for each section. The cross sectional area multiplied by its length of influence on the longer axis gives the volume (insitu) in the cross sectional area. The sum total of the insitu reserves available within the individual cross sectional area gives the Geological Resources of the lease area upto 28m depth.

The Multi Colour granite recovery percentage of 25% in the present scheme may decrease of joints and fractures in deeper level. High efficient technology machineries, quarry masters, Market demand significantly determine the recovery percentage of granite quarries. The estimated recovery is based on today market scenario and the same recovery has been considered as normative recovery. When the market demands, the lessee may take necessary steps to deploy a quarry masters with latest innovative machineries technology. So the recovery enhancement may raise to the peak production resulting in more than 25%. During the operation the method of quarry, deployment of men and machineries will not have any negative impact on the Environment. It is worthening the recovery anticipate the normative production has been scientifically converted into commercial production resulting in the decrease dump of waste inside the quarry. Due to the micro fractures, flaws, patches, xenoliths, required dimension, dressing, etc., the recovery in the granite could not be 100% of the ROM

From the total Geological insitu Reserves, the quantity of saleable Multi Colour granite stones and quantity of Multi Colour granite rejects and waste generation are computed by applying recovery factor as 25% by its volume.

As the salable Multi Colour Granite stone are in terms of cubic meters (Volume) only and not in terms of tonnage as in the case of major industrial mineral, the geological resources, mineable reserves and quantum of waste generated etc, are given only in terms of cubic meters.

The details of estimation of geological resources and mineable reserves with reference to the geological plan & cross section and Conceptual Plan & Section as shown in (Plate No. IV & IX).

**3.4 GEOLOGICAL RESOURCES AND GRADE (REASSESSED ON 28.10.2022):**

Maximum Length	:	148m
Maximum Width	:	172m (Granite 129m + Side Burden 43m)
Maximum Depth	:	28m

Table - 10

Section	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @ 25% (m ³)	Granite Waste @ 75% (m ³)	Side Burden (m ³)	Topsoil (m ³)
XY-AB	i	148	172	3	-	-	-	-	76368
	ii	148	129	5	95460	23865	71595	-	-
		148	43	5	-	-	-	31820	-
	iii	148	129	5	95460	23865	71595	-	-
		148	43	5	-	-	-	31820	-
	iv	148	129	5	95460	23865	71595	-	-
		148	43	5	-	-	-	31820	-
	v	148	129	5	95460	23865	71595	-	-
		148	43	5	-	-	-	31820	-
	vi	148	129	5	95460	23865	71595	-	-
		148	43	5	-	-	-	31820	-
	Total (A)					477300	119325	357975	159100
Depletion - Existing Pit (B)					67519	8295.620	59223.380	1810	21854
Total Available Geological Resources (A-B)					409781	102445	307336	157290	54514

Total Available Geological Reserves in ROM	=	4,09,781m ³
Total Recoverable Reserves @ 25%	=	1,02,445m ³
Granite Waste @ 75%	=	3,07,336m ³
Side Burden (SB)	=	1,57,290m ³
Total Waste (Granite Waste +SB)	=	4,64,626m ³
Topsoil	=	54,514m ³
Granite waste ratio:	=	1:4.5

The geological resources are computed based on the geological cross sections up to the economically workable depth of 28m (3m topsoil + 25m Multi Colour granite) below from the existing ground profile at the rate of 25% recovery yields 1,02,445m³ and 4,09,781m³ of ROM.

The total Geological resources are calculated from the total area and after depleted the excavation carried out during the mining plan period (Past Five years).

**3.5 MINEABLE RESERVES (REASSESSED ON 28.10.2022):**

Maximum Length	:	130m
Maximum Width	:	144m
Maximum Depth	:	28m

Table - 11

Section	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @ 25% (m ³)	Granite Waste @ 75% (m ³)	Side Burden (m ³)	Topsoil (m ³)	
XY-AB	i	130	144	3	-	-	-	-	56160	
	ii	122	116	5	70760	17690	53070	-	-	
		122	20	5	-	-	-	12200	-	
	iii	112	111	5	62160	15540	46620	-	-	
		112	15	5	-	-	-	8400	-	
	iv	102	106	5	54060	13515	40545	-	-	
		102	10	5	-	-	-	5100	-	
	v	92	101	5	46460	11615	34845	-	-	
		92	5	5	-	-	-	2300	-	
	vi	82	96	5	39360	9840	29520	-	-	
	Total (A)					272800	68200	204600	28000	56160
	Depletion - Existing Pit (B)					67519	8295.620	59223.380	1810	21854
Total Available Mineable Reserves (A-B)					205281	51320	153961	26190	34306	

Total Available Mineable Reserves in ROM	=	2,05,281m ³
Total Recoverable Reserves @ 25%	=	51,320m ³
Granite Waste @ 75%	=	1,53,961m ³
Side Burden (SB)	=	26,190m ³
Total Waste (Granite Waste +SB)	=	1,80,151m ³
Topsoil	=	34,306m ³
Granite waste ratio:	=	1:3.5

The Mineable reserves have been computed as 51,320m³ at the rate of 25% recovery and 2,05,281m³ of ROM. The mineable reserves are calculated after leaving the mineral locked up area under safety distance, bench loss and existing quarry pit. Hence the remaining area is taken for calculation of mineable reserves. Proved reserves are considered up to 28m below from the existing ground profile (Refer Plate No. IV).

The Multi Colour granite body occurring in this area exhibits more or less uniform colour and texture. If any variation occurs during mining, such as cracks, joints, patches, colour variations etc, the defective area will be avoided. The formation is uniform and no gradational change is noticed except some shears, cracks and slender pegmatite veins.



4.0 CONCEPTUAL MINING PLAN:

Conceptual Mining plan is prepared with an object of long-term systematic development of benches, lay outs, selection of permanent ultimate pit limit, depth of Mining and ultimate pit, selection of sites for construction of infrastructure etc.

The ultimate pit size is designed based on certain practical parameters such as economical depth of Mining, safety zones, permissible area etc. The ultimate pit dimensions of the quarry are given below.

Table - 12

Ultimate Pit Dimensions (Maximum)		
Length (m)	Width (m)	Depth (m)
130	144	28

However, during extraction of blocks each bench will be of 5m height & width, vertical slope for proper dimensional cutting. The quantum of excavation is estimated to be 2,65,777m³ (ROM 2,05,281m³ + Topsoil 34,306m³ + Side Burden 26,190m³) to a depth of 28m below from the existing ground profile. The generation of total waste is estimated about 1,80,431m³ (Granite Waste 1,53,961m³ + Side Burden 26,190m³) and marketable Multi Colour Granite as 51,320m³.

During this scheme period, excavated waste (86,763m³) will be proposed to dump over the existing waste dump situated on the Eastern side with an area 5313m² x (H)27.91m, which will act as temporary waste dump. After expiry of the lease period if the mineral reserves available and Market persist, the lessee may apply a renewal of quarry lease as to develop and conserve mineral reserves. If permission is granted for removal of waste (Existing Granite Waste, Side burden waste and proposed Granite waste for remaining lease period) from concerned authorities, the waste material will be supplied to the needy crusher for convert to the M-Sand, building and road construction material after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. After obtained permission for disposal of waste, the remaining unsold overburden (Topsoil) only utilized for backfilling. When the entire mineral reserves will be completely exhausted if permission obtained for disposal of waste the quarried out pit will be allowed to collect seepage and rain water which will act as a temporary reservoir, if permission not obtained for handling of waste from the concerned authority, backfilling (Granite Waste and Side Burden) will be carried out nearly existing ground profile and spread out the preserved topsoil to facilitate afforestation in the backfilled area.

The quarry area partly fenced and remaining area will be fenced with barbed wire fencing also safety bund already constructed around the quarry to prevent inadvertent entry of public and cattle (Please refer plate No. III and VII).



5.0 MINING

No change in the method of Mining. The same open cast semi mechanized Mining with 5m vertical bench with a bench width of 5m has been followed.

Under the regulation 106 (2) (b) of the Metalliferous Mines Regulation 1961, in all open cast Mining, the bench height should not exceed 5m and bench width should not be less than bench height. The slope of the bench should not more than 60° from the horizontal.

But as far as the Mining of granite dimensional stones are concerned, observance of the provisions of Regulation 106(2) (b) is available with Director General of Mines Safety. If the 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 production of Multi Colour Granite dimensional stone in this quarry involves the following method typical for Multi Colour granite stone mining in contrast to other major mineral mining.

Splitting of rock mass of considerable volume from the parent sheet rock is carefully removed by avoiding any kind of damage in the form of cracks adopting the method of diamond wire cutting along the horizontal as well as two vertical sides along the width direction and the third vertical face behind the front face.

This liberation of huge volume of granite body from the parent sheet rock is called primary cutting. The Blocks splitted above are toppled and removed from the pit to the dressing yard, by using Crawler crane.

Removing the defective portion and dressing into the dimensional blocks are done manually using feather, wedges, and chiseling respectively by the labours that are skilled in this work.

The defect free, dimensional stone of different sizes is marketed in domestic and international market by the well experienced marketing personals of the lessee.

The waste material generated during quarry activity includes rock fragments of different sizes and waste chips during dressing of the blocks.

The excavated waste materials are proposed to dump in the respective places earmarked for the purpose, which will act as temporary waste dump. (Refer Plate No. VI and IX).

5.1 YEAR WISE DEVELOPMENT AND PRODUCTION FOR THE NEXT FIVE YEARS:

Maximum Length	:	111m
Maximum Width	:	93m
Maximum Depth	:	28m

Table - 13

Sections	Year	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recoverable Reserve 25% (m ³)	Granite Waste 75%(m ³)	Topsoil (m ³)	
XY-AB	08.03.2023 to 07.03.2024	i	31	25	3	-	-	-	2325	
		ii	27	21	5	2835	709	2126	-	
		iii	70	49	5	17150	4287	12863	-	
	Total						19985	4996	14989	2325
	08.03.2024 to 07.03.2025	iii	19	49	5	4655	1164	3491	-	
		iv	38.8	79	5	15326	3832	11494	-	
	Total						19981	4996	14985	-
	08.03.2025 to 07.03.2026	iv	50.5	79	5	19948	4987	14961	-	
		iv	7.7	79	5	3041	760	2281	-	
	08.03.2026 to 07.03.2027	v	60	69	5	20700	5175	15525	-	
		Total						23741	5935	17806
	08.03.2027 to 07.03.2028	v	27	69	5	9315	2329	6986	-	
		vi	77	59	5	22715	5679	17036	-	
	Total						32030	8008	24022	-
Grand Total						115685	28922	86763	2325	

Total Proposed ROM	=	1,15,685m ³
Total Recoverable Reserves @ 25%	=	28,922m ³
Granite Waste @ 75%	=	86,763m ³
Topsoil	=	2,325m ³
Granite waste ratio:	=	1:3

Estimated Life of the quarry

Mineable ROM	=	2,05,281m ³
Mineable Reserves @ 25%	=	51,320m ³
Average production per year @ 25%	=	28,922m ³ / 5 years = 5,784m ³
Estimated Life of the Quarry	=	51,320 / 5,784m ³ = 9 years

The year wise quantum of work proposed and the details of estimation of production quantity and generation of waste are furnished with reference to Year wise Development and Production plan (Plate No.V). The average annual production for the next five years are 5,784m³ at the rate of 25% recovery.

More details of the year wise production parameter explained with bench length, width and height in Plate No. V.



5.2 PROPOSED RATE OF PRODUCTION WHEN THE QUARRY IS FULLY DEVELOPED

The proposed rate of production when the quarry is fully developed is 5,784m³ per annum @ 25% recovery. The production schedule for the subsequent five years has drawn mainly in consideration of reserves position, market demand, men, machinery development and the cost of production.

5.3 MINEABLE RESERVES AND ANTICIPATED LIFE OF QUARRY

The Multi Colour granite deep seated in nature as they have formed by basic intrusions from depth as Multi Colour granite. The depth persistence of the Multi Colour granite will be beyond the economically workable depth. The method of extraction of rock mass from Multi Colour granite sheet rock is highly expensive at greater depth.

An optimum depth of 28m has been established as economically viable depth at present scenario. Eventually this depth is the optimum depth for safe and scientific quarrying.

The Mineable Reserves are calculated by excluding the mining loss due to formation of benches with suitable height & width, ultimate depth of quarry, the Mineral Reserve held up within the safety distances all along the lease boundary.

The Mineable Reserves @ 25% for this Multi Colour Granite quarry is thus arrived as 51,320m³ and 2,05,281m³ of ROM for an assumed depth of 28m below from the existing ground profile. The average rate of production of Multi-Colour Granite from this quarry is 5,784m³ per year and Mineable recoverable reserves 51,320m³ considering 25% recovery for the entire life of the quarry. The details of estimation of year wise development and production plan and sections are shown in the plate No.V.

Based on the above, and taking into consideration of the available Mineable Reserves, **the life of quarry will be about 9 years** at 25% recovery, if the quarry is being worked out continuously with an average annual production of 5,784m³. This calculation is based on the plan approved by Director of Mines Safety leaving Benches and Safety barriers. If the annual production increases considerably and consistently a modified scheme will be prepared under Granite Conservation and Development Rules, 1999 the same will be submitted to the relevant authorities for subsequent clearance and approval.

5.4 EXTENT OF MECHANIZATION

The following machineries are utilized by the lessee for the development and production work at this quarry.

I. DRILLING MACHINE

Table - 14

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
1	Compressor	1	-	450/150 psi	Atlas Capco	Diesel Drive
2	Jack hammer	4	32	1.2m to 6m	Atlas Copco	Compressed air
3	Diesel Generator	1	-	125kva	Kirloskar	Diesel
4	Diamond Wire saw	2	-	20m ³ /day	Optima	Diesel Generator
5	Wagon Drill	1	30-35	60hp	Tamrock	Diesel drive

**II. LOADING EQUIPMENT**

Table - 15

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Hydraulic Crane	1	855	Tata P&H	Diesel Drive
2	Excavator	2	300	Tata Hitachi	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT

a)

Table - 16

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Tippers	2	20 tonns	Tata	Diesel Drive

b) Transport from the quarry head to destination

Transport from quarry head to destination is done by trucks or trailers.

c). Miscellaneous:

Apart from the above, the following tools and tackles are required for quarry operation.

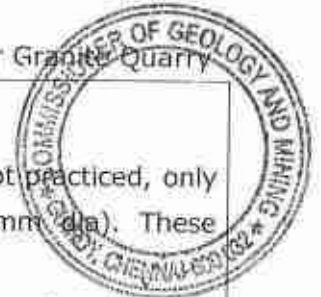
A. For operation

The operation of granite quarry requires the following loose tools material and have to be kept sufficiently in stock for non - interruption of the quarry work.

1. Drill rods - 0.5 m, 0.75m, 1.65m, 2.25m, 3m, 5.5m, upto 9m.
2. Steel Alloy chains of sufficient length of 12mm, 16mm, 18mm, etc. sizes.
3. 'D' shackles to link the chain lengths.
4. Rubber hose of required length.
5. Hose clamps to link the compressor delivery hoses.
6. Feather and wedges of 6" and 12" dia sizes utilize for splitting the block from the mother rock. This is an important tool in the operation of a quarry.
7. Crow bars.
8. Spades.
9. Sludge Hammer
10. Iron Pans
11. Pitcher Hammer
12. Chisels.
13. Consumables, such as diesel, Hydraulic oil, grease, abrasive wheels, welding machines etc.
14. Stock of essential spare parts of machinery.
15. Explosive as per the licensed quantity
16. Besides diamond wire saw equipment with accessories are required to liberate the rock from to parent body rapidly with minimum damage.

Splitting the sheet rock by Diamond wire sawing which increases substantial recovery potential. Hence it is proposed to follow "Diamond wire saw cutting" for best recovery.

The above machineries are adequate to meet out the simultaneous development and production schedule drawn out in this scheme period.



6.0 BLASTING

a. Broad Blasting Parameters:

In general for granite quarrying primary (deep hole drill) blasting is not practiced, only secondary blasting is practiced coupled with jackhammer drilling (30-35mm dia). These blasting are carried out for splitting the blocks from parent sheet mass.

The granite industry needs blocks for about 3m x 2m x 2m for International buyers hence small blocks blasting pattern is not followed. The blasting pattern depends upon the texture of the rocks in the case of granite quarrying which in-turn depends upon the bedding plane, presence of fractures, fissures and cracks hence it is difficult to decide the definite particular pattern of holes in each blast.

Now-a-days Diamond wire saws are used for splitting the blocks from parent sheet mass. It is a new innovative Eco-friendly splitting technique without involving blasting. This is increase the recovery percentage of granite blocks and reduces from induce fissures due to blasting.

Hence, it is difficult to pronounce a definite pattern of holes with regard to spacing, burden and depth. Hence, only blasting is deployed for secondary fragmentation for handling the wastes and not for production.

b. Type and use of explosives

In granite quarries, only heaving effect is required and not the shattering effect. The aim is to recovery as large a block as possible.

Hence only low intense explosives like D-Cord and Gelatin sticks are used.

In granite quarrying it is very difficult to prescribe the charge/ hole as it depends upon the various factors like type of rock, texture, planes of weakness, required size of block, etc.

c) Storage of explosives:

Authorized explosive dealers supply the explosive at site as per the day's requirement. Hence question of storage of explosives does not arise at present.

However, the lessee has been advised to install one portable magazine of 'M' type at the earliest possible opportunity.

Splitting within the sheet rock is affected by diamond wire sawing which increases substantial recovery potential. Hence it is proposed to follow diamond wire saw cutting for better recovery of granite dimensional stone.

During future development of quarrying, removal of over burden will be done by blasting with explosives in small dia holes drilled by Jackhammer.

The explosive that will be used are D-Cord and Gelatin sticks that are indicated below.

D Cord - 5mg
Gelatin Sticks.

7.0 MINE DRAINAGE

The water table in this area is 58m as observed in nearby wells, which is observed with water level indicator. Working expected to well above the water table. If water is encountered at due to rain water seepage, the same will be drained out by 10HP motor pumps and the drained out water will be utilized for Green belt.



8.0 STACKING OF MINERAL WASTE AND DISPOSAL OF WASTE

a) Topsoil:

Topsoil generated during this scheme period will be around 2,325m³. The quarried out topsoil will be dumped all along the safety barrier and utilized for afforestation purpose.

b) Granite waste and Land chosen for disposal of waste:

Total waste produced during this scheme period will be around 86,763m³. The quarried out waste will be proposed to dump over the existing waste dump situated on the Eastern side with an area 5313m² x (H)27.91m.

c) Manner of disposal of waste:

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

The waste management plan with reference to the quantum of waste generated is shown in Quarry layout and Afforestation plan (Plate No.VI).

There is no slurry anticipated in this quarry operations and the granite waste does not produce any toxic effluent in the form of Solid, liquid or gas.

9.0 USE OF THE GRANITE STONE

The quarried out granite blocks are exported as raw blocks and also processed as value added products such as slabs, tiles, fancy items, Monuments, precision surface plates for engineering application.

The export market for Multi Colour Granite blocks are European Countries, North America, Middle East & Far East besides catering domestic demand.

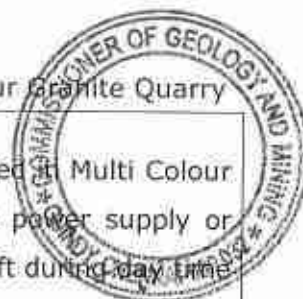
10.0 QUALITY CONTROL

The Multi Colour granite deposit occurring in this mine shows uniform quality throughout and hence mined and marketed as a single variety.

The excavated blocks will carefully examined for any natural defects such as joints, cracks, xenoliths growth etc and such defects is removed manually using feather and wedges and the blocks are then shaped into perfect rectangular dimensional stone blocks by chiseling. Different price for each quality material have been fixed and the entire production quantity is marketed accordingly.

11.0 SURFACE TRANSPORT

The mode of transport of the Multi Colour granite blocks produced and marketed is by road to various customer destinations and Multi Colour granite processing units located at different parts of the country. The Multi Colour granite blocks approved for export market are shipped from Thoothukudi Port to various countries and if required the blocks may be shifted to Chennai Port which depend upon the exporter's destination from time to time.



12.0 SITE SERVICES

The simple methods adopted and the limited scale of activities involved in Multi Colour granite dimensional stone quarrying does not require high-tension electric power supply or huge workshop facilities. The quarry operation is restricted to one general shift during day time only. Machinery repair works are attended at Gujiliamparai (8km-SE). Minor repairs can be rectified at the quarry site itself by the lessee's experienced personnel.

Packaged drinking water is available from the water vendors in Gujiliamparai town also potable water from the community wells can be transported to the work site through tanker placed on tippers. The quarry office, first-aid room, store room, rest shed, toilet etc., are already constructed as semi - permanent structures in the lessee's own patta land situated on the Western of the lease area (Plate No - III - VII).

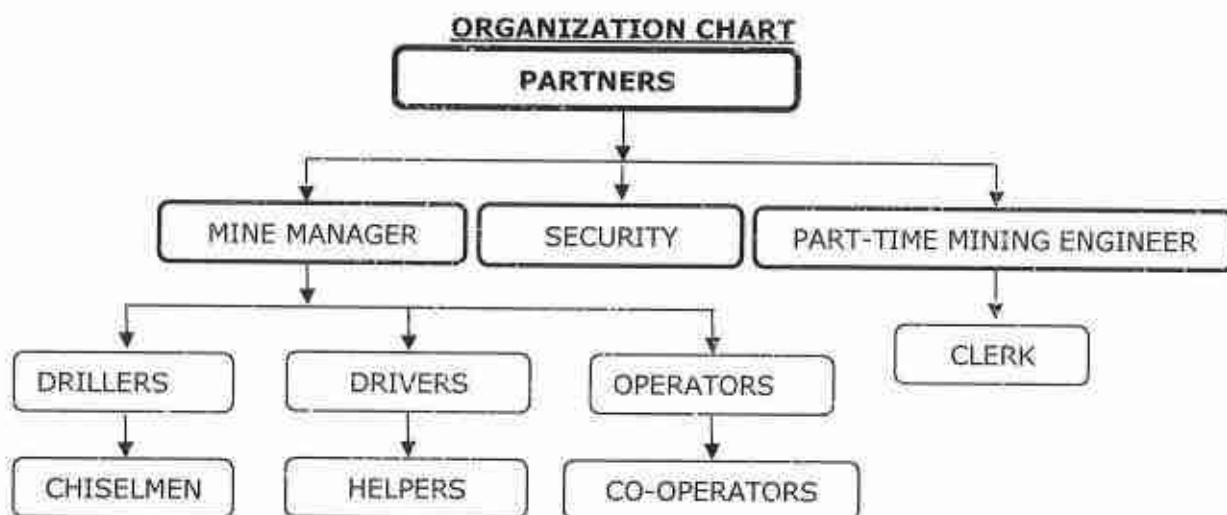
13.0 EMPLOYMENT POTENTIAL

The following manpower is proposed for the Multi Colour granite quarry to carry out the day-to-day Mining activities aimed at the proposed production target and also to comply with the statutory provisions of the Metalliferous Mines Regulations, 1961.

1.	Mines manager (with valid statutory qualification)	:	1
2.	Mines foreman (with valid statutory qualification)	:	1
3.	Machinery operators (Certified)	:	5

WORKERS:

a.	Skilled labour	:	5
b.	Semi-skilled	:	12
c.	Unskilled	:	8
	Total	:	32



The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the scheme of quarrying and also to comply with the statutory provisions of the Mines Safety Regulations.



14.0 ENVIRONMENTAL MANAGEMENT PLAN

14.1 BASELINE INFORMATION

The following observations are made for environmental management plan

I. EXISTING LAND USE PATTERNS:

The area exhibits flat terrain. The gradient is gentle towards Western side and altitude of the area is 220m above from MSL. It is a dry barren land and the area having rocky outcrops. Except quarry operation the land did not utilize any specific purpose. Agricultural activities are carried out by utilizing well water around the area (lift irrigation-seasonal vegetation is mostly practiced). The region experiences semi - humid climate and there is scanty growth of vegetation in and around the area.

Existing Land use pattern

Table - 17

Description	Present Area (Ha.)
Area under Quarry	1.09.27
Waste and Topsoil dump	0.71.46
Infrastructure	*Nil
Roads	0.02.00
Green Belt	Nil
Stocking Blocks	0.98.77
Grand Total	2.81.50

* Site services are already constructed in the lessee's own patta land situated on the Western side of the lease area (Refer Plate No. III).

II. WATER REGIME:

Ground water occurrence in this area is 58m depth below from the ground level. The quarry operation restricted well above the water table, hence the quarry operation will not be affected by the ground water in any manner. There is no major water body like lake, river or reservoir located within 50m radius of the area.

III. FLORA AND FAUNA:

The area contain mainly Paddy and rainfed crops are Maize, Groundnut, Onion and neem, Julia flora, Cocos nucifera trees and thorny bushes are observed around the area and Cow, goat, Rabbit, squirrel, Crow, snake, Dog faunas are found around the area. No plants of botanical interest or animals of zoological interest are recorded within 500m radius.

IV. CLIMATIC CONDITIONS:

The prevailing climatic condition experienced in the quarry lease hold, the area is semi arid with maximum temperature up to 42°C in summer and it drops down to 21°C during winter seasons. The area receives 985mm rainfall per annum.

**V. HUMAN SETTLEMENT:**

There is no approved habitation located within 300m radius of the area and few villages are located within 5km radius of the quarry lease area. The approximate distance, direction and population are given below.

Table - 18

S.No	Name of the Village	Direction	Approximate Distance	Approximate population
1.	Kottanatham	NE	4km	5,800
2.	Kollapatti	NW	3km	1,650
3.	Vellodu (R)	NW	5km	3,200
4.	Alambadi	SE	2km	5,350

Basic human welfare amenities such as health center, schools, communication facilities, commercial centers etc., are available at Gujliamparai located at 8km on the Southeast side of the lease area.

VI. PUBLIC BUILDINGS, MONUMENTS AND PLACES OF WORSHIPS:

There is no Public Building or Monument situated within 500m radius of the area.

Table - 19

Particulars	Location	Approximate aerial distance and direction from the lease area.
Nearest Post Office	Kollapatti	3km - NW
Nearest School	R. Vellodu	5km - NW
Nearest Dispensary	Gujliamparai	8km - SE
Nearest Police Station	Gujliamparai	8km - SE
Nearest Town	Gujliamparai	8km - SE
Nearest Hospital	Gujliamparai	8km - SE
Nearest D.S.P. Office	Aravakurichi	17km - NW
Nearest Railway Station	Palayam	8km -SE
Nearest Airport	Tiruchirapalli	71km - NE
Nearest Seaport	Thoothukudi	218km - South
District Head Quarters	Dindigul	42km - SW

VII. WEATHER THE AREA FALLS UNDER NOTIFIED AREA UNDER WATER ACT, 1974.

The area falls under notified area under water Act, 1974.

14.2 ENVIRONMENT IMPACT ASSESSMENT STATEMENT:

The Scheme of quarrying has proposed for a small production of Multi Colour granite dimensional stone without involving deep hole drilling and heavy blasting. Such limited Mining activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned.



Table - 20

S. No.	Salient Features at Presently bounded the quarry site	Prescribed safety distance	If any present within the prescribed limit, it's actual distance and direction from the site																							
1.	Railways, Highways, Tank, Lake, Odai, Canal, Stream, River and Reservoir	50m	None of the above features situated within 50m radius of the area.																							
2.	Village Road	10m	There is no village road located within 10m radius of the area.																							
3.	Habitation / Village/ Public Building/ Historical monument/ Archeological interest	300m	None of the above is located within 300m radius of the area (Refer Plate No. IA and VIII).																							
4.	Adjacent Land Patta/ Govt.	7.5m / 10m	<table border="1"> <thead> <tr> <th>Direction</th> <th>S.F.No.</th> <th>Classification</th> <th>Safety Distance</th> </tr> </thead> <tbody> <tr> <td rowspan="2">North</td> <td>926</td> <td>Govt. land</td> <td>10m</td> </tr> <tr> <td>912</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>East</td> <td>908, 910, 911/1A2 and 911/2</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>South</td> <td>911/1B2 and 913/2B</td> <td>Patta land</td> <td>7.5m</td> </tr> <tr> <td>West</td> <td>913/1A1(P) and 1B1(P)</td> <td>Patta land</td> <td>7.5m</td> </tr> </tbody> </table> <p>As per Condition No. 4 prescribed in the G.O. there is Limestone bearing area in S.F.No.913/1A1(P) and 913/1B1(P) situated on the Western side is 24 meters away from the lease area (Please Refer Plate No. II).</p>	Direction	S.F.No.	Classification	Safety Distance	North	926	Govt. land	10m	912	Patta land	7.5m	East	908, 910, 911/1A2 and 911/2	Patta land	7.5m	South	911/1B2 and 913/2B	Patta land	7.5m	West	913/1A1(P) and 1B1(P)	Patta land	7.5m
Direction	S.F.No.	Classification	Safety Distance																							
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East	908, 910, 911/1A2 and 911/2	Patta land	7.5m																							
South	911/1B2 and 913/2B	Patta land	7.5m																							
West	913/1A1(P) and 1B1(P)	Patta land	7.5m																							
5.	Housing area, EB line (HT & LT Line)	50m	There is no EB (LT, HT) line or Housing area located within 50m radius																							
6.	Boundaries of the permitted area	7.5m	North - S.F.Nos. 926 and 912 East - S.F.Nos. 908, 910, 911/1A2 and 911/2 South - S.F.Nos. 911/1B2 and 913/2B West - S.F.Nos. 913/1A1(P) and 913/1B1(P) (Please refer Plate No. II).																							
7.	Reserve forest	60m	There is no Reserved Forest located within 60m radius of the area (Refer Plate No. IA).																							
8.	Protected area / ECO sensitive area/State or International border	10Km	There is no Wildlife sanctuary/ Eco-Sensitive zone/ Critically polluted area/ HACA/ CRZ, State border located within 10km radius of the area (Please refer Plate No. IA).																							

The Financial Estimation for Quarry operations and Environment Management Plan (EMP).

Table - 21

A. Operational Cost		
S.No.	Description	Approximate Cost (Rs.)
1.	Land Cost (As per Govt. Guideline value at present) 2.81.5Ha x Rs. 1,66,000/Ha. = Rs. 4,67,290/-	4,68,000
2.	Labour Shed (Already Constructed)	2,50,000
3.	Sanitary Facility (Already Constructed)	80,000
4.	First aid Room and Accessories	50,000
5.	Excavator (2 Nos.)	1,12,00,000
6.	Crawler Crane (1 No.)	75,00,000
7.	Wagon Drill Machine (1 No.)	50,00,000
8.	Diesel Generator (1 No.)	7,50,000
9.	Tipper (2 Nos.)	50,00,000
10.	Wire Saw (1 No.)	4,00,000
11.	Compressor with loose tools (1 No.)	7,50,000
12.	Jack Hammer (4 Nos.)	2,00,000
13.	Drinking Water Facility	1,00,000
14.	Safety Kits	50,000
15.	Fencing Cost (780m length x Rs. 300/- per meter)	2,34,000
16.	Garland drain (660m length x Rs. 300/- per meter)	1,98,000
17.	Green belt development under safety zone during this scheme period (200m sapling x Rs. 200/- per sapling)	40,000
18.	Water sprinkling	1,00,000
Total Machineries for Operational Cost		3,23,70,000

B. Proposed financial estimate / budget for (EMP) Environmental Management Plan:

Budget Provision for this Scheme period

S. No.	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year	Total Charges For this scheme period
1	Ambient air quality monitoring	6500	4	26000	52000	2,60,000
2	Noise level monitoring	250	4	1000	2000	10,000
3	Ground vibration monitoring	1000	2	2000	4000	20,000
4	Water sampling and analysis	9000	1	9000	18000	90,000
Total EMP Cost/ year					76,000	3,80,000

The EMP cost for this scheme period would be around **Rs. 3,80,000/-**



Total Cost of the Project including EMP Cost	
Description	Amount (Rs.)
A. Operational Cost	3,23,70,000
B. EMP Cost	3,80,000
Total Project Cost (A+B)	3,27,50,000
C. The lessee Indents to involve Corporate Environment Responsibilities (CER) activity like Water purifier, Renovation of Class room, Plantation in School Campus, Additional Sanitary facilities to the R.Vellodu Govt. School at 2.0% from the total project cost. The cost would be around Rs. 6,55,000/-.	6,55,000
Total Cost (A+B+C)	3,34,05,000

The total project cost would be around three crore thirty four lakh and five thousand only.

14.3 PROPOSAL FOR WASTE MANAGEMENT

The waste in the quarry includes rock fragments, rubbles generated as waste during production work.

Total waste produced during this scheme period will be around 86,763m³. The quarried out waste will be proposed to dump over the existing waste dump situated on the Eastern side with an area 5,313m² × (H)27.91m. The waste management plan with reference to the quantum of waste generated is shown in quarry layout and afforestation plan (Plate No. VI).

14.4 PROPOSAL FOR RECLAMATION OF LAND AFFECTED BY MINING ACTIVITIES DURING & AT THE END OF MINING

Due to nature of occurrence of Multi Colour granite, the depth persistence of the granite body in this quarry is beyond the workable limits. In the proposed scheme of quarrying only 28m depth has been envisaged as workable depth for safe & economic quarrying. After expiry of the lease period, if the mineral reserves available and Market persist, the lessee may apply a renewal of quarry lease as to develop and conserve mineral reserves. If permission is granted for removal of waste, the waste material will be supplied to the needy crusher for convert to the M-Sand, building and road construction material after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. After completion of quarry operation if permission obtained for disposal of waste the quarried out pit will be allowed to collect seepage and rain water which will act as a temporary reservoir, if permission not obtained for disposal of waste from the concerned authority, the quarried out waste will be backfilled nearly existing ground profile and spread out the preserved topsoil also tree saplings carried out in the backfilled area (Refer plate No. IX).



14.5 PHASED PROGRAMME OF PLANTING TREES

The safety distance along the North and Eastern side lease boundary has to be utilized for subsequent Afforestation. Appropriate species of trees will be planted in a phased manner as described below.

Table – 22

Year	No. of trees proposed to be planted	Area to be covered in m ²	Name of the species to be plant	Survival rate expected in %	No. of trees expected to be grown
2023-24	40	321	Neem, Casuarina, Pongamia pinnata, Thespesia populnea etc., trees	80	32
2024-25	40	321		80	32
2025-26	40	321		80	32
2026-27	40	321		80	32
2027-28	40	321		80	32

Nearly 1,605m² area is proposed for afforestation by planting 200 Nos. of tree saplings during this scheme period and expected growth is around 160 Nos. of trees at a survival rate of 80%. The afforestation plan is shown in Plate No.VI.

14.6 MEASURES FOR DUST SUPPRESSION:

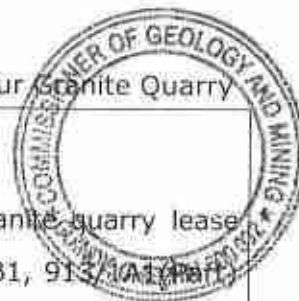
As the Multi Colour granite stones are mined as undamaged dimensional stones without involving deep hole drilling and heavy blasting, fragmentation and generation of lumps, fines or dust is very limited. This quantum of Mining activity will not cause the dust detrimental to the health of the persons employed. Nevertheless, water will be sprinkle for the suppression air borne dust from mine approach roads, waste dumps on regular intervals using water tankers. Drilling of blast holes of 32mm diameter will be always under wet conditions to prevent flying of dusts. In the unloading points, water will be sprinkle through tippers to suppress dust. The drillers are provided with respirators in accordance with the Mines Safety Regulations.

14.7 MEASURES TO MINIMIZE GROUND VIBRATION DUE TO BLASTING AND CHECK NOISE POLLUTION

Shallow holes of 32mm diameter to be drilled and conventional low explosives such as D-Cord and Gelatin Sticks will be used for removal of over burden. Hence, ground vibration and noise pollution will be minimal and restricted with the quarry workings. The blasting will be taking up at appointed timing and with sufficient caution to the public under the advice of qualified and competent personnel. The noise produced by diamond wire saw cutting will be negligible.

14.8 STABILIZATION AND VEGETATION OF DUMPS

As the waste generation in the mine includes hard rock fragments of considerable size and irregular shape with varying angularity, the temporary waste dump will be stable on its own even at higher slopes of the sides. However, excavated topsoil will be spread out over and sides of the waste dump and planting trees for increasing the stability of the waste dumps also to prevent erosion during rainy season.



15.0 PROGRESSIVE QUARRY CLOSURE PLAN

15.1 Introduction

The Progressive Quarry Closure Plan for Alambadi Multi Colour Granite quarry lease over an extent 2.81.5 hectares of Patta lands in S.F.Nos. 911/1A1, 911/1B1, 913/1A1(Part) and 913/1B1(Part) of Alambadi Village, Gujiliamparai (Formerly Vedasandur) Taluk, Dindigul District, Tamil Nadu State has been prepared for **M/s. S G Granites**, having an office at No.3, East 2nd Street, Behind ICICI Bank, K.K. Nagar, Madurai District, Tamil Nadu state - 625 020.

15.2 Present Land use pattern:

Land Use Table - 23

Description	Present area in (Ha)
Area under Quarry	1.09.27
Dumps	0.71.46
Infrastructure	*Nil
Roads	0.02.00
Green Belt	Nil
Stocking Blocks	0.98.77
Grand Total	2.81.50

* Site services are already constructed in the lessee's own patta land situated on the Western side of the lease area (Refer Plate No. III).

15.3 Mineral Processing Operations:

The quarried out Rough granite blocks are marketed by road to various customer destinations and granite processing units located at different parts of the country. The Multi Colour Granite blocks approved for export market are shipped from Thoothukudi Port to various countries and if required the blocks may be shifted from Chennai Port which depend upon the exporter's destination from time to time. No Mineral processing is involved within the quarry lease area.

15.4 Reasons for closure:

The mineral is not going to be exhausted during the proposed scheme period hence, immediate closure is not planned due to sufficient reserves are available for the entire life of quarry. After expiry of the lease period if the mineral reserves available and Market persist, the lessee may apply a renewal of quarry lease as to develop and conserve mineral reserves. Hence, the reason for closure will be discussed in Final Mine Closure Plan.

15.5 Statutory obligations:

All the conditions stipulated in the G.O. and lease deed was fulfilled and maintained during the course of quarry operations.

**15.6 Progressive quarry closure plan preparation:**

Name and address of the Qualified Person who prepared the progressive closure plan and name and address of the executing agency who is involved in the Preparation of progressive quarry closure plan.

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

Qualified Person

No.17, Advaita Ashram Road,

Alagapuram, Salem-636 004.

Cell: +91 94433 56539, 94422 78601

The lessee will himself implement the closure plan; no outside agency will be involved.

15.7 Review of Implementation of Mining Plan including Progressive Closure Plan upto the Final Closure Plan:

In the approved Mining plan is discussed for Reclamation and Rehabilitation will be carried out only when the working area reaches its ultimate pit limit or at the end of life of quarry. The Multi Colour granite mineral reserves are available for the entire life of quarry. The entire quarry working area is an active, so the lessee has not taken any action for progressive quarry closure. Hence, review of implementation of progressive quarry closure does not arise at present. However, if any work done for progressive quarry closure plan during this scheme period, it will be discuss an ensuing scheme or in Final mine closure plan.

15.8 Closure Plan:**(i) Mined Out Land:**

At the end of this scheme period the quarry operation to be carried out only 1.52.53Ha out of 2.23.70Ha of total Mineable area. When the remaining reserves will be completely exhausted, the mine closure plan will be prepared and submitted to the competent authority to obtain approval and the same will be implemented. The quarry area will be fenced with barbed wire/metal sheet fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle.

Land use pattern

Table - 24

Description	Present Area (Ha.)	Area required during this Scheme period(ha)	Area at the end of life of quarry (ha)
Area under Quarry	1.09.27	0.43.26	2.23.70
Waste dump	0.71.46	0.19.07	#Backfilled
Infrastructure	*Nil	*Nil	*Nil
Roads	0.02.00	0.01.00	0.03.00
Green Belt	Nil	Nil @ (0.16.05)	0.50.80
Stocking Blocks	0.98.77	0.35.44	0.04.00
Total	2.81.50	0.98.77	2.81.50

* Infrastructures are already constructed in the lessee's own patta land situated on the Western side of the lease area (Refer plate Nos. III to VII).

@ During the present scheme period Green Belt is proposed to carried out (0.16.05Ha) over the existing Topsoil dump, hence area utilization has calculated in the waste dump area.

If permission is granted for disposal of waste from the State Government, the quarried out topsoil and Weathered materials will be utilized for backfilling. If permission not obtained for disposal of waste, backfilling will be carried out with waste and spread out the preserved topsoil to facilitate afforestation in the backfilled area.



(ii) Water quality management:

Following control measures will be adopted for controlling water pollution:-

- Garland drain will be Constructed around the quarry area to prevent surface run off rain water entering to the pit.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of quarry pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

(iii) Air Quality Management:

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. All personnel protective equipment like Nose-mask, earplug/ muffs will be provided to the Workers. For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

(iv) Top Soil and Waste Management:

There is 2,325m³ of topsoil will be generated during this scheme period, the same will be preserved all along the safety barrier and utilized for construction of bund and afforestation purpose.

During this scheme period, excavated waste (86,763m³) will be proposed to dump over the existing waste dump situated on the Eastern side with an area 5,313m² x (H)27.91m, which will act as temporary waste dump.

If permission is granted for removal of waste (Existing Granite Waste and proposed Granite waste for remaining lease period) from concerned authorities, the waste material will be supplied to the needy crusher for convert to the M-Sand, building and road construction material after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. After obtained permission for disposal of waste, the remaining unsold overburden (Topsoil and weathered rock) only utilized for backfilling. When the entire mineral reserves will be completely exhausted if permission obtained for disposal of waste the quarried out pit will be allowed to collect seepage and rain water which will act as a temporary reservoir, if permission not obtained for handling of waste from the concerned authority, backfilling (Granite Waste and weathered rock) will be carried out nearly existing ground profile and spread out the preserved topsoil to facilitate afforestation in the backfilled area.

(v) Disposal of mining machinery:

All the Machineries are purchased by fresh condition and the same has been maintained in good condition during entire life of quarry. After completion of quarry operation all machineries will be utilized in another quarry area or sold out to the second hand. Hence, disposal or decommissioning of mining machinery does not arise.

**(vi) Safety & Security:**

Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 5.0m.
- Width of working bench will be kept about 5.0m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the working personnel.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries. Sufficient caution and sign boards will be kept in and around the quarry to induct public for awareness.
- Blasting will be carried out in a specific time after giving sufficient caution to the public such as danger signs shall be displayed near the excavations and siren alarm signal will be provide before small amount of blasting time for precautionary action of accident. (blasting is carried out only for secondary fragments and not to liberate the Granite body from the parent rock mass).
- Security guards will be posted to prevent inadvertent entry of public.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

(vii) Disaster Management and Risk Assessment:

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of Company to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.



(viii) Care and Maintenance during Temporary Discontinuance:

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

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent an inadvertent entry to the lease area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:

Quarry roads and approach roads,

Fencing on approach roads,

Checking and maintenance of machines and equipment,

Drinking water arrangements,

Mine office, first aid stations etc.

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

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

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

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

**(x) Time Scheduling For Abandonment:**

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

(xi) Abandonment Cost:

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

Table - 25

ACTIVITY	YEAR					RATE	AMOUNT (Rs.)	
	2023-24	2024-25	2025-26	2026-27	2027-28			
Plantation (In Nos.)	40	40	40	40	40	@200 Rs	40,000/-	
Plantation (Safety zone) Cost	8,000	8,000	8,000	8,000	8,000	Per sapling		
Barbed wire fencing (In Mtrs) 780 Mtrs	2,34,000	-	-	-	-	@300 Rs Per Meter	2,34,000/-	
Garland drain (In Mtrs) 660 Mtrs	1,98,000	-	-	-	-	@300 Rs Per Meter	1,98,000/-	
TOTAL								4,72,000/-

16.0 MINERAL CONSERVATION AND DEVELOPMENT

The scheme of quarrying proposed has fully covered the aspects of granite conservation and Development Rules, 1999 with a future plan to extend the proposed working of the quarry to the maximum possible workable depth of the deposit. Extreme care is taken to ensure proper supervision of quality control of the granite dimensional stone aimed at the recovery of the maximum saleable quality and quantity of Multi Colour granite dimensional stones suitable for full utilization of the consumers.

Care is been taken for each process just to safeguard the material quarried in an economical and efficient manner by adopting systematic and scientific quarrying with consultation and supervision of well experienced quarry persons.

**17.0 STATUTORY PROVISIONS**

The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied with, so that the safety of the mine, machinery and person will be ensured. Permission, relaxation or exemption wherever required for the safe and scientific Mining of the deposit will be obtained from the Department of Mines Safety, Chennai. 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 existing environmental clearance is extended throughout 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.

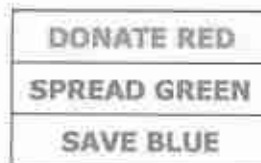
Certified that this Scheme of Mining has been prepared in accordance with the Mines Act, Rules & Regulations and orders made there under and in conformity with the provisions sub rule (13) of Rule 19A of Tamilnadu Minor Mineral Concession Rules, 1959 and Rule 12, 13 &16 of Granite Conservation and Development rules June 1999.


Prepared By

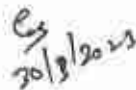

Dr. P. THANGARAJU, M.Sc., Ph.D.
Qualified Person

Place: Salem

Date: 28.10.2022




COMMISSIONER,
GEOLOGY AND MINING,
GUINDY, CHENNAI-600 032.


e
30/3/2023

This Scheme of Mining Plan is approved
Subject to the Conditions / Stipulation Indicated
in the Scheme of Mining Plan Approval
Letter No. /1866/MM2/2023 Dated: 30.3-2023

**ABSTRACT**

Mines and Quarries – Minor Mineral – Multi Colour Granite – Dindigul District, Vedasandur Taluk, Alambadi Village over an extent of 2.81.5 hecets in patta land in S.F. Nos. 911/1A1(0.74.0 hecets), 911/1B1 (0.99.0 hecets), 913/1A1(P) (0.61.5 hecets) and 913/1B1 (P) (0.47.0 hecets) – Quarry Lease Application of Tvl. SG Granites – Grant of quarry lease - Sanctioned – Orders – Issued.

Industries (MMB.2) Department

G.O. (3D) No.6

Dated:19.02.2018

ஹெவிஎம்பி-மாரி 7

திருவள்ளூர் ஆண்டு 2049

Read:

1. From Tvl. SG Granites Quarry Lease Applications dated: 03.04.2017, 09.05.2017 and 01.08.2017.
2. From the District Collector, Dindigul, Letter Roc.No.252/2017 (Mines), dated 21.10.2017.
3. From the Commissioner of Geology and Mining, Chennai, File No.8717/ MM2/2017, dated. 20.11.2017.
- 4) Government Letter No.15529/MMB.2/2017-1, Dated 23.11.2017.

Read also:

- 5) From the Commissioner of Geology and Mining Letter No.8717/MM2/2017, dated 06.12.2017.
- 6) From the Chairman, DEIAA/ District Collector, Dindigul, Lr.No.DEIAA /DGL/ EC No.063/2017, dated 29.01.2018.

ORDER:

In the reference first read above, Tvl. SG Granites have applied for grant of lease for quarrying Multi Colour Granite over an extent of 4.85.5 hectares of patta land in S.F.Nos.911/1A1 (0.74.0 hecets), 911/1B1 (0.99.0 hecets), 913/1A1(P) (1.12.0 hecets), 913/1B1 (P) (1.00.0 hecets) and 924 (1.00.5 hecets) in Alambadi Village, Vedasandur Taluk, Dindigul District for a period of 20 years under rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

2.In the reference second and third read above, the District Collector, Dindigul and the Commissioner of Geology and Mining have deleted an extent of 1.00.5 hectares in S.F.No.924 for the reason that it is very nearer to limestone band in S.F.No.926 (Poramboku land). Though the limestone deposit found to occur in S.F.Nos.913/1A1 (P) and 913/1B1(P), an extent of 0.50.5 hectares in S.F.No. 913/1A1 (P) and an extent of 0.53.0 in S.F.No. 913/1B1 (P) have been excluded from the total extent applied area in the lease. Finally, the District Collector, Dindigul and the Commissioner of Geology and Mining have



- 4) Safety distance of 15 meters has to be allowed and maintained to the Limestone bearing area in SF.Nos. 913/1A1(P) and 913/1B1(P).
- 5) Quarry operation shall be done as in the demarcated area of the FMB sketches (over an extent of 2.81.5 hecets)
- 6) The applicant should fence the lease granted area with barbed wire before the execution of lease deed.
- 7) As per rule 12(v) of Mineral (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules 2016, the lessee shall at his own expense, erect, maintain and keep in repair all boundary pillars.
- 8) The applicant shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly shown the Mining Plan and submit in CD/DVD form to the Assistant Director (Mines), Dindigul.
- 9) The lessee shall strictly adhere to the statutory and safety requirements.
- 10) 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.
- 11) The lease grantee shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
- 12) The District Collector, Dindigul shall obtain a sworn-in-affidavit from the appellant containing the above conditions before execution of lease deed and also ensure that they are complied with. Further, the lessee / firm will furnish a declaration in the lease deed agreement as per the Government Letter No. 12789/MMB.2/ 2002-7, Dated 9.1.2003 stating that the lessee / firm will mine only in the lease hold area and will not undertake any quarrying activity in the adjoining poramboke land. Further, the lessee / firm will fence the lease hold area separating it from the adjoining poramboke land. If any illegal mining is undertaken, the lessee / firm will be held responsible for those activities and will be subjected to the action taken by the Government in this regard.

Annexure



G.O (3D) No. 6, Industries (MMB.2) Department, Dated: 19.02.2018

1. The applicant shall execute an agreement within one month from the date of receipt of the Government order.
2. The date of commencement of the period of lease shall be the date on which the agreement is executed.
3. The applicant shall pay seigniorage or dead rent whichever is more in respect of the actual quantity of granite removed at the rate prescribed from time to time in Appendix-II of the Tamil Nadu Minor Mineral Concession Rules, 1959.
4. The applicant should keep correct accounts showing the quantities and other particulars of all minerals obtained from the lands permitted to quarry.
5. The applicant should also allow any officer authorized by the District Collector or any other officer authorized by the State Government in this behalf to inspect the area and verify records and accounts and furnish such information under the terms as may be required by them.
6. The applicant shall carry out the quarrying operations in skilful, scientific systematic manner keeping in view, the proper safety of the labour conservation of minerals and preservation of environment ecology.
7. The applicant shall allow any officer authorized by the District Collector and Director of Geology and Mining to enter upon the area and inspect for the purpose mentioned in conditions 4 and 6 above and also carry out the directions issued to the satisfaction of the above said authorities.
8. No quarrying activities connected there to shall be done before the execution of the agreement and registration is at the cost of the applicant.
9. No hindrance shall be caused to the adjoining pattadars or public.
10. The applicant should restrict his mining operation strictly within the permitted area as defined in the sketch.
11. The terms and conditions are also subject to such further modifications, deletion and additions alternation as may be ordered by the Government to be included in the agreement to be executed for this purpose.
12. The applicant should maintain at his cost proper signboards indicating the survey numbers, years of the lease, name of the lease holder and the lease period to the satisfaction of the District Collector, Director of Geology and Mining and maintain it all time at the quarry site.

Document No. 401 of 20 18 of Sack
 Contains 46 Sheets 37 Slides.
 Registering Officer

37 17/12/2018



10. மதுரை

கிராமம்

எண். 3

பெயர். சி. சி. சி.

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ம.ப.

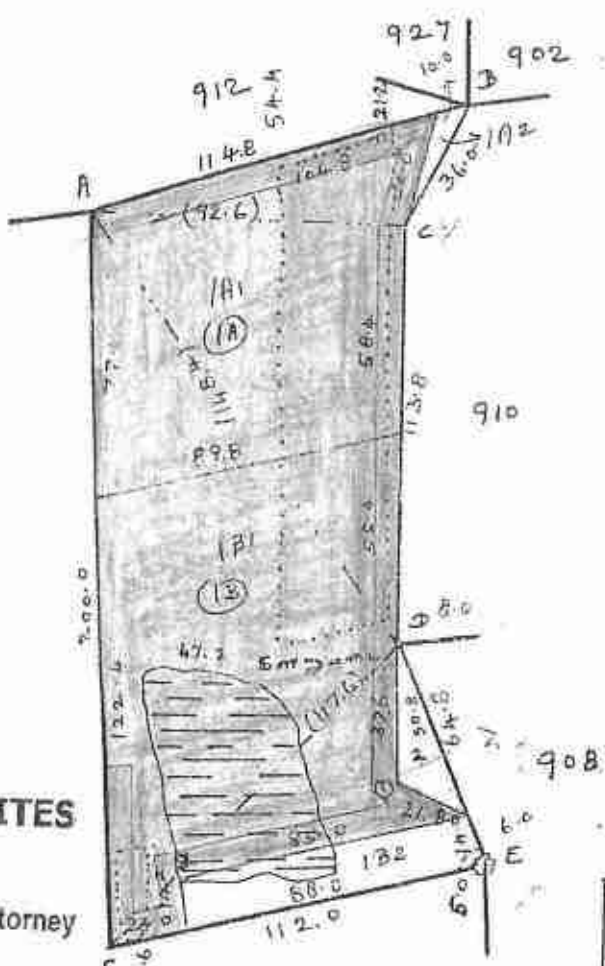
505

சென்னை

புது எண். 911

பரப்பு: சென்னை

- கனரி சிவந்தி மதுரை மதுரை
- 7.5 லட்சம் மதுரை மதுரை



DISTRICT COLLECTOR
 DINDIGUL.

ASSISTANT DIRECTOR
 GEOLOGY AND MINING
 DINDIGUL.

For S G GRANITES

Specific Power of Attorney

913

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 (1176)
 282 - 1.0 2
 F

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	(648)	
1	29.8	
	E	
	A	
	(2000)	
	83.4	51.4
	74.4	11.6
	72.4	47.2
	26.2	13.6
	26.2	3.6
	F	
	(1120)	
	85.6	12.8
	41.2	5.6
	E	

B	
36	
9.6	10
9.6	42
10	43
5.0	12
A	

New-sub-division 1A1, 1B2
 1B1, 1B2 Pledged LEASE AREA
 TK SA No. 419/1410 dt-10.3.2010
 C. Palaniappan
 24.3.10
 DEPUTY SURVEYOR

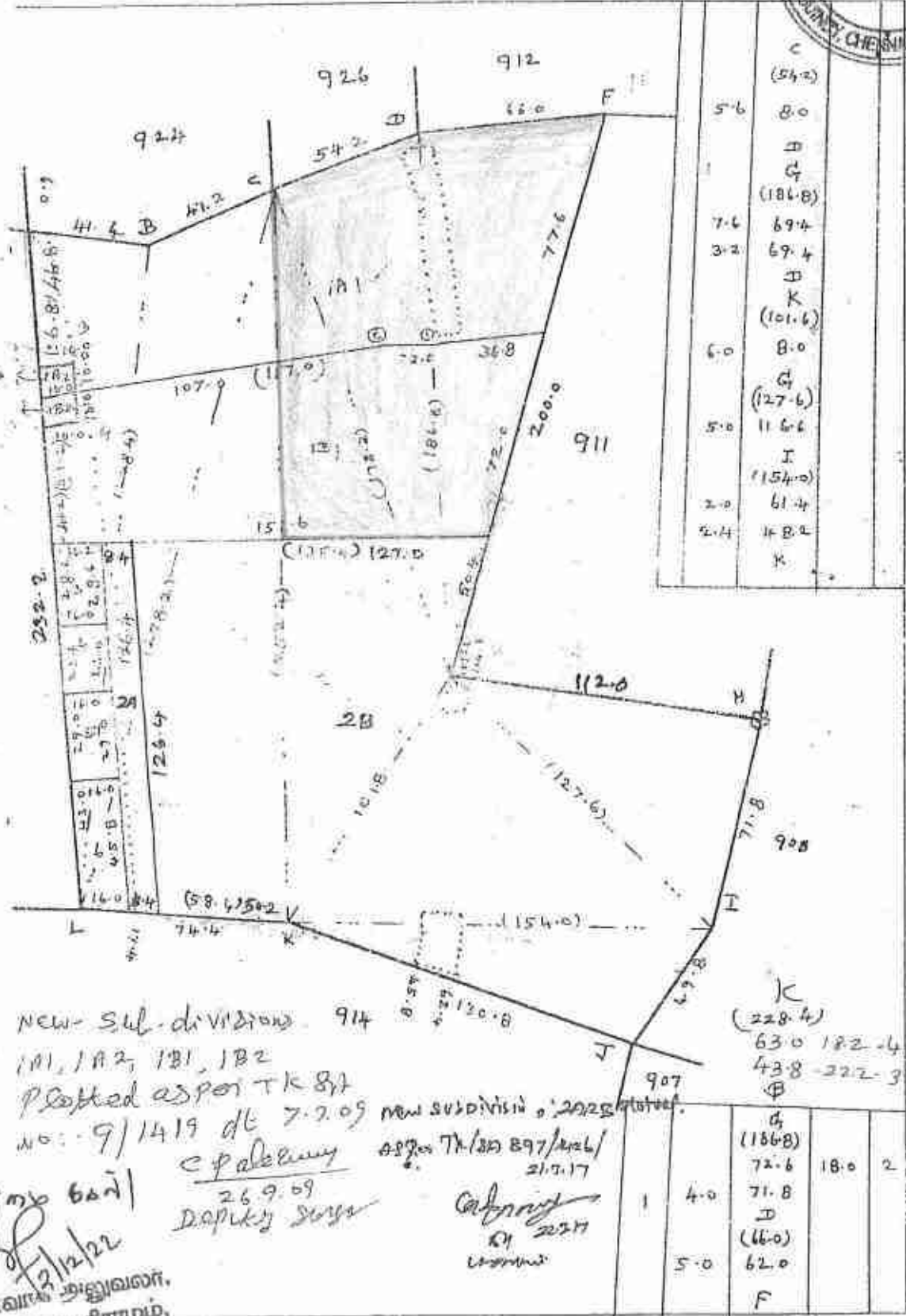
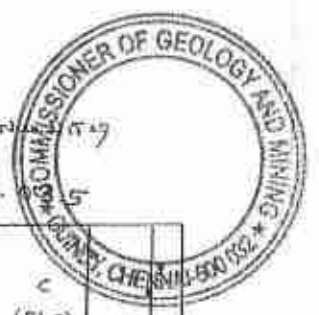
TAHSILDAR
 Veda sandur

SPECIAL DEPUTY TAHSILDAR
 GEOLOGY AND MINING
 DINDIGUL

சென்னை மதுரை
 கிராமம்
 சிவந்தி மதுரை

சென்னை
 வெள்ளக்குளம்
 பரப்பு: 913

சிராமம் {
 எண்: 3
 பெயர்: வெள்ளக்குளம்
 பரப்பு: 5 ஏ. 5



New sub-division 914
 1A1, 1A2, 1B1, 1B2
 Pledged as per TK 87
 No: 9/1419 dt 7.7.09
 New sub-division 2022
 as per TK/30 B97/426/
 21.7.17

சிராம நிர்வாக அலுவலர்,
 03-ஆண்டிப்பாடி சிராமம்,
 கன்னியாகுமரி வட்டம்
 12/12/22
 11.07.21

சாட்சிகள்
 26.9.09
 சாட்சிகள்
 22.11

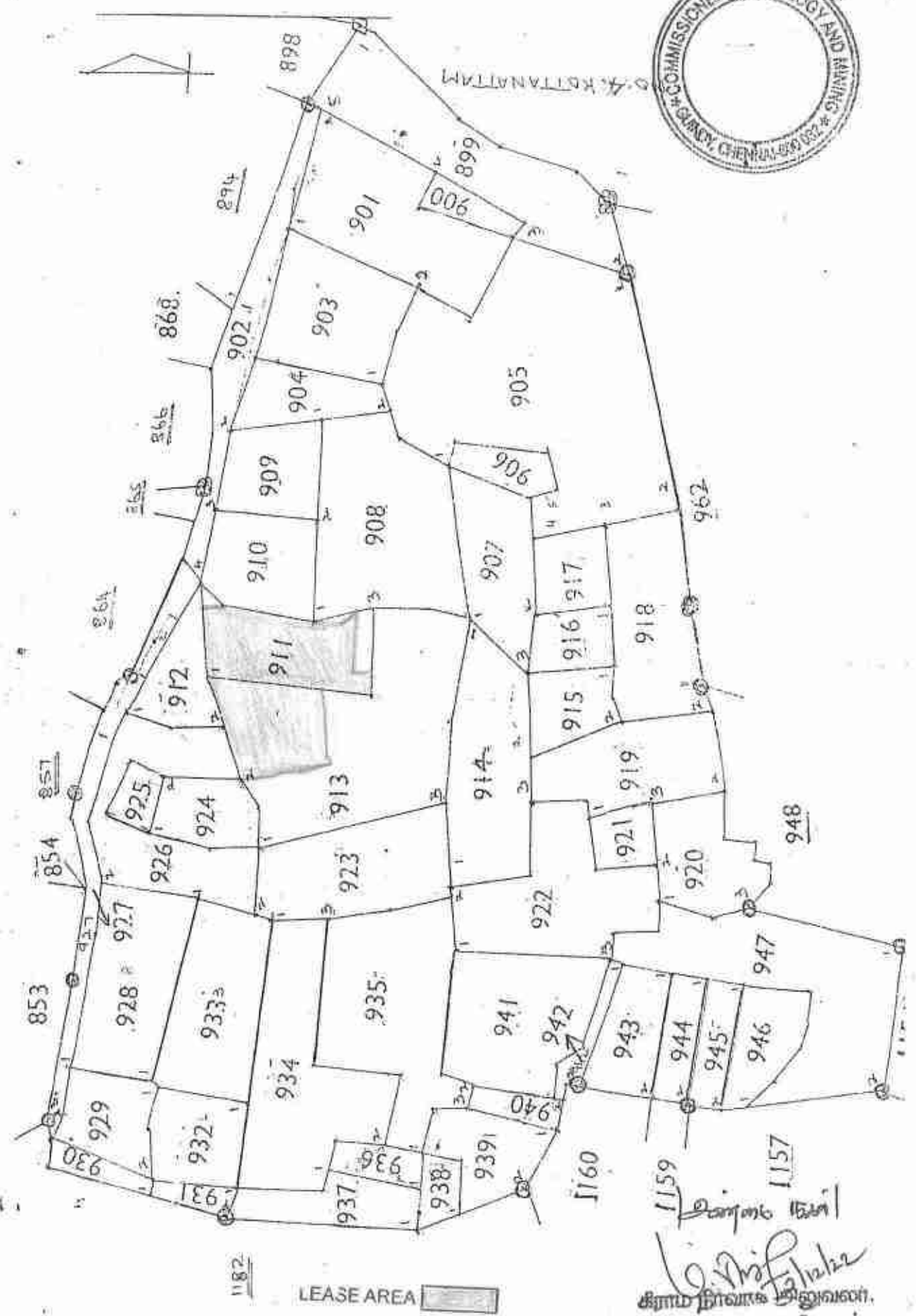
அளவு: 1:2500 1/16

சரிபார்த்தவர்
 சி. ப. சண்முகம்
 17.1

LEASE AREA

மாவட்டம்—திண்டுக்கல்
வட்டம்—வேடசந்தூர்
கண்டம் எண் : 25

எண் : 3
கிராமம்
பெயர் : ஆலம்பாடி
புல எண்



சுமார் 1157
சுமார் 1159
சுமார் 1160
சுமார் 1157
சுமார் 1159
சுமார் 1160
சுமார் 1157

வட்டாட்சியர் அலுவலக இணைய சேவை - நில உ...

<https://eservices.tn.gov.in/eservicesnew/land/landuse/geo/landuse.html?lan=ta>

நாடுமுதல அரக

வருவாய்த் துறை

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

மாவட்டம் : திண்டிவக்கல்

மாவட்டம் : குஜிவிமம்பாளையம்

வருவாய் கிராமம் : ஆலம்பாடி

மட்டா எண் : 2811

உரிமையாளர்கள் பெயர்

1. சாதிநதிகள் மகள் சதீஸ் எஸ்ஸி சிர்ணைக்கரசு

புல எண்	உட்பிரிவு	புளசெய		நுளசெய		மற்றவை		குறிப்புக்கள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - எர்	ரூ - பை	ஹெக்ட - எர்	ரூ - பை	ஹெக்ட - எர்	ரூ - பை	
911	1A1	0 - 76.00	1.59	--	--	--	--	2017/0103 /13/021539--419 -- 30-03-2017
911	1B1	0 - 99.00	2.14	--	--	--	--	2017/0103 /13/021539--419 -- 30-03-2017
912	1B	0 - 35.00	0.74	--	--	--	--	2017/0103 /13/021539--2017/13/23 /000009SD -- 30-03-2017
912	2	0 - 66.50	1.43	--	--	--	--	2017/0103 /13/021539--419 -- 30-03-2017
913	1A1	1 - 12.00	2.40	--	--	--	--	2017/0103 /13/021539--RTR1833/09 -- 30-03-2017
913	1B1	1 - 0.0	2.15	--	--	--	--	2017/0103 /13/021539--RTR1883/09 -- 30-03-2017
913	2B	2 - 58.00	5.56	--	--	--	--	2017/0103 /13/021539--2017/13/23 /000008SD -- 30-03-2017
924	-	1 - 0.50	2.16	--	--	--	--	2017/0103/13/021539-- -- 30-03-2017
925	1	0 - 11.50	0.25	--	--	--	--	2017/0103/13/021539-- -- 30-03-2017
925	2	0 - 11.50	0.24	--	--	--	--	2017/0103/13/021539-- -- 30-03-2017
925	3	0 - 11.00	0.24	--	--	--	--	2017/0103/13/021539-- -- 30-03-2017
		8 - 79.00	18.90					



குறிப்பு 2 :	
	1. மேற்கண்ட தகவல் / சமன்றிதழ் நகல் விவரங்கள் மின் பதிலேட்டினிக்குப் பெறப்படும். இவற்றை தாயகம் https://eservices.tn.gov.in என்ற இணைய தளத்தில் 13/24/003/02811/150352 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
	2. இந் தகவல்கள் 28-02-2023 அன்று 02:04:46 PM நேரத்தில் அச்சடிக்கப்பட்டது.
	3. டைப் பேசி கோரலின் 2D barcode படப்பாள் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.

2/8/23, 1:46 PM

ஹட்டாட்சியர் அலுவலக இணைய சேவை - அ-பதிவேடு விவரங்களை பார்வையிட
அ-பதிவேடு விவரங்கள்

மாவட்டம் : திண்டுக்கல்
வட்டம் : குஜினியம்பாளையம்
விராமம் : ஆவல்பாடி



1. புல சண்	911	9. மண் வயலும் சமூகம்	8 - 2
2. உட்பிரிவு எண்	1A1	10. மண் தரம்	5
3. பண்டிய புல உட்பிரிவு எண்	911-1A	11. தீர்வை (ரூ - செற)	2.15
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - சர்)	0 - 74.00
5. அரசு / மயத்துவாரி	மயத்துவாரி	13. மொத்த தீர்வை (ரூ - ஸ்ப)	1.59
6. நிலத்தின் வகை	புஞ்சை	14. டீ.டா. எண்	2811
7. பரண அதாரம்	-	15. குறிப்பு	-
8. இறு போகமா	0	16. பெயர்	1.சதீஸ் எஸ்ஜி கிரண்டக்கா

குறிப்பு 1:



1

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள்
<http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 220353 என்ற குறிப்பு எண்ணை உள்ளே செய்து உறுதி செய்துகொள்ளவும்.

அபிவிருத்தி விவரங்கள்

மாவட்டம் : திண்டுக்கல்
வட்டம் : குழிவியம்பாளையம்
கிராமம் : ஆலம்பாடி



1. புல எண்	911	9. மண் வயலகம் ரகரம்	8-2
2. உட்பிரிவு எண்	1B1	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	911-1B	11. நீர்வை (கு - கெ)	2.15
4. பகுதி	P	12. பரப்பு (கூடுகடவு - ஏ)	0 - 99.00
5. கிரக / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த நீர்வை (கு - கெ)	2.14
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	2B11
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.சூழல் எஸ்ஜி கிரண்டக்காச

குறிப்பு 1:



1.

கேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை உறுதிப்படுத்த <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 220352 என்ற குறிப்பு எண்ணை உள்நுழைத்து உறுதி செய்துகொள்ளவும்.

வட்டாட்சியர் அலுவலக இணைய சேவை - அ-பதிவேடு விவரங்களை பார்வையிட
அ-பதிவேடு விவரங்கள்



மாவட்டம் : திண்டுக்கல்
வட்டம் : குழிநியம்பாளையம்
கிராமம் : ஆலம்பாடி

1. புல வகை	913	9. மண் வயங்கலம் நகரம்	8 - 2
2. உட்பிரிவு எண்	1A1	10. மண் நகரம்	5
3. பண்டிய புல உட்பிரிவு எண்	913-1A	11. தீர்வை (சூ - செற)	2.15
4. பந்தி	P	12. பண்டி (செறக்கெட்டி - ஏரி)	1 - 12.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (சூ - ஸ்ப)	2.40
6. நிலத்தின் வகை	பஞ்சை	14. பட்டி எண்	2B11
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இறு மொத்தம்	0	16. பெயர்	1.சந்திரன் எஸ்ஸி தீர்வைக்காரர்

குறிப்பு 1:



1

மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மீள் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள்
<http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 220352 என்ற குறிப்பு எண்ணை உள்ளிட்டு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்

மாவட்டம் : திண்டுக்கல்
வட்டம் : குறிவிப்பாளை
பிராமம் : ஆலம்பாடி



1. புல எண்	913	9. மண் வடிவமைப்பு ரகம்	0 - 2
2. உட்பிரிவு எண்	101	10. மண் தரம்	5
3. பரைய புல உட்பிரிவு எண்	913-1B	11. நீர்வை (கு - வெற)	2.15
4. பகுதி	P	12. பரப்பு (வெறக்கடி) - ஏர்	1 - 0.0
5. அளவு / ரயத்தவாரி	ரயத்தவாரி	13. மொத்த நீர்வை (கு - பை)	2.15
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	2011
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இலா போகமா	0	16. பெயர்	1.சதீஸ் எஸ்.தி கிரகண்டக்கார

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் தரல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்களில்
<http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 220352 என்ற குறிப்பு எண்ணை உள்விட்டு செய்து உறுதி செய்துகொள்ளலாம்.

DEPARTMENT OF GEOLOGY AND MINING

From
Dr.R.Palaniswamy, I.A.S.,
Commissioner of Geology and Mining,
Industrial Estate,
Guindy, Chennai-600 032.

To
The Principal Secretary
to Government,
Industries Department,
Secretariat,
Chennai-600 009



Lr.No.8717/MM2/2017 dated 06.12.2017.

Sir,

Sub: Mines and Quarries – Dindigul District – Veda sandur Taluk, Alambadi Village – S.F.Nos. 911/1A1 (0.74.0 hecets.), 911/1B1 (0.99.0 hecets.), 913/1A1(P) (0.61.5 hecets.) and 913/1B1(P) (0.47.0 hecets.) – patta lands over an extent of 2.81.5 Hecets. – Multi-coloured Granite – Quarry Lease application preferred by M/s. SG Granites – Precise area communicated by the Government – Mining Plan submitted for approval – Regarding.

- Ref:
1. Applications of M/s.SG Granites, Madurai District dated 03.04.2017 and 09.05.2017.
 2. The District Collector, Dindigul letter Roc.No.252/2017 (Mines), dated 21.10.2017.
 3. Commissioner of Geology and Mining, Chennai, File No.8717/MM2/2017, dated 20.11.2017.
 4. Government Letter No.15529/MMB.2/2017-1, dated.23.11.2017.
 5. Mining plan submitted by M/s. SG Granites, dated 24.11.2017.
 6. The Assistant Director (G&M), Dindigul, letter Rc. No.252/2017 (Mines), dated 24.11.2017.

Kind attention is invited to the references cited.

2) The Government in the reference 3rd cited, communicated precise area to the applicant firm M/s. SG Granites, with a direction to produce Approved Mining Plan and Environmental clearance in respect of the area applied for grant of quarry lease for quarrying multi-colour granite over an extent of 2.81.5 hecets. of patta lands in S.F.Nos. 911/1A1 (0.74.0 hecets.), 911/1B1 (0.99.0 hecets.), 913/1A1(P) (0.61.5 hecets.), 913/1B1(P) and (0.47.0 hecets.) of Alambadi Village, Veda sandur Taluk, Dindigul District within a period of 3 months as per sub-rule (13) of Rule 19-A of the Tamil Nadu Minor



Mineral Concession Rules, 1959 by incorporating the conditions stipulated therein.

3) In response to the precise area communicated, the applicant in the reference 4th cited, submitted five copies of mining plan duly prepared by the Recognized Qualified Person for approval.

4) The Assistant Director of Geology and Mining, Dindigul in the reference 5th cited has forwarded the mining plan for approval of the Commissioner of Geology and Mining stating that the details such as Geological Reserves, Mineable Reserves, year wise production and development programme are incorporated in the mining plan and the mineable recoverable reserves in the mining plan has been estimated as 94,550 cu.mtrs. for a depth persistence of 28 mtrs. with a recovery of 25%.

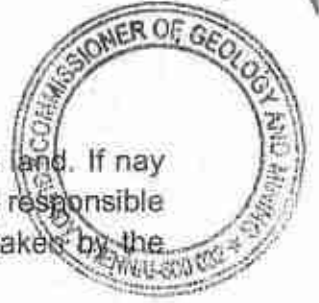
5) The draft mining plan submitted in respect of the precise area communicated and the report of the Assistant Director of Geology and Mining, Dindigul have been examined with reference to the provisions of Rule 12, 13 and 15 of the Granite Conservation and Development Rules, 1999 and the following are observed:-

- i) All the conditions stipulated in the Government Letter No.11545/MMB2/2017-1 Industries Department, dated 23.11.2017 have been incorporated in the mining plan.
- ii) The applicant firm has submitted the mining plan incorporating only the boundary co-ordinates of the lease area.
- iii) The total quantity of mineable recoverable reserve of multi-colour granite has been estimated as 94,550 cbm for a depth persistence of 28 meters with a recovery of 25%.
- iv) The Assistant Director of Geology and Mining, Dindigul has forwarded the mining plan with his recommendations for approval under Rule 19-A(13) of the Tamil Nadu Minor Mineral Concession Rules, 1959.

6) Therefore, in exercise of the powers conferred under Rules 12,13 and 15 of the Granite Conservation and Development Rules, 1999 read with G.O.Ms.No.87, Industries (MMC1) Department Dated 22.2.2001, the mining plan is approved subject to the following conditions:-



1. 7.5 m safety distance shall be provided and maintained to the adjacent patta lands from all along the boundary of the area applied for quarry lease.
2. 10 Meters safety distance should be provided and maintained to the Government Poramboke land in SF No-926 from the boundary of the area applied for quarry lease.
3. The waste material generated at the time of quarrying should be dumped only within the area to be granted on quarry lease.
4. The applicant shall obtain Environmental Clearance from the District Level Environment Impact Assessment Authority (DEIAA) Dindigul prior to the grant of quarry lease, since Environmental Clearance is a statutory pre-request one for the grant of quarry lease.
5. Safety distance of 15 mts has to be allowed and maintained to the Limestone bearing area in SF.Nos.913/1A1(P) and 913/1B1(P)
6. Quarry operation shall be done as in the demarcated area of the FMB Sketches (2.81.5 hectrs.).
7. The applicant should fence the lease granted area with barbed wire before the execution of lease deed.
8. As per rule 12(v) of Mineral (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules 2016, the lessee shall at his own expense, erect, maintain and keep in repair all boundary pillars.
9. The applicant shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly shown the Mining Plan and submit in CD/DVD form to the Assistant Director (Mines), Dindigul.
10. The lessee shall strictly adhere to the statutory and safety requirements.
11. 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.
12. The lease grantee shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
13. The District Collector, Dindigul shall obtain a sworn-in-affidavit from the appellant containing the above conditions before execution of lease deed and also ensure that they are complied with. Further, the lessee / firm will furnish a declaration in the lease deed agreement as per the Government letter No.12789/MMB-2/2002-7, dated 09.01.2003 staging that the lessee / firm will mine only in the lease hold area and will not undertake any quarrying activity in the adjoining poramboke land. Further, the lessee / firm will fence the



lease hold area separating it from adjoining poramboke land. If nay illegal mining is undertaken, the lessee / firm will be held responsible for those activities and will be subjected to the action taken by the Government in this regard.

7) A copy of the Approved Mining Plan is sent herewith for further necessary action.

Encl: Approved mining plan.

Sd/- R. Palaniswamy
Commissioner of Geology and Mining

Forwarded / By Order


Additional Director

- Copy to: 1) M/s.SG Granites,
No.3, East 2nd Street,
Behind ICICI Bank,
K.K.Nagar,
Madurai-625 020.
- 2) The District Collector, Dindigul (with AMP)
- 3) The Directorate of Mines Safety,
Chennai-40 (with AMP).
- 8/12/17*



DR.T.G.Vinay, I.A.S.,
CHAIRMAN - DEIAA/
DISTRICT COLLECTOR

DISTRICT LEVEL ENVIRONMENT
ASSESSMENT AUTHORITY - DINDIGUL
Room No.277, 2nd Floor,
Collectorate Building
Dindigul - 624 004
Tel : 0451 - 2461199 (O)
Fax : 0451 - 2432133
Email : collrdgl@tn.nic.in

ENVIRONMENTAL CLEARANCE
Lr. No.DEIAA/DGL/EC.No.063/2017, dated:29.01.2018

To
M/s.S G Granites,
Door No.3, East 2nd Street,
Behind ICICI Bank,
K.K.Nagar,
Madurai District

Sir,

Sub: DEIAA – Dindigul – Proposed Granite quarry at SF.Nos.911/1A1, 911/1B1, 913/1A1 (P), 913/1B1(P) over an extent of 2.81.5 hec in Alambadi Village, Vendasandur Taluk, Dindigul District by M/s. SG Granites – Environmental Clearance – Issued.

Ref: 1. Your Application for Environmental Clearance dt: 10.01.2018
2. Minutes of the 5th DEAC held on 19.01.2018
3. Minutes of the 5th DEIAA meeting held on 29.01.2018

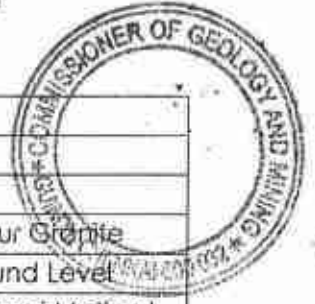
Details of Minor Mineral Activity:

This is in reference to your application first cited. This proposal is for obtaining environmental clearance for quarrying of minor minerals based on the particulars furnished in your application as shown below:

1	Name of Project Proponent and address	M/s.S G Granites, Door No.3, East 2 nd Street, Behind ICICI Bank, K.K.Nagar, Madurai District
2	Location of the Proposed Activity	
	Survey Number	911/1A1, 911/1B1, 913/1A1(P), 913/1B1(P)
	Latitude and Longitude	10°04'00" N 78°43'15" E
	Village	Alambadi
	Taluk	Vendasandur
	District	Dindigul

[Signature]
29/1/2018
**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**



3	Proposed Activity	
	i. Minor mineral	MULTICOLOUR GRANITE
	ii. Mining Lease Area	2.81.5 Hectares
	iii. Approved Quantity	28,975 Cu.m of Multicolour Granite
	iv. Depth of Mining	17Meters below the Ground Level
	v. Type of Mining	Opencast Semi Mechanized Method
	vi. Category [B1/B2]	B2
	vii. Precise Area Communication	Letter No.15529/MMB2/2017-1 dated: 23.11.2017 by Additional Chief Secretary to Government
	viii. Mining Plan Approval	Commissioner of Geology and Mining Letter. No.8717/MM2/2017 dated: 07.12.2017
	ix. Mining Lease Period	20 Years
4	Whether project area attracts any General conditions specified in the EIA notification, 2006 as amended :-	Not attracted. Affidavit furnished
5	Man power requirement per day :	14 Employees
6	Utilities	
	i. Source of Water	Water vendors / Existing bore wells
	ii. Quantify of Water Requirement in KLD	
	a. Domestic in KLD	0.750 KLD
	b. Industrial in KLD	1.500 KLD
	c. Green Belt & Dust Suppression	0.250 KLD
	iii. Power Requirement	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	
7	Cost	
	I. Project Cost	Rs. 22,00,000/-
	ii. EMP Cost	Rs. 6,25,000/-
8	Public Consultation	Not required as per O.M. dated 24.12.2013 of MoEF, Gol.
9	Date of Appraisal by DEAC :- Agenda No.	19.01.2018 2
10	Date of Review/ Discussion by DEIAA and the Remarks :-	
	The proposal was placed before the DEIAA in its 5 th Meeting held on 29.01.2018 and the Authority after careful examination, decided to grant Environmental Clearance to the said project of quarrying Granite subject to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.	
11	Validity :-	
	This 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.	


**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**



1. Conditions To be complied before/ during commencing operations :-

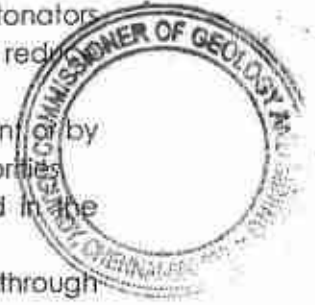
1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - i. The project has been accorded Environmental Clearance.
 - ii. Copies of Clearance letters are available with the Tamil Nadu Pollution Control Board.
 - iii. Environmental Clearance may also be seen on the website of the DEIAA, Dindigul.
 - iv. The advertisement should be made within 7 days from the date of receipt of the Clearance letter and a copy of the same shall be forwarded to the DEIAA.
2. NOC from the Standing Committee of the National Board for Wild Life (NBWL) shall be obtained, if protected areas are located within 10Km from the proposed project site.
3. The Project Proponent shall comply the conditions laid down in Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
4. 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.
5. The Proponent shall ensure the First Aid Box is available at site.
6. The excavation activity shall not alter the natural drainage pattern of the area.
7. The excavated pit shall be restored by the Project Proponent for useful purposes.
8. The Proponent shall quarry and remove only in the permitted and approved areas.
9. The Proponent shall do the quarrying as per the Approved Mining Plan.
10. It shall be ensured that the quarrying operation shall be carried out between 07.00 AM and 05.00PM.
11. 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 Pollution to the Environment.
12. A minimum distance of 15 meters from any civil structure shall be kept from the periphery of any excavation area.
13. Depth of quarrying shall be 2.00mts 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.
14. The mined out pits should be back filed wherever warranted and the area should be suitably landscaped to prevent environmental degradation. The Mine Closure Plan as furnished in the proposal shall be strictly followed while back filling and tree plantation.

Devi
29/1/2018

**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**

15. Wet drilling method is to be adopted to control dust emissions. Delay Detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Drilling and blasting shall be done only either by Licensed Explosive Agency or by the Proponent after obtaining required approvals from Competent Authorities.
17. The explosives shall be stored at site as per the conditions stipulated in the permits issued by Licensing Authority.
18. Blasting shall be carried out after announcing to the Public adequate through public address system to avoid any accident.
19. 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.
20. The Proponent shall take appropriate measures to ensure that the GLC shall comply with revised NAAQ norms notified by MoEF, GOI on 16.11.2009.
21. 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.
22. The following measures are to be implemented to reduce Noise Pollution
 - a. Proper and regular maintenance of vehicles and other equipment
 - b. Limiting time exposure of workers of excessive noise
 - c. The Workers employed shall be provided with protection equipment and earmuffs etc.
 - d. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25kmph to prevent undue noise from empty trucks.
23. Measures should be take to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules,2010, dated 11.01.2010 Issued by the MoE&F, GoI to control noise to the prescribed levels.
24. Suitable conservation measures to augment Ground Water Resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for Rain Water Harvesting.
25. Permission from the Competent Authority should be obtained for drawl of Ground Water, if any, required for this project.
26. Topsoil, if, any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
27. 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.
28. Waste oils, used oil 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.



Signature
29/1/2014

**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**



29. 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.
30. Rain Water Harvesting to collect and utilize the entire water falling in land area should be provided.
31. Rainwater 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.
32. 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 surroundings area shall not be affected. Regular monitoring of Ground Water Level and quality shall be carried out around the mine/ quarry lease area during the quarrying operation. If at any stage, if it is observed that the Ground Water Table is getting depleted due to the mining activity, necessary corrective measures shall be carried out. District Collector/ Mining Officer shall ensure this.
33. No tree-felling shall be done in the leased area, except only with the permission from Competent Authority.
34. 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.
35. 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 25.00.0 hectares within the mining lease period of this application.
36. 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.
37. Ground Water Quality Monitoring should be conducted once in 3 months.
38. Transportation of the quarried materials shall not cause any hindrance to the Village People/Existing Village Road.
39. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GoI at Chennai
40. Air Sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GoI at Chennai

[Handwritten Signature]
29/11/2018

**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**



41. Bunds to be provided at the boundary of the Project Site.
42. 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.
43. At least 10 Neem trees should be planted around the boundary of the quarry site.
44. Floor of excavated pit to be leveled and sides to be sloped with gentle slope (Except for Granite quarries) in the Mine Closure Phase.
45. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the Community Social Responsibility (CSR) Activity.
46. The CSR funds should be channalized for planting programme nature conservation support, Tribal Development and activities that support Forest and Environment.
47. The Project Proponent shall provided solar lighting system to the nearby villages.
48. The Project Proponent shall comply with the mining/ quarrying 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, GCI, 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 of the proposed quarry site before execution of quarry 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 quarry lease.
58. The Proponent has to provide Insurance Protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of quarry lease.

Devi
29/11/2016

**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**



59. The Proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
60. Heavy earth machinery equipments if utilized, after getting approval from the Competent Authority.
61. The Proponent shall ensure that the project activity including blasting, mining transportation etc., should in no way have adverse impact to other forest, such as Reserved Forest and Social Forest, tree plantation and Bio diversity, surrounding water bodies etc.
62. The Project Proponent is also directed to strictly adhere to the sustainable Sand Mining Management Guidelines, 2016, wherever applicable.
63. The quarrying activity in no way should disturb the wild Life Habitat, free migratory movement of the Wild Life nor disturb the Wild Life in any way.

2. GENERAL CONDITIONS :-

1. Environmental Clearance is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the Proponent.
2. The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the DEIAA, Dindigul.
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.

Handwritten signature and date: 29/11/2018

**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**



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. Land use classification as per Department of Town and Country Planning (DTCP)/Agriculture shall meet the requirement of mining/ industrial use.
17. 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.
18. 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.
19. The DEIAA, Dindigul may alter/ modify the above conditions or stipulate any further conditions in the interest of Environment Protection.
20. The DEIAA, Dindigul may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this DEIAA, Dindigul that the Project Proponent has deliberately concealed and / or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
21. 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.

Handwritten signature
**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**



22. 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 Minerals Conservation & Development Rules, 2010 framed under Mines and Minerals (Development and Regulation) 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/Madurai and any other Courts of Law relating to the subject matter.
23. The Environmental Clearance shall not be used as a document to obtain any other clearance unless it is specifically prescribed by the Issuing Authority.
24. Any other conditions stipulated by other Statutory/ Government Authorities shall be complied.
25. 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.

*Revised
25/11/2014*
**MEMBER SECRETARY
DEIAA-DINDIGUL**

Copy to:

1. The Secretary, Ministry of Mines, Government of India, ShastriBhawan, New Delhi.
2. The Principal Secretary, Environment and Forests Department, Government of Tamil Nadu, Tamil Nadu.
3. The Additional Chief Secretary, Industries Department, Government of Tamil Nadu, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (S2), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, PariveshBhawan, CBD-Cum-Office Complex, East Arjun Naga
6. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai - 32.
7. The District Collector, Dindigul District.
8. The Commissioner of Geology and Mines, Guindy, Chennai-32.
9. E1 Division, Ministry of Environment & Forests, ParyavaranBhawan, New Delhi.
10. Spare.

*Revised
25/11/2014*
**MEMBER SECRETARY
DEIAA-DINDIGUL**

TP/1627724/PT/17



தமிழ்நாடு தமிழ்நாடு TAMILNADU

1666

E 541880

சி. சி. ராதாகிருஷ்ணன்
முத்திரை தாள் விநியோகஸ்தர்
புலியூர் மண்டலம் 15/2000
கனம் சி. குழியம்பாளையம்

18.3.18

₹ 10000/-

S. G. Granites
Madurai

-1-
APPENDIX - IV
(See Rule 19 (A) (1) and 22)
(District Collector, Dindigul Ref. No.252/2017(Mines))

G.O.3(D) NO.6 INDUSTRIES (MMB2) DEPARTMENT,
DATED:19.02.2018

FORM OF AGREEMENT FOR QUARRYING AND CARRYING AWAY
MINOR MINERALS FROM RYOTWARI LANDS IN WHICH THE
MINERALS BELONG TO GOVERNMENT

AGREEMENT made this 08th day of March 2018
between **M/s.S G GRANITES, Door No.3, East 2nd Street, Behind**
ICICI Bank, K.K.Nagar, Madurai District-625 020 (hereinafter
referred to as '**the registered holder / lessee**' which term shall
include in these presents where the context so admits include also his

[Signature]
LESSEE

[Signature]
LESSOR &
COLLECTOR, DINDIGUL



Document No 401 of 20 18 of Book
1 Contains 44 Sheets 13 Sheet.
Registering Officer



தமிழ்நாடு தமிழ்நாடு TAMILNADU

1667

E 541881

சி. எஸ். ராதாகிருஷ்ணன்
முத்திரை தாள் விற்பனையாளர்
உரிமம் எண்: 15/2000
கடைசி, குவிவியம்பாளையம்

5.3.18.

₹ 10000/-

SG Granites
Madurai

-2-

heirs, executors administrators, legal representatives and assigns) of the one part and the Governor of Tamil Nadu (hereinafter called "the Government" which term shall where the context so admits, include also his successors in office and assigns) of the other part.

WHEREAS, the registered holder holds the lands described in the schedule hereunder written (herein after referred to as the said lands)

LESSEE

LESSOR &
COLLECTOR, DINDIGUL

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Registering Officer



TP/1627/24/2018



தமிழ்நாடு தமில்நாடு TAMILNADU

1668

E 541882

சி. என். ராதாகிருஷ்ணன்
முத்தியை தான் விற்பனையாளர்
பரிசீலம் எண்: 15/2000
கன. வி. து. சி. வி. யா. ப. அ.

5-3-18

Rs 10000/-

GG Granites
Madurai

-3-

AND WHEREAS, the registered holder has made application to the Collector of District of Dindigul (herein after referred to as "the Collector") seeking grant of quarrying lease for MULTICOLOURED GRANITE in the said lands and to deposit mining waste in the said lands and has lodged with the Collector an accurate map or sketch of the said lands and the Government have granted me quarry lease in G.O.3(D) No.6 Industries (MMB2) Department, Dated:19.02.2018.

M.S.G.
LESSEE

Collector
LESSOR &
COLLECTOR, DINDIGUL

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Registering Officer



TP/1627724/2018



தமிழ்நாடு தமிழ்நாடு TAMILNADU

E 541883

சி. எஸ். ராதாகிருஷ்ணன்
முத்தியூர் தாள் விற்பனையாளர்
சுவிதம் எண். 15/2000
கனகசபை, குழிவிண்டியாலை

1669
5.3.18

₹ 10000/-

S6 Granites
Madurai

-4-

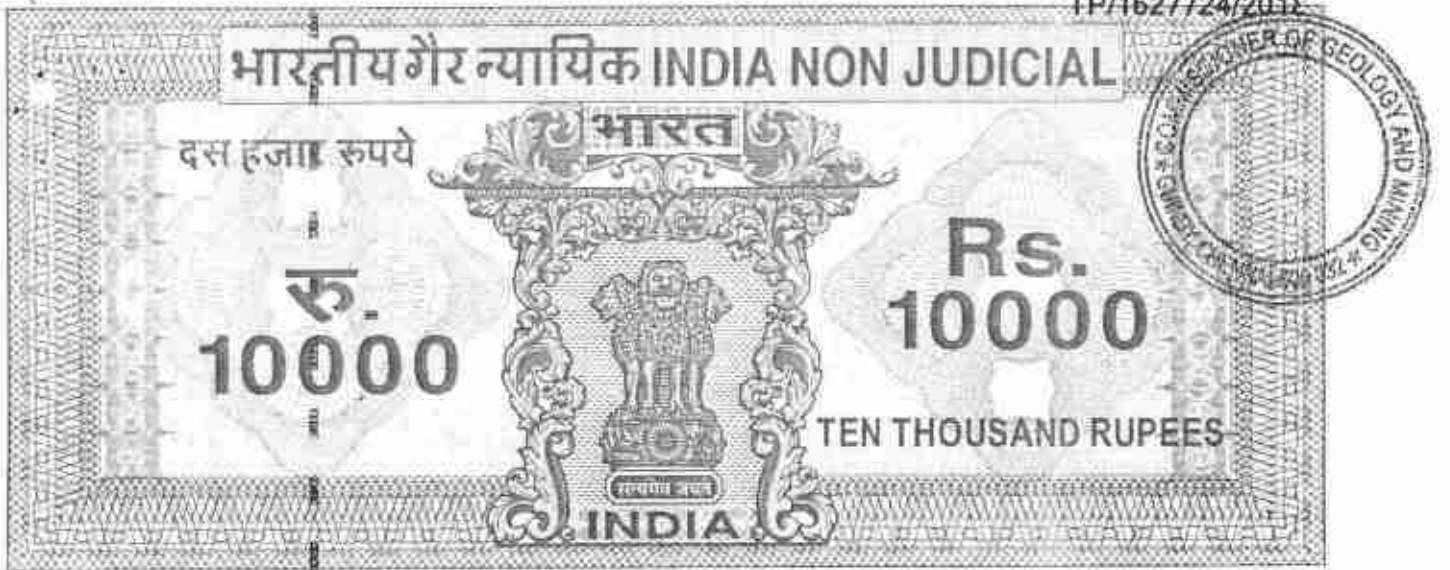
AND WHEREAS, the Collector acting for and on behalf of the Government has granted a quarrying lease to the registered holder and allowed him to commence quarrying operations for MULTICOLOURED GRANITE in the said land to deposit mining waste thereon by the registered holder.

M.S.
LESSEE

10ff.
LESSOR &
COLLECTOR, DINDIGUL

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Registering Officer





தமிழ்நாடு தமிழ்நாடு TAMILNADU

1670

₹ 10000/-

E 541884

5.3.18

சி. எஸ். ராதாகிருஷ்ணன்
முத்திரை தான் விற்பனையாளர்
ஆய்வு எண். 15/2000
கனகபதி, குதுவியம்பலாறு

SG Granites
Madurai

-5-

AND WHEREAS, as the registered holder has deposited with the Collector, the sum of **Rs.40,000/- (Chalan No.33, Dated: 26.02.2018 State Bank of India, Dindigul)** as security against loss or damage which may be incurred by the Government by reason by any of the said lands being rendered and unfit for cultivation by any mining operations therein of the registered holder or by deposit of mining waste thereon by the registered holder.

M.S.
LESSEE

6/3/18
LESSOR &
COLLECTOR, DINDIGUL

Document No 401 of 20 (Ref Book
Contains 44 Sheets 5 Sheet.

Registering Officer





தமிழ்நாடு தமிழ்நாடு TAMILNADU

E 541885

1071
5.3.18 210000/-
சி. இளம். ராதாகிருஷ்ணன்
முத்திரை தாள் விடுபடையாளம்
சரியம் எண்: 15/2000
கனகாதி. குதிரியம்பாளையம்
SG Granites
Madurai

-6-

I. NOW THESE PRESENTS WITNESS and the registered holder doth hereby agree with the Government in the manner following that is to say:

01. The registered holder shall be at liberty at all times during the period of the lease, i.e. for **Twenty years from 08.03.2018 to 07.03.2038** to carry mining operations for MULTICOLOURED GRANITE in the lands in a proper and workman like manner and to deposit mining waste on the lands and shall at all times the answerable and accountable to the Government for all acts and if default by any of his nominees, servants or agents in carrying on such operations or in making such deposits.

M.S.B.
LESSEE

19
LESSOR &
COLLECTOR, DINDIGUL

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Contains 44 Sheets 6 Sheet.
Registering Officer



भारतीय गैर न्यायिक INDIA NON JUDICIAL

दस हजार रुपये

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10000

TEN THOUSAND RUPEES



தமிழ்நாடு தமிழ்நாடு TAMILNADU

1682

5-3-18

₹ 10000/-

E 541886

சி. எஸ். ராதாகிருஷ்ணன்
முத்திரை தாள் கிறிபுனையாளர்
உரிமம் எண். 15/2000
கனகாதி. குழிவிடம்பாளையம்

SG Granites
Madurai

-7-

02. The registered holder shall and will on the08th..... day of March..... 2018 next and on the07..... day of March..... every succeeding year during so long as he shall have carried on any such quarrying operations as aforesaid pay area assessment Rs.300/- per hectare per annum thereon or at the rates fixed by Government from time to time to the Collector for and on behalf of the Government in addition to the land assessment for time being payable in respect of the said lands, seigniorage on the minor minerals at the rate specified in Appendix-II to the Tamil Nadu Minor Mineral Concession Rules,

1959.

M. S.
LESSEE

138
LESSOR &
COLLECTOR, DINDIGUL

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Registering Officer





தமிழ்நாடு தமில்நாடு TAMILNADU

1672

V 077179



சி. எஸ். ராதாகிருஷ்ணன்
முத்திரை தாள் விநியோகம்
சரியம் எண்: 15/2000
கிடைசிதி. குஜிவியம்பாறை

5-318

→ 5000/-

SG Granites
Madurai

-8-

03. The registered holder shall and will keep correct accounts in such form as the Collector shall from time to time require and direct showing the quantities and other particulars of all minerals obtained by the registered holder from the said lands and also the number of persons employed in carrying on the said mining operations therein and shall from time to time when so directed by the Collector prepare and maintain complete and correct plans of all mines and working in the said lands and shall allow any officer hereunto authorized by the Commissioner / Director of Geology and Mining, Tamil Nadu from time to time and at any

[Signature]
LESSEE

[Signature]
LESSOR &
COLLECTOR, DINDIGUL

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Registering Officer





தமிழ்நாடு தமிளநாடு TAMILNADU

1673

V 077180

சி. எஸ். ராதாகிருஷ்ணன்
முத்திரை தாள் விநியோகஸ்தர்
உரிமம் எண்: 15/2000
கல்வித், குதிலியம்பாளையம்

5.3.18

29,5000/-

SG Grantha
Madurai

-9-

time to examine such accounts and any such plans and shall when so required supply and furnish all such information and returns regarding all or any of the matter aforesaid as the Government shall, from time to time required and direct.

04. The Registered holder shall and will at all times, allow any officer authorized by the District Collector or the Commissioner / Director Geology and Mining, Tamil Nadu in that behalf to enter upon any part of the lands where any mining operations may be carried on for the purpose of inspecting the same.

M.C.R.
LESSEE

19/10
Collector,
DINDIGUL

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Registering Officer



தமிழ்நாடு தமிழ்நாடு TAMILNADU

V 077181

சி. எஸ். ராதாகிருஷ்ணன்
முத்தியை தான் விநியோகியாளர்
உரியம் எண். 15/2000
கடைசியி. குஜிவிஸ்பாணை

1674
5.3.18

₹ 5000/-

SG Granites
Madurai

-10-

05. The registered holder shall forthwith send to the District Collector a report of any accident, which may occur at or in the said lands and also of the discovery of any mineral other than MULTICOLOURED GRANITE.

M. S.
LESSEE

19ff
LESSOR &
COLLECTOR, DINDIGUL

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Registering Officer





தமிழ்நாடு தமிழ்நாடு TAMILNADU

1675

V 077182



சி. எஸ். ராதாகிருஷ்ணன்
முத்தியை தாள் விற்பனையாளர்
சாஸ்திரம் எண், 15/2000
கடைசீதி குதிலியம்பாறை

5.3.18

₹5000/-

S. G. Gnanavel.

-11-

06. It shall be lawful for the registered holder at any time to cease mining operations under these present provided they shall pay to the Collector for and on behalf of the Government land assessment, cess and seigniorage due to the Government and shall restore the said lands or force, or fill in abandoned pits and excavations therein if required by the Collector and upon his so doing these present shall cease and determine.

M. S. G.
LESSEE

10/3/18
LESSOR &
COLLECTOR, DINDIGUL

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தமிழ்நாடு தமில்நாடு TAMILNADU

1676

AV 756591



கி. சண். ராதாகிருஷ்ணன்
 திருச்சூர் தான் கிறிஸ்தவர்கள்
 கமிஷன் எண். 15/2000
 கடைபிடி. குடிவியல்பாண்டு

5-3-18

31000/-

Sb7 Girantes
 Madurai



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 1 Contains 44 Sheets 12 Sheet.

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Registering Officer

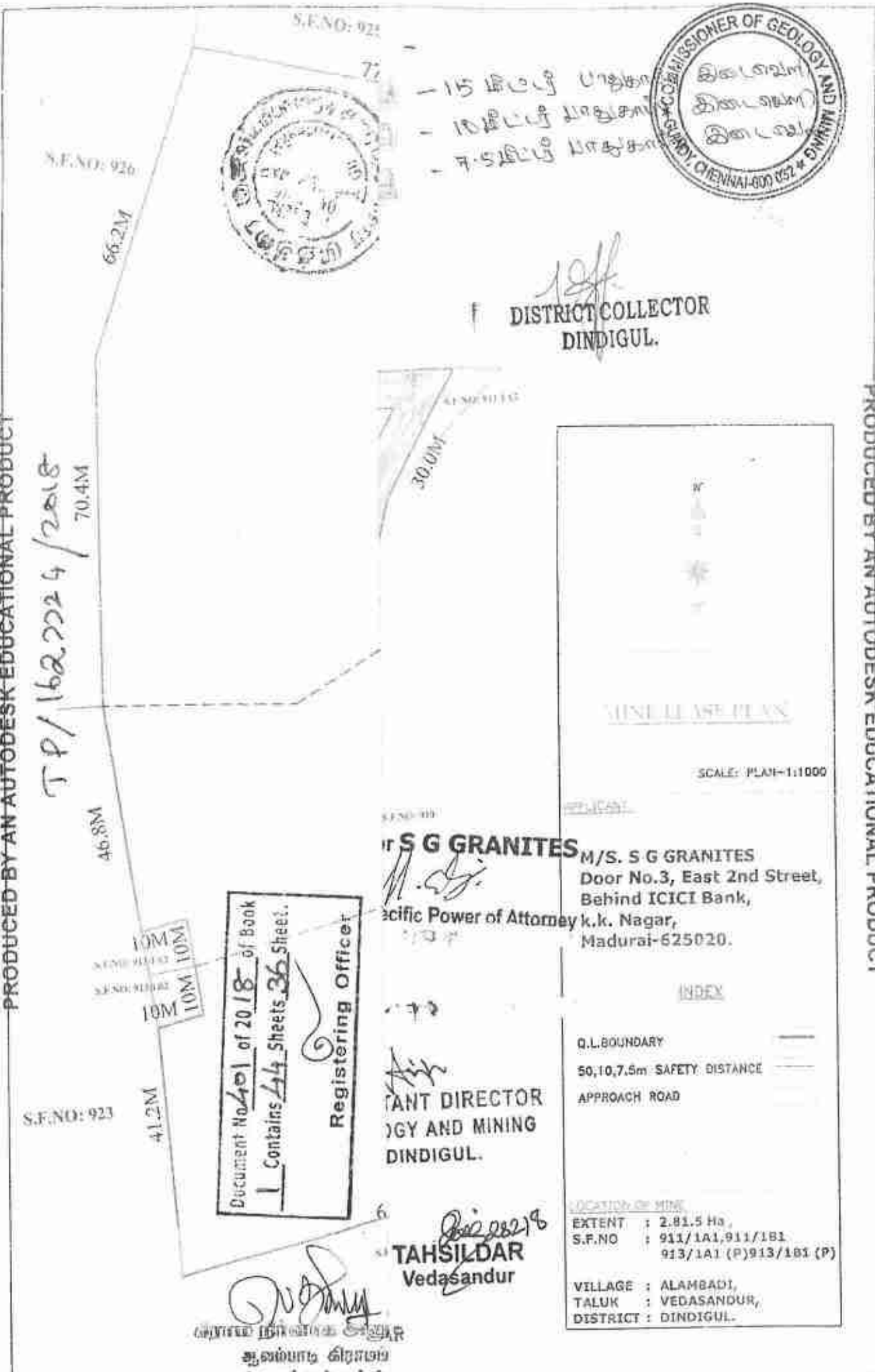
07. In case the registered holder shall relinquish the whole or any part of the said lands or in case of the expiry or sooner determination of this agreement then and in any such case, he shall restore the lands so relinquished or so much thereof as the Collector shall require to be restored to a state fit for cultivation shall securely and permanently fence or fill in all such abandoned pits and excavations therein as the Collector shall require to be so fenced or filled in, and in case the registered holder shall fail or neglect to restore any such land which he shall be required to restore to a state fit for cultivation or to so fence, or fill in any such abandoned pit or excavation which he shall be required to so fence or fill in them in any such case, it shall be lawful for

H. S. J.
 LESSEE

[Signature]
 LESSOR &
 COLLECTOR, DINDIGUL

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S.F. NO: 924

S.F. NO: 926

TP/162.7224/2018

S.F. NO: 923



- 15 ஹெக்டேர் பரந்த
 - 10 ஹெக்டேர் பரந்த
 - 7.5 ஹெக்டேர் பரந்த

[Signature]
 DISTRICT COLLECTOR
 DINDIGUL.



SCALE: PLAN-1:1000

M/S. S G GRANITES
 Door No.3, East 2nd Street,
 Behind ICICI Bank,
 k.k. Nagar,
 Madurai-625020.

Document No. 401 of 2018 of Book
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 Registering Officer

[Signature]
 ASSTANT DIRECTOR
 GEOLOGY AND MINING
 DINDIGUL.

[Signature]
 TAHSILDAR
 Vedasandur

INDEX

Q.L. BOUNDARY
 50, 10, 7.5m SAFETY DISTANCE
 APPROACH ROAD

LOCATION OF MINE

EXTENT : 2.81.5 Ha,
 S.F. NO : 911/1A1, 911/1B1
 913/1A1 (P) 913/1B1 (P)

VILLAGE : ALAMBADI,
 TALUK : VEDASANDUR,
 DISTRICT : DINDIGUL.

[Signature]
 தாசில்தார்
 வேடசாண்டூர்




-13-

the Collector to so restore any such land, or as the case may be to so fence or fill any such pits or excavation at the expense of the registered holder and to apply the said sum of Rs.40,000/- so deposited in or towards the cost of so doing and to deduct from the amount of the said deposit and retain on behalf of the Government a sum equal to thirty times the assessment of the said lands which shall have been rendered unfit for cultivation. If however, the amount of deposit is not sufficient to cover the cost of such restoration or fencing or filling in or to meet thirty times the assessment on the area rendered uncultivable, it shall be lawful for the Government to recover the balance by resort to Civil Court.

08. The registered holder shall not be entitled to any remission of assessment in respect of any of the said lands which shall be rendered unfit for surface cultivation by carrying on of any mining operation or by the deposit of mining waste, unless thirty times the assessment thereon has already been deducted under the preceding clause.
09. The registered holder shall not assign, lease or part with the possession of the said lands or any part thereof for the whole or any part of the said term without previous intimation in writing to the Collector.
10. If the registered holder does not intend to carry on quarrying operations himself, but intends to lease out the right to do so to another person the registered holder and his lessee shall enter into an agreement with Government binding themselves jointly and severally to accept the conditions and stipulation herein contained which agreement shall be in the form set out in Appendix V to the Tamil Nadu Minor Mineral Concession Rules, 1959.


LESSEE


LESSOR &
COLLECTOR, DINDIGUL

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 Registering Officer





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11. All lands assessment, cess and seigniorage payable under these present shall be recoverable under the provisions of the Tamil Nadu Revenue Recovery Act, 1864, as if they were arrears of land revenue.
12. In the event of any breach by the registered by any of the conditions of this agreement, it shall be lawful for the Government to levy enhanced seigniorage or for the Collector give notice in writing to the registered holder of his intension to cancel these presents where upon the same shall stand cancelled but without prejudice to any rights which the Government may have against pattadar in respect of any antecedent claim or breach of covenant or condition.
13. Any notice to be given to the registered holder may be addressed to their last known place of abode and where a notice has been so addressed it shall be deemed to have been duly served for the purpose of these presents.
14. Should any question or dispute arise regarding the agreement executed in pursuance of these rules or any matter or thing connected therewith or the powers of the registered holder there under, the amount or payment of the seigniorage fee or area assessment made payable thereby, the matter in issue shall be decided by the Commissioner / Director of Geology and Mining. In case the registered holder / lessee is not satisfied with the decision of the Commissioner / Director of Geology and Mining, the matter shall be referred to the State Government for decision.

M. S. B.
LESSEE

15/3
[Signature]
LESSOR &
COLLECTOR, DINDIGUL

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[Signature]
Registering Officer





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15. The registered holder shall abide by the conditions laid down in the payment of Wages Act, 1936, (Central Act IV of 1936) The Mines Act, 1952, (Central Act XXXV of 1952) and the Indian Explosives Act, 1884. (Central Act IV) Granite Conservation and Development Rules, 1999 and Mines and Minerals (Development and Regulation) Act, 1957 and the Rules and Regulations made thereunder.
16. That the approval of the mining plan does not in any way imply the approval of the Government in terms of any other provision, mines and minerals (Development and Regulation) Act, 1957 or any other connected Laws including Forest (Conservation) Act, 1980 Forest Conservation Rules, 1981, Environment Protection Act, 1980 Indian Explosives Act 1884, (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Minerals Concession Rules 1959.

SPECIAL CONDITIONS IMPOSED IN G.O.(3D) NO.6, Industries
(MMB2) Department, Dated:19.02.2018

1. 7.5 meters safety distance shall be provided and maintained to the adjacent patta lands from all along the boundary of the area applied for quarry lease.
2. 10 meters safety distance should be provided and maintained to the Government Poramboke land in SF.No.926 from the boundary of the area applied for quarry lease.

M.C.J.
LESSEE

J.P.H.
LESSOR &
COLLECTOR, DINDIGUL

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 Registering Officer






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3. The Waste material generated during the time of quarrying should be dumped only within the lease hold area that will be earmarked for the purpose in the mining plan as per Rule 31 of Granite Conservation Development and Regulations, 1999.
4. Safety distance of 15 meters has to be allowed and maintained to the Limestone bearing area in SF.Nos.913/1A1(P) and 913/1B1(P).
5. Quarry operation shall be done as in the demarcated area of the FMB sketches (Over an extent of 2.81.5 hecets)
6. The applicant should fence the lease granted area with barbed wire before the execution of lease deed.
7. As per rule 12(v) of Mineral (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules 2016, the lessee shall at his own expense, erect, maintain and keep in repair all boundary pillars.
8. The applicant shall incorporate the DGPS readings for the entire boundary pillars of the area and the same should be clearly shown in the mining plan and submit in CD/DVD form to the Assistant Director, Dindigul
9. The lessee shall strictly adhere to the statutory and safety requirements.
10. 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 of any other authority.
11. The lease grantee shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.

M.S.J.
LESSEE

19/11
LESSOR &
COLLECTOR, DINDIGUL

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 Registering Officer

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CONDITIONS SPECIFIED IN GO.(3D)NO.6, INDUSTRIES
(MMB2) DEPARTMENT, DATED: 19.02.2018.

- 1) The date of commencement of the period of lease shall be the date on which the agreement is executed.
- 2) The applicant shall pay seigniorage or dead rent whichever is more in respect of the actual quantity of granite removed at the rate prescribed from time to time in Appendix-II of the Tamil Nadu Minor Mineral Concession Rules, 1959.
- 3) The applicant should keep correct accounts showing the quantities and other particulars of all minerals obtained from the lands permitted to quarry.
- 4) The applicant should also allow any officer authorized by the District Collector or any other officer authorized by the State Government in this behalf to inspect the area and verify records and accounts and furnish such information under the terms as may be required by them.
- 5) The applicant shall carry out the quarrying operations in skilful, scientific systematic manner keeping in view, the proper safety of the labour conservation of minerals and preservation of environment ecology.
- 6) The applicant shall allow any officer authorized by the District Collector and Director of Geology and Mining to enter upon the area and inspect for the purpose mentioned in conditions 4 and 6 above and also carry out the directions issued to the satisfaction of the above said authorities.

M.C.S.
LESSEE

[Signature]
LESSOR &
COLLECTOR, DINDIGUL

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 Registering Officer





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- 7) No quarrying activities connected there to shall be done before the execution of the agreement and registration is at the cost of the applicant.
- 8) No hindrance shall be caused to the adjoining pattadars or public.
- 9) The applicant should restrict his mining operation strictly within the permitted area as defined in the sketch.
- 10) The terms and conditions area also subject to such further modifications, deletion and additions alternation as may be ordered by the Government to be included in the agreement to be executed for this purpose.
- 11) The applicant should maintain at his cost proper signboards indicating the survey numbers, years of the lease, name of the lease holder and the leased period to the satisfaction of the District Collector, Director of Geology and Mining and maintain it all time at the quarry site.
- 12) No quarrying shall be done within a distance of 7.5 metres of the boundaries of the permitted area.
- 13) The applicant should make his own arrangements to form the approach road from the public road to the place of his quarry.
- 14) The lessee shall strictly adhere to the statutory and safety requirements.
- 15) The waste materials generated during quarrying operation shall be dumped only in the area granted under lease.
- 16) 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.

M. S. S.
LESSEE

19/38
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- 17) That the approval of the mining plan does not in any way imply the approval of the Government in terms of any other provision, Mines and Minerals (Development and Regulation) Act, 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act 1884, (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Minerals Concession Rules, 1959.
- 18) That the mining plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.

**Conditions imposed by the District Level Environment
Impact Assessment Authority**
Lr.No:DEIAA/DGL/EC.No.63/2017, Dated:29.01.2018

1. This 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.
2. NOC from the Standing Committee of the National Board for Wild Life (NBWL) shall be obtained, if protected areas are located within 10Km from the proposed project site.
3. The Project Proponent shall comply the conditions laid down in Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.

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4. 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.
5. The Proponent shall ensure the First Aid Box is available at site.
6. The excavation activity shall not alter the natural drainage pattern of the area.
7. The excavated pit shall be restored by the Project Proponent for useful purposes.
8. The Proponent shall quarry and remove only in the permitted and approved areas.
9. The Proponent shall do the quarrying as per the Approved Mining Plan.
10. It shall be ensured that the quarrying operation shall be carried out between 07.00 AM and 05.00PM.
11. 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 Pollution to the Environment.
12. A minimum distance of 15 meters from any civil structure shall be kept from the periphery of any excavation area.

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13. Depth of quarrying shall be 2.00mts 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.
14. The mined out pits should be back filed wherever warranted and the area should be suitably landscaped to prevent environmental degradation. The Mine Closure Plan as furnished in the proposal shall be strictly followed while back filling and tree plantation.
15. Wet drilling method is to be adopted to control dust emissions. Delay Detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Drilling and blasting shall be done only either by Licensed Explosive Agent or by the Proponent after obtaining required approvals from Competent Authorities.
17. The explosives shall be stored at site as per the conditions stipulated in the permits issued by Licensing Authority.
18. Blasting shall be carried out after announcing to the Public adequate through public address system to avoid any accident.
19. A study has to be conducted to assess the Optimum Blast Parameters and Blast Design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.

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20. The Proponent shall take appropriate measures to ensure that the GLC shall comply with revised NAAQ norms notified by MoEF, GOI on 16.11.2009.
21. 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.
22. The following measures are to be implemented to reduce Noise Pollution
- a. Proper and regular maintenance of vehicles and other equipment
 - b. Limiting time exposure of workers of excessive noise
 - c. The Workers employed shall be provided with protection equipment and earmuffs etc.
 - d. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25kmph to prevent undue noise from empty trucks.
23. Measures should be take to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dated 11.01.2010 issued by the MoE&F, GoI to control noise to the prescribed levels.
24. Suitable conservation measures to augment Ground Water Resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for Rain Water Harvesting.
25. Permission from the Competent Authority should be obtained for drawl of Ground Water, if any, required for this project.

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26. Topsoil, if, any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
27. 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.
28. Waste oils, used oil 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 TNPCCB.
29. 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.
30. Rain Water Harvesting to collect and utilize the entire water falling in land area should be provided.

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31. Rainwater 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.
32. 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 surroundings area shall not be affected. Regular monitoring of Ground Water Level and quality shall be carried out around the mine/ quarry lease area during the quarrying operation. If at any stage, if it is observed that the Ground Water Table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/ Mining Officer shall ensure this.
33. No tree-felling shall be done in the leased area, except only with the permission from Competent Authority.
34. To take up Environmental Monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, Water, Air & Flora/Fauna environment, slurry water generated/ disposed and method of disposal, involving a reputed Academic Institution.

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35. 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 25.00.0 hectares within the mining lease period of this application.
36. 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.
37. Ground Water Quality Monitoring should be conducted once in 3 months.
38. Transportation of the quarried materials shall not cause any hindrance to the Village People/Existing Village Road.
39. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GoI at Chennai
40. Air Sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, GoI at Chennai
41. Bunds to be provided at the boundary of the Project Site.
42. The Project Proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.

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43. At least 10 Neem trees should be planted around the boundary of the quarry site.
44. Floor of excavated pit to be leveled and sides to be sloped with gentle slope (Except for Granite quarries) in the Mine Closure Phase.
45. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the Community Social Responsibility (CSR) Activity.
46. The CSR funds should be channalized for planting programme nature conservation support, Tribal Development and activities that support Forest and Environment.
47. The Project Proponent shall provided solar lighting system to the nearby villages.
48. The Project Proponent shall comply with the mining/ quarrying 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, 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.

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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/Odal
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 of the proposed quarry site before execution of quarry 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 quarry lease.
58. The Proponent has to provide Insurance Protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of quarry lease.
59. The Proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
60. Heavy earth machinery equipments if utilized, after getting approval from the Competent Authority.

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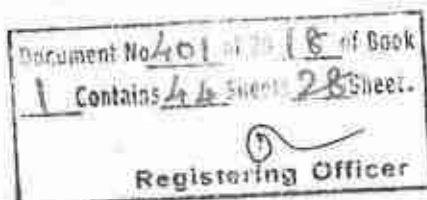
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61. The Proponent shall ensure that the project activity including blasting, mining transportation etc., should in no way have adverse impact to other forest, such as Reserved Forest and Social Forest, tree plantation and Bio diversity, surrounding water bodies etc.
62. The Project Proponent is also directed to strictly adhere to the sustainable Sand Mining Management Guidelines, 2016, wherever applicable.
63. The quarrying activity in no way should disturb the wild Life Habitat, free migratory movement of the Wild Life nor disturb the Wild Life in any way.

2. GENERAL CONDITIONS :-

1. Environmental Clearance is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the Proponent.
2. The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the DEIAA, Dindigul.
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 confirm to the norms prescribed by the Central Pollution Control Board in this regard.


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- 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 permissions 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.

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12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.,
13. Workers/Labourers shall be provided with facilities for drinking water and sanitation facility for Female and Male separately.
14. The Project Proponent shall ensure that Child Labour is not employed in the project as per the sworn affidavit furnished.
15. The funds earmarked for Environmental Protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Chennai.
16. Land use classification as per Department of Town and Country Planning (DTCP)/Agriculture shall meet the requirement of mining/ industrial use
17. 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.
18. 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.


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19. The DEIAA, Dindigul may alter/ modify the above conditions or stipulate any further conditions in the interest of Environment Protection.
20. The DEIAA, Dindigul may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this DEIAA, Dindigul that the Project Proponent has deliberately concealed and / or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
21. 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.
22. 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 Mines and Minerals (Development and Regulation) 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/Madurai and any other Courts of Law relating to the subject matter.
23. The Environmental Clearance shall not be used as a document to obtain any other clearance unless it is specifically prescribed by the Issuing Authority.

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24. Any other conditions stipulated by other Statutory/ Government Authorities shall be complied.

25. 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.

I. 17) The Registered holder / lessee shall strictly comply with the provisions of labour legislations such as:-

- i. Minimum Wages Act 1948 and Central Rules, 1950.
- ii. Payment of Wages Act 1936 and Mines rules, 1955.
- iii. Equal Remuneration act and Central Rules, 1976.
- iv. The Explosives Act, 1884 (Central Act IV of 1884)
- v. The Registered holder / lessee shall pay minimum rates of wages fixed by the Government to the labourers and furnish a certificate every month before 10th of the following month to the District Collector that these wages are being paid. Non furnishing of this certificate will be taken as a violation of the conditions of this agreement. The Registered holder / lessee should maintain the required registers as per labour laws. Any contravention of the provisions shall attract legal proceedings.

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18) Any contravention of the Mines Act, 1952 shall amount to the cancellation of the lease.

19) Mining operations shall not be commenced/conducted unless a qualified manager and other supervisory staff appointed as required under the Metalliferous Mines Regulations 1961 and relevant notices to be sent to the Director General of Mines safety, Dhanbad with a copy of the same to the concerned Director of Mines safety, Chennai Region, Chennai.

20) The Registered holder / lessee should not employ child labourers in Granite quarry works.

For the purpose of calculation of stamp duty under Article No.35 (a) (IV) of the Stamp Act 1908 and amendment made to table of fees in clause (e) Article 1 of Section 78 of the Registration Act 1908, 1% stamp duty on the total amount of seigniorage fees of Rs.26,90,03,900/- (Rs.2,321/- X 1,15,900cum [28,975 cum x 4(5years)]) for Twenty years and area assessment for Twenty years of Rs.16,890/- (Rs.300/- x 20 years x 2.81.5 hecets) and security deposit amount of Rs.40,000/- were taken into account and the Stamp duty works out to Rs.26,91,000/-.

16. The lease period starts from the 08th day of **MARCH 2018** and valid upto 07th day of **MARCH 2038**.

M. S. J.
LESSEE

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THE SCHEDULE

1. Name of the District : DINDIGUL
 2. Name of the Taluk : VEDASANDUR
 3. Name of the Village : ALAMBADI
 4. Name of the Sub Registration District : GUJILIAMPARAT
 5. Lease Period : 20 YEARS

From 08.03.2018 to 07.03.2038

Survey Number	Total Extent Hects.	Area Assessment Rs.	BOUNDARIES			
			North by SF No.	East by SF No.	West by SF No.	South by SF No.
911/1A1	0.74.0	Rs.300/ - Per year Per hectare.	912	911/1B1	911/1A2, 910	913/1A1(P)
911/1B1	0.99.0		911/1A1	911/1B2, 913/2B	911/2, 910	913/1B1(P), 913/2B
913/1A1 (Part)	0.61.5		924, 926, 912	913/1B1	911/1A1	923, 913/1A2
913/1B1 (Part)	0.47.0		913/1A1	913/2B, 913/3	911/1B1	913/1B2, 923
Total	2.81.5					

IN WITNESS WHERE OF, M/s.S G GRANITES, Door No.3, East 2nd Street, Behind ICICI Bank, K.K.Nagar, Madurai District-625 020 'the Registered holder / Lessee' and Dr.T.G.Vinay, I.A.S., District Collector, Dindigul acting for and on behalf of and by the order and direction of the Governor of TamilNadu have hereunto set their hands.

M. S. G.

LESSEE

Signed by the above named
in the presence of

T. G. Vinay

LESSOR
&

COLLECTOR
DINDIGUL DISTRICT
DINDIGUL

Signed by the above named
in the presence of

1. *S. S. R.*
S/o. Saalaamurugan,
S/o. Sonaisamy, (Aadhar No.994151181168)
D.No.607, K.K.Nagar, 2nd Cross Street,
Alavandhan, Madurai, Gandhi Nagar, (Ma)
Pin.625020

2. *M. Venkateswaran*
M.Venkateswaran,
S/o.Manickam (Aadhar No.792439512768)
D.No.2/2, Keelayur, Melur Taluk,
Madurai, Pin.625106

1. *T. G. Vinay*
ASSISTANT DIRECTOR
GEOLOGY AND MINING
DINDIGUL.

2. *S. S. R.*
SPECIAL DEPUTY TAHSILDAR
GEOLOGY AND MINING
DINDIGUL

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ந.க.எண்.252/2017 (கனிமம்)

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மாவட்ட ஆட்சியரகம்,
உதவி இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் சுரங்கத்துறை,
திண்டுக்கல்.

நாள் : 15.03.2018



குறிப்பாணை

பொருள் : கனிமங்களும் சுரங்கங்களும் - சிறுவகைக் கனிமம் - திண்டுக்கல் மாவட்டம், வேடசந்தூர் வட்டம், ஆலம்பாடி கிராமம், புல எண்கள்: 913/1ஏ1 (பகுதி) (0.61.5 ஹெக்டேர்), 913/1பி1 (பகுதி) (0.47.0 ஹெக்டேர்), 911/1ஏ1 (0.74.0 ஹெக்டேர்), 911/1பி1(0.99.0 ஹெக்டேர்) ஆகியவற்றில் 2.81.5 ஹெக்டேர் பரப்பில் பலவாண் கிராணைக் கற்கள் வெட்டியெடுக்க அனுமதி கோரி தி/எஸ்.எஸ் ஜி கிராணைக்ஸ் நிறுவனத்தினருக்கு அனுமதி வழங்கப்பட்டது - குத்தகை ஒப்பந்தப் பத்திரம் நிறைவேற்றியுள்ளது - பதிவு செய்து பத்திரம் மீள அனுப்ப கேட்டல் - தொடர்பாக.

பார்வை : அரசாணை 3(டி) எண்: 6, தொழில் (எம்.எம்.பி2) துறை நாள்: 19.02.2018

பார்வையில் காணும் அரசாணையின்படி திண்டுக்கல் மாவட்டம், வேடசந்தூர் வட்டம், ஆலம்பாடி கிராமம், புல எண்கள்: 913/1ஏ1 (பகுதி) (0.61.5 ஹெக்டேர்), 913/1பி1 (பகுதி) (0.47.0 ஹெக்டேர்), 911/1ஏ1 (0.74.0 ஹெக்டேர்), 911/1பி1(0.99.0 ஹெக்டேர்) ஆகியவற்றில் 2.81.5 ஹெக்டேர் பரப்பில் 20 ஆண்டுகளுக்கு பலவாண் கிராணைக் கற்கள் வெட்டியெடுத்துக் கொள்ள தி/எஸ்.எஸ் ஜி கிராணைக்ஸ் நிறுவனத்தினருக்கு அனுமதி வழங்கி உத்தரவிடப்பட்டுள்ளது. இது குறித்து 08.03.2018 அன்று குத்தகைதாரருடன், திண்டுக்கல் மாவட்ட ஆட்சியரால் நிறைவேற்றப்பட்ட அசல் குத்தகைப் பத்திரம் இத்துடன் இணைத்து அனுப்பப்படுகிறது. அதனை குத்தகைதாரர் செலவில் பதிவு செய்து அனுப்பி வைக்குமாறு சார்பதிவாளர், குஜிலியம்பாறை கேட்டுக்கொள்ளப்படுகிறார்.

2) இந்திய முத்திரைச்சட்டம், பிரிவு 88(எல்)-ன்படி மாவட்ட ஆட்சியர் பதிவு அலுவலகத்தில் ஆஜராவதில் இருந்து விலக்களிக்கப்பட்டுள்ளது என்ற விவரம் தெரிவிக்கப்படுகிறது.

இணைப்பு : அசல் பத்திரம் - 34 பக்கங்கள்
வரைபடம் - 3 பக்கங்கள்

மாவட்ட ஆட்சியரகத்தின் தலைவரகமாக,
உதவி இயக்குநர்
புவியியல் மற்றும் சுரங்கத்துறை,
திண்டுக்கல்.

பெறுநர் :
சார்பதிவாளர்,
குஜிலியம்பாறை

15-3-18

புத்தகம் 2018ம் வருடத்திய 401ம்
ஆவணம் 44தாள்களைக் கொண்டது
35 வது தாள்
பதிவு அலுவலர்



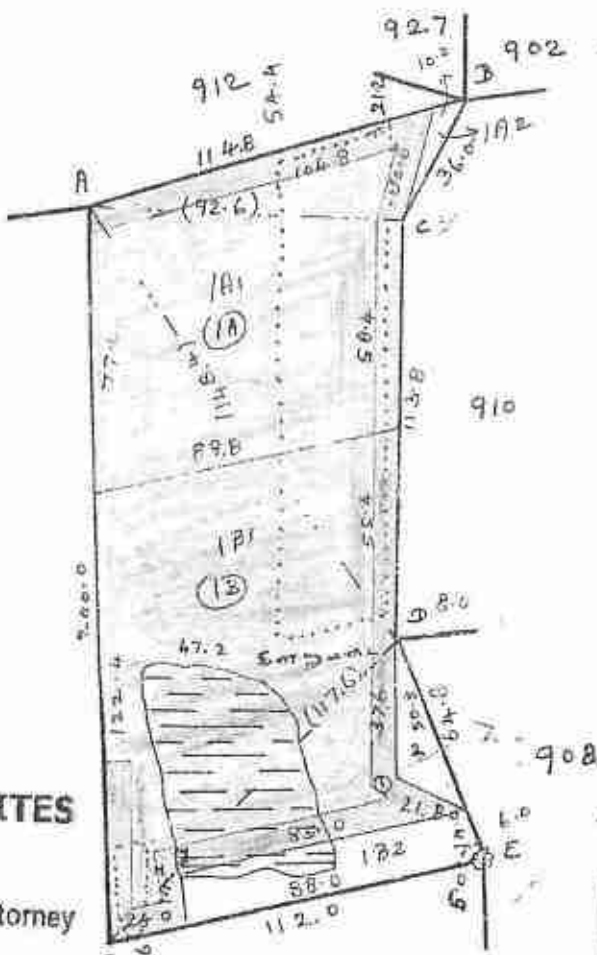
Document No. 491 of 20 19 of Book
 I Contains 44 Sheets 37 Slaves.
 Registering Officer

37 11/15/2019
 எண். 3
 சிராமம்
 பெயர். சிவசுந்தரன்
 1 ஏ. 8
 COMMISSIONER OF GEOLOGY AND MINING
 SUNDARY, CHENNAI-600 032

10. மதுரை
 605
 கோவை
 911

பரப்பு வெக்டர்

- 0.5 மீட்டர் அகலம்
- 7.5 மீட்டர் அகலம்



DISTRICT COLLECTOR
 DINDIGUL.

ASSISTANT DIRECTOR
 GEOLOGY AND MINING
 DINDIGUL.

For S G GRANITES
 Specific Power of Attorney

	D	(648)	
14.2	29.8		
	F		
	A	(2000)	
	83.4	51.4	
	74.4	11.6	
	72.4	47.2	
	26.2	13.6	
	26.2	3.6	
	F	(1120)	
	85.6	12.8	
	41.2	5.6	
	E		

B	
3.6	
9.6	10.1
9.6	4.2
1.0	4.3
3.0	12.0
A	

New sub-division 1A1, 1A2
 1B1, 1B2 Pledged as per
 TR EA NO. 419/1410 dt-10-3-2010
 C. Palaniappan
 24.3.17
 REPLY SUNDARY

சுற்றுலா துறை
 சி. சிவசுந்தரன்
 சி. சிவசுந்தரன்
 சி. சிவசுந்தரன்

TAHSILDAR
 Veda sandur
 SPECIAL DEPUTY TAHSILDAR
 GEOLOGY AND MINING
 DINDIGUL

சுற்றுலா துறை
 சி. சிவசுந்தரன்
 சி. சிவசுந்தரன்
 சி. சிவசுந்தரன்

39

R/Kujiliamparai/Book-1/401/2018



CERTIFICATE UNDER SECTION 42 OF THE INDIAN STAMP ACT 1899

S.No 48 of 2018

I hereby certify that a sum of ₹ 26,00,000/- (Rupees Twenty Six Lakh only) on account of deficit stamp duty has been levied under section 41 of the Stamp Act in respect of this instrument from Mr. ELANCHEZHIAN residing at 129, RAMASAMY STREET, MANNADI, CHENNAI, Chennai, Tamil Nadu, India, 600001.

Sub Registrar: Kujiliamparai
Date: 15/03/2018

Signature of Sub Registrar and Collector under Section 41 of the Indian Stamp Act



Presented in the office of the Sub Registrar of Kujiliamparai and fee of ₹ 20,630/- paid at 04:05 PM on the 15/03/2018 by [20000 + 580 + 50]

Left Thumb



M. S. S.

Additions as per recitals of document

Claim admitted by
Left Thumb



M. S. S.

Additions as per recitals of document

I have satisfied myself as to the execution of the instrument by Mr. SASIKUMAR, DINDIGUL, Dindigul, Tamil Nadu, India, 624004 (ASSISTANT DIRECTOR, Dindigul) who is exempted from personal appearance under section 88(1) of the registration act.

Signature and stamp of the Sub Registrar of Kujiliamparai.

Document No 401 of 2018 of Book
1 Contains 44 Sheets 39 Sheet.

Registering Officer



40

R/Kujiliamparai/Book-1/401/2018



Identified By

1. *S. R.*

Mr. BAALAAMURUGAN Son of SONAISAMY 607, K. K. NAGAR 2ND CROSS STREET, ALAVANADAN, K. K. NAGAR, Madurai East, Madurai, Tamil Nadu, India, 625020.

2. *H. J.*

Mr. VENKATESWARAN Son of MANICKAM 2/2, KEELAIYUR, Keelaiyur, Mettur, Madurai, Tamil Nadu, India, 625106.

15th day of March 2018

P. Navaneethakrishnan

PRABU NAVANEETHAKRISHNAN
Sub Registrar
Kujiliamparai

Registered as Number R/Kujiliamparai/Book-1/401/2018.

Date: 15/03/2018
Kujiliamparai

PRABU NAVANEETHAKRISHNAN
Sub Registrar



Document No 401 of 20 (B) of Book
Contains 44 Sheets 40 Sheet.

[Signature]
Registering Officer

41



 <p>Government Assistant Director, Geology Geology, Dindigul, Tamil Nadu Father: VENKATACHALAM KOOTNAR Date of Birth: 20.09.1978 Sex: Male</p>	 <p>Geology Geology, Dindigul, Tamil Nadu Address: 20, Venkateswara, 20 WEST STREET, LAKSHMIPURAM, 627 009 SELLYAMPALAYAM Narasolepuram, Salem Narasolepuram, Tamil Nadu 635 016</p>
2801 1771 5028	2801 1771 5028


அதிகாரி - சாதாரண மனிதனின் அதிகாரம்

**GOVERNMENT OF TAMIL NADU
 DEPARTMENT OF GEOLOGY AND MINING**
 QUINCY CHETTIYAR ROAD
 CHENNAI - 600 022
 TEL: 2250 1232 (2070 1974)

IDENTITY CARD

ID No. : 0002016
 Name : V. SASIKUMAR M.
 Designation : ASSISTANT DIRECTOR


 SIGNATURE OF THE HOLDER


 ATUL KUMAR I.A.S.
 COMMISSIONER, G.M.

BLOOD GROUP : A +ve
DATE OF BIRTH : 20.09.1978
RESIDENTIAL ADDRESS : V. SASIKUMAR,
 West Street,
 Sellyampalayam,
 Narasolepuram Post,
 Alor Taluk, Salem District,
 Cell : 98345 74888.

VALID UPTO 30.06.2021

Attested /
 For Registrations as per h.o. no. (30) No.6
 Industries (Mines & Department dated: 19/2/2018 in amended
 where S.F. no 911/1M1 (Co. 770 habs), 911/1B1 (Co. 49.0 habs)
 913/1B1(B) (Co. 61.5 habs) & 913/1B1(B) (Co. 47.0 habs) etc
 S.O. 5000/16, Madurai.

19/2/2018
**ASSISTANT DIRECTOR
 GEOLOGY AND MINING
 DINDIGUL.**

Document No. 401 of 20 15 of Book
 Contains 46 Sheets 1 Sheet.
 Registering Officer



42



भारत सरकार
GOVERNMENT OF INDIA

आर्य समाज
Ary Samaj

6046 9334 2226

भारत सरकार - भारतीय उपमहाद्वीप


भारत सरकार
भारतीय पहचान प्राधिकरण
INDIAN IDENTIFICATION AUTHORITY OF INDIA

पता
20 अणुसमूह, 129, रामोदरी स्ट्रीट,
चण्डी, चेन्नई - 600001

Address
20 A Group, 129, Ramodary Street,
Chandy, Chennai, Chennai
C.P.O., Tamil Nadu, 600001

M.A.S.

Document No 401 of 20 18 of Book
Contains 144 Sheets 42 Sheet.


Registering Officer



43





 சமீரன் குமார்
 சமீரன் குமார்
 சமீரன் குமார்
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 சமீரன் குமார்

0941 5110 1168

சமீரன் குமார்

so. r

Document No 401 of 20 18 of Book
 Contains 44 Sheets 43 Sheet.

 Registering Officer



44




Union Identification Authority of India
CHENNAI
100, Anna Salai, Chennai-600 002
Phone: 044-2332 2211, 2332 2212
Fax: 044-2332 2213
E-mail: uia@nic.gov.in

7924 3951 2768

7924 3951 2768

H. Jeyaraj

Document No 401 of 20 18 of Book
I Contains 44 Sheets 44 Sheet.

Registering Officer





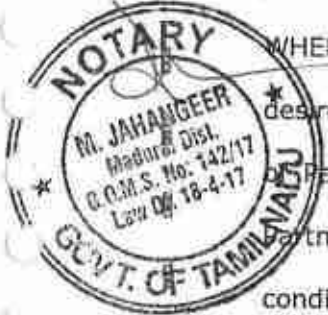
தமிழ்நாடு தமில்நாடு TAMILNADU
 29.9.2021
 S G GRANITES
 MADURAI

[Handwritten Signature]
 CH 181290
 எனது நகரத்திற்குள்
 கட்டுமானப் பணிகளை
 மேற்கொள்ளும்
 ச. சி. சி. 5797/51/98-ஐ
 - கட்டுப்பாட்டு அமைச்சர்
 உத்தரவு எண் 181290
 மதுரை-2



Collectively called as Parties of the **THIRD Part** - Retiring Partners

WHEREAS the above Parties of the **First Part and Third Part** were carrying on the business of partnership under the name and style of "**M/s. S G GRANITES**" at Chennai to carry on business of quarrying, processing and marketing all kinds of granite as per the terms and conditions of Original Partnership Deed dated **8th March 2017**.



WHEREAS the above Existing, Incoming Partners and Continuing Partner are desirous of modifying, incorporating and amending certain clauses of the Deed of Partnership and in order to put them in writing this new Instrument of Partnership Deed is executed incorporating the changes in terms and conditions mentioned below:-

1) *[Handwritten Signature]* 2) *[Handwritten Signature]* 3) *[Handwritten Signature]*
[Handwritten Signature]

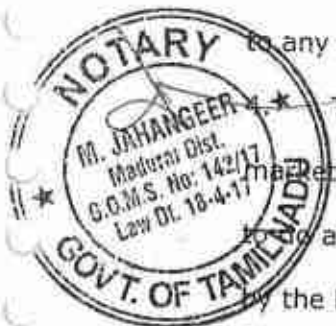


WHEREAS to achieve the said object, the firm herein have purchased the granite bearing Patta lands, situated in Alambadi Village, Vedasandur Taluk, Dindugal District in the name of the said "SG Granites" as mentioned in the Original Partnership Deed dated **8th March 2017, Reconstitution Partnership deed dated 10/08/2017 and Reconstitution Partnership deed dated 4/4/2018**

AND WHEREAS the Parties of the FIRST PART, the Parties of the SECOND PART are desirous of reducing into writing the terms and conditions on which they agreed to carry on the partnership and the same are as follows: -

NOW THIS DEED WITNESSETH: -

1. This Reconstituted Partnership Deed shall come into force on and from **1st day of October, 2021.**
2. The name and style of the partnership shall continue to be "**M/s. S @ GRANITES**" and / or such other name or names as the parties may mutually agree from time to time.
3. The Registered Office and the place of the business of the firm shall be situated at **No. 3, East Second Street, KK Nagar, Madurai 625020.** However, with the mutual consent of the partners herein these may be shifted to any other place.



The Partnership business shall be that of quarrying, processing and marketing of all kinds of both rough and finished products of granite and also any other related business or business as may be mutually agreed upon by the Partners herein,

1) *[Signature]*

2) *[Signature]*

3) *[Signature]*
M. G. J.

5. The Partners (Parties of First part and Second Part) have agreed to share the profit or loss equally in the following ratio:

Mr. S P Sonaisamy	...	70%
Mr. So. Baalaa Murugan	...	30%



6. It is agreed between the parties herein that, any additional amount than the capital investment the same will carry interest @ 18% p.a.

7. The duration of the partnership shall be AT WILL.

8. The Assets and Liabilities of the partnership business carried on up to **30th September 2021** have been taken over by this partnership as a going concern.

9. The balance standing to the credit of Capital and Current accounts of above party of the First Part as on **30.09.2021** shall be considered as his respective capital contribution in the firm.

10. The Incoming and Second Part **So. BAALAA MURUGAN** shall contribute such amount as agreed by all the parties as initial Capital Contribution to the firm.

11. The First party and Second party of the Third part, the retiring partners capital and current account balance standing as of **30th September 2021** shall be converted to loan / advance and shall be repaid in instalments as agreed by the parties.

12. The amount standing to the credit of the capital account of the respective partners as at beginning of the every accounting year shall be treated as the capital balance of the respective partners. The interest on capital shall be calculated on this balance in accordance with Clause No.11.

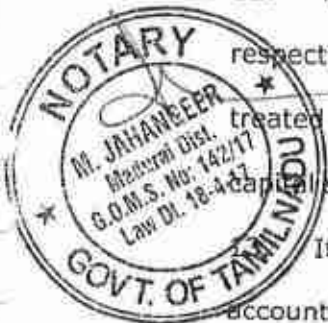
It is agreed that whenever there is a credit balance in the current account of the partners, such balance may be transferred from the current

Page 5 of 9

1) S P Sonaisamy

2) So. Baalaa Murugan

3) R. Shankar
M. G.





account to capital account of the respective partner as per consent of all the partners, on every first day of April, and such increased balance in the capital account as above, shall be treated as the capital balance of the partners as on the first day of every accounting year and shall be entitled for interest at the maximum rate specified in the Income Tax Act, 1961, which rate at present is 12% simple interest per annum. Provided that no interest shall be charged if there is loss before making any provision for interest or the parties decided not to take interest on their capital accounts.

14. The Firm shall pay to the Partners during the continuance of his tenure in consideration of the performance of his duties such salary and remuneration with perquisites, as the Partners may decide from time to time. However, for the purpose of computation of income and tax, maximum salary allowed U/s 40(b) of the Income Tax Act 1961 and rules there under or such other law that comes into effect in place of this legislation having similar provisions shall be considered, and the same shall be divided in the same ratio as the actual remuneration paid to them.

15. No partner shall mortgage, assign, or charge or create a trust of any sort on his share in assets or profits of the firm.

16. Each partner shall not be liable or responsible and the assets of this Partnership firm shall not be made liable or affected in any manner for the personal or private debts, liabilities, commitments of the other partners and each partner shall indemnify the other partners and the partnership assets against any action proceedings or engagements brought or enforced against any partner herein in respect of such private debts, liabilities, etc.



1) *[Handwritten signature]*

2) *[Handwritten signature]*

Page 6 of 9
3) *[Handwritten signature]*
4) *[Handwritten signature]*



17. None of the Partners shall borrow money in the name of the firm individually and all the borrowings in the name of the firm or on behalf of the firm shall be by mutual consent of the partners of the First and Second Part.
18. Bank accounts shall be opened anywhere in the country based on business exigencies and the same shall be operated by designated person/s as authorized by the partners.
19. Each partner shall at all times duly and punctually pay and discharge his separate and private debts and engagements whether present or future and keep indemnified there from and from all actions, proceedings, costs, claims and demands in respect of the Partnership property and other partners and on their respective estates and effects.
20. Proper books of accounts shall be maintained and the books so maintained shall be closed on 31st March of every year to ascertain the profit or loss of the firm. The profit or loss so arrived after considering all the expenses including interest on capital of partners and remuneration payable, if any, to working partners, shall be divided by the following parties in the ratio mentioned erstwhile in this deed. The annual accounts are prepared in accordance with generally accepted accounting principles of the Partnership.

21. No partner shall do anything detrimental to the partnership firm and each partner shall be faithful to the other partners in carrying on the partnership business.

The partnership shall not stand dissolved by reason of the death, insolvency or retirement of any of the partner, and the legal heirs of the

Page 7 of 9

1)

2)

3)
M. S.

deceased partner will be taken as partners if so desired otherwise the partnership account of the deceased, retired or insolvency partner shall be ascertained and settled only after the annual accounting year.



23. Any partner can retire from the Partnership firm by giving one-month notice ending with the last day of the month to the other partners.

24. It is agreed between the parties herein that so long as this partnership exists, all the two partners (Parties of first and Second Part) shall not undertake independent quarry operations either directly or indirectly of the same color of granite in the same locality or in the adjacent locality of the same Taluk.

25. Any of the clauses may be altered, modified, substituted or new clauses added to this partnership deed with the consent of all the partners and such clauses though may not be embodied in the deed it shall have the same effect as if it were contained as a clause of this deed and the provisions of the Indian Partnership Act, 1932 shall apply in all matters not provided herein.

26. In case of any dispute arising between the partners relating to any matter pertaining to the Partnership business or relationship between the partners, the same shall be referred to the arbitrator to be appointed by mutual consent of all the three partners (Parties of Second Part) and the decision of the said arbitrator shall be final and binding on all the three partners (Parties of Second Part). The provisions of the Indian Arbitration Act, 1940 as amended from time to time shall apply.

WITNESS WHEREOF the Parties hereto have signed this instrument on the _____ day, month and the year first above written.



1) *[Handwritten signature]*

2) *[Handwritten signature]*

3) *[Handwritten signature]*
[Handwritten signature]



Parties of the First Part:

1) *[Handwritten Signature]*

SP. SONAISAMY

Parties of the Second Part:

2) *[Handwritten Signature]*

So. BAALAA MURUGAN

Parties of the Third Part:

[Handwritten Signature]

1. Mr. SATHISH RAVEENDRAN

[Handwritten Signature]

2. Mr. A ELANCHEZHIAN

WITNESS :

1. *[Handwritten Signature]* = *[Handwritten Name]*

2. A. John Frankin - A. John Frankin S/o Anthony class
R. Manalan. east meethan @
Pavathi (I.K) cholethan @



[Handwritten Signature] 7/12/2014

M. JAHANGEER, B.Sc., B.L.,
Advocate / Notary Public
Thirumogur Main Road,
Alagappan Nagar, Near Sriram Medical
Y. Othakkadai, Madurai - 625 107.

SG GRANITES

S/F No. 911/1A1, ETC

ALAMBADI VILLAGE, ALAMBADI POST, VEDASANDUR TALUK,
DINDIGUL DISTRICT - 624620, TAMILNADU



Letter of authorization

- "RESOLVED THAT the Board do hereby appoint SUBBIAH SONAISAMY, Authorised Representative of the company as Authorised Signatory for enrolment of the firm on the Geology and Mines Department and Government related activities and to sign and submit various document electronically and/or physically and to make applications, communications, representations, modifications or alterations on behalf of the firm before the Geology and Mines Department and Government authorities as and when required."
- "FURTHER RESOLVED THAT SUBBIAH SONAISAMY, Authorised Representative of the firm be and is hereby authorized on behalf of the firm to sign the returns, documents, letters, correspondences etc. And to represent on behalf of the company, for assessments, appeals or otherwise before the Geology and Mines Department and Government Office authorities as and when required."

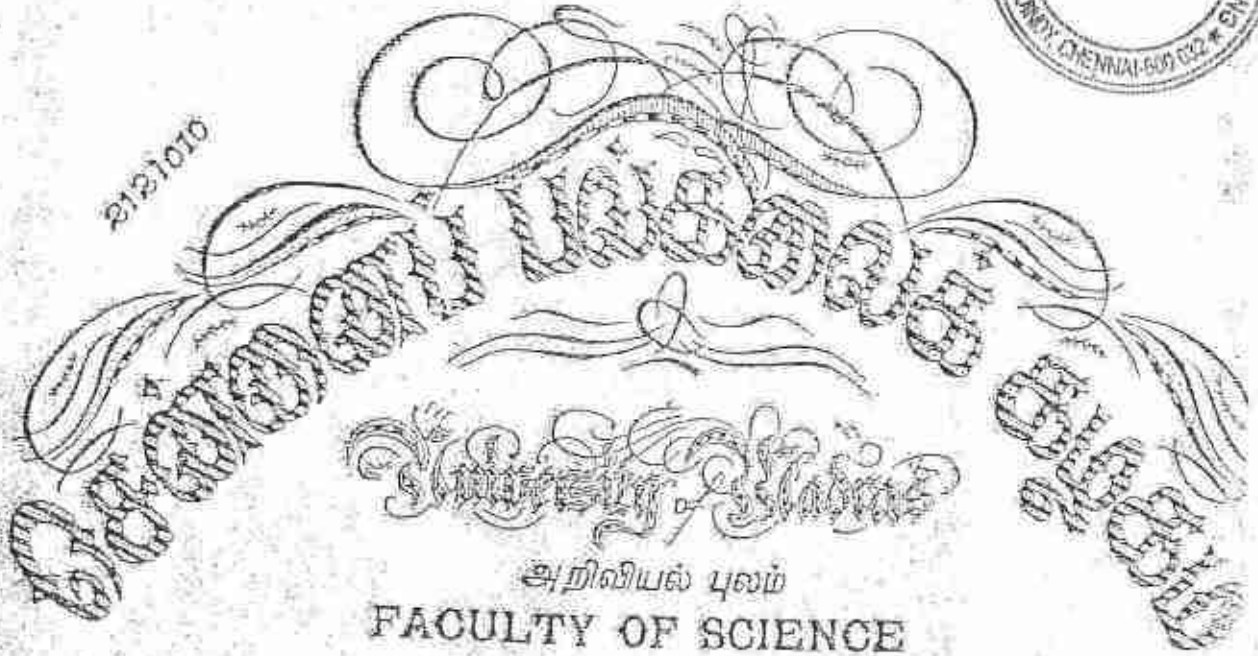
CERTIFIED TO BE TRUE COPY

For SG GRANITES

SONAI SAMY BAALAA MURUGAN
Partner



2121010



சென்னைப் பல்கலைக் கழகப் பேரவை 1994

ஆண்டு..... ஏப்ரல்..... மாதம் 24-ஆம்..... கனிமவியல்..... தோல்
 டி. சங்கரநாதன்..... என்பவர்..... டி. சி. வி. சுவாமிநாதன்
 தேர்ச்சி இயற்றா என்று தமது தோல்வான்கள் சான்றிதழ்கள் அறிவியல் நிறைவு
 உள்ளும் மட்டத்தை அவருக்குப் பல்கலைக் கழக இலக்கணப்படி விழுங்குகிறது.

The Senate of the UNIVERSITY OF MADRAS hereby makes known that *P. Sranganatha*

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

GOVERNMENT OF INDIA
 MINISTRY OF LABOUR AND REHABILITATION
 OFFICE OF THE DIRECTOR GENERAL OF MINES



Certificate of Practical experience granted by the Manager to a candidate for a Manager's / Surveyor's / Foreman's / Over man's / Sudar's / Mute's / Short fire'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.

THE THENMALI LIME STONE MINE
 (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	06	25
03.	Exploration		11.12.1996	31.01.1998	01	02	20
04.	Surveying		01.02.1998	25.06.1998	00	04	25
05.	Sampling Quality control and		20.06.1998	20.07.1999	01	00	24
06.	Supervisor in HEMMA 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

OF ~~SHREYAS~~ LIME STONE MINES

Signature of Manager with Date (dd/mm/yy)
(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.



NOTIFICATION OF QUARRY LEASE

S.N.	EASTING	NORTHING
1	10 44 40.0000'N	10 00 40.0000'E
2	10 44 30.0000'N	10 00 40.0000'E
3	10 44 20.0000'N	10 00 40.0000'E
4	10 44 10.0000'N	10 00 40.0000'E
5	10 44 00.0000'N	10 00 40.0000'E
6	10 44 24.0000'N	10 00 40.0000'E
7	10 44 21.0000'N	10 00 40.0000'E
8	10 44 20.0000'N	10 00 40 1140'E
9	10 44 18.0000'N	10 00 40.0000'E
10	10 44 15.0000'N	10 00 40.0000'E
11	10 44 10.0000'N	10 00 40.0000'E
12	10 44 10.0000'N	10 00 40.0000'E
13	10 44 20.0000'N	10 00 40.0000'E

PLATE NO. II
DATE OF SURVEY: 28.10.2012

LESSEE:
T.V.S.G. GRANITES,
No. 3, EAST 2nd STREET,
BEHIND ICICI BANK,
K.K. NAGAR,
MADURAI-625 020.

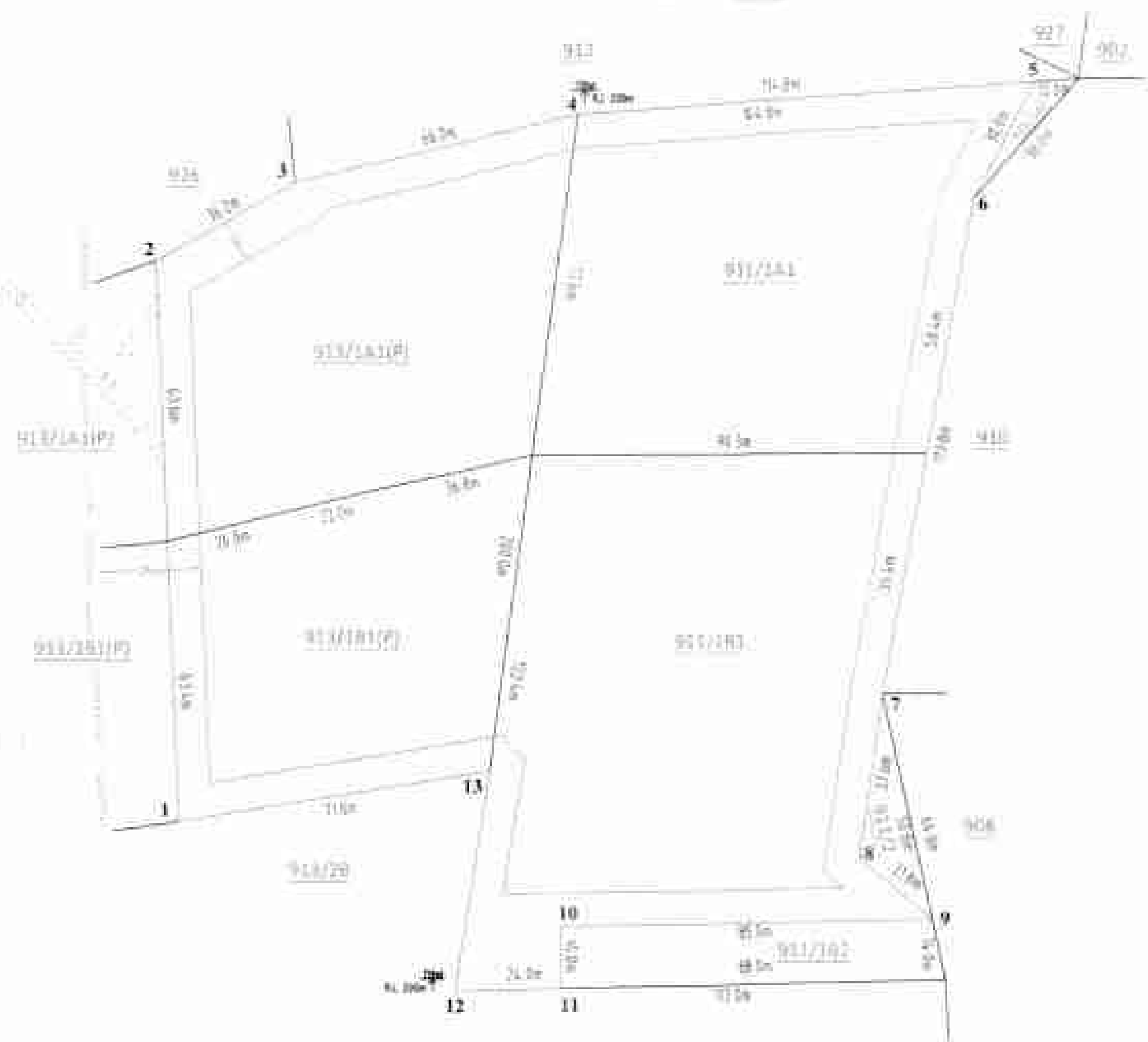
LOCATION OF QUARRY:
S.F. NO : 911/1A1/911/1B1,
913/1A1(P) & 913/1B1(P).
EXTENT : 2.81.5 Ha.
VILLAGE: ALAMBADI,
TALUK : GUILLAMPARAI,
DISTRICT: DINDIGUL.

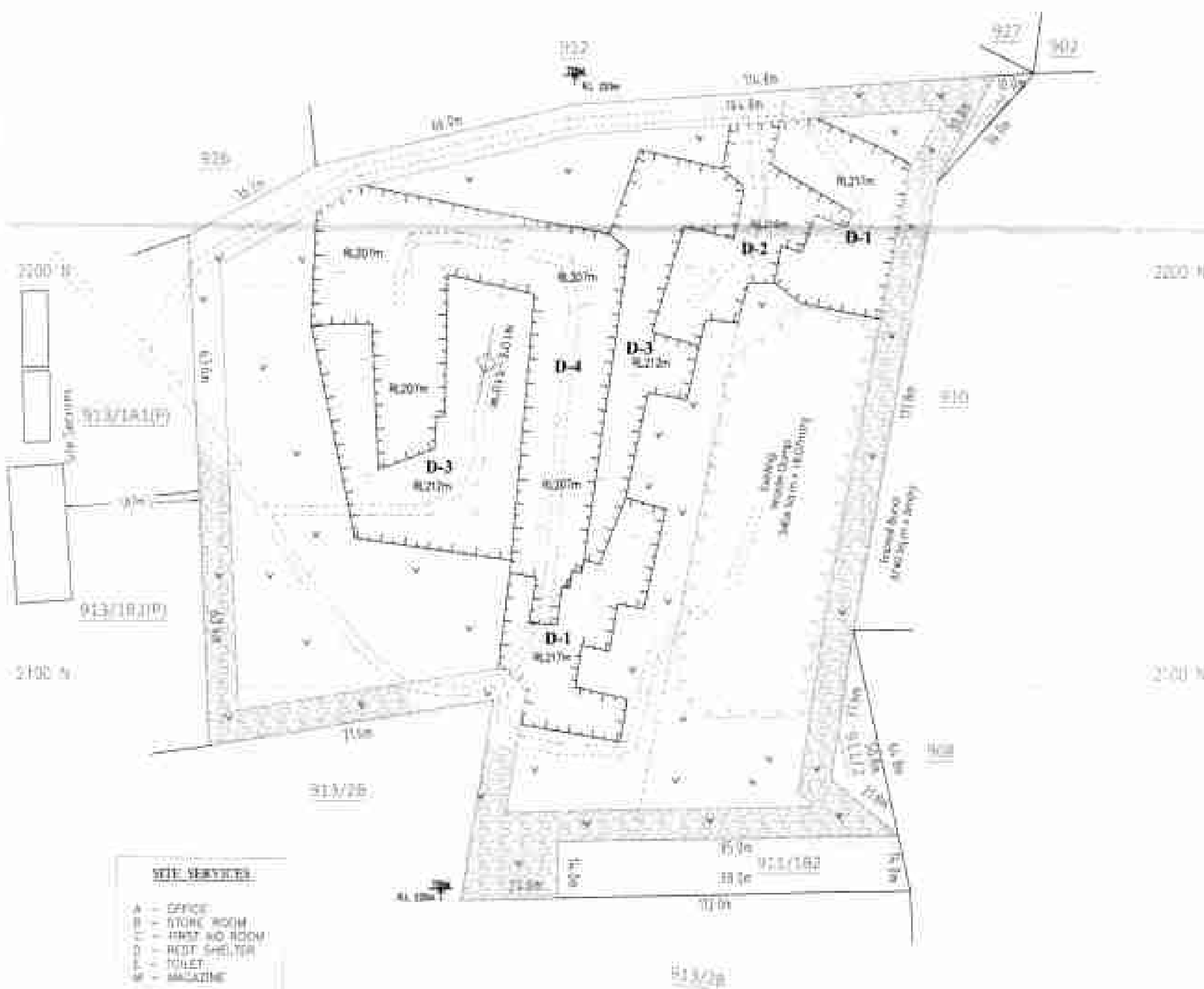
INDEX

LEASE AREA BOUNDARY	
7.5m and 15m SAFETY DISTANCE	
APPROACH ROAD	
LIMESTONE BAND OUT CROPS	
TEMPORARY BENCH MARK	

QUARRY LEASE PLAN
SCALE: 1:1000

PREPARED BY:
[Signature]
[Name]
[Address]





- SITE SERVICES**
- A - OFFICE
 - B - STORE ROOM
 - C - FIRST AID ROOM
 - D - REST SHELTER
 - E - TOILET
 - F - MAGAZINE

PLATE NO. III
DATE OF SURVEY - 26.10.2022

LESSEE:
T.V. S. G. GRANITES,
No. 3, EAST 2nd STREET,
BEHIND ICICE BANK,
K. K. NAGAR,
MADURAI-625 030

LOCATION OF QUARRY:
S.F. NO : 911/1A1, 911/1B1,
913/1A1(P) & 913/1B1(P),
EXTENT : 2.815 Ha,
VILLAGE : ALAMBADI,
TALUK : GULIAMPARAI,
DISTRICT: DINDIGUL

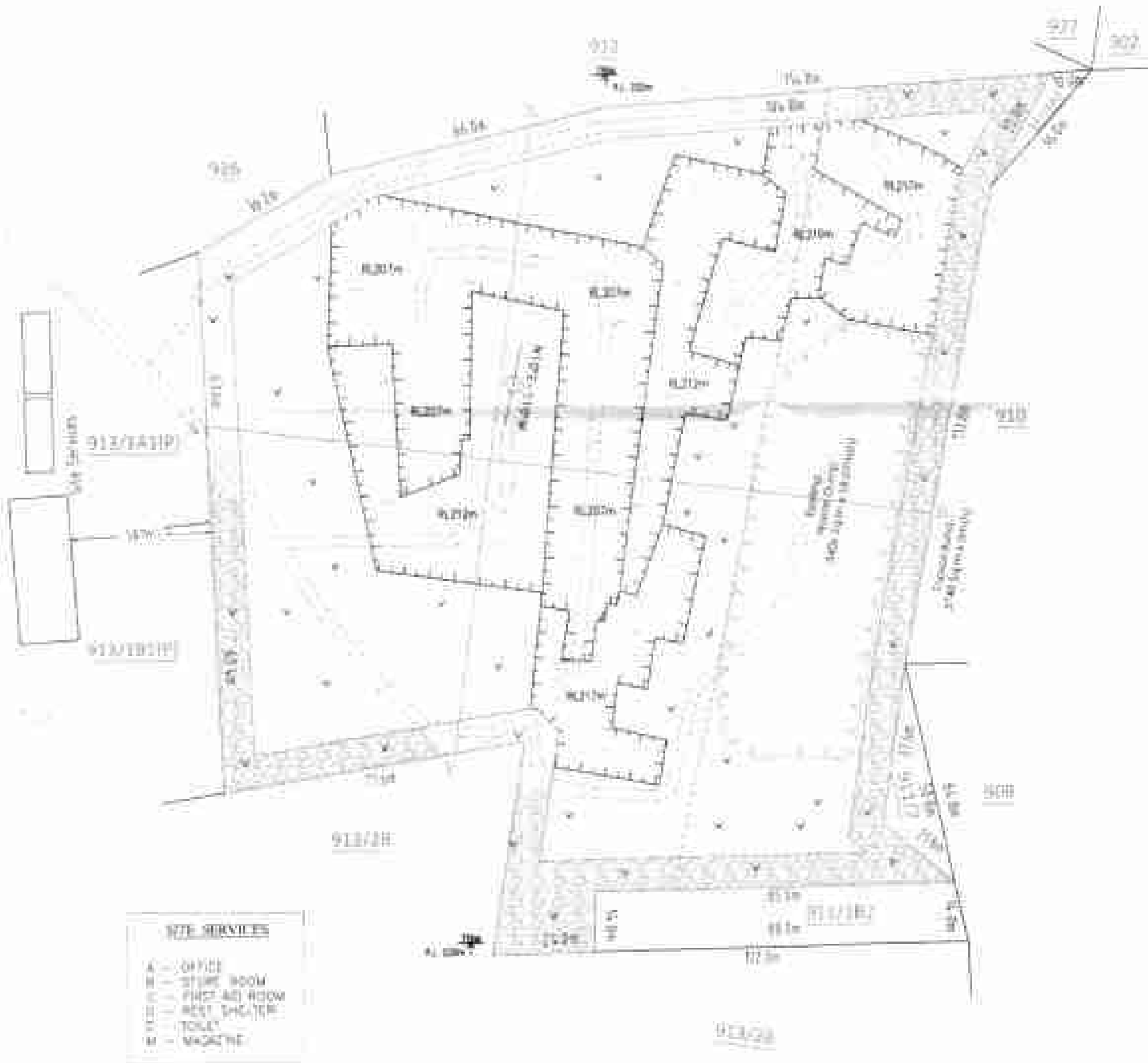
INDEX

- LEASE AREA BOUNDARY
- QUARRY LINE AND SAFETY DISTANCE
- APPROACH ROAD
- LIMESTONE BAND OUT CROPS
- TEMPORARY BENCH MARK
- QUARRY PIT
- QUARRY ROAD
- DUMP
- TOPSOIL BUND
- MINERAL CONTACT LINE
- MULTICOLOUR GRANITE
- HORNBLEND BIOTITE GNEISS
- TOP SOIL
- STRIKE AND DIP

PRESENT PIT DETAILS											
Pit ID	Existing R.L. (m)	Pit R.L. (m)	Area In (m ²)	Total Depth (m)	Depth (m)			Volume (m ³)			Total Excavation (m ³)
					Topsail	Granite	Side Burden	Topsail	Granite	Side Burden	
D-1	220	217	1150	3	2	1	0	2300	1150	0	3450
				1120	3	2	0	1	2240	0	1120
D-2	220	216	732	4	2	2	0	1464	1464	0	2928
			345	4	2	0	2	690	0	690	1380
D-3	220	212	3695	8	2	6	0	7390	22170	0	20560
D-4	220	207	3885	13	2	11	0	7770	42735	0	50505
Total								21854	67519	1810	91183

SURFACE PLAN
SCALE 1:1000

PREPARED BY:
[Signature]



- SITE SERVICES**
- A - OFFICE
 - B - STORE ROOM
 - C - REST AND ROOM
 - D - REST SHED
 - E - TOILET
 - F - MAGAZINE



PLATE NO. 14
 DATE OF SURVEY : 26.10.2022

LESSEE
 T.V.S. G. GRANITES,
 No. 3 EAST 2nd STREET,
 BEHIND ICICI BANK,
 K.K. NAGAR,
 MADURAI-625 020.

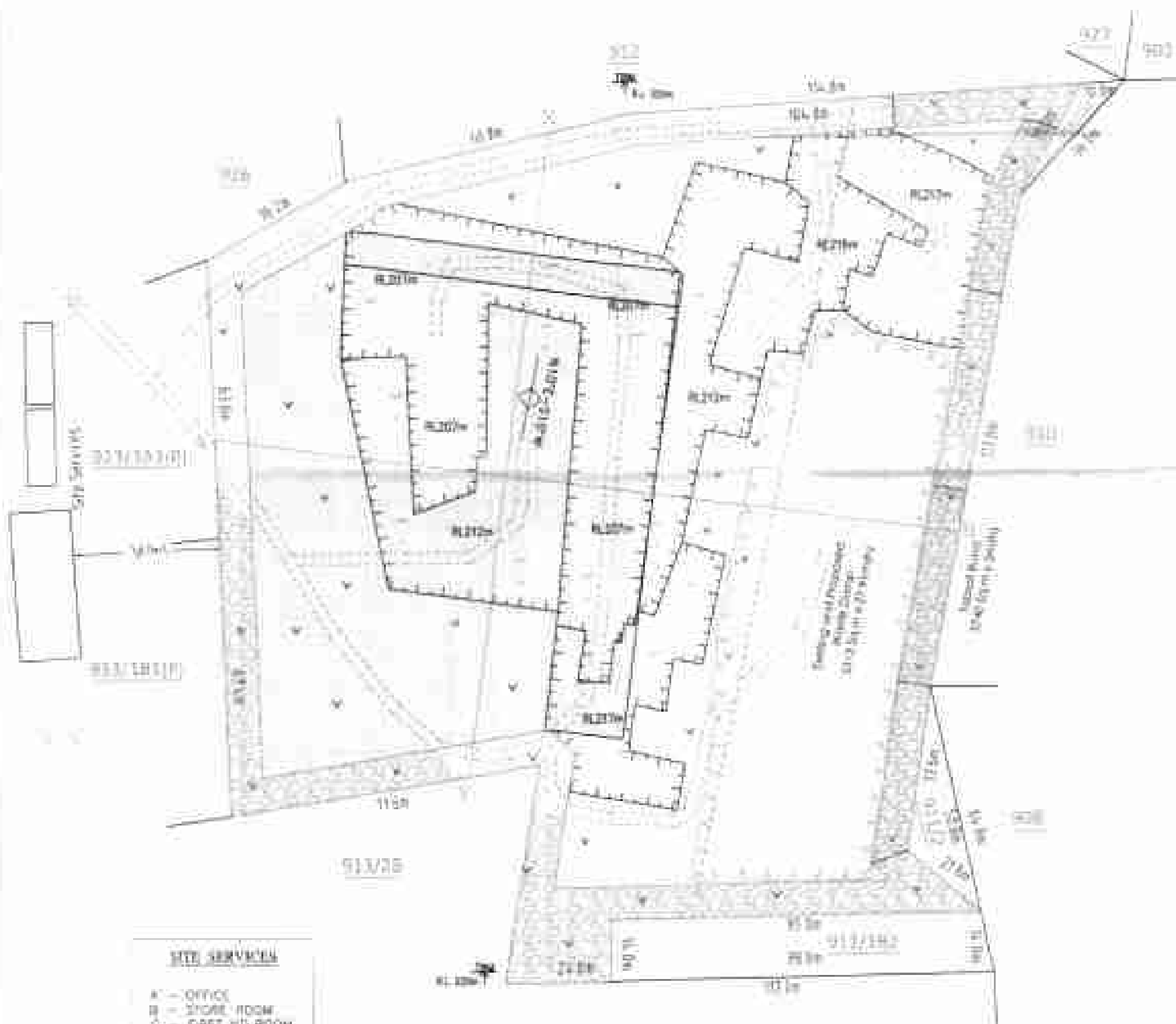
LOCATION OF QUARRY
 S.F. NO. : 911/1A1, 911/1B1,
 913/1A1(P) & 913/1B1(P)
 EXTENT : 2.81.5 Ha,
 VILLAGE : ALAMBADI,
 TALUK : GUILLAMPARAI,
 DISTRICT : DINDIGUL.

INDEX

RELEASE AREA BOUNDARY	[Symbol]
300M SAFETY DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
LIMESTONE BAND OUT CROPS	[Symbol]
TEMPORARY BENCH MARK	[Symbol]
QUARRY PIT	[Symbol]
QUARRY ROAD	[Symbol]
DUMP	[Symbol]
TORSION BOND	[Symbol]
MINERAL CONTACT LINE	[Symbol]
MULTICOLOUR GRANITE	[Symbol]
HORNBLAND MOTITE GNEISS	[Symbol]
TOP SOIL	[Symbol]
STRIKE AND DIP	[Symbol]

GEOLOGICAL PLAN AND SECTIONS
 SCALE : 1:1000

PREPARED BY:
 [Signature]



- SITE SERVICES**
- A - OFFICE
 - B - STORE ROOM
 - C - FIRST AID ROOM
 - D - REST SHELTER
 - E - TOILET
 - F - MAGAZINE

PLATE NO. V
DATE OF SURVEY - 26/10/2022

LESSEE
TVLS G. GRANITES,
No. 3, EAST 2nd STREET,
BEHIND ICICI BANK,
K.K. NAGAR,
MADURAI-625 030.

LOCATION OF QUARRY:
S.F. NO 911/1A1, 911/1B1,
913/1A1(P) & 913/1B1(P).
EXTENT - 2.81.3 Ha,
VILLAGE - ALAMBADI,
TALUK - GULLIAMPARAI,
DISTRICT - DINDIGUL.

INDEX

QUARRY AREA BOUNDARY	
5 METER WIDE (5M) SAFETY DISTANCE	
APPROACH ROAD	
LIMESTONE BAND OUT CROPS	
TEMPORARY BENCHMARK	
QUARRY PIT	
QUARRY ROAD	
DUMP	
TOPSOIL BUND	
MINERAL CONTACT LINE	
MULTICOLOUR GRANITE	
HORNBLEND BIOTITE GNEISS	
TOP SOIL	
STRIKE AND DIP	

[Signature]
COMMISSIONER
GEOLOGY AND MINING,
CINDY, CHENNAI-600 032.

08.02.2011-07.02.2014	Proposed area to be Quarried	
08.02.2014-07.02.2015	Proposed area to be Quarried	
08.02.2015-07.02.2016	Proposed area to be Quarried	
08.02.2016-07.02.2017	Proposed area to be Quarried	
08.02.2017-07.02.2018	Proposed area to be Quarried	

SECTION ALONG X-Y



SECTION ALONG A-B



08.01.2023-07.01.2024	Proposed area to be Quarried	
08.01.2024-07.01.2025	Proposed area to be Quarried	
08.01.2025-07.01.2026	Proposed area to be Quarried	
08.01.2026-07.01.2027	Proposed area to be Quarried	
08.01.2027-07.01.2028	Proposed area to be Quarried	

YEARWISE DEVELOPMENT AND PRODUCTION PLAN AND SECTIONS
SCALE - 1/1000

PREPARED BY:
[Signature]
S. S. SURESH, P.E., I.M.E., I.M.S., I.M.A.
Geologist, TVLS G. GRANITES
No. 3, East 2nd Street, Behind ICICI Bank,
K.K. Nagar, Madurai-625 030.



PLATE NO. V
DATE OF SURVEY 28-10-2022

LESSEE:
T.V.S.G. GRANITES
No. 3, EAST 2nd STREET
BEHIND ICICI BANK,
K.H. NAGAR,
MADURAI-625 020.

LOCATION OF QUARRY:
S.F. NO. : 913/1A1, 913/1B1,
913/1A1(P) & 913/1B1(P),
EXTENT : 2.81 S.Ha
VILLAGE : ALAMBADI,
TALUK : GUILLAMPARAI,
DISTRICT : GONDICUL.

INDEX

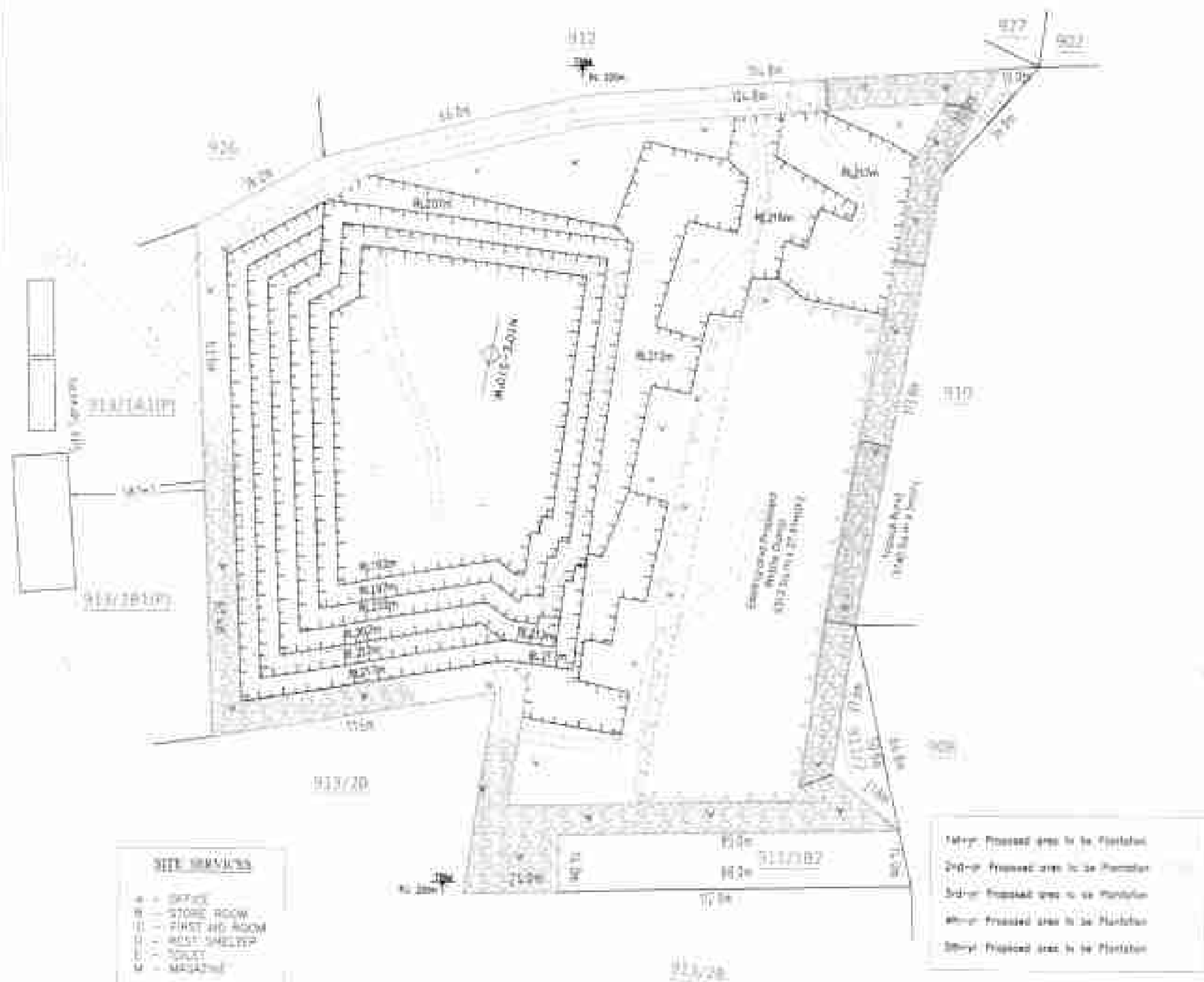
0 LEASE AREA BOUNDARY	
7.5m and 15m SAFETY DISTANCE	
APPROACH ROAD	
LIMESTONE BAND OUT CROPS	
TEMPORARY BENCH MARK	
QUARRY PIT	
QUARRY ROAD	
DUMP	
TOPSOIL BUND	
MINERAL CONTACT LINE	
MULTICOLOUR GRANITE	
HORNBLEND BIOTITE GNEISS	
TOP SOIL	
STRIKE AND DIP	

QUARRY LAYOUT AND AFFORESTATION PLAN

SCALE : 1:1000

PREPARED BY:

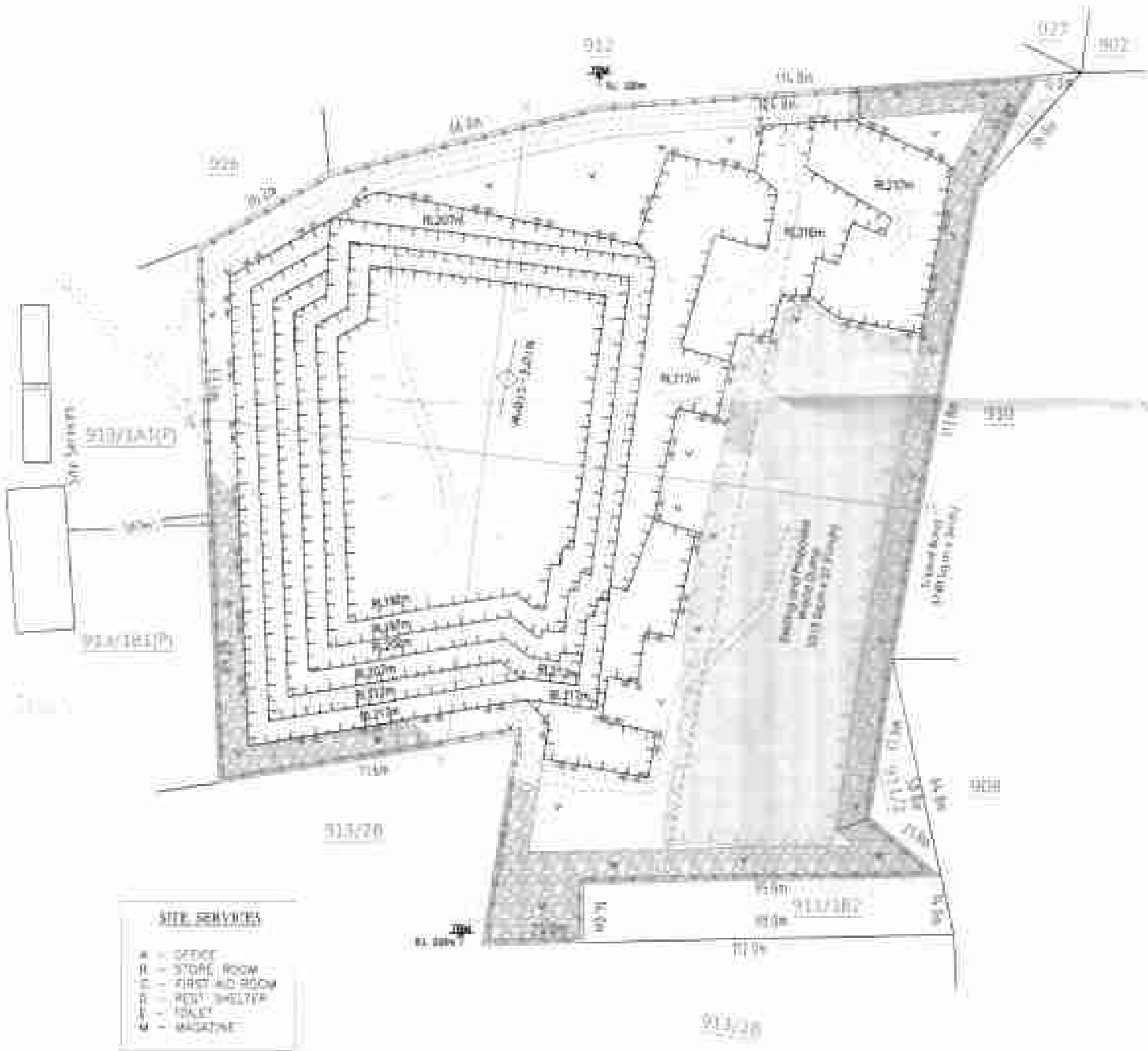
S. S. SURESH
S. S. SURESH
S. S. SURESH



SITE MARKINGS

- 0 - OFFICE
- 1 - STORE ROOM
- 2 - FIRST AID ROOM
- 3 - REST SHELTER
- 4 - TOILET
- 5 - MAGAZINE

100m - Forested area to be Planted
200m - Forested area to be Planted
500m - Forested area to be Planted
800m - Forested area to be Planted
1000m - Forested area to be Planted



- SITE SERVICES**
- A - OFFICE
 - B - STORE ROOM
 - C - FIRST AID ROOM
 - D - REST SHELTER
 - E - TOILET
 - F - MAGAZINE

PLATE NO.VII
 DATE OF SURVEY : 26.10.2022

LESSEE:
 T.V.S.G.GRANITES,
 No.3, EAST 2nd STREET,
 BEHIND ICICI BANK,
 K.E. NAGAR,
 MADURAI-625 020.

LOCATION OF QUARRY:
 S.F.NO : 911/1A1,911/1B1,
 913/1A1(P) & 913/1B1(P).
 EXTENT : 2.81.5 Ha,
 VILLAGE : ALAMBADI,
 TALUK : GUNJAMPARAI,
 DISTRICT: DINDIGUL.

INDEX

LEASE AREA BOUNDARY	[Symbol]
7.5M, 10M and 15M SAFETY DISTANCE	[Symbol]
APPROACH ROAD	[Symbol]
LIMESTONE BAND OUT CROPS	[Symbol]
TEMPORARY BENCH MARK	[Symbol]
QUARRY PIT	[Symbol]
QUARRY ROAD	[Symbol]
DUMP	[Symbol]
TOPSOIL BUND	[Symbol]
MINERAL CONTACT LINE	[Symbol]
MULTICOLOUR GRANITE	[Symbol]
HORNBLEND BOTITE GNEISS	[Symbol]
TOP SOIL	[Symbol]
STRIKE AND DIP	[Symbol]
BUND/FENCING	[Symbol]
PROPOSED GARLAND DRAIN	[Symbol]

LANDUSE PATTERN

SERIAL NUMBER	PRESENT AREA (Ha)	AREA TO BE RELEASED AT THE PROPOSED QUARRY (Ha)	NET AREA OF QUARRY (Ha)	NET AREA OF QUARRY (Ha)
01	1.8821	0.4735	1.4086	
02	0.1194	0.1827	0.0633	
03	0.0000	0.0000	0.0000	
04	0.0000	0.0000	0.0000	
05	0.0000	0.0000	0.0000	
06	0.0000	0.0000	0.0000	
07	0.0000	0.0000	0.0000	
08	0.0000	0.0000	0.0000	
09	0.0000	0.0000	0.0000	
10	0.0000	0.0000	0.0000	
11	0.0000	0.0000	0.0000	
12	0.0000	0.0000	0.0000	
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14	0.0000	0.0000	0.0000	
15	0.0000	0.0000	0.0000	
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22	0.0000	0.0000	0.0000	
23	0.0000	0.0000	0.0000	
24	0.0000	0.0000	0.0000	
25	0.0000	0.0000	0.0000	
26	0.0000	0.0000	0.0000	
27	0.0000	0.0000	0.0000	
28	0.0000	0.0000	0.0000	
29	0.0000	0.0000	0.0000	
30	0.0000	0.0000	0.0000	
31	0.0000	0.0000	0.0000	
32	0.0000	0.0000	0.0000	
33	0.0000	0.0000	0.0000	
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41	0.0000	0.0000	0.0000	
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74	0.0000	0.0000	0.0000	
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77	0.0000	0.0000	0.0000	
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79	0.0000	0.0000	0.0000	
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81	0.0000	0.0000	0.0000	
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94	0.0000	0.0000	0.0000	
95	0.0000	0.0000	0.0000	
96	0.0000	0.0000	0.0000	
97	0.0000	0.0000	0.0000	
98	0.0000	0.0000	0.0000	
99	0.0000	0.0000	0.0000	
100	0.0000	0.0000	0.0000	

SECTION ALONG A-X



SECTION ALONG A-B



* Site services are already installed in the quarry area (also not included in the quarry area of the quarry area) (Refer Drawing: III)

PROGRESSIVE QUARRY CLOSURE PLAN AND SECTIONS
 SCALE: 1:1000

PREPARED BY:
 [Signature]
 [Name]
 [Designation]

Hydrogeological Report for

Multi Colour Granite Quarry Over an extent of 2.81.5

Ha of Patta land in S.F.Nos. 911/1A1, 911/1B1,

913/1A1(Part) and 913/1B1(Part) of Alambadi Village,

Gujiliamparai Taluk, Dindigul District,

Tamil Nadu State.

HYDROGEOLOGICAL REPORT FOR NAGANUR MULTI COLOUR GRANITE

QUARRY

INTRODUCTION

Name of the Applicant with Address-

Name of the Lessee : **M/s. S G Granites,**
No.3, East 2nd Street,
Address : Behind ICICI Bank
K.K. Nagar
Madurai District.
Tamil Nadu— 625 020
Mobile No : +91 87783 89007

Details of the Area-

Land Classification : Patta Land
Survey No : 911/1A1,1B1, 913/1A1(Part) ,913/1B1(Part)
Extent : 2.81.5
Village : Alambadi
Taluk : Gujiliamparai (Formerly Vedasandur)
District : Dindigul.

The proponent requires detailed Ground Water studies for the Occurrences of Ground water at Multi Colour Granite quarry project site. The objective of the study is to assess the depth of Ground water occurrence 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 carried out.

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 Proponent requirements.

The data sources consulted were mainly:

- a) Central Ground Water Board (CGWB) Data, TWAD Data
- b) State & District Geological and Hydrogeological Reports and Maps.
- c) Technical reports of the area by various organizations.

1. 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 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.

2. BACKGROUND INFORMATION

Location

The area is marked in the Survey of India, Topo Sheet No. 58 J/02. The area lies between the Latitudes of 10°44'19.0401"N to 10°44'25.7523"N and Longitudes of 78°03'43.8078"E to 78°03'50.3856"E in WGS Datum-1984.

Geology of the area-

The rock formation is popularly known as “Granite Gneiss” essentially made up of a supra crustal assemblages of quartz, Alkali feldspar and Plagioclase feldspar is major constituents, Hornblende, Biotite, Garnet and other mafic minerals are accessories and closely inter banded with Hornblende Biotite Gneiss.

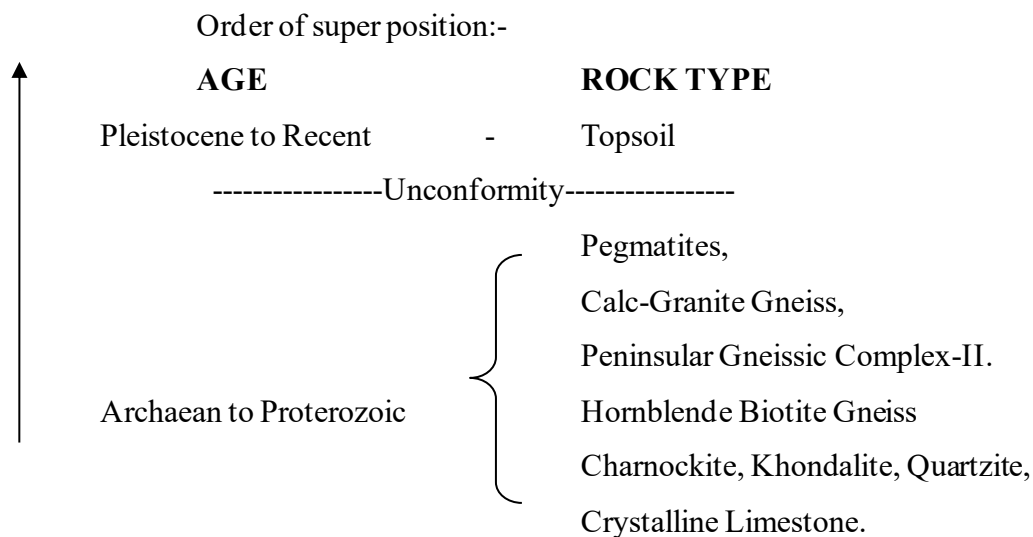
The Hornblende Biotite Gneiss forms the country rock of the area with trending of North – South with dipping towards SE70° and “Multi colour Granite” (Granite Gneiss) intruded between the batholithic formation of pre-existing country rock of Hornblende Biotite Gneiss discordantly with trending of N10°E – S10°W with almost vertical dipping with maximum width of 129m which stretches about the entire area. The fresh Multi-Colour granite is concealed under reddish soil having an average thickness of 3m below from the ground level.

The Multi-Colour granite is leucocratic, euhedral, medium to coarse grained, equigranular and the flow pattern of the rock mass in NE – SW. The Multi-Colour Granite is observed on the surface level is pale pink in colour due to alkali feldspar domination and deep seated condition it

may pale yellowish in colour with pale grey background. Some slender pegmatite veins are intruded in a crisscross fashion which is likely to be reduced at deeper levels. However, the other geological parameters such as shear, joints concentration of melanocratic (pyroxene) minerals traversing of pegmatite veins and hard solid relic patches of xenoliths are the controlling recovery factor which decides the fate of the quarry. Well-developed strike and dip joints observed at the surface level which is likely to decrease in deep seated condition. Taking in to consideration of the above geological factors, over burden, inter burden wastage during quarrying, other flaw and flower patches etc., the average recovery percentage has been computed as 25% upto 28m depth below from the existing ground profile.

STRUCTURAL SETTINGS OF DINDIGUL

The general geological sequence of the rock types in the area is:-



The Physical attitude of the Multi-colour Granite deposit of this area is given below:-

Strike Direction	-	N10°E – S10°W
Dip amount and direction	-	Almost Vertical.

3. GEOPHYSICAL INVESTIGATION METHODS

A variety of methods are available to assist in the assessment of geological sub-surface conditions. The main emphasis of the fieldwork undertaken was to determine the thickness and composition of the sub-surface formations and to identify water-bearing zones. This information was principally obtained in the field using, and vertical electrical soundings (VES). The VES probes the resistivity layering below the site of measurement. This method is described below.

Resistivity Method

Vertical electrical soundings (VES) were carried out to probe the condition of the sub-surface and to confirm the existence of deep groundwater. The VES investigates the resistivity layering below the site of measurement.

Basic Principles

The electrical properties of rocks in the upper part of the earth's crust are dependent upon the lithology, porosity, and the degree of pore space saturation and the salinity of the pore water. Saturated rocks have lower resistivity than unsaturated and dry rocks. The higher the porosity of the saturated rock, or the higher the salinity of the saturating fluids, the lower is the resistivity. The presence of clays and conductive minerals also reduces the resistivity of the rock.

The resistivity of earth materials can be studied by measuring the electrical potential distribution produced at the earth's surface by an electric current that is passed through the earth. Current is moved through the subsurface from one current electrode to the other and the potential difference is recorded as the current passes. From this information, resistivity values of various layers are acquired and layer thickness can be identified.

The apparent resistivity values determined are plotted as a log function versus the log of the spacing between the electrodes. These plotted curves identify thickness of layers. If there are multiple layers (more than 2), the acquired data is compared to a master curve to determine layer thickness.

This method is least influenced by lateral in-homogeneities and capable of providing higher depth of investigation.

The resistance R of a certain material is directly proportional to its length L and cross-sectional area A, expressed as:

$$R = R_s * L/A \text{ (in Ohm)}$$

Where R_s is known as the specific resistivity (characteristic of the material and independent of its shape or size)

With Ohm's Law,

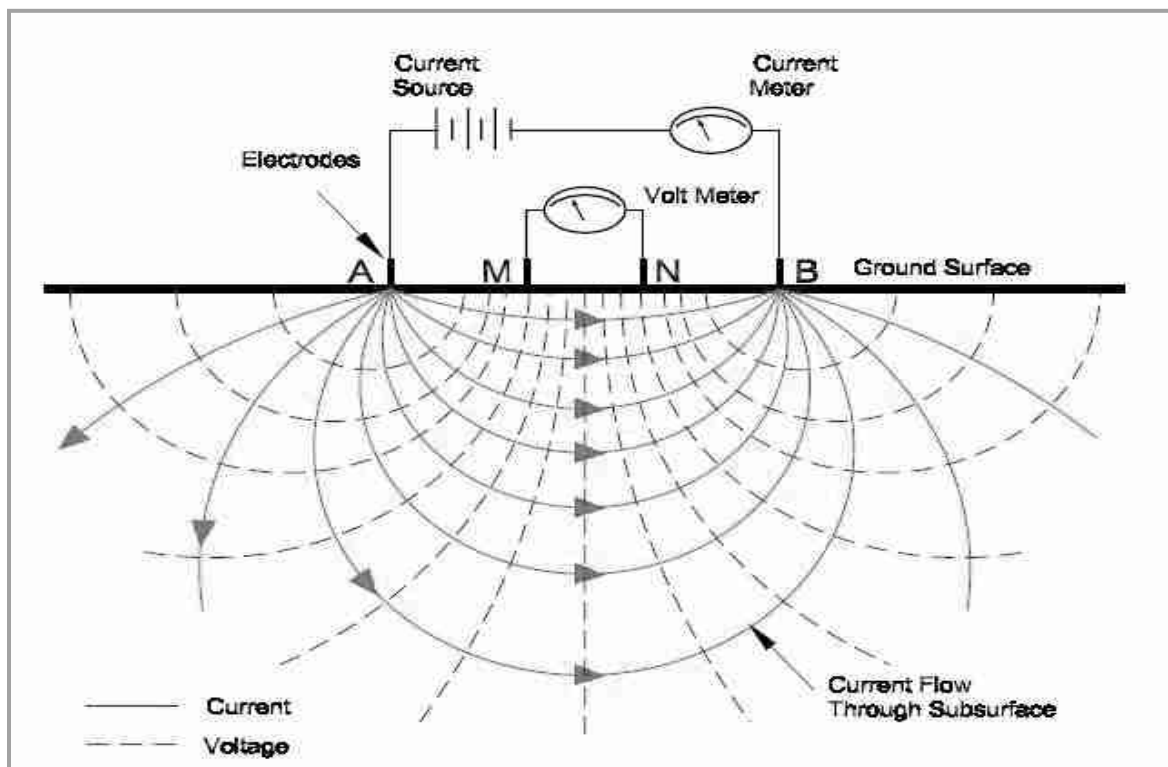
$$R = dV/I \text{ (Ohm)}$$

Where dV is the potential difference across the resistor and I is the electric current through the resistor. The specific resistivity may be determined by:

$$R_s = (A/L) * (dV/I) \text{ (in Ohm m)}$$

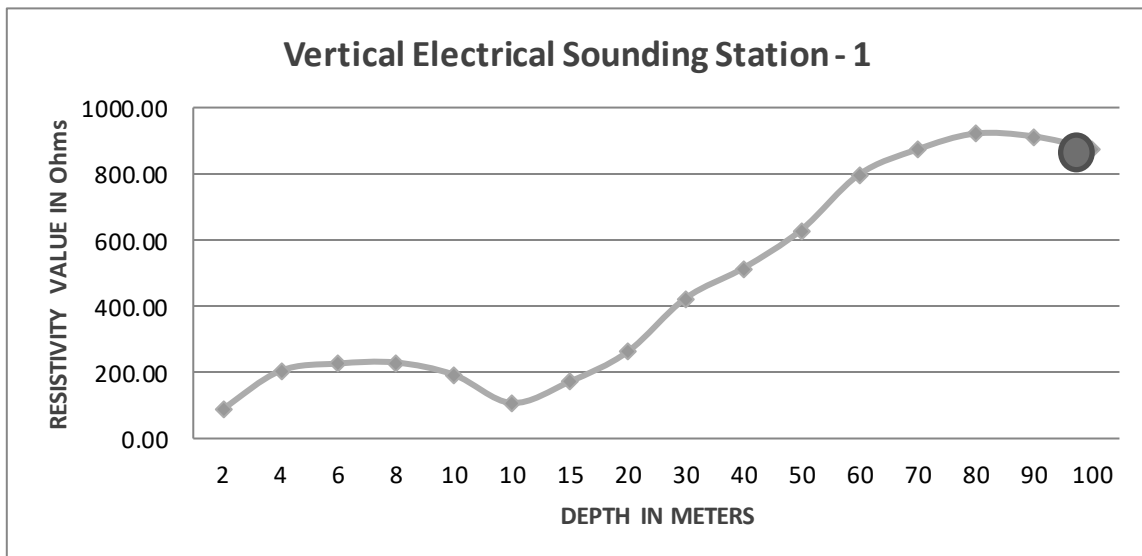
Vertical Electrical Sounding (VES)

When carrying out a resistivity sounding, current is led into the ground by means of two electrodes. With two other electrodes, situated near the center of the array, the potential field generated by the current is measured. From the observations of the current strength and the potential difference, and taking into account the electrode separations, the ground resistivity can be determined. During a resistivity sounding, the separation between the electrodes is step-wise increased (known as a Schlumberger Array), thus causing the flow of current to penetrate greater depths. When plotting the observed resistivity values against depth on double logarithmic paper, a resistivity graph is formed, which depicts the variation of resistivity with depth. This graph can be interpreted with the aid of a computer, and the actual resistivity layering of the subsoil is obtained. The depths and resistivity values provide the hydro geologist with information on the geological layering and thus the occurrence of groundwater.



VERTICAL ELECTRICAL SOUNDING DATA'S WITH GRAPHS

Vertical Electrical Sounding Station - 1					
GPS - 10°44'21.42"N 78° 03'44.53"E					
S.no	AB/2 (m)	MN/2 (m)	Geometric Factor (K)	Resistance (R) Ohm	Apparent Resistivity Rho Ohm-meter
1	2	1	4.7	18.63	87.79
2	4	1	23.6	8.66	204.05
3	6	1	55.0	4.12	226.51
4	8	1	99.0	2.32	229.59
5	10	1	155.5	1.24	192.83
6	10	5	23.6	4.56	107.44
7	15	5	62.8	2.73	171.53
8	20	5	117.8	2.22	261.54
9	30	5	274.9	1.54	423.33
10	40	5	494.8	1.04	514.59
11	50	5	777.5	0.81	629.81
12	60	5	1123.1	0.71	797.42
13	70	5	1531.5	0.57	872.97
14	80	5	2002.8	0.46	921.27
15	90	5	2536.8	0.36	913.26
16	100	5	3133.7	0.28	877.45

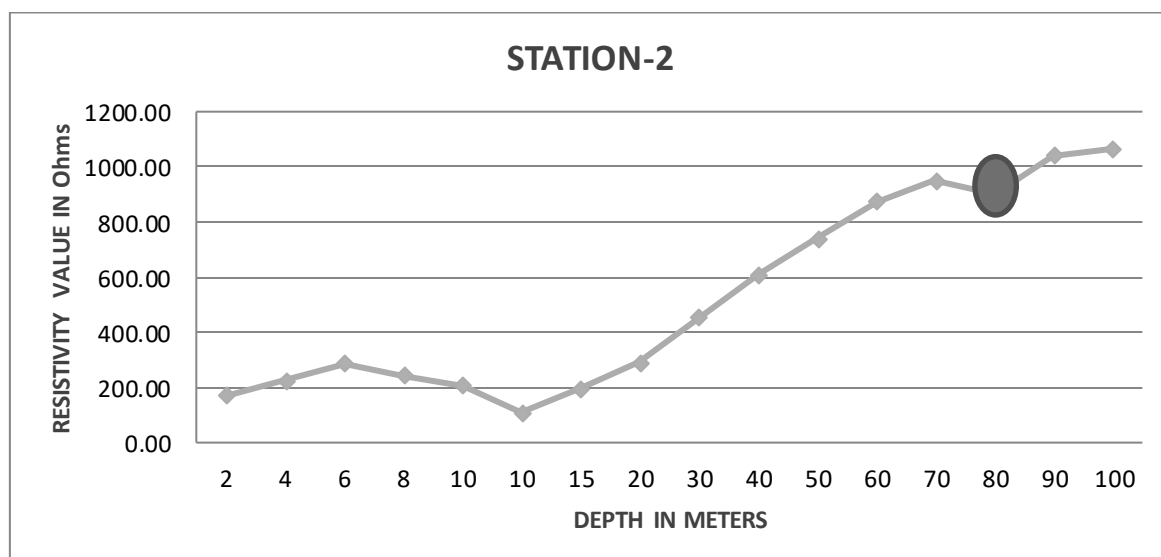



● A vertical electrical Sounding Graph diagram purple colour is fracture zone.

Vertical Electrical Sounding Station - 2

GPS - 10°44'25.54"N 78° 3'50.53"E

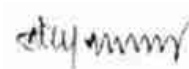
S.no	AB/2 (m)	MN/2(m)	Geometric Factor (K)	Resistance (R) Ohm	Apparent Resistivity Rho Ohm-meter
1	2	1	4.7	36.55	172.24
2	4	1	23.6	9.55	225.02
3	6	1	55.0	5.23	287.53
4	8	1	99.0	2.47	244.43
5	10	1	155.5	1.34	208.38
6	10	5	23.6	4.65	109.56
7	15	5	62.8	3.14	197.29
8	20	5	117.8	2.48	292.17
9	30	5	274.9	1.65	453.57
10	40	5	494.8	1.23	608.61
11	50	5	777.5	0.95	738.67
12	60	5	1123.1	0.78	876.04
13	70	5	1531.5	0.62	949.55
14	80	5	2002.8	0.45	901.25
15	90	5	2536.8	0.41	1040.11
16	100	5	3133.7	0.34	1065.47



 A vertical electrical Sounding Graph diagram purple colour is fracture zone.

4. Conclusions –

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 90m to 95m where minor fractures are observed and shallow aquifers are expected above 50-55m BGL. The ultimate pit limit as per the approved Scheme of Mining plan is 28m 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: ifogeoexploration@gmail.com

TOPOGRAPHICAL VIEW OF ALAMBADI
MULTI COLOUR GRANITE QUARRY LEASE AREA



Name of the Lessee : M/s. S G Granites.
Address : No.3, East 2nd Street,
Behind ICICI Bank, K. K. Nagar,
Madurai District - 625 020

LOCATION DETAILS

Extent : 2.81.5ha
S.F.No. : 911/1A1, 1B1, 913/1A1 (P), and 1B1(P)
Village : Alambadi
Taluk : Gujiliamparai
District : Dindigul
State : Tamil Nadu

Signature of the lessee

For M/s. S G Granites


(S.P. Sonaisamy)

Partner


(Village Administrative Officer)
சுயேட்சை நிர்வாக அலுவலர்
Attestation
சுயேட்சை அலுவலர்.
குஜிலிம்பரையி லு.அ.நி.



DR.T.G.Vinay, I.A.S.,
CHAIRMAN - DEIAA/
DISTRICT COLLECTOR

DISTRICT LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY - DINDIGUL
Room No.277, 2nd Floor,
Collectorate Building
Dindigul - 624 004
Tel : 0451 - 2461199 (O)
Fax : 0451 - 2432133
Email : collrdql@tn.nic.in

ENVIRONMENTAL CLEARANCE

Lr. No.DEIAA/DGL/EC.No.063/2017, dated:29.01.2018

To

M/s.S G Granites,
Door No.3, East 2nd Street,
Behind ICICI Bank,
K.K.Nagar,
Madurai District

Sir,

Sub: DEIAA – Dindigul – Proposed Granite quarry at SF.Nos.911/1A1, 911/1B1, 913/1A1 (P), 913/1B1(P) over an extent of 2.81.5 hecets in Alambadi Village, Vendasandur Taluk, Dindigul District by M/s. SG Granites – Environmental Clearance – Issued.

Ref: 1. Your Application for Environmental Clearance dt: 10.01.2018
2. Minutes of the 5th DEAC held on 19.01.2018
3. Minutes of the 5th DEIAA meeting held on 29.01.2018

Details of Minor Mineral Activity:

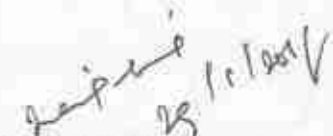
This is in reference to your application first cited. The proposal is for obtaining environmental clearance for quarrying of minor minerals based on the particulars furnished in your application as shown below:

1	Name of Project Proponent and address	M/s.S G Granites, Door No.3, East 2 nd Street, Behind ICICI Bank, K.K.Nagar, Madurai District
2	Location of the Proposed Activity	
	Survey Number	911/1A1, 911/1B1, 913/1A1(P), 913/1B1(P)
	Latitude and Longitude	10°04'00" N 78°43'15" E
	Village	Alambadi
	Taluk	Vendasandur
	District	Dindigul

Ref: 1, 10/1/2018
MEMBER SECRETARY
DEIAA-DINDIGUL

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**

3	Proposed Activity	
	i. Minor mineral	MULTICOLOUR GRANITE
	ii. Mining Lease Area	2.81.5 Hectares
	iii. Approved Quantity	28,975 Cu.m of Multicolour Granite
	iv. Depth of Mining	17Meters below the Ground Level
	v. Type of Mining	Opencast Semi Mechanized Method
	vi. Category (B1/B2)	B2
	vii. Precise Area Communication	Letter No.15529/MMB2/2017-1 dated: 23.11.2017 by Additional Chief Secretary to Government
	viii. Mining Plan Approval	Commissioner of Geology and Mining Letter. No.8717/MM2/2017 dated: 07.12.2017
	ix. Mining Lease Period	20 Years
4	Whether project area attracts any General conditions specified in the EIA notification, 2006 as amended :-	Not attracted. Affidavit furnished
5	Man power requirement per day :	14 Employees
6	Utilities	
	i. Source of Water	Water vendors / Existing bore wells
	ii. Quantity of Water Requirement in KLD	
	a. Domestic in KLD	0.750 KLD
	b. Industrial in KLD	1,500 KLD
	c. Green Belt & Dust Suppression	0.250 KLD
	iii. Power Requirement	
	a. Domestic Purpose	TNEB
	b. Industrial Purpose	
7	Cost	
	i. Project Cost	Rs. 22,00,000/-
	ii. EMP Cost	Rs. 6,25,000/-
8	Public Consultation	Not required as per O.M. dated 24.12.2013 of MoEF, Gol.
9	Date of Appraisal by DEAC :- Agenda No.	19.01.2018 2
10	Date of Review/ Discussion by DEIAA and the Remarks :-	
	The proposal was placed before the DEIAA in its 5 th Meeting held on 29.01.2018 and the Authority after careful examination, decided to grant Environmental Clearance to the said project of quarrying Granite subject to terms and conditions stipulated under the provisions of Environment Impact Assessment Notification, 2006 as amended.	
11	Validity :-	
	This 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.	


**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**

1. Conditions To be complied before/ during commencing operations :-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - i. The project has been accorded Environmental Clearance.
 - ii. Copies of Clearance letters are available with the Tamil Nadu Pollution Control Board.
 - iii. Environmental Clearance may also be seen on the website of the DEIAA, Dindigul.
 - iv. The advertisement should be made within 7 days from the date of receipt of the Clearance letter and a copy of the same shall be forwarded to the DEIAA.
2. NOC from the Standing Committee of the National Board for Wild Life (NBWL) shall be obtained, if protected areas are located within 10Km from the proposed project site.
3. The Project Proponent shall comply the conditions laid down in Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
4. 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.
5. The Proponent shall ensure the First Aid Box is available at site.
6. The excavation activity shall not alter the natural drainage pattern of the area.
7. The excavated pit shall be restored by the Project Proponent for useful purposes.
8. The Proponent shall quarry and remove only in the permitted and approved areas.
9. The Proponent shall do the quarrying as per the Approved Mining Plan.
10. It shall be ensured that the quarrying operation shall be carried out between 07.00 AM and 05.00PM.
11. 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 Pollution to the Environment.
12. A minimum distance of 15 meters from any civil structure shall be kept from the periphery of any excavation area.
13. Depth of quarrying shall be 2.00mts 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.
14. The mined out pits should be back filed wherever warranted and the area should be suitably landscaped to prevent environmental degradation. The Mine Closure Plan as furnished in the proposal shall be strictly followed while back filling and tree plantation.

[Handwritten Signature]
30/11/2010
**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**

15. Wet drilling method is to be adopted to control dust emissions. Delay Detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Drilling and blasting shall be done only either by Licensed Explosive Agent or by the Proponent after obtaining required approvals from Competent Authorities.
17. The explosives shall be stored at site as per the conditions stipulated in the permits issued by Licensing Authority.
18. Blasting shall be carried out after announcing to the Public adequate through public address system to avoid any accident.
19. 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.
20. The Proponent shall take appropriate measures to ensure that the GLC shall comply with revised NAAQ norms notified by MoEF, GOI on 16.11.2009.
21. 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.
22. The following measures are to be implemented to reduce Noise Pollution
 - a. Proper and regular maintenance of vehicles and other equipment
 - b. Limiting time exposure of workers of excessive noise
 - c. The Workers employed shall be provided with protection equipment and earmuffs etc.
 - d. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25kmph to prevent undue noise from empty trucks.
23. Measures should be take to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules,2010, dated 11.01.2010 issued by the MoE&F, Gol to control noise to the prescribed levels.
24. Suitable conservation measures to augment Ground Water Resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for Rain Water Harvesting.
25. Permission from the Competent Authority should be obtained for drawl of Ground Water, if any, required for this project.
26. Topsoil, if, any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
27. 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.
28. Waste oils, used oil 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.

29.11.2018
**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**

29. 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.
30. Rain Water Harvesting to collect and utilize the entire water falling in land area should be provided.
31. Rainwater 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.
32. 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 surroundings area shall not be affected. Regular monitoring of Ground Water Level and quality shall be carried out around the mine/ quarry lease area during the quarrying operation. If at any stage, if it is observed that the Ground Water Table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/ Mining Officer shall ensure this.
33. No tree-felling shall be done in the leased area, except only with the permission from Competent Authority.
34. 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.
35. 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 25.00.0 hectares within the mining lease period of this application.
36. 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.
37. Ground Water Quality Monitoring should be conducted once in 3 months.
38. Transportation of the quarried materials shall not cause any hindrance to the Village People/Existing Village Road.
39. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, Gol at Chennai
40. Air Sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF, Gol at Chennai

Handwritten signature and date: 29/11/2018

**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**

41. Bunds to be provided at the boundary of the Project Site.
42. 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.
43. At least 10 Neem trees should be planted around the boundary of the quarry site.
44. Floor of excavated pit to be leveled and sides to be sloped with gentle slope (Except for Granite quarries) in the Mine Closure Phase.
45. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the Community Social Responsibility (CSR) Activity.
46. The CSR funds should be channalized for planting programme nature conservation support, Tribal Development and activities that support Forest and Environment.
47. The Project Proponent shall provided solar lighting system to the nearby villages.
48. The Project Proponent shall comply with the mining/ quarrying 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, 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 of the proposed quarry site before execution of quarry 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 quarry lease.
58. The Proponent has to provide Insurance Protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of quarry lease.

Devi P
29.11.2016

**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**

59. The Proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
60. Heavy earth machinery equipments if utilized, after getting approval from the Competent Authority.
61. The Proponent shall ensure that the project activity including blasting, mining transportation etc., should in no way have adverse impact to other forest, such as Reserved Forest and Social Forest, tree plantation and Bio diversity, surrounding water bodies etc.
62. The Project Proponent is also directed to strictly adhere to the sustainable Sand Mining Management Guidelines, 2016, wherever applicable.
63. The quarrying activity in no way should disturb the wild Life Habitat, free migratory movement of the Wild Life nor disturb the Wild Life in any way.

2. GENERAL CONDITIONS :-

1. Environmental Clearance is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the Proponent.
2. The Proponent shall obtain the Consent for Establishment from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the DEIAA, Dindigul.
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 confirm 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.

29.11.2018

**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**

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. Land use classification as per Department of Town and Country Planning (DTCP)/Agriculture shall meet the requirement of mining/ industrial use
17. 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.
18. 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.
19. The DEIAA, Dindigul may alter/ modify the above conditions or stipulate any further conditions in the interest of Environment Protection.
20. The DEIAA, Dindigul may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this DEIAA, Dindigul that the Project Proponent has deliberately concealed and / or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
21. 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.

29.1.2018
**MEMBER SECRETARY
DEIAA-DINDIGUL**

**DISTRICT LEVEL ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY
DINDIGUL DISTRICT - TAMILNADU**

22. 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 Mines and Minerals (Development and Regulation) 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/Madurai and any other Courts of Law relating to the subject matter.
23. The Environmental Clearance shall not be used as a document to obtain any other clearance unless it is specifically prescribed by the Issuing Authority.
24. Any other conditions stipulated by other Statutory/ Government Authorities shall be complied.
25. 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.

*Revised
28/11/2014*

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DEIAA-DINDIGUL**

Copy to:

1. The Secretary, Ministry of Mines, Government of India, ShastriBhawan, New Delhi.
2. The Principal Secretary, Environment and Forests Department, Government of Tamil Nadu, Tamil Nadu.
3. The Additional Chief Secretary, Industries Department, Government of Tamil Nadu, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, PariveshBhawan, CBD-Cum-Office Complex, East Arjun Naga
6. The Chairman, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai - 32.
7. The District Collector, Dindigul District.
8. The Commissioner of Geology and Mines, Guindy, Chennai-32.
9. E1 Division, Ministry of Environment & Forests, ParyavaranBhawan, New Delhi.
10. Spare.

*Revised
28/11/2014*

**MEMBER SECRETARY
DEIAA-DINDIGUL**



THIRU. K.V. GIRIDHAR, I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU

3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai-15.

Phone No. 044-24359973

Fax No. 044-24359975

ENVIRONMENTAL CLEARANCE

Lr.No.SEIAA-TN/F.No.7529/1(a)/EC.No: 4672/2021 dated: 05.07.2021

To

M/s. Shri Sai Sabari Enterprises
No.54-A , R.R.Tower, 2nd Floor
Sengunthapuram main Road
Karur – 639002

Sir/Madam,

Sub: SEIAA, TN – Multicolour Granite quarry lease over an extent of 2.79.73ha at S.F.No. 864/2(P), 3(P), 4(P), 5, 6(P), 9(P), 10(P), 12 & 13 of Alambadi Village, Vedasandur Taluk, Dindigul District, Tamil Nadu by M/s. Shri Sai Sabari Enterprises– issue of Environmental Clearance – Regarding.

- Ref:** 1. Your application submitted Terms of Reference dated: 19.03.2020
2. ToR issued by SEIAA-TN vide Lr No.SEIAA-TN/F.No.7529/SEAC/ToR-731/2020 Dated: 30.06.2020
3. Public Hearing conducted on 07.01.2021 and minutes was received from TNPCB vide Lr.No.T2/TNPCB/F.2173/DGL/PH/2020, dated: 03.02.2021.
4. Online Proposal No. SIA/TN/MIN/60621/2020, dated 09.02.2021
5. Project proponent submitted EIA Report to SEIAA-TN on 11.02.2021
6. Minutes of the 212th meeting of SEAC held on 04.05.2021
7. Minutes of the 446th Authority meeting held on 18.06.2021& 19.06.2021

Details of Minor Mineral Activity:-

This has reference to your application 4th & 5th cited. The proposal is for obtaining Environmental Clearance for mining/quarrying of minor minerals based on the particulars furnished in your application as shown below.




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Sl. No	Details of the proposal	Data furnished
1.	Name of the Owner/Firm	M/s. Shri Sai Sabari Enterprises No.54-A , R.R.Tower, 2nd Floor Sengunthapuram main Road Karur - 639002
2.	Type of quarrying (Savudu/Rough Stone/Sand/Granite)	Multicolour Granite Quarry
3.	S.F No. Of the quarry site with area break-up	864/2(P), 3(P), 4(P), 5, 6(P), 9(P), 10(P), 12 & 13
4.	Village in which situated	Alambadi
5.	Taluk in which situated	Vedasandur
6.	District in which situated	Dindigul
7.	Extent of quarry (in ha.)	2.79.73ha
8.	Period of quarrying proposed	5 Years
9.	Type of mining	Opencast semi Mechanized Mining.
10.	Production (Quantity in m ³)	19278cu.m of Multicolour Granite
11.	Latitude & Longitude of all corners of the quarry site	10°44'25.52103"N to 10°44'32.75594"N 78°03'47.24684"E to 78°03'54.13167"E
12.	Topo Sheet No.	58 J/2
13.	ToR Issued	Lr.No.SEIAA-TN/F.No.7529/SEAC/ToR-731/2020, dated: 30.06.2020
14.	Public Hearing details	Public Hearing minutes was received from TNPCB vide Lr.No.T2/TNPCB/F.2173/DGL/PH/2020, dated: 03.02.2021. Public hearing conducted on 07.01.2021 in VA Mahal, R.Vellodu, Dindigul District at 11:00Am
15.	Man Power requirement per day:	20 Employees
16.	Precise area communication approved by the	Lr.No.7783/MMB.2/ 2019-1, Dated 08.11.2019

	Principal Secretary to Government with date	
17.	Mining Plan approved by the Director of Geology and Mining with date	Re.No.1555/MM2/2019 dated 27.2.2020
18.	Water requirement: 1. Drinking & domestic purposes (in KLD) 2. Dust suppression & Green Belt (in KLD)	4.0 KLD 1.5 KLD Water tankers 2.5 Existing bore well
19.	Power requirement: a. Domestic Purpose	TNEB
20.	Depth of quarrying	Restricted to 22m
21.	Depth of water table	60m BGL
22.	Project Cost (excluding EMP cost)	Rs. 47Lakhs
23.	EMP cost	Rs. 5 Lakhs
24.	CER cost	Rs.0.94 Lakhs
25.	AD mines 500m cluster letter	Re. No.171/2018(Mines), dated: 13.03.2020.

Affidavit

The Proponent has furnished affidavit in Fifty Rupees stamp paper attested by the Notary stating that:

I, S.Karthik, Managing Director, M/s. Shri Sai Sabari Enterprises, No.54-A, R.R.Tower, 2nd Floor, Sengunthapuram main Road, Karur – 639002, solemnly declare and sincerely affirm that:

I have applied for getting Environment Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of Multicolour Granite quarry lease over an extent of 2.79.73ha at S.F.No864/2(P), 3(P), 4(P), 5, 6(P), 9(P), 10(P), 12 & 13 of Alambadi Village, Vedasandur Taluk, Dindigul District, Tamil Nadu, Tamilnadu State.

1. I swear to state and confirm that within 10km radius of the mines which I have applied for environmental clearance, none of the following is situated as per the General conditions of EIA Notification, 2006.

a. There is no wildlife sanctuary or national Park found within 10km radius, hence this project doesn't fall under the wildlife (protection) Act, 1972.



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- b. Eco-Sensitive areas as identified by the Forest Dept/ State Govt
- c. No interstate boundary is situated within 10km radius from the proposed site.
- d. International boundaries within 10km radius from the boundary of the proposed site.
2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities in addition to CSR and EMP.

CER Activity	Project Cost (Rs) in lakhs	CER Cost 2.0% of project cost (Rs) in lakhs
Developing Library facilities to Government High school, Alambadi Village	47	0.94
Total cost Allocation	47	0.94

3. These are quarries located within 500m radius from the periphery of our quarry.

Proposed quarries

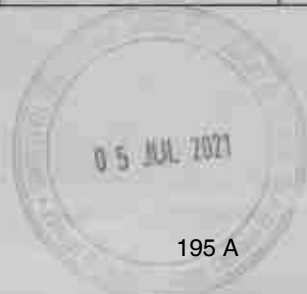
Sl.No	Name of the Owner	Village & S.F.No	Extent (in Ha)	Minerals	Lease status
1	M/s. Shri Sai Sabari Enterprises	Alambadi Village 864/2(P), 3(P), 4(P), 5, 6(P), 9(P), 10(P), 12 & 13	2.79.73	Multicolour Granite	Proposed quarry
2	M/s. Ultratech Cement Limited	Alambadi Village 913/3, 913/4, etc	15.95.00	Lime stone	Applied area

Existing quarries

Sl.No	Name of the Owner	Village & S.F.No	Extent (in Ha)	Minerals	Lease status
1	M/s. S.G.Granites	Alambadi Village 911/1A1, 1B1, 913/1A1(P), 1B1	2.81.50	Multicolour Granite	08.03.2018 to 07.03.2038
2.	Thiru.N.K.Selvam	Alambadi Village 838	2.14.50	Lime stone	19.09.2005 to 18.09.2025

Abandoned or Expired quarries

Sl.No	Name of the	Village & S.F.No	Extent	Minerals	Lease status
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	Owner		(in Ha)		
1	M/s. Sree sakthi Mines	Alambadi Village 854, 855, 857/1	0.77.0	Lime stone	23.12.1998 to 22.12.2018

4. There will not be any hindrance or disturbance to the people living on enroute/nearby my quarry site while transporting the mined out materials and due to quarrying activities.
5. There are 2 small hut houses(unapproved houses) located, one at the range of 52meters from the safety distance of the lease area and another at the range of more than 70meters in which there is no habitation.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the labourers working in my proposed quarry.
8. The existing road from the main road to the quarry is in good condition and the same will be maintained and utilized for transportation of materials.
9. I will not engage any child labour in our quarry site and I aware that engaging child labour is punishable under the law.
10. All types of safety / protective equipment will be provided to all the labourers working in our quarry.
11. There are 2 small village temples located, one at the range of 52meteres and another at the range more than 80 meters from the lease boundary and a kovil peedam is located at 46.7 meters from the safety distance of the applied area.
12. The quarrying activity has not yet commenced and it will be carried out only after obtaing environmental clearance

Validity:

This Environmental Clearance is granted for the production in 19278cu.m of Multicolour Granite for the period of 5 Years from the date of execution of the mining lease.

Appraisal by SEAC:-

The proposal was placed for appraisal in this 212th meeting of SEAC held on 04.05.2021. Based on the presentation made and the documents furnished by the Project Proponent, SEAC decided to




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recommend the project proposal to SEIAA for grant of Environmental Clearance subject to the following conditions, in addition to standard conditions stipulated by the MoEF&CC:

1. Restricting the maximum depth of mining up to 22m of Multi Colour Granite considering the environmental impacts due to the mining safety of the working personnel and following the principle of the sustainable mining and the same was accepted by the proponent. Consequently the maximum minable quantities of 19.278cu.m of Multi Coloured Granite are permitted for mining over five years.
2. The proponent shall form the proper benches as per the approved mining plan during the operation of the quarry considering the hydro-geological regime of the surrounding area as well as for safe mining.
3. The Proponent should install cautionary board at the entry and important locations of the mining site displaying caution notice to the public about the danger of the entering the mining lease.
4. The proponent shall conducted annual physical fitness test and eye test for the employees to ensure health & safety during occupation.
5. Fugitive emission measurements should be carried out during the mining operation and the report on the same may be submitted to SEIAA once in six months.
6. The Proponent shall ensure that the Noise level is monitored during mining operation at the project site and adequate noise level reduction measures undertaken.
7. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit as per the conditions and shall furnish the photo graphs/ map showing the same before obtaining the CTO from TNPCB.
8. Greenbelt needs to be developed in the periphery of the mines area so that at the closure time the trees would have grown well.
9. Ground water quality monitoring should be conducted once every six months and the report should be submitted to TNPCB.
10. After mining is completed proper leveling should be done by the Project proponent & Environmental Management Plan furnished by the Proponent should be strictly followed.




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11. The Project proponent shall after ceasing mining operations. undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition that is fit for the growth of fodder, Flora, fauna etc.
12. Proper barrier to reduce noise level dust pollution and to hold down any possible fly material (debris) should be established by providing greenbelt and/or metal sheets along the boundary of the quarrying site and suitable working methodology to be adopted by considering the wind direction.
13. The operation of the quarry should not affect the agriculture activities & water bodies near the project site and a safety distance of 50m from the water body should be left vacant without any mining activity.
14. Transportation of the quarried materials shall not cause any hindrance to the Village people or damage to the existing Village road.
15. The Project Proponent shall comply with the mining and other relevant rules and regulations wherever applicable.
16. The proponent shall develop an adequate greenbelt with native species on the periphery of the mine lease area before the commencement of the mining activity, in consultation with DFO of the concerned district/agriculture.
17. 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.
18. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance.
19. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of the mining operation.
20. The mine closure plan submitted by the project proponent shall be strictly followed after the lapse of the mine.
21. 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 furnish the detailed EMP




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mentioning all the activities as proposed in the CER and furnish the same before placing the subject to SEIAA.

22. All the condition imposed by the Director, Geology & Mining, Guindy, Chennai in the mining plan approval letter Rc.No.1555/MM2/2019, dated 27.02.2020 should be strictly followed.

Discussion by SEIAA and the Remarks:-

The proposal was placed in the 446th Authority meeting held on 18.06.2021 & 19.06.2021. After detailed discussion, the Authority noted as.

1. The Project Proponent M/s. Shri Sai Sabari Enterprises has applied for Environmental Clearance for the Proposed Multi Coloured Granite Quarry lease over an extent of 2.79.73Ha in S.F.Nos.864/2(P), 3(P), 4(P), 5(P), 6(P), 9(P), 10(P), 12, 13 of Alambadi Village, Vendasandur Taluk, Dindigul District.
2. In the minutes of 212th SEAC meeting held on SEAC held on 04.05.2021, the SEAC has recommended the project proposal for grant of Environmental Clearance subject to the following conditions among others.
 - a. Restricting the maximum depth of mining up to 22m of Multi Colour Granite considering the environmental impacts due to the mining safety of the working personnel and following the principle of the sustainable mining and the same was accepted by the proponent. Consequently the maximum minable quantities of 19,278cu.m of Multi Coloured Granite are permitted for mining over five years.
3. As per the approved final EIA report, Para 2.10. Year Wise Production and Development for the first five Years, the ultimate depth of mining is 16m and the maximum minable quantities of ROM is 97524 cu.m, Production(@25%) 24381 cu.m and the mineral reject is 73143 cu.m.
4. As per the recommendation of SEAC in the 212th SEAC minutes, the ultimate depth of mining is restricted to 22m and consequently the maximum minable quantities of 19,278cu.m of Multi Coloured Granite are permitted for mining over five years.

In view of the above, the Authority unanimously accepts the recommendation of SEAC and decided to grant Environmental Clearance for subject to the conditions as recommended by SEAC & normal condition in addition to the following condition




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1. As recommended by SEAC and as accepted by the proponent, the ultimate depth of mining is restricted to 22m considering the environmental impacts due to the mining safety of the working personnel and following the principle of the sustainable mining and consequently the maximum minable quantities of 19278cu.m of Multi Coloured Granite is permitted for mining over five years.
2. As per the MoEF&CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall furnish the detailed EMP, mentioning all the CER activities as committed. All the CER activity shall be carried out before obtaining CTO from TNPCB.

Part-A: Conditions to be Complied before commencing mining operations:-

1. The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that
 - I. The project has been accorded Environmental Clearance.
 - II. Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.
 - III. Environmental Clearance may also be seen on the website of the SEIAA.
 - IV. The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban 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.



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6. Quarry lease area should be demarcated on the ground with wire fencing to show the boundary of the lease area on all sides with red flags on every pillar shall be erected before commencement of quarrying.
7. The proponent shall ensure that First Aid Box is available at site.
8. The excavation activity shall not alter the natural drainage pattern of the area.
9. The excavated pit shall be restored by the project proponent for useful purposes.
10. The proponent shall quarry and remove only in the permitted areas as per the approved Mining Plan details.
11. The quarrying operation shall be restricted between 7AM and 5 PM.
12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
14. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
15. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
17. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
18. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
19. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.
20. The following measures are to be implemented to reduce Air Pollution during transportation of mineral



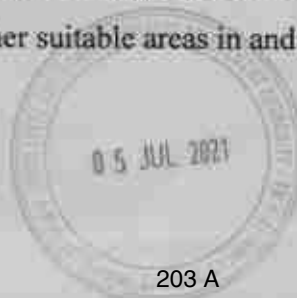

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- i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
21. The following measures are to be implemented to reduce Noise Pollution
- i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.
 - v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working area.
22. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010/ dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.
23. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
24. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
25. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
26. The following measures are to be adopted to control erosion of dumps:-
- i. Retention/ toe walls shall be provided at the foot of the dumps.
 - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
27. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous& other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCCB.
28. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.




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29. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
30. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.
31. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
32. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
33. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
34. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
35. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
36. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF& CC, GOI.
37. Bunds to be provided at the boundary of the project site.
38. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.




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39. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
40. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
41. The Project Proponent shall provide solar lighting system to the nearby villages.
42. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.
43. Safety equipments to be provided to all the employees.
44. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
45. 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.
46. 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.
47. 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.
48. 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.
49. 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.
50. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
51. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
52. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.




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53. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
54. All the commitment made by the project proponent in the proposal shall be strictly followed.
55. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
56. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A. No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, O.A.No.404/ 2016 (M.A.No. 758/2016, M.A. No. 920 /2016, M.A.No.1122/2016, M.A.No. 12/2017 & M.A.No.843/2017), O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).
57. All required sanitary and hygienic measures should be in place before starting construction activities and they have to be maintained throughout the construction phase.
58. The company shall stress upon the preventive aspects of occupational health.
59. A separate environment and safety management cell with qualified staff shall be set up before commissioning of construction activities and shall be retained throughout the lifetime of the industry, for implementation of the stipulated environmental safeguards.
60. A scientific site/ ecological rehabilitation and restoration plan on long term basis should be drawn to carryout restoration with native species and Bio diversity.
61. The Green/Blue plan should guide the restoration of the site. The rehabilitation/restoration plan should be submitted to SEIAA-TN within one month. If applicable.
62. The existing water bodies should not be disturbed to ensure sustainable environment for aquatic life forms.
63. The proponent should completely implement all environmental pollution control measures as detailed in the EIA report and in the additional report.
64. Avenue plantation wherever needed has to be carried out along the route for dust suppression.
65. The green belt developed for the prevention of dust pollution should not form a part of the larger green belt development envisaged in the EIA report.




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66. Regular monitoring and check up for pulmonary and carcinogenic diseases to be carried out regularly, not only for the workers involved in the mines but also to the people in the villages adjoining the mines. Interaction with the Primary Health Centre & district medical officer should be on regular basis to monitor the incidence of the diseases if any and to provide suitable medical facility for the patients.
67. Monitoring of well water levels and water quality of the wells in the locations furnished in the EIA report shall be done during pre-monsoon and post monsoon period and results submitted to the Regional Office of MoEF, Chennai and SEIAA.
68. Monitoring of water quality and air quality in and around the project site in the selected monitoring points as mentioned in the EIA report shall be continued regularly involving Academic Institutions.
69. Hydro geological study including infiltration test shall be conducted by any reputed agency to estimate leachate quantity.
70. Regular medical check-up for mine workers and nearby residents around the project site involving community medical centre/NIMH shall be conducted.
71. As per norms, the health study should be conducted through competent/approved health organization and report submitted for one year.
72. The effective safe guard measures shall be provided to control particulate dust level in critical areas, transfer points and haul road within the mine area.
73. NOC from the State GWA for drawing ground water shall be obtained, if ground water table is intersected.
74. Green belt shall be provided as per norms of MoEF & CC, GOI, in consultation with local DFO.
75. All the recommendations made in the EIA report of the project shall be effectively implemented.
76. A booklet containing the Dos and Don'ts shall be prepared in vernacular languages for the use of the mine engineers/ managers and the workers to ensure that all necessary environmental, safety and health measures are undertaken.
77. All the environmental protection measures and safeguards as recommended in the EIA report shall be complied with.




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78. Hydro geological study of the area shall be reviewed annually and report submitted to the Authority. No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the operation of the Mining activity.
79. A separate Environmental Management Cell equipped with full fledged laboratory facilities to carry out the various Environmental Management and Monitoring functions shall be set up under the control of a Senior Executive.
80. The project proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF at Chennai, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; RSPM, SO₂, NO_x or critical sector parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.



Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.




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7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.
12. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.
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

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- would be considering the project on merits and be taking decisions independently of the Environmental Clearance
18. The SEIAA, Tamil Nadu may alter/modify the above conditions or stipulate any further conditions in the interest of environment protection.
 19. The SEIAA, Tamil Nadu may cancel the Environmental Clearance granted to this project under the provisions of EIA Notification, 2006, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAA, TN that the project proponent has deliberately concealed and/or submitted false or misleading information or inadequate data for obtaining the Environmental Clearance.
 20. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.
 21. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.
 22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
 23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
 24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.




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Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Principal Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Principal Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
6. The Chairman, TNPC Board, 76, Mount Salai, Guindy, Chennai - 32.
7. The District Collector, Dindigul District.
8. The Commissioner of Geology and Mines, Guindy, Chennai - 32.
9. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
10. Spare.

SEIAA
TN





Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), TAMIL NADU)

To,

The Partner
SG GRANITES
Alambadi Gujiliamparai -624620

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/TN/MIN/436636/2023 dated 07 Sep 2023. The particulars of the environmental clearance granted to the project are as below.

- | | |
|--|---|
| 1. EC Identification No. | EC23B001TN175909 |
| 2. File No. | 8798 |
| 3. Project Type | New |
| 4. Category | B |
| 5. Project/Activity including Schedule No. | 1(a) Mining of minerals |
| 6. Name of Project | Multi Colour Granite Quarry Belongs to Tvl. S G Granites Extent: 2.13.0ha S.F.No. 913/2B (Part), Alambadi Village, Gujiliamparai Taluk, Dindigul District |
| 7. Name of Company/Organization | SG GRANITES |
| 8. Location of Project | TAMIL NADU |
| 9. TOR Date | N/A |

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 13/10/2023

(e-signed)
Thiru.Deepak S.Bilgi
Member Secretary
SEIAA - (TAMIL NADU)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH.Please quote identification number in all future correspondence.

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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

ENVIRONMENTAL CLEARANCE

Lr.No.SEIAA-TN/F.No.8798/2021/1(a)/EC.No:6087/2023,dated:29.09.2023

Sir / Madam,

Sub: SEIAA, TN – Proposed Multi Colour Granite quarry lease over an extent of 2.13.0Ha at SF.No. 913/2B(Part) of Alambadi Village, Gujiliamparai Taluk, Dindigul District, Tamil Nadu by Tv.S.G.Granites – under Category "B1" of Item 1(a) "Mining of Mineral Projects" of the Schedule to the EIA Notification, 2006 issue of Environmental Clearance – Regarding.

- Ref:**
1. Your application submitted Terms of Reference dated:20.09.2021.
 2. TOR Issued vide letter No.SEIAA.TN/F.No.8798/SEAC/ToR-1104/2021 dated:21.03.2022.
 3. Public Hearing conducted on 20.12.2022.
 4. Online Proposal No. SIA/TN/MIN/436636/2023. Dated:13.07.2023.
 5. Project proponent submitted EIA Report to SEIAA-TN on 17.17.2023.
 6. Minutes of the 408th SEAC meeting held on 08.09.2023.
 7. Minutes of the 659th SEIAA meeting held on 29.09.2023.

Details of Minor Mineral Activity:-

This has reference to your application 4th & 5th cited. The proposal is for obtaining Environmental Clearance for mining / quarrying of minor minerals based on the particulars furnished in your application as shown below.


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Sl. No	Details of the proposal	Data furnished
1.	Name of the Owner/Firm	Tvl.S.G.Granites No.3, East 2nd Street Behind ICICI Bank, K.K. Nagar Madurai District-625020
2.	Type of quarrying	Multi Colour Granite Quarry
3.	S.F No. of the quarry site	913/2B(Part)
4.	Village in which situated	Alambadi
5.	Taluk in which situated	Gujiliamparai
6.	District in which situated	Dindigul
7.	Extent of quarry (in ha.)	2.13.0Ha
8.	Latitude & Longitude of all corners of the quarry site	10 ⁰ 44'15.28" N to 10 ⁰ 44'20.55" N 78 ⁰ 03'43.52"E to 78 ⁰ 03'49.78" E
9.	Topo Sheet No.	58 J/02
10.	Type of mining	Opencast mechanized mining
11.	Period of current mine plan	5 years
12.	Production (Quantity in m ³)	As per the mining plan the lease period is 20 years. The mining plan is for the period of five years & the production should not exceed 35,750m ³ of RoM [12,513m ³ of Multi-colour Granite @ Recovery 35% + 23,237m ³ of Granite waste @ 65%] with an ultimate depth of mining is 32m BGL.
13.	Depth of mining	32m BGL (2m Topsoil + 30m Multi Colour Granite).
14.	Depth of water table	60m in Summer season – 55m in rainy season
15.	Man Power requirement	34 Employees
16.	Water requirement:	3.5 KLD
	1. Drinking water & Utilized water	1.0 KLD
	2. Dust suppression	1.5 KLD
	3. Green belt	1.0 KLD


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17.	Power requirement	TNEB 2,07,376 liters of HSD for the entire project life
18.	Precise area communication approved by the Industries (MMB.2) Department	Letter.No.1318/MMB.2/2021-1, dated:23.02.2021
19.	Mining Plan approved by the Commissioner of Geology and Mining with date	Rc.No.683/MM2/2021, dated: 30.04.2021
20.	500m cluster letter issued by the Assistant Director, Dept. of Geology and Mining with date	Rc.No.604/2020 (Mines), dated: 10.06.2021.
21.	VAO certificate regarding habitations in 300m radius	Letter dated: 19.06.2021
22.	ToR details	Lt.No:SEIAA-TN/F.No.8798/SEAC/ToR-1104/2021,Dated:21.03.2022.
23.	Public hearing details	Public hearing conducted on Dated:20.12.2022.
24.	EIA report submitted on	Dated: 17.07.2023
25.	Project Cost (excluding EMP cost)	Rs. 2,32,97,000/-
26.	EMP cost (in Rs. Lakh).	Rs.4 Crores and 99.24 lakhs
27.	CER cost (in Rs. Lakh).	Rs.5,00,000
28.	<u>Validity:</u> This Environmental Clearance is accorded for the quantity 35,750m ³ of RoM [12,513m ³ of Multi-colour Granite @ Recovery 35% + 23,237m ³ of Granite waste @ 65%] up to a depth of 32m BGL and the annual peak production should not exceed 7,975m ³ of RoM [2,791m ³ of Multi-colour Granite @ Recovery 35% + 5,184m ³ of Granite waste @ 65%]. The Environmental Clearance issued is valid as per the approved mine plan period and as per MoEF&CC's notification S.O.1533(E) dated.14.09.2006 and S.O. 1807(E) dated 12.04.2022.	

AFFIDAVIT FURNHSED BY THE PROPONENT

The Proponent has furnished affidavit stamp paper attested by the Notary stating that We, Tvl. S G Granites, No.3, East 2nd Street, Behind ICICI Bank, K.K. Nagar, Madurai District, Tamil Nadu state – 625 020, solemnly declare and sincerely affirm that:


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We, have apply for getting Environment Clearance to SEIAA, Tamil Nadu State for quarry lease for quarrying of **Multi Colour Granite Quarry project for over an Extent of 2.13.0Ha of Patta land in S.F.No.913/2B (Part) of Alambadi Village, Gujiliamparai Taluk, Dindigul District, Tamil Nadu.**

1. I swear to state and confirm that within 10km area of the quarry site, I have applied for environment clearance, none of the following is situated:
 - a. Protected areas notified under the wild life (Protection) Act, 1972,
 - b. Critically polluted areas as notified by the central pollution control board constituted under water (Prevention and Control of Pollution) Act, 1974,
 - c. Eco-Sensitive areas as notified.
 - d. Interstate Boundary
2. I will spend the amount of Rs.5 Lakhs towards Corporate Environment Responsibility (Revised CER) for the following activities to the Panchayat Union Primary School, Alambadi Village, Dindigul District before commencement of quarrying activities.

Sl. No.	Description	Cost break up
1	Renovation of Existing toilet and maintenance	1,50,000
2	Providing environmental related books	25,000
3	Carrying out plantation in around school (200 Nos)	25,000
4	Providing RO Water purifier to the school	50,000
5	Providing water facilities by installation of water tank and bore well	2,50,000

3. The total area of following quarries located within 500m radius from the periphery of my quarry site details as shown below:

Sl. No.	Name of the quarry Owner	Name of the Village & Survey Number	Extent (in Hect)	Minerals	Remarks
a. Existing Quarries					
I.	M/s, S G GRANITES Door No. 3, East 2 nd Street, Behind ICICI Bank, K.K. Nagar, Madurai - 625 020	Alambadi Village, SF. Nos. 911/1A1, 911/1B1, 913/1A1 (P), 913/1B1	2.81.5	Multi Coloured Granite	08.03.2018 to 07.03.2038


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2.	Thiru. N.K.M. Selvam, Managing Partner, Tvl. Easwar Minerals and Chemicals, Chattrapatti Post, Palayam Via, Vedasandur Taluk, Dindigul District	Alambadi Village S.F.No.838	2.14.5	Limestone	19.09.2005 to 18.09.2025
b. Expired Quarries					
1.	M/s. Sree Sakthi Mines, A.M.S. Buildings, Akkaraipatti Sankar, Salem District.	Alambadi Village, S.F.No.854, 855, 857/1	0.77.0	Limestone	23.12.1998 to 22.12.2018
c. Proposed Quarries					
1	M/s. Shri Sai sabari Enterprises, No.54A, R.R.Tower 2 nd Floor, Sengunthapuram Main Road, Karur	Alambadi Village, S.F.No.864/2(P), 864/(3P), 864/4 (P), 864/5, 864/6 (P), 864/9 (P), 864/10 (P), 864/12 & 864/13	2.79.73	Multi Coloured Granite	Proposed Quarry
2.	Tvl. Ultratech Cement Limited, Reddi palayam Cement Works, Reddipalayam Post, Ariyalur	Alambadi Village S.F.No.913/3, 913/4 etc.,	15.95.0	Limestone	PL cum ML applied area
3.	M/s. S G GRANITES Door No. 3, East 2 nd Street, Behind ICICI Bank, K.K. Nagar, Madurai - 625 020	Alambadi Village S.F.No.913/2B (P)	2.13.0	Multi Coloured Granite	Proposed Quarry

4. There will not be hindrance or disturbance to the people living during quarrying activities and transportation of the mineral.
5. There is no approved habitation within 300m radius from the periphery of my quarry.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the laborers working in my quarry site.
8. The existing road from the main road to quarry is in good condition and the same is being maintained and utilized for Transportation of Rough stone.


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9. I will not engage any child labor in my quarry site and I aware that engaging child labor is punishable under the law.
10. All types of safety / protective equipment will be provided to all the laborers working in my quarry.
11. No permanent structures, temples etc., are located within 500m radius from the periphery of my quarry.

REVISED EMP BUDGET

Activities	Capital Cost	Recurring Cost
Air Environment	3198100	1167060
Noise Environment		
Waste Management		
Mine Closure		
Implementation of EC, Mining Plan & DGMS Condition- Public hearing commitment		
CER		

EMP BUDGET SUMMARY BREAKUP YEAR WISE UP TO LEASE PERIOD

Year Wise Break Up	
1 st Year	₹ 43,65,160/-
2 nd Year	₹ 12,25,413/-
3 rd Year	₹ 12,86,684/-
4 th Year	₹ 13,51,018/-
5 th Year	₹ 14,18,569/-
6 th Year	₹ 30,88,547/-
7 th Year	₹ 16,43,925/-
8 th Year	₹ 17,26,121/-
9 th Year	₹ 18,12,427/-
10 th Year	₹ 19,03,048/-
11 th Year	₹ 35,97,251/-
12 th Year	₹ 21,78,063/-
13 th Year	₹ 22,86,966/-
14 th Year	₹ 24,01,315/-
15 th Year	₹ 25,91,380/-
16 th Year	₹ 43,19,999/-


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17 th Year	₹ 29,36,949/-
18 th Year	₹ 30,83,797/-
19 th Year	₹ 32,37,987/-
20 th Year	₹ 34,69,886/-

I ensure to do all the social and Environment commitment as mentioned in the Mining Plan to the best of my knowledge.

DETAILS OF QUARRIES LOCATED WITHIN 500M RADIUS FROM THE PROPOSED QUARRY:

The Project Proponent has submitted a copy of the letter obtained from the Assistant Director Department of Geology & Mining, Dindigul District in his letter Roc.No.604/2020(Mines), dated: 10.06.2021 has stated that the details of other quarries within a radius 500m from the boundary of the proposed quarry site as follows:

Sl. No.	Name of the quarry Owner	Name of the Village & Survey Number	Extent (in Hect)	Minerals	Remarks
a. Existing Quarries					
1.	M/s. S G GRANITES Door No. 3, East 2 nd Street, Behind ICICI Bank, K.K. Nagar, Madurai - 625 020	Alambadi Village, SF. Nos. 911/1A1, 911/1B1, 913/1A1 (P), 913/1B1	2.81.5	Multi Coloured Granite	08.03.2018 to 07.03.2038
2.	Thiru. N.K.M. Selvam, Managing Partner, Tvl. Easwar Minerals and Chemicals, Chattrapatti Post, Palayam Via, Vedasandur Taluk, Dindigul District	Alambadi Village S.F.No.838	2.14.5	Limestone	19.09.2005 to 18.09.2025
b. Expired Quarries					
1.	M/s. Sree Sakthi Mines, A.M.S. Buildings, Akkaraipatti Sankar, Salem.	Alambadi Village, S.F.No.854, 855, 857/1	0.77.0	Limestone	23.12.1998 to 22.12.2018


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c. Proposed Quarries					
1	M/s. Shri Sai sabari Enterprises, No.54A, R.R.Tower 2 nd Floor, Sengunthapuram Main Road, Karur	Alambadi Village, S.F.No.864/2(P), 864/(3P), 864/4 (P), 864/5, 864/6 (P), 864/9 (P), 864/10 (P), 864/12 & 864/13	2.79.73	Multi Coloured Granite	Proposed Quarry
2.	Tvl. Ultratech Cement Limited, Reddipalayam Cement Works, Reddipalayam Post, Ariyalur	Alambadi Village S.F.No.913/3, 913/4 etc.,	15.95.0	Limestone	PL cum ML applied area
3.	M/s. S G GRANITES Door No. 3, East 2 nd Street, Behind ICICI Bank, K.K. Nagar, Madurai - 625 020	Alambadi Village S.F.No.913/2B (P)	2.13.0	Multi Coloured Granite	Proposed Quarry

DISCUSSION BY SEIAA AND THE REMARKS: -

The subject was placed in 659th authority meeting held on 29.09.2023. The authority noted that this proposal was placed for appraisal in 408th meeting of SEAC held on 08.09.2023. SEAC has furnished its recommendations for granting Environmental Clearance subject to the conditions stated therein.

After detailed discussions, the Authority decided to grant Environmental Clearance for the quantity of 35,750m³ of RoM [12,513m³ of Multi-colour Granite @ Recovery 35% + 23,237m³ of Granite waste @ 65%] up to the depth of mining 32m BGL and the annual peak production should not exceed the quantity of 7,975m³ of RoM [2,791m³ of Multi-colour Granite @ Recovery 35% + 5,184m³ of Granite waste @ 65%] as per the mine plan approved by the Department of Geology & Mining. This is also subject to the standard conditions as per Annexure - (I) of SEAC minutes, other normal conditions stipulated by MOEF&CC & all other specific conditions as recommended by SEAC in addition to the following conditions and the conditions in Annexure 'A' of this minutes.


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1. Keeping in view of MoEF&CC's notification S.O.1533(E) dated.14.09.2006 and S.O. 1807(E) dated 12.04.2022, this Environmental Clearance is valid as per the approved mine plan period.
2. The EC granted is subject to review by District Collector, Mines Dept. and TNPCB on completion of every 5 years till the project life. They should also review the EC conditions to ensure that they have all been adhered to and implemented.
3. The project proponent shall furnish a Certified Compliance Report obtained from MoEF&CC while seeking a renewal of the mining plan to cover the project life.
4. The progressive and final mine closure plan including the green belt implementation and environmental norms should be strictly followed as per the EMP.
5. As per the OM vide F. No. IA3-22/1/2022-IA-III [E- 172624] Dated: 14.06.2022, the Project Proponents are directed to submit the six-monthly compliance on the environmental conditions prescribed in the prior environmental clearance letter(s) through newly developed compliance module in the PARIVESH Portal from the respective login.
6. The amount allocated for EMP should be kept in a separate account and both the capital and recurring expenditures should be done year wise for the works identified, approved and as committed. The work & expenditure made under EMP should be elaborated in the bi-annual compliance report submitted and also should be brought to the notice of concerned authorities during inspections.
7. The project proponent shall store/ the granite waste generated within the earmarked area of the project site for mine closure as per the approved mining plan.

Annexure 'A'

a) EC Compliance

1. The Environmental Clearance is accorded based on the assurance from the project proponent that there will be full and effective implementation of all the undertakings given in the Application Form, Pre-feasibility Report, mitigation measures as assured in the Environmental Impact Assessment/ Environment Management Plan and the mining features including Progressive Mine Closure Plan as submitted with the application.
2. All the conditions as presented by the proponent in the PPT during SEAC appraisal should be addressed in Full.
3. The proponent shall submit Compliance Reports on the status of compliance of the stipulated EC conditions including results of monitored data. It shall be sent to the respective Regional


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Office of Ministry of Environment, Forests and Climate Change, Govt. of India and also to the Office of State Environment Impact Assessment Authority (SEIAA).

4. Concealing the factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

b) Applicable Regulatory Frameworks

5. The project proponent shall strictly adhere to the provisions of Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, along with their amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002, Biological diversity Rules, 2004 & TN Forest Act, 1882 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

c) Safe mining Practices

6. The AD/DD, Dept. of Geology & Mining shall ensure operation of the proposed quarry after the submission slope stability study conducted through the reputed research & Academic Institutions such as NIRM, IITs, NITS Anna University, and any CSIR Laboratories etc.
7. The AD/DD, Dept. of Geology & Mining & Director General of Mine safety shall ensure strict compliance and implementation of bench wise recommendations/action plans as recommended in the scientific slope stability study of the reputed research & Academic Institutions as a safety precautionary measure to avoid untoward accidents during mining operation.
8. A minimum buffer distance specified as per existing rules and statutory orders shall be maintained from the boundary of the quarry to the nearest dwelling unit or other structures, and from forest boundaries or any other ecologically sensitive and archeologically important areas or the specific distance specified by SEIAA in EC as per the recommendations of SEAC depending on specific local conditions:

d) Water Environment – Protection and mitigation measures

9. The proponent shall ensure that the activity does not disturb the water bodies and natural flow of surface and groundwater, nor cause any pollution, to water sources in the area.


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10. The proponent shall ensure that the activities do not impact the water bodies/wells in the neighboring open wells and bore wells. The proponent shall ensure that the activities do not in any way affect the water quantity and quality in the open wells and bore wells in the vicinity or impact the water table and levels. The proponent shall ensure that the activities do not disturb the river flow, nor affect the Odai, Water bodies, Dams in the vicinity.
11. Water level in the nearest dug well in the downstream side of the quarry should be monitored regularly and included in the Compliance Report.
12. Quality of water discharged from the quarry should be monitored regularly as per the norms of State Pollution Control Board and included in the Compliance Report.
13. Rain Water Harvesting facility should be installed as per the prevailing provisions of TNMBR/TNCDBR, unless otherwise specified. Maximum possible solar energy generation and utilization shall be ensured as an essential part of the project.
14. Regular monitoring of flow rates and water quality upstream and downstream of the springs and perennial nallahs flowing in and around the mine lease area shall be carried out and reported in the compliance reports to SEIAA.
15. Regular monitoring of ground water level and water quality shall be carried out around the mine area during mining operation. At any stage, if it is observed that ground water table is getting depleted due to the mining activity; necessary corrective measures shall be carried out.
16. Garland drains and silt traps are to be provided in the slopes around the core area to channelize storm water. De-silting of Garland canal and silt traps have to be attended on a daily basis. A labour has to be specifically assigned for the purpose. The proponent shall ensure the quality of the discharging storm water as per the General Effluent Discharge Standards of CPCB.

e) **Air Environment – Protection and mitigation measures**

17. The activity should not result in CO₂ release and temperature rise and add to micro climate alternations.
18. The proponent shall ensure that the activities undertaken do not result in carbon emission, and temperature rise, in the area.
19. The proponent shall ensure that Monitoring is carried out with reference to the quantum of particulate matter during excavation; blasting; material transport and also from cutting waste dumps and haul roads.


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f) Soil Environment – Protection and mitigation measures

20. The proponent shall ensure that the operations do not result in loss of soil biological properties and nutrients.
21. The proponent shall ensure that activity does not deplete the indigenous soil seed bank and disturb the mycorrhizal fungi, soil organism, soil community nor result in eutrophication of soil and water.
22. The activities should not disturb the soil properties and seed and plant growth. Soil amendments as required to be carried out, to improve soil health.
23. Bio remediation using microorganisms should be carried out to restore the soil environment to enable carbon sequestration.
24. The proponent shall ensure that the mine restoration is done using mycorrhizal VAM, vermin-composting, Biofertilizers to ensure soil health and biodiversity conservation.
25. The proponent shall ensure that the topsoil is protected and used in planting activities in the area.
26. The proponent shall ensure that topsoil to be utilized for site restoration and Green belt alone within the proposed area.
27. The top soil shall be temporarily stored at earmarked place (s) and used for land reclamation and plantation. The over burden (OB) generated during the mining operations shall be stacked at earmarked dump site(s) only. The OB dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. At critical points, use of geotextile shall be undertaken for stabilization of the dump. Protective wall or gabions should be made around the dump to prevent erosion / flow of sediments during rains. The entire excavated area shall be backfilled.
28. Activities should not result in invasion of site by exotic and alien plant and animal species and disturb the native biodiversity and soil micro flora and fauna.

g) Noise Environment – Protection and mitigation measures

29. The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
30. The sound at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Hence, the PP shall ensure that the biological clock of the villages are not disturbed because of the mining activity.


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h) Biodiversity - Protection and mitigation measures

31. The proponent should ensure that there is no disturbance to the agriculture plantations, social forestry plantations, waste lands, forests, sanctuary or national parks. There should be no impact on the land, water, soil and biological environment and other natural resources due to the mining activities.
32. No trees in the area should be removed and all the trees numbered and protected. In case trees fall within the proposed quarry site the trees may be transplanted in the Greenbelt zone. The proponent shall ensure that the activities in no way result in disturbance to forest and trees in vicinity. The proponent shall ensure that the activity does not disturb the movement of grazing animals and free ranging wildlife. The proponent shall ensure that the activity does not disturb the biodiversity, the flora & fauna in the ecosystem. The proponent shall ensure that the activity does not result in invasion by invasive alien species. The proponent shall ensure that the activities do not disturb the resident and migratory birds. The proponent shall ensure that the activities do not disturb the vegetation and wildlife in the adjoining reserve forests and areas around.
33. The proponent shall ensure that the activities do not disturb the agro biodiversity and agro farms. Actions to be taken to promote agroforestry, mixed plants to support biodiversity conservation in the mine restoration effort.
34. The proponent shall ensure that all mitigation measures listed in the EIA/EMP are taken to protect the biodiversity and natural resources in the area.
35. The proponent shall ensure that the activities do not impact green lands/grazing fields of all types surrounding the mine lease area which are food source for the grazing cattle.

i) Climate Change

36. The project activity should not in any way impact the climate and lead to a rise in temperature.
37. There should be least disturbance to landscape resulting in land use change, contamination and alteration of soil profiles leading to Climate Change.
38. Intensive mining activity should not add to temperature rise and global warming.
39. Operations should not result in GHG releases and extra power consumption leading to Climate Change.
40. Mining through operational efficiency, better electrification, energy use, solar usage, use of renewable energy should try to decarbonize the operations.


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41. Mining Operation should not result in droughts, floods and water stress, and shortages, affecting water security both on site and in the vicinity.
42. Mining should not result in water loss from evaporation, leaks and wastage and should support to improve the ground water.
43. Mining activity should be flood proof with designs and the drainage, pumping techniques shall ensure climate-proofing and socio-economic wellbeing in the area and vicinity.

j) Reserve Forests & Protected Areas

44. The activities should provide nature based support and solutions for forest protection and wildlife conservation.
45. The project activities should not result in forest fires, encroachments or create forest fragmentation and disruption of forest corridors.
46. There should be no disturbance to the freshwater flow from the forest impacting the water table and wetlands.
47. The project proponent should support all activities of the forest department in creating awareness to local communities on forest conservation.
48. The project activities should not alter the geodiversity and geological heritage of the area.
49. The activities should not result in temperature rise due to increased fossil fuels usage disrupting the behaviour of wildlife and flora.
50. The activities should support and recognise the rights and roles of indigenous people and local communities and also support sustainable development.
51. The project activities should support the use of renewables for carbon capture and carbon storage in the project site and forest surrounds.
52. The project activities should not result in changes in forest structure, habitats and genetic diversity within forests.

k) Green Belt Development

53. The proponent shall ensure that in the green belt development more indigenous trees species (Appendix as per the SEAC Minutes) are planted.
54. The proponent shall ensure the area is restored and rehabilitated with native trees as recommended in SEAC Minutes (in Appendix).

l) Workers and their protection

55. The project proponent is responsible for implementing all the provisions of labour laws applicable from time to time to quarrying /Mining operations. The workers on the site should


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be provided with on-site accommodation or facilities at a suitable boarding place, protective equipment such as ear muffs, helmet, etc.

56. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
57. The workers shall be employed for working in the mines and the working hours and the wages shall be implemented/enforced as per the Mines Act, 1952.

m) Transportation

58. No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a bypass road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.
59. The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

n) Storage of wastes

60. The project proponent shall store/dump the waste generated within the earmarked area of the project site for mine closure as per the approved mining plan.


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o) CER/EMP

61. The CER should be fully Implemented and fact reflected in the Half-yearly compliance report.
62. The EMP shall also be implemented in consultation with local self-government institutions & Govt. departments.
63. The follow-up action on the implementation of CER Shall be included in the compliance report.

p) Directions for Reclamation of mine sites

64. The mining closure plan should strictly adhere to appropriate soil rehabilitation measures to ensure ecological stability of the area. Reclamation/Restoration of the mine site should ensure that the Geotechnical, physical, chemical properties are sustainable that the soil structure composition is buildup, during the process of restoration.
65. The proponent shall ensure that the mine closure plan is followed as per the mining plan and the mine restoration should be done with native species, and site restored to near original status. The proponent shall ensure that the area is ecologically restored to conserve the ecosystems and ensure flow of goods and services.
66. A crucial factor for success of reclamation site is to select sustainable species to enable develop a self-sustaining eco system. Species selected should easily establish, grow rapidly, and possess good crown and preferably be native species. Species to be planted in the boundary of project site should be un palatable for cattle 's/ goats and should have proven capacity to add leaf-litter to soil and decompose. The species planted should be adaptable to the site conditions. Should be preferably pioneer species, deciduous in nature to allow maximum leaf-litter, have deep root system, fix atmospheric nitrogen and improve soil productivity. Species selected should have the ability to tolerate altered pit and toxicity of and site. They should be capable of meeting requirement of local people in regard to fuel fodder and should be able to attract bird, bees and butterflies. The species should be planted in mixed association.
67. For mining area reclamation plot culture experiments to be done to identify/ determine suitable species for the site.
68. Top soil with a mix of beneficial microbes (Bacteria/Fungi) to be used for reclamation of mine spoils. AM Fungi (Arbuscular mycorrhizal fungi), plant growth promoting Rhizo Bacteria and nitrogen fixing bacteria to be utilized.
69. Soil and moisture conservation and water harvesting structures to be used where ever possible for early amelioration and restoration of site.


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70. Top soil is most important for successful rehabilitation of mined sites. Topsoil contains majority of seeds and plant propagation, soil microorganism, Organic matter and plant nutrients. Wherever possible the topsoil should be immediately used in the area of the for land form reconstruction, to pre mining conditions.
71. Over burdens may be analyzed and tested for soil characteristics and used in the site for revegetation. Wherever possible seeds, rhizome, bulbs, etc of pioneering spices should be collected, preserved and used in restoring the site.
72. Native grasses seeds may be used as colonizers and soil binders, to prevent erosion and allow diverse self- sustaining plant communities to establish. Grasses may offer superior tolerance to drought, and climatic stresses.
73. Reclamation involves planned topographical reconstruction of site. Care to be taken to minimize erosion and runoff. Topsoils should have necessary physical, chemical, ecological, properties and therefore should be stored with precautions and utilized for reclamation process. Stocked topsoil should be stabilized using grasses to protect from wind. Seeds of various indigenous and local species may be broad casted after topsoil and treated overburden are spread.
74. Alkaline soils, acidic soils, Saline soils should be suitably treated/amended using green manure, mulches, farmyard manure to increase organic carbon. The efforts should be taken to landscape and use the land post mining. The EMP and mine closure plan should provide adequate budget for re-establishing the site to pre-mining conditions. Effective steps should be taken for utilization of over burden. Mine waste to be used for backfilling, reclamation, restoration, and rehabilitation of the terrain without affecting the drainage and water regimes. The rate of rehabilitation should be similar to rate of mining. The land disturbed should be reshaped for long term use. Mining should be as far as possible be eco-friendly. Integration of rehabilitation strategies with mining plan will enable speedy restoration.
75. Efforts should to taken to aesthetically improve the mine site. Generally, there are two approaches to restoration i.e Ecological approach which allows tolerant species to establish following the succession process allowing pioneer species to establish. The other approach i.e plantation approach is with selected native species are planted. A blend of both methods may be used to restore the site by adding soil humus and mycorrhiza.
76. Action taken for restoration of the site should be specifically mentioned in the EC compliances.


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CONDITIONS IMPOSED BY SEAC:

1. The prior Environmental Clearance granted for this mining project shall be valid for the project life including production value as laid down in the mining plan approved and renewed by competent authority, from time to time, subject to a **maximum of thirty years, whichever is earlier, vide MoEF&CC Notification S.O, 1807(E) dated 12.04.2022.**
2. The PP shall appoint a Geologist for carrying out the quarrying operations scientifically before the execution of lease in the office of District Magistrate.
3. **Since the waterbodies such as odai are situated nearby,** the PP shall carry out the scientific studies to assess the hydrogeological condition of the quarry and to suggest the protective measures for the seasonal odai & quarrying operations, within a period of six months from the date of lease execution, by involving any one of the reputed Research and Academic Institution - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, University of Madras – Centre for Environmental Studies, and Anna University Chennai-Dept of Geology, CEG Campus. A copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance without any deviation.
4. For the safety of the persons employed in the quarry, the PP shall carry out the scientific studies to assess the slope stability of the working benches and existing quarry wall during the 3rd year or when the depth exceeds 30m whichever is earlier, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. A copy of such scientific study report shall be submitted to the SEIAA, MoEF, TNPCB, AD/Mines-DGM and DMS, Chennai as a part of Environmental Compliance without any deviation.
5. As accepted by the Project Proponent the CER cost of **Rs.7 Lakhs** and the amount shall be spent for the activities as committed towards Panchayat Union Primary School, Alambadi Village, Dindigul before obtaining CTO from TNPCB.
6. The proponent shall mandatorily appoint the statutory Mines Manager and the Mining Engineer in relevant to the proposed quarry size as per the provisions of Mines Act 1952 and Granite Conservation & Development Rules, 1999 respectively.


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7. The proponent shall erect fencing all around the boundary of the proposed area with gates for entry/exit before the commencement of the operation and shall furnish the photographs/map showing the same before obtaining the CTO from TNPCB.
8. Perennial maintenance of haulage road/village / Panchayat Road shall be done by the project proponent as required in connection with the concerned Govt. Authority.
9. The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of Granite, waste, over burden, side burden and top soil etc. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form of Short Term Permit (STP), Query license or any other name.
10. The Proponent shall ensure that the overburden, waste rock and non-saleable granite generated during prospecting or mining operations of the granite quarry shall be stored separately in properly formed dumps on grounds earmarked. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps. Such dumps shall be properly secured to prevent the escape of material in harmful quantities which may cause degradation of the surrounding land or silting of water courses.
11. Perennial sprinkling arrangement shall be in place on the haulage road for fugitive dust suppression. Fugitive emission measurements should be carried out during the mining operation at regular intervals and submit the consolidated report to TNPCB once in six months.
12. The Proponent shall ensure that the Noise level is monitored during mining operation at the project site for all the machineries deployed and adequate noise level reduction measures undertaken accordingly. The report on the periodic monitoring shall be submitted to TNPCB once in 6 months.
13. Proper barriers to reduce noise level and dust pollution should be established by providing greenbelt along the boundary of the quarrying site and suitable working methodology to be


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adopted by considering the wind direction.

14. 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. 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.
15. Taller/one year old saplings raised in appropriate size of bags (preferably eco-friendly bags) should be planted in proper spacing 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.
16. **Noise and Vibration Related:** (i) The Proponent shall carry out only the Controlled Blasting operation using the detonating cord/fuse of low grammage PETN (or) Gun powder (or) safety fuse for the extraction of the granite blocks in the quarry. However, the proponent shall use NONEL based shock tube initiation system only while carrying out the controlled blasting operations for the excavation of overburden and side burden even though no habitations (or) forest exists around the proposed site. The proponent shall not carry out any blasting operation involving the initiation system such as detonating cord safety fuse, ordinary detonators, cord relays, in the blasting operation carried out for the excavation of overburden and side burden. The mitigation measures for control of ground vibrations and to arrest fly rocks should be implemented meticulously under the supervision of statutory competent persons possessing the I / II Class Mines Manager / Foreman / Blaster certificate issued by the DGMS under MMR 1961, appointed in the quarry. No secondary blasting of granite boulders shall be carried out in any occasions and only other suitable non-explosive techniques involving chemical agents shall be adopted if such secondary breakage is required. The Project Proponent shall provide required number of the security sentries for guarding the danger zone of 500 m radius from the site of blasting to ensure that no human/animal is present within this danger zone and also no person is allowed to enter into (or) stay in the danger zone during the blasting. (ii) Appropriate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs, (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone.


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17. The proponent shall undertake in a phased manner restoration, reclamation and rehabilitation of lands affected by the quarrying operations and shall complete this work before the conclusion of such operations and the abandonment of the granite quarry as assured in the Environmental Management Plan & the approved Mine Closure Plan.
18. Ground water quality monitoring should be conducted once in every six months and the report should be submitted to TNPCB.
19. The operation of the quarry should not affect the agricultural activities & water bodies near the project site and a 50 m safety distance from water body should be maintained without carrying any activity. The proponent shall take appropriate measures for "Silt Management" and prepare a SOP for periodical de-siltation indicating the possible silt content and size in case of any agricultural land exists around the quarry.
20. The proponent shall provide sedimentation tank / settling tank with adequate capacity for runoff management.
21. The proponent shall ensure that the transportation of the quarried granite stones shall not cause any hindrance to the Village people/Existing Village Road and shall take adequate safety precautionary measures while the vehicles are passing through the schools/ hospital. The Project Proponent shall ensure that the road may not be damaged due to transportation of the quarried granite stones; and transport of granite stones will be as per IRC Guidelines with respect to complying with traffic congestion and density.
22. To ensure safety measures along the boundary of the quarry site, security guards are to be posted during the entire period of the mining operation.
23. The Project Proponent shall take all possible precautions for the protection of environment and control of pollution while carrying out the mining or processing of granite in the area for which such licence or lease is granted, as per
24. The Project Proponent shall comply with the provisions of the Mines Act, 1952, MMR 1961 and Mines Rules 1955 for ensuring safety, health and welfare of the people working in the mines and the surrounding habitants.
25. The project proponent shall ensure that the provisions of the MMDR Act, 1957, the Granite Conservation and Development Rules 1999, the MCDR 2017 and Tamilnadu Minor Mineral Concession Rules 1959 are complied by carrying out the quarrying operations in a skillful, scientific and systematic manner keeping in view proper safety of the labour, structure and the


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public and public works located in that vicinity of the quarrying area and in a manner to preserve the environment and ecology of the area.

26. 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 informed to the District AD/DD (Geology and Mining) District Environmental Engineer (TNPCCB) and the Director of Mines Safety (DMS), Chennai Region by the proponent without fail.
27. The Project Proponent shall abide by the annual production scheduled specified in the approved mining plan and if any deviation is observed, it will render the Project Proponent liable for legal action in accordance with Environment and Mining Laws.
28. Prior clearance from Forestry & Wild Life including clearance from committee of the National Board for Wildlife as applicable shall be obtained before starting the quarrying operation, if the project site attracts the NBWL clearance, as per the existing law from time to time.
29. All the conditions imposed by the Assistant/Deputy Director, Geology & Mining, concerned District in the mining plan approval letter and the Precise area communication letter issued by concerned District Collector should be strictly followed.
30. The recommendation for the issue of environmental clearance is subject to the outcome of the Hon'ble NGT, Principal Bench, New Delhi in O.A.No.186 of 2016 (M.A.No.350/2016) and O.A.No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No. 758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A.No.843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016(M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).
31. The Project Proponent shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & Regulation), Act, 2015 and rules & regulations made there under. The Project Proponent shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines (IBM) from time to time.
32. That the grant of this E.C. is issued from the environmental angle only, and does not absolve the project proponent from the other statutory obligations prescribed under any other law or any other instrument in force. The sole and complete responsibility, to comply with the conditions laid down in all other laws for the time-being in force, rests with the project proponent.


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Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Azale marmelos</i>	Vilvam	விலவம்
2	<i>Adenaanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்கொன்றிமணி
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>	Aathi	ஆத்தி
7	<i>Bauhinia tomentos</i>	Irvathi	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமர
9	<i>Borassus flabellifer</i>	Parai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punnai	புனை
13	<i>Cassia fistula</i>	Sarakondrai	சர்க்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon sweetenia</i>	Purasamaram	புரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவூளி
18	<i>Creteva adansoni</i>	Mavalingum	மாவலிங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உவா
20	<i>Dillenia pentagyna</i>	SiruUva, Siruzha	சீறு உவா
21	<i>Diospyro sebenum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகனை
23	<i>Ficus amplissima</i>	Kalltchi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆறுநுப்புலக
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயிலி மரம், ஆயிலி
27	<i>Lannea coromandelica</i>	Odhiam	ஓதியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottaimaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	வில்லா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	பிசிப்பட்டை
32	<i>Madinca longifolia</i>	Illuppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkatPaalai	உலக்கை பாலை
34	<i>Mimusops elangi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	ஈச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்


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Part-A: Conditions to be Complied before commencing mining operations:-

1. **The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing the public that**
 - I. **The project has been accorded Environmental Clearance.**
 - II. **Copies of clearance letters are available with the Tamil Nadu Pollution Control Board.**
 - III. **Environmental Clearance may also be seen on the website of the SEIAA.**
 - IV. **The advertisement should be made within 7 days from the date of receipt of the clearance letter and a copy of the same shall be forwarded to the SEIAA.**
2. Mining activity should be reviewed by the District Collector after three years and decide for further extension.
3. NOC from the Standing committee of the NBWL shall be obtained, if protected areas are located within 10 Km from the proposed project site.
4. The project proponent shall comply the conditions laid down in the Section V, Rule 36 of Tamil Nadu Minor Minerals Concession Rules 1959.
5. **A copy of the Environment Clearance letter shall be sent by the proponent to the concerned Panchayat, Town Panchayat / Panchayat union/ Municipal Corporation, Urban 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.


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12. The proponent shall take necessary measures to ensure that there shall not be any adverse impacts due to quarrying operation on the nearby human habitations, by way of pollution to the environment.
13. A minimum distance of 50mts. from any civil structure shall be kept from the periphery of any excavation area.
14. The mined out pits should be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation. The mine closure plan as furnished in the proposal shall be strictly followed with back filling and tree plantation.
15. Wet drilling method is to be adopted to control dust emissions. Delay detonators and shock tube initiation system for blasting shall be used so as to reduce vibration and dust.
16. Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
17. Blasting shall be carried out after announcing to the public adequate through public address system to avoid any accident.
18. A study has to be conducted to assess the optimum blast parameters and blast design to keep the vibration limits less than prescribed levels and only such design and parameters should be implemented while blasting is done. Periodical monitoring of the vibration at specified location to be conducted and records kept for inspection.
19. The Proponent shall take appropriate measures to ensure that the GLC shall comply with the revised NAAQ norms notified by MoEF& CC, GoI on 16.11.2009.
20. The following measures are to be implemented to reduce Air Pollution during transportation of mineral
 - i. Roads shall be graded to mitigate the dust emission.
 - ii. Water shall be sprinkled at regular interval on the main road and other service roads to suppress dust
21. The following measures are to be implemented to reduce Noise Pollution
 - i. Proper and regular maintenance of vehicles and other equipment
 - ii. Limiting time exposure of workers to excessive noise.
 - iii. The workers employed shall be provided with protection equipment and earmuffs etc.
 - iv. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 25 kmph to prevent undue noise from empty trucks.


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- v. All noise generating machinery the compressor, generator to be enclosed in acoustic enclosure so as to reduce noise in working-area.
22. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010, dt: 11.01.2010 issued by the MoEF& CC, GoI to control noise to the prescribed levels.
23. Suitable conservation measures to augment groundwater resources in the area shall be planned and implemented in consultation with Regional Director, CGWB. Suitable measures should be taken for rainwater harvesting.
24. Permission from the competent authority should be obtained for drawl of ground water, if any, required for this project.
25. Topsoil, if any, shall be stacked properly with proper slope with adequate measures and should be used for plantation purpose.
26. The following measures are to be adopted to control erosion of dumps:-
- i. Retention/ toe walls shall be provided at the foot of the dumps.
 - ii. Worked out slopes are to be stabilized by planting appropriate shrub/ grass species on the slopes.
27. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous& other wastes (Management, and Trans Boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by TNPCB.
28. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
29. Rain water harvesting to collect and utilize the entire water falling in land area should be provided.
30. Rain water getting accumulated in the quarry floor shall not be discharged directly to the nearby stream or water body. If it is to be let into the nearby water body, it has to be discharged into a silt trap on the surface within the lease area and only the overflow after allowing settling of soil be let into the nearby waterways. The silt trap should be of sufficient dimensions to catch all the silt water being pumped out during one season. The silt trap should be cleaned of all the deposited silt at the end of the season and kept ready for taking care of the silt in the next season.


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31. The lease holder shall undertake adequate safeguard measures during extraction of material and ensure that due to this activity, the hydro-geological regime of the surrounding area shall not be affected. Regular monitoring of ground water level and quality shall be carried out around the mine lease area during the mining operation. If at any stage, if it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out. District Collector/mining officer shall ensure this.
32. No tree-felling shall be done in the leased area, except only with the permission from competent Authority.
33. To take up environmental monitoring of the proposed quarry site before, during and after the mining activities including vibration study data, water, air & flora/fauna environment, slurry water generated/disposed and method of disposal, involving a reputed academic Institution.
34. It shall be ensured that the total extent of nearby quarries(existing, abandoned and proposed) located within 500 meter radius from the periphery of this quarry is not exceeding 5 hectares within the mining lease period of this application.
35. It shall be ensured that there is no habitation is located within 300 meter radius from the periphery of the quarry site and also ensure that no hindrance will be caused to the people of the habitation located within 300m radius from the periphery of the quarry site.
36. Free Silica test should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF&CC, GOI.
37. Air sampling at intersection point should be conducted and reported to TNPCB, Department of Geology and Mining and Regional Director, MoEF&CC, GOI.
38. Bunds to be provided at the boundary of the project site.
39. The project proponent shall undertake plantation/afforestation work by planting the native species on all side of the lease area at the rate of 400/Ha. Suitable tall tree saplings should be planted on the bunds and other suitable areas in and around the work place.
40. Floor of excavated pit to be levelled and sides to be sloped with gentle slope (Except for granite quarries) in the mine closure phase.
41. The Project Proponent shall ensure a minimum of 2.5% of the annual turnover will be utilized for the CSR Activity
42. The Project Proponent shall provide solar lighting system to the nearby villages.
43. Earthen bunds and barbed wire fencing around the pits with green belt all along the boundary shall be developed and maintained.


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44. Safety equipments to be provided to all the employees.
45. Safety distance of 50m has to be provided in case of railway, reservoir, canal/odai
46. The Assistant/Deputy Director, Department of Geology & mining shall ensure that the proponent has engaged the blaster with valid Blasting license/certificate obtained from the competent authority before execution of mining lease.
47. The proponent shall furnish the Baseline data covering the Air, Water, Noise and land environment quality for the proposed quarry site before execution of mining lease.
48. The proponent shall erect the pillars in accordance with the Rules for depicting GPS details in the earmarked boundary of the quarry site to monitor electronically before execution of mining.
49. The proponent has to provide insurance protection to the workers in the case of existing mining or provide the affidavit in case of fresh lease before execution of mining lease.
50. The proponent has to display the name board at the quarry site showing the details of Proponent, lease period, extent, etc., with respect to the existing activity before execution of mining.
51. Heavy earth machinery equipments if utilized, after getting approval from the competent authority.
52. The Proponent shall ensure that the project activity including blasting, mining transportation etc should in no way have adverse impact to the other forests, such as reserve forests and social forests, tree plantation and bio diversity, surrounding water bodies etc.
53. The proponent shall provide Green Belt development at the rate of not less than 400 trees/Hectare. The tree saplings shall be not less than 3m height.
54. The fugitive emissions should be monitored during the mining activity and should be reported to TNPCB once in a month and the operation of the quarry should no way impact the agriculture activity & water bodies near the project site.
55. All the commitment made by the project proponent in the proposal shall be strictly followed.
56. The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
57. The Project proponent has to strictly comply the outcome/direction of the Hon'ble NGT, Principle Bench, New Delhi in the O.A No.186 of 2016 (M.A.No.350/2016), O.A. No.200/2016, O.A.No.580/2016 (M.A.No.1182/2016), O.A.No.102/2017, O.A.No.404/ 2016 (M.A.No. 758/2016, M.A. No. 920 /2016, M.A.No.1122/2016, M.A.No. 12/2017 &


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M.A.No.843/2017), O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).

58. All required sanitary and hygienic measures should be in place before starting construction activities and they have to be maintained throughout the construction phase.
59. The company shall stress upon the preventive aspects of occupational health.
60. A separate environment and safety management cell with qualified staff shall be set up before commissioning of construction activities and shall be retained throughout the lifetime of the industry, for implementation of the stipulated environmental safeguards.
61. A scientific site/ ecological rehabilitation and restoration plan on long term basis should be drawn to carryout restoration with native species and Bio diversity.
62. The Green/Blue plan should guide the restoration of the site. The rehabilitation/restoration plan should be submitted to SEIAA-TN within one month. If applicable.
63. The existing water bodies should not be disturbed to ensure sustainable environment for aquatic life forms.
64. The proponent should completely implement all environmental pollution control measures as detailed in the EIA report and in the additional report.
65. Avenue plantation wherever needed has to be carried out along the route for dust suppression.
66. The green belt developed for the prevention of dust pollution should not form a part of the larger green belt development envisaged in the EIA report.
67. Regular monitoring and check up for pulmonary and carcinogenic diseases to be carried out regularly, not only for the workers involved in the mines but also to the people in the villages adjoining the mines. Interaction with the Primary Health Centre & district medical officer should be on regular basis to monitor the incidence of the diseases if any and to provide suitable medical facility for the patients.
68. Monitoring of well water levels and water quality of the wells in the locations furnished in the EIA report shall be done during pre-monsoon and post monsoon period and results submitted to the Regional Office of MoEF, Chennai and SEIAA.
69. Monitoring of water quality and air quality in and around the project site in the selected monitoring points as mentioned in the EIA report shall be continued regularly involving Academic Institutions.
70. Hydro geological study including infiltration test shall be conducted by any reputed agency to estimate leachate quantity.


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71. Regular medical check-up for mine workers and nearby residents around the project site involving community medical centre/NIMH shall be conducted.
72. As per norms, the health study should be conducted through competent/approved health organization and report submitted for one year.
73. The effective safe guard measures shall be provided to control particulate dust level in critical areas, transfer points and haul road within the mine area.
74. NOC from the State GWA for drawing ground water shall be obtained, if ground water table is intersected.
75. Green belt shall be provided as per norms of MoEF & CC, GOI, in consultation with local DFO.
76. All the recommendations made in the EIA report of the project shall be effectively implemented.
77. A booklet containing the Dos and Don'ts shall be prepared in vernacular languages for the use of the mine engineers/ managers and the workers to ensure that all necessary environmental, safety and health measures are undertaken.
78. All the environmental protection measures and safeguards as recommended in the EIA report shall be complied with.
79. Hydro geological study of the area shall be reviewed annually and report submitted to the Authority. No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the operation of the Mining activity.
80. A separate Environmental Management Cell equipped with full fledged laboratory facilities to carry out the various Environmental Management and Monitoring functions shall be set up under the control of a Senior Executive.
81. The project proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF at Chennai, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels


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namely; RSPM, SO₂, NO_x or critical sector parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

Part B: General Conditions:

1. EC is given only on the factual records, documents and the commitment furnished in non judicial stamp paper by the proponent.
2. The Proponent shall obtain the Consent from the TNPC Board before commencing the activity.
3. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Tamil Nadu.
4. No change in the calendar plan including excavation, quantum of mineral (minor mineral) should be made.
5. Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
6. Effective safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation of earth.
7. A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.
8. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
9. Vehicular emissions shall be kept under control and be regularly monitored. The mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.
10. Access and haul roads to the quarrying area should be restored in a mutually agreeable manner where these are considered unnecessary after extraction has been completed.
11. All Personnel shall be provided with protective respiratory devices including safety shoes, masks, gloves etc. Supervisory people should be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the


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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 tpe 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


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amendments, Minor Mineral Conservation & Development Rules, 2010 framed under MMDR Act 1957, National Commission for protection of Child Right Rules, 2006, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Biodiversity Conservation Act, 2016, the Biological Diversity Act, 2002 and Biological diversity Rules, 2004 and Rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble High Court of Madras and any other Courts of Law relating to the subject matter.

22. Any other conditions stipulated by other Statutory/Government authorities shall be complied.
23. Any appeal against this Environmental Clearance shall lie with the Hon'ble National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
24. The Environmental Clearance is issued based on the documents furnished by the project proponent. In case any documents found to be incorrect/not in order at a later date the Environmental Clearance issued to the project will be deemed to be revoked/ cancelled.


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Copy to:

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Additional Chief Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Industries Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chairman, TNPC Board, 76, Mount Salai, Guindy, Chennai-32.
7. The District Collector, Dindigul District.
8. The Commissioner of Geology and Mines, Guindy, Chennai-32.
9. Assistant Director, Department of Geology & Mining, Dindigul District.
10. E1 Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
11. File Copy.

Signature Not Verified

Digitally signed by Thiru.Deepak S.Bilgi
Member Secretary
Date: 10/13/2023 6:05:43 PM
Page 35 of 35



CHENNAI METTEX LAB PRIVATE LIMITED[®]

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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Email : test@mettexlab.com | Web : www.mettexlab.com

TEST REPORT

ISSUED TO: M/S TVLS G Granites, EXTENT : 2.13.0 ha
S F No.913/2B (Part), Alambadi Village,
Gujilamperai Taluk, Dindigul District.

Test Certificate No : CML/22-23/14434

Test Certificate Date : 06.06.2022

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ1 - Project Area - SG Granite (10°44'18.93"N 76° 3'49.57"E)

Sampling Plan & Procedure: IS 5182 Part 14-2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/026 & 25.01.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/026 & 25.01.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAC Norms		200	100	50	50	50	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period, hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	5:30-5:30	109	54.1	26.9	9.8	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	5:45-5:45	112	58.6	27.1	9.2	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	5:30-5:30	103	57.4	25.8	8.7	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	5:45-5:45	110	62.0	30.2	10.3	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	5:30-5:30	105	65.3	31.4	8.7	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	5:45-5:45	108	63.7	33.8	9.8	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	5:30-5:30	117	59.2	27.1	9.2	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	5:45-5:45	120	62.8	29.0	8.7	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	5:30-5:30	116	57.4	30.1	8.7	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	5:45-5:45	115	56.3	25.9	9.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	5:30-5:30	113	57.2	28.2	10.3	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	5:45-5:45	120	53.6	26.4	9.8	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	5:30-5:30	123	58.7	29.3	9.8	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	5:45-5:45	108	54.0	30.1	10.3	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	5:30-5:30	112	58.2	31.4	8.7	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	5:45-5:45	121	55.3	27.0	9.2	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	5:30-5:30	109	59.8	27.3	9.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	5:45-5:45	106	62.1	31.4	9.8	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	5:30-5:30	115	63.0	33.7	8.7	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	5:45-5:45	109	60.8	31.1	9.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	5:30-5:30	105	68.2	30.5	9.8	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	5:45-5:45	117	54.5	28.0	9.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	5:30-5:30	112	59.7	29.2	10.3	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	5:45-5:45	116	60.3	32.1	9.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	5:30-5:30	103	64.6	29.8	9.8	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	5:45-5:45	109	61.0	32.6	10.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	5:30-5:30	120	57.2	30.0	9.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	5:45-5:45	119	59.7	25.6	8.7	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL - Below Detection Limit, DL - Detection Limit; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0);

Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

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

End of Report

For Chennai Mettex Lab Private Limited



P. Kavitha
Reviewed & Authorized By
P. KAVITHA
Technical Manager



CHENNAI METTEX LAB PRIVATE LIMITED[®]

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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Email : test@mextexlab.com | Web : www.mextexlab.com

TEST REPORT

ISSUED TO: M/s TVL S G Granites, EXTENT : 2.13.0 ha
S.F No.913/2B (Part), Alambadi Village,
Gujliampara Taluk, Dindigul District.

Test Certificate No : CML/22-23/14435

Test Certificate Date : 06.06.2022

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ2 - Kottanattam - SG Granite (10°44'5.29"N 78° 4'35.31"E)

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/027 & 25.01.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/027 & 25.01.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	9:30-9:30	109	58.2	27.1	8.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	9:45-9:45	106	56.6	26.9	9.3	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	9:30-9:30	115	55.3	25.2	7.6	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	9:45-9:45	108	59.6	28.4	9.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	9:30-9:30	117	57.5	27.8	7.1	20.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	9:45-9:45	109	62.0	31.3	8.7	22.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	9:30-9:30	121	60.8	33.2	8.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	9:45-9:45	119	61.3	30.1	7.6	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	9:30-9:30	106	56.2	29.7	10.3	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	9:45-9:45	113	57.0	28.4	8.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	9:30-9:30	120	59.5	26.2	9.8	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	9:45-9:45	114	60.2	28.6	7.6	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	9:30-9:30	112	63.7	29.9	8.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	9:45-9:45	107	57.0	25.2	8.7	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	9:30-9:30	115	55.2	26.1	10.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	9:45-9:45	112	61.1	30.5	7.1	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	9:30-9:30	108	68.5	32.2	9.8	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	9:45-9:45	122	59.3	30.6	8.7	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	9:30-9:30	109	57.7	28.4	7.6	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	9:45-9:45	114	58.2	26.9	10.3	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	9:30-9:30	110	60.1	29.7	7.6	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	9:45-9:45	106	62.0	30.6	8.2	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	9:30-9:30	114	58.6	27.3	7.1	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	9:45-9:45	102	54.7	25.4	8.4	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	9:30-9:30	108	54.6	25.9	9.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	9:45-9:45	106	58.7	27.4	10.3	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	9:30-9:30	103	59.2	28.2	8.7	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	9:45-9:45	114	54.1	25.3	7.6	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit; DL: Detection Limit; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

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

End of Report



For Chennai Mettex Lab Private Limited

[Signature]
Reviewed & Authorized By
P. KAVITHA
Technical Manager



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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TEST REPORT

ISSUED TO: M/s TVL S G Granites, EXTENT - 2.13.0 ha
S.F No.813/2B (Part),Alambadi Village,
Gujilamparai Taluk, Dindigul District.

Test Certificate No : CML/22-23/14436

Test Certificate Date : 06.06.2022

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ3 - Kollipatti - SG Granite (10°45'18.99"N 78° 3'25.32"E)

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/028 & 25.01.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/028 & 25.01.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAC Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period:hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	6:30-6:30	116	61.3	29.4	7.6	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	6:45-6:45	109	58.1	27.5	8.7	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	6:30-6:30	112	55.7	25.3	10.3	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	6:45-6:45	115	58.8	29.8	9.8	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	6:30-6:30	106	57.5	26.1	8.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	6:45-6:45	109	58.2	27.0	8.7	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	6:30-6:30	118	62.6	30.2	7.1	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	6:45-6:45	112	60.5	32.4	10.3	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	6:30-6:30	105	61.4	30.8	9.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	6:45-6:45	116	59.7	28.2	8.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	6:30-6:30	115	58.3	29.4	10.3	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	6:45-6:45	110	57.1	28.6	7.5	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	6:30-6:30	120	62.0	31.3	8.7	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	6:45-6:45	109	60.2	32.4	9.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	6:30-6:30	106	59.3	30.2	10.3	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	6:45-6:45	113	57.0	26.9	9.8	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	6:30-6:30	117	59.6	28.1	7.1	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	6:45-6:45	118	57.1	27.6	8.7	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	6:30-6:30	107	58.7	29.7	8.2	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	6:45-6:45	115	59.0	30.2	9.8	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	6:30-6:30	105	62.6	32.0	10.3	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	6:45-6:45	114	62.6	31.8	7.6	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	6:30-6:30	118	60.4	28.2	8.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	6:45-6:45	108	57.3	30.4	8.7	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	6:30-6:30	103	59.2	31.7	10.3	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	6:45-6:45	109	62.1	31.5	7.6	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	6:30-6:30	119	61.5	30.2	7.2	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	6:45-6:45	120	59.1	28.4	8.7	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL Below Detection Limit DL Detection Limit; NH₃ BDL (DL:20); O₃ BDL (DL:20); CO BDL (DL:1.0); Pb BDL (DL:0.1); Ni BDL (DL:1.0); As BDL (DL:1.0); C₆H₆ BDL (DL:1.0); BaP BDL (DL:0.1)

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

End of Report

For Chennai Mettex Lab Private Limited



Reviewed & Authorized By
P. KAVITHA
Technical Manager



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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TEST REPORT

ISSUED TO: M/s TVL S G Granites, EXTENT : 2.13.0 ha
S-F No.913/2B (Part) Alambadi Village,
Gujliamparai Taluk, Dindigul District.

Test Certificate No : CML/22-23/14437

Test Certificate Date : 06.06.2022

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ4 - Vasanthakathirpalayam - SG Granite (10°45'28.59"N 78° 4'38.41"E)

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/029 & 25.01.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/029 & 25.01.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	7:00-7:00	106	57.1	26.3	8.7	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	7:15-7:15	109	56.4	26.7	7.6	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	7:00-7:00	114	57.5	28.8	8.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	7:15-7:15	108	60.1	30.2	9.8	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	7:00-7:00	102	61.3	33.2	10.3	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	7:15-7:15	114	62.4	30.8	7.1	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	7:00-7:00	110	60.8	31.5	10.3	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	7:15-7:15	109	59.3	27.6	8.2	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	7:00-7:00	113	58.4	26.8	8.7	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	7:15-7:15	108	57.5	28.5	9.8	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	7:00-7:00	120	61.2	30.0	7.5	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	7:15-7:15	124	6.6	31.7	8.7	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	7:00-7:00	118	60.2	29.5	7.1	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	7:15-7:15	103	57.4	27.2	5.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	7:00-7:00	115	58.6	25.6	9.8	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	7:15-7:15	117	59.0	27.2	7.6	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	7:00-7:00	109	56.2	26.2	8.2	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	7:15-7:15	114	59.7	27.4	10.3	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	7:00-7:00	107	58.2	29.0	8.7	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	7:15-7:15	120	59.6	30.1	8.2	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	7:00-7:00	112	61.3	31.8	7.6	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	7:15-7:15	118	60.1	31.2	9.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	7:00-7:00	105	59.7	28.9	7.1	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	7:15-7:15	109	58.9	30	8.7	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	7:00-7:00	111	57.6	25.4	8.2	23.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	7:15-7:15	105	56.2	27.2	7.6	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	7:00-7:00	117	54.7	29.7	10.3	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	7:15-7:15	113	60.3	27.5	8.7	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit, DL: Detection Limit, NH₃: BDL (DL:20), O₃: BDL (DL:20), CO: BDL (DL:1.0), Pb: BDL (DL:0.1), Ni: BDL (DL:1.0), As: BDL (DL:1.0), C₆H₆: BDL (DL:1.0), BaP: BDL (DL:0.1)

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

End of Report



For Chennai Mettex Lab Private Limited

P. Kavitha
Reviewed & Authorized By
P. KAVITHA
Technical Manager



CHENNAI METTEX LAB PRIVATE LIMITED[®]

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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TEST REPORT

ISSUED TO: M/s TVL S G Granites, EXTENT : 2.13.0 ha.
S.F No.913/2B (Part),Alambadi Village,
Gujilamparai Taluk, Dindigul District.

Test Certificate No : CML/22-23/14438

Test Certificate Date : 06.06.2022

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ5 - Kalapatti - SG Granite (10°46'18.03"N 78° 1'58.74"E)

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/030 & 25.01.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/030 & 25.01.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	ng/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period, hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	7:30-7:30	130	60.2	28.4	5.8	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	7:45-7:45	115	56.7	26.1	7.6	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	7:30-7:30	118	59.2	29.5	10.3	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	7:45-7:45	103	60.1	30.3	8.7	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	7:30-7:30	112	57.5	26.2	9.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	7:45-7:45	109	58.2	25.7	7.1	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	7:30-7:30	107	61.6	29.4	10.3	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	7:45-7:45	115	60.1	28.1	9.2	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	7:30-7:30	118	59.4	26.0	8.2	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	7:45-7:45	117	55.9	28.0	9.8	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	7:30-7:30	113	58.5	29.2	7.1	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	7:45-7:45	120	59.9	30.6	10.3	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	7:30-7:30	116	60.1	32.4	7.6	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	7:45-7:45	119	56.8	28.8	9.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	7:30-7:30	105	58.0	27.4	8.7	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	7:45-7:45	112	59.6	26.2	9.8	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	7:30-7:30	108	57.1	27.6	7.1	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	7:45-7:45	114	56.3	28.3	9.8	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	7:30-7:30	113	58.2	29.5	10.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	7:45-7:45	109	60.4	31.1	8.2	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	7:30-7:30	114	57.6	30.2	7.9	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	7:45-7:45	112	55.8	26.2	9.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	7:30-7:30	115	57.5	25.9	10.3	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	7:45-7:45	117	59.0	27.8	9.2	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	7:30-7:30	113	56.3	28.4	7.6	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	7:45-7:45	109	60.0	29.0	9.8	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	7:30-7:30	108	57.2	27.4	7.6	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	7:45-7:45	114	59.4	28.7	7.1	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit; DL: Detection Limit; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

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

End of Report



For Chennai Mettex Lab Private Limited

[Signature]
Reviewed & Authorized By
P. KAVITHA
Technical Manager



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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TEST REPORT

ISSUED TO: M/s TVL S G Granites, EXTENT : 2.13.0 ha
S.F No.913/2B (Part), Alambadi Village,
Gujilamparai Taluk, Dindigul District.

Test Certificate No : CML/22-23/14439

Test Certificate Date : 06.06.2022

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ6 - Soolapuram - SG Granite (10°42'32.07"N 78° 1'28.63"E)

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/031 & 25.01.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/031 & 25.01.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	8:00-8:00	108	57.1	26.5	7.6	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	8:15-8:15	109	59.5	28.1	9.8	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	8:00-8:00	114	60.3	29.7	10.3	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	8:15-8:15	119	61.6	30.8	7.1	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	8:00-8:00	108	60.7	31.7	9.8	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	8:15-8:15	105	56.2	30.5	8.2	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	8:00-8:00	115	59.5	29.0	6.5	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	8:15-8:15	118	60.1	28.9	8.7	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	8:00-8:00	113	54.3	27.6	9.7	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	8:15-8:15	118	58.0	28.4	10.3	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	8:00-8:00	115	56.2	26.5	7.1	21.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	8:15-8:15	114	54.6	29.3	8.2	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	8:00-8:00	116	58.4	30.0	9.8	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	8:15-8:15	112	59.5	28.6	9.8	20.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	8:00-8:00	108	57.1	27.1	7.6	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	8:15-8:15	107	56.9	25.4	9.2	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	8:00-8:00	115	57.0	26.2	6.5	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	8:15-8:15	118	60.8	29.6	7.1	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	8:00-8:00	109	57.1	30.2	8.7	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	8:15-8:15	106	58.2	27.2	9.9	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	8:00-8:00	110	60.5	30.2	8.2	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	8:15-8:15	112	61.2	31.4	8.7	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	8:00-8:00	106	59.1	30.6	7.1	21.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	8:15-8:15	102	61.5	29.7	10.3	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	8:00-8:00	109	60.3	29.9	9.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	8:15-8:15	118	58.0	30.2	8.7	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	8:00-8:00	106	59.4	29.4	6.5	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	8:15-8:15	117	56.2	27.8	9.2	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit; DL: Detection Limit; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

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

End of Report

For Chennai Mettex Lab Private Limited



Reviewed & Authorized By
P. KAVITHA
Technical Manager



CHENNAI METTEX LAB PRIVATE LIMITED[®]

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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TEST REPORT

ISSUED TO: M/s TVL S G Granites, EXTENT : 2.13.0 ha
S.F No 913/2B (Part), Alambadi Village,
Gujliamparai Taluk, Dindigul District.

Test Certificate No : CML/22-23/14440

Test Certificate Date : 06.06.2022

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ7 - Poosaripatty - SG Granite (10°45'27.16"N 78° 6'53.77"E)

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/032 & 25.01.2023

Sampling Instrument ID & Calibration Due Date: CML/ENV/FDS/032 & 25.01.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period:hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	8:30-8:30	116	58.4	26.7	8.7	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	8:45-8:45	109	56.1	25.6	10.3	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	8:30-8:30	118	59.2	28.0	9.2	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	8:45-8:45	114	60.4	30.5	7.6	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	8:30-8:30	110	56.6	26.4	6.5	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	8:45-8:45	108	56.1	27.1	8.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	8:30-8:30	112	59.8	28.0	9.8	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	8:45-8:45	104	61.0	30.5	8.2	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	8:30-8:30	118	59.1	28.2	6.5	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	8:45-8:45	107	58.8	25.9	10.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	8:30-8:30	105	62.0	30.2	7.6	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	8:45-8:45	117	60.2	28.4	9.8	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	8:30-8:30	119	63.8	29.2	8.7	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	8:45-8:45	106	60.4	30.6	9.8	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	8:30-8:30	120	62.0	29.4	6.5	22.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	8:45-8:45	119	59.2	28.0	8.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	8:30-8:30	120	62.1	31.6	7.6	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	8:45-8:45	102	58.3	30.2	8.2	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	8:30-8:30	105	59.2	28.9	10.3	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	8:45-8:45	118	56.1	27.4	9.8	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	8:30-8:30	104	54.6	27.5	7.6	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	8:45-8:45	118	58.0	26.3	8.7	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	8:30-8:30	117	60.2	29.6	8.2	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	8:45-8:45	104	58.9	30.2	7.1	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	8:30-8:30	118	58.4	29.5	7.6	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	8:45-8:45	121	59.6	28.4	9.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	8:30-8:30	103	56.0	29.1	8.7	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	8:45-8:45	114	57.1	28.6	7.6	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL - Below Detection Limit, DL - Detection Limit, NH₃ BDL (DL:20), O₃ BDL (DL:20), CO BDL (DL:1.0); Pb BDL (DL:0.1); Ni BDL (DL:1.0); As BDL (DL:1.0); C₆H₆ BDL (DL:1.0); BaP BDL (DL:0.1)

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

End of Report

For Chennai Mettex Lab Private Limited



[Signature]
Reviewed & Authorized By
P. JAYATHA
Technical Manager



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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Email : test@mextexlab.com | Web : www.mextexlab.com

TEST REPORT

ISSUED TO: M/s TVL S G Granites, EXTENT : 2.13.0 ha
S.F No.913/2B (Part), Alambadi Village.,
Gujilamparai Taluk, Dindigul District.

Test Certificate No : CML/22-23/14441

Test Certificate Date : 06.06.2022

Sample Description : Ambient Air Monitoring

Location of Sampling : AAQ8 - Alambadi - SG Granite (10°44'22.32"N 78° 3'12.65"E)

Sampling Plan & Procedure: IS 5182 Part 14:2000 & CML/LAB/ENV/SOP/07

Sampling Instrument ID & Calibration Due Date: CML/ENV/RDS/033 & 25.01.2023

Sampling Instrument ID & Calibration Due Date: CL/ENV/FDS/033 & 25.01.2023

Ambient Air Monitoring Details		Particulate Pollutant			Gaseous Pollutant					Metals Pollutant			Organic Pollutant	
Parameters		SPM	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	CO	Pb	Ni	As	C ₆ H ₆	BaP
NAAQ Norms		200	100	60	80	80	400	180	4	1	20	6	5	1
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
Date	Period hrs	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
01.03.2022	9:00-9:00	114	58.1	26.6	8.2	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.03.2022	9:15-9:15	115	56.7	25.5	10.3	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
07.03.2022	9:00-9:00	109	59.4	27.7	7.4	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
08.03.2022	9:15-9:15	105	60.1	28.2	6.5	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14.03.2022	9:00-9:00	112	57.3	29.6	8.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
15.03.2022	9:15-9:15	113	56.2	28.0	7.6	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21.03.2022	9:00-9:00	118	59.6	30.1	9.8	20.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22.03.2022	9:15-9:15	111	55.0	26.5	8.2	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28.03.2022	9:00-9:00	120	61.8	30.4	9.8	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29.03.2022	9:15-9:15	121	62.6	31.2	7.6	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
04.04.2022	9:00-9:00	120	60.7	29.7	6.5	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
05.04.2022	9:15-9:15	115	57.3	26.3	9.2	21.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.04.2022	9:00-9:00	117	58.6	29.8	10.3	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.04.2022	9:15-9:15	116	59.4	30.1	9.8	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18.04.2022	9:00-9:00	108	60.2	31.8	7.1	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19.04.2022	9:15-9:15	117	57.0	30.3	8.7	23.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25.04.2022	9:00-9:00	112	56.8	27.0	10.3	22.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26.04.2022	9:15-9:15	111	58.4	28.4	6.5	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
02.05.2022	9:00-9:00	109	57.4	29.7	9.2	19.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
03.05.2022	9:15-9:15	118	59.1	30.0	7.6	23.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
09.05.2022	9:00-9:00	115	57.3	31.4	10.3	22.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10.05.2022	9:15-9:15	109	59.0	30.1	9.8	22.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16.05.2022	9:00-9:00	105	58.3	29.2	8.2	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17.05.2022	9:15-9:15	114	55.5	27.5	9.8	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23.05.2022	9:00-9:00	113	55.7	25.6	10.3	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24.05.2022	9:15-9:15	119	56.2	26.0	8.7	21.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30.05.2022	9:00-9:00	120	59.6	28.2	9.2	19.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31.05.2022	9:15-9:15	108	60.1	29.5	7.6	20.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detection Limit ; DL: Detection Limit ; NH₃: BDL (DL:20); O₃: BDL (DL:20); CO: BDL (DL:1.0); Pb: BDL (DL:0.1); Ni: BDL (DL:1.0); As: BDL (DL:1.0); C₆H₆: BDL (DL:1.0); BaP: BDL (DL:0.1)

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

End of Report

For Chennai Mettex Lab Private Limited



[Signature]
Reviewed & Authorized By
Technical Manager



CHENNAI METTEX LAB PRIVATE LIMITED[®]

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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Phone : +91 44 22323163, 22311034, 42179490, 42179491 | CIN: U74999TN2008PTC069459
Email : test@mattexlab.com | Web : www.mattexlab.com

TEST REPORT

ISSUED TO: M/s TVL S G Granites, EXTENT : 2.13.0 ha
S.F No.913/2B (Part), Alambadi Village,
Gujilampara Taluk, Dindigul District.

Test Certificate No : CML/22-23/14443 Test Certificate Date : 06.06.2022

Sample Description : Ambient Noise Monitoring

Location of Sampling : N1 - Project Area - SG Granite (10°44'16.49"N 78° 3'44.88"E)

Location of Sampling : N2 - Alambadi - SG Granite (10°44'21.44"N 78° 3'12.00"E)

Sampling Plan & Procedure: IS 9889:1981 & CML/LAB/ENV/SOP/10

Sampling Instrument ID : CML/ENV/SLM/001 & CML/ENV/SLM/002

Sampling Date : 01.03.2022-02.03.2022

Location	N1-Project Area			N2- Alambadi		
	Min	Max	Result	Min	Max	Result
Parameter	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	45.3	56.1	53.1	46.3	50.1	47.4
07:00-08:00	45.9	54.4	50.3	45.4	57.8	50.3
08:00-09:00	47.1	57.3	62.0	47.0	55.1	57.0
09:00-10:00	52.3	56.6	64.6	47.9	60.1	58.2
10:00-11:00	56.1	60.5	69.2	50.5	61.3	56.1
11:00-12:00	58.2	65.2	64.1	51.3	62.2	59.7
12:00-13:00	53.6	69.6	65.4	57.5	68.4	63.0
13:00-14:00	57.3	70.1	68.8	56.1	70.5	67.2
14:00-15:00	56.4	69.5	67.9	59.2	71.1	67.1
15:00-16:00	57.0	65.1	63.2	59.9	69.6	62.6
16:00-17:00	53.7	60.8	38.6	57.7	68.3	63.2
17:00-18:00	54.4	67.5	62.7	56.6	67.1	60.3
18:00-19:00	58.2	69.3	64.4	54.3	66.5	57.4
19:00-20:00	55.3	62.1	60.3	55.2	60.7	56.0
20:00-21:00	52.6	63.8	59.0	52.5	59.2	55.2
21:00-22:00	50.1	61.7	58.3	54.1	56.3	54.1
22:00-23:00	45.8	57.3	50.1	50.6	57.2	53.8
23:00-00:00	46.0	53.1	49.3	47.1	53.2	50.15
00:00-01:00	45.5	51.5	46.1	45.5	52.4	48.95
01:00-02:00	47.4	53.5	48.2	43.9	51.8	47.85
02:00-03:00	46.8	51.3	47.0	44.5	50.2	47.35
03:00-04:00	46.3	50.1	48.4	46.5	49.6	48.05
04:00-05:00	48.2	51.4	49.3	46.5	48.8	47.65
05:00-06:00	47.6	56.5	48.1	45.5	45.2	45.35
Result	Day Means		60.1	Day Means		58.4
	Night Means		48.1	Night Means		47.9

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

For Chennai Mettex Lab Private Limited



Reviewed & Authorized By

P. KAVITHA
Technical Manager



CHENNAI METTEX LAB PRIVATE LIMITED[®]

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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Phone : +91 44 22323163, 22311034, 42179490, 42179491 | CIN: U74999TN2008PTC069459

Email : test@mottexlab.com | Web : www.mottexlab.com

TEST REPORT

ISSUED TO: M/s TVL S G Granites. EXTENT - 2.13.0 ha

S.F No 913/2B (Part), Alambadi Village,
Gujliamparai Taluk, Dindigul District.

Test Certificate No : CML/22-23/14444 Test Certificate Date : 06.06.2022

Sample Description : Ambient Noise Monitoring

Location of Sampling : N5 - Vasanthakathirpalayam - SG Granite (10°46'27.93"N 78° 4'39.50"E)

Location of Sampling : N6 - Kalapatti - SG Granite (10°46'17.76"N 78° 1'58.86"E)

Sampling Plan & Procedure: IS 9989:1981 & CML/LAB/ENV/SOP/10

Sampling Instrument ID : CML/ENV/SLM/003 & CML/ENV/SLM/004

Sampling Date : 01.03.2022-02.03.2022

Location	N5 - Vasanthakathirpalayam			N6 - Kalapatti		
	Min	Max	Result	Min	Max	Result
Time	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
06:00-07:00	45.1	54.1	49.6	44.3	51.4	47.9
07:00-08:00	43.6	53.2	49.4	46.5	52.5	49.5
08:00-09:00	49.3	54.2	51.8	45.2	54.2	49.7
09:00-10:00	48.5	53.8	51.2	44.3	53.2	48.8
10:00-11:00	49.0	54.5	51.8	48.5	53.6	51.1
11:00-12:00	47.3	54.8	51.1	42.6	52.8	47.7
12:00-13:00	49.6	53.2	51.4	50.2	53.5	51.9
13:00-14:00	48.5	52.5	50.5	49.5	54.5	52.0
14:00-15:00	47.5	53.8	50.7	48.9	53.8	51.4
15:00-16:00	46.5	52.8	49.7	48.3	54.2	51.3
16:00-17:00	45.5	54.6	50.1	47.6	52.8	50.2
17:00-18:00	46.5	52.6	49.6	46.6	51.5	49.1
18:00-19:00	45.8	53.4	49.6	46.8	50.5	48.7
19:00-20:00	43.5	50.5	47.0	45.2	53.5	49.4
20:00-21:00	44.5	52.6	48.6	45.6	52.5	49.1
21:00-22:00	42.6	49.5	46.1	45.1	50.2	47.7
22:00-23:00	43.8	48.5	46.2	45.5	49.8	47.7
23:00-00:00	44.2	43.5	43.9	39.5	42.5	41.0
00:00-01:00	42.5	44.5	43.5	38.8	41.6	40.2
01:00-02:00	41.5	42.5	42.0	37.9	44.6	41.3
02:00-03:00	39.5	40.5	40.0	38.5	43.6	41.1
03:00-04:00	38.5	41.5	40.0	36.5	39.5	38.0
04:00-05:00	37.6	40.9	39.3	35.4	38.5	37.0
05:00-06:00	36.8	39.8	38.3	36.5	40.6	38.6
Result	Day Means		49.6	Day Means		49.6
	Night Means		41.0	Night Means		39.6

Note: CPCB Norms Residential Area Day Time:55 dB(A); Night Time 45 dB(A)

The Noise level in the above location exists within the permissible limits of CPCB.

End of Report



For Chennai Mettex Lab Private Limited

Reviewed & Authorized By

P. KAVITHA
Technical Manager



CHENNAI METTEX LAB PRIVATE LIMITED®

(Approved by AAI, AGMARK, APEDA, BIS, DIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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Email : test@mettexlab.com | Web : www.mettexlab.com

TEST REPORT

ISSUED TO: M/s TVL S G Granites, EXTENT : 2.13.0 ha

S F No.913/2B (Part), Alambadi Village.,
Gujilamparai Taluk, Dindigul District.

Test Certificate No : CML/22-23/14445 Test Certificate Date : 05.06.2022

Sample Description : Ambient Noise Monitoring

Location of Sampling : N3 - Kottanattam- SG Granite (10°44'5 79"N 78° 4'36.40"E)

Location of Sampling : N4 - Kollapatti- SG Granite (10°45'25 28"N 78° 2'59.94"E)

Sampling Plan & Procedure: IS 9889:1981&CML/LAB/ENV/SOP/10

Sampling Instrument : CML/ENV/SLM/003 & CML/ENV/SLM/004

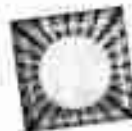
Sampling Date : 07.03.2022-08.03.2022

Location	N3- Kottanattam			N4- Kollapatti		
	Min	Max	Result	Min	Max	Result
Parameter	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Time						
06:00-07:00	44.3	50.6	47.5	44.8	53.4	49.1
07:00-08:00	45.2	51.2	48.2	45.6	52.5	49.1
08:00-09:00	44.5	52.5	48.5	46.2	52.4	49.3
09:00-10:00	47.1	53.1	50.1	47.5	53.5	50.5
10:00-11:00	46.3	54.2	50.3	48.2	54.5	51.4
11:00-12:00	50.2	53.2	51.7	48.5	52.3	50.4
12:00-13:00	49.5	52.4	51.0	46.5	51.5	49.0
13:00-14:00	48.5	54.3	51.4	47.5	54.6	51.1
14:00-15:00	47.5	53.2	50.4	49.5	53.5	51.5
15:00-16:00	46.4	54.5	50.5	48.5	54.2	51.4
16:00-17:00	50.6	53.5	52.1	47.5	53.9	50.7
17:00-18:00	48.5	52.5	50.5	46.5	53.0	49.8
18:00-19:00	50.3	51.5	50.9	45.5	51.5	48.5
19:00-20:00	46.5	51.5	49.0	45.8	48.5	47.2
20:00-21:00	49.5	54.5	52.0	45.5	50.2	47.9
21:00-22:00	46.2	53.2	49.7	44.6	49.5	47.1
22:00-23:00	45.8	52.5	49.2	43.5	47.5	45.5
23:00-00:00	40.2	44.5	42.4	40.4	43.8	42.1
00:00-01:00	39.5	43.5	41.5	39.8	44.2	42.0
01:00-02:00	38.5	42.6	40.6	38.5	43.5	41.0
02:00-03:00	37.5	42.8	40.2	37.6	40.5	39.1
03:00-04:00	36.5	41.5	39.0	36.5	42.6	39.6
04:00-05:00	35.5	43.5	39.5	35.8	41.5	38.7
05:00-06:00	34.5	42.5	38.5	35.2	40.5	37.9
Result	Day Means		50.2	Day Means		49.4
	Night Means		40.2	Night Means		40.0

Note: CPCB Norms Residential Area. Day Time: 55 dB(A); Night Time: 45 dB(A)
The Noise level in the above location exists within the permissible limits of CPCB.

End of Report

For Chennai Mettex Lab Private Limited



Reviewed & Authorized By

P. KAVITHA
Technical Manager



CHENNAI METTEX LAB PRIVATE LIMITED[®]

(Approved by AAI, AGMARK, APEDA, BIS, EIC, FSSAI, GAFTA, IOPEPC, MOEF & TEA BOARD)

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Email : test@mettexlab.com | Web : www.mettexlab.com

TEST REPORT

ISSUED TO: M/s TVL S G Granites, EXTENT : 2.13.0 ha

S.F No.913/2B (Part) Alambadi Village,
Gujiramparai Taluk, Dindigul District.

Test Certificate No : CML/22-23/14446 Test Certificate Date : 08.08.2022

Sample Description : Ambient Noise Monitoring

Location of Sampling : N7 - Soolapuram - SG Granite (10°42'33.28"N 78° 1'28.62"E)

Location of Sampling : N8 - Poosaripatty - SG Granite (10°45'19.68"N 78° 5'48.15"E)

Sampling Plan & Procedure: IS 9889:1981&CML/LAB/ENV/SOP/10

Sampling Instrument : CML/ENV/SLM/001 & CML/ENV/SLM/002

Sampling Date : 07.03.2022-08.03.2022

Location	N7 - Soolapuram			N8 - Poosaripatty		
	Min	Max	Result	Min	Max	Result
Parameter	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Time						
06:00-07:00	43.5	53.6	48.6	42.5	46.2	44.4
07:00-08:00	42.2	52.5	47.4	43.5	51.5	47.5
08:00-09:00	46.5	51.2	48.9	46.5	53.5	50.0
09:00-10:00	45.5	54.6	50.1	48.5	52.8	50.7
10:00-11:00	48.8	53.2	51.0	50.4	54.6	52.5
11:00-12:00	47.2	52.3	49.8	49.5	53.5	51.5
12:00-13:00	45.6	54.6	50.1	48.5	51.5	50.0
13:00-14:00	46.8	51.6	49.2	47.5	54.3	50.9
14:00-15:00	48.6	53.3	51.0	46.8	54.3	50.6
15:00-16:00	48.6	50.5	49.6	45.5	50.5	48.0
16:00-17:00	49.2	53.5	51.4	48.5	52.6	50.6
17:00-18:00	47.5	54.5	51.0	46.5	50.8	48.7
18:00-19:00	46.5	53.8	50.2	45.8	49.5	47.7
19:00-20:00	48.3	51.5	49.9	44.8	48.5	46.7
20:00-21:00	47.6	50.8	49.2	45.8	49.4	47.6
21:00-22:00	46.8	52.5	49.7	48.2	50.2	49.2
22:00-23:00	43.5	53.6	48.6	46	52.5	49.3
23:00-00:00	40.5	44.8	42.7	40.2	44.1	42.2
00:00-01:00	38.5	42.5	40.5	41.5	44.2	42.9
01:00-02:00	37.6	41.6	39.6	36.8	39.5	38.2
02:00-03:00	37.2	42.6	39.9	37.5	40.5	39.0
03:00-04:00	36.8	39.5	38.2	36.4	41.3	38.9
04:00-05:00	36.1	38.5	37.3	35.4	38.5	37.0
05:00-06:00	35.6	41	38.3	36.5	40.8	38.7
Result	Day Means		49.7	Day Means		49.1
	Night Means		39.3	Night Means		39.5

Note: CPCB Norms Residential Area - Day Time:55 dB(A); Night Time:45 dB(A).

The Noise level in the above location exists within the permissible limits of CPCB.

End of Report

For Chennai Mettex Lab Private Limited



[Signature]
Reviewed & Authorized By

P. KAVITHA
Technical Manager



CHENNAI METTEX LAB PRIVATE LIMITED

Jothi Complex, 83, M.K.N. Road, Guindy, Chennai - 600 032.

(Approved/Recognized by APEDA, AGMARK, GAFTA, EIC, FSSAI, BIS & MoEF)

TEST REPORT

Page No. 1 of 2

ISSUED TO : M/s. TVL S G Granites, EXTENT : 2.13.0 ha
 S.F No: 913/2B (Part),
 Alambadi Village,
 Gujilamparai Taluk, Dindigul District.

T.C Date : 22.04.2022
T.C No : CML/22-23/4591
Date Of Receipt : 13.04.2022
Analysis Commenced On: 13.04.2022
Analysis Completed On : 20.04.2022

Cust. Ref : SRF Dated : 12.04.2022
Lab No : 2302638

Sample Description : Surface Water (SW-1) – Muthampatty Lake.
 (as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical		Group: Water
Colour	IS 3025 Part 4:1983 (Reaff.2017)	15 Hazen
Odour	IS 3025 Part 5:2018	Agreeable
pH at 25°C	IS 3025 Part 11:1983 (Reaff.2017)	7.31
Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff.2019)	1088 µmhos/cm
Turbidity	IS 3025 Part 10:1984 (Reaff.2017)	1.5 NTU
Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff.2017)	630 mg/l
Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff.2019)	248 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (Reaff.2019)	77 mg/l
Magnesium as Mg	IS 3025 Part 46:1994 (Reaff.2019)	13.6 mg/l
Total Alkalinity as CaCO ₃	IS 3025 Part 23:1988 (Reaff.2019)	253 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Reaff.2019)	208 mg/l
Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff.2019)	71 mg/l
Iron as Fe	IS 3025 Part 53:2003 (Reaff.2019)	0.08 mg/l
Residual Free Chlorine	IS 3025 Part 28:1988 (Reaff.2019)	BDL (DL 0.1 mg/l)
Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.84 mg/l
Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff.2019)	24 mg/l
Copper as Cu	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL 0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL 0.02 mg/l)
Mercury as Hg	USEPA 200.8	BDL (DL 0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL 0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL 0.005 mg/l)

...Contd....2

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CHENNAI METTEX LAB PRIVATE LIMITED

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TEST REPORT

Page No 1 of 2

ISSUED TO : M/s TVLS G Granites, EXTENT : 2.13.0 Ha
 S.F.No. 913/28 (Part),
 Alambadi Village,
 Gujilamparai Taluk, Dindigul District.

T.C Date : 22.04.2022

T.C No : CML/22-23/4594

Date Of Receipt : 13.04.2022

Cust. Ref : SRF Dated : 12.04.2022

Analysis Commenced On : 13.04.2022

Lab No : 2302641

Analysis Completed On : 20.04.2022

Sample Description : Ground Water (WW-3) - Poozaripatty.
 (as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical		Group: Water
Colour	IS 3025 Part 4:1983 (Reaff.2017)	5 Hazen
Odour	IS 3025 Part 5:2018	Agreeable
pH at 25°C	IS 3025 Part 11:1983 (Reaff.2017)	7.36
Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff.2019)	992 µmhos/cm
Turbidity	IS 3025 Part 10:1984 (Reaff.2017)	Less than 0.5 NTU
Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff.2017)	578 mg/l
Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff.2019)	218 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (Reaff.2019)	49 mg/l
Magnesium as Mg	IS 3025 Part 46:1994 (Reaff.2019)	22.8 mg/l
Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff.2019)	177 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Reaff.2019)	189 mg/l
Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff.2019)	39 mg/l
Iron as Fe	IS 3025 Part 53:2003 (Reaff.2019)	0.44 mg/l
Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff.2019)	BDL (DL: 0.1 mg/l)
Fluoride as F	APHA 23 rd Edn. 2017:4500 F,D	0.65 mg/l
Nitrate as NO ₃	IS 3025 Part 34:1988 (Reaff.2019)	23.5 mg/l
Copper as Cu	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.02 mg/l)
Mercury as Hg	USEPA.200.B	BDL (DL:0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2014 (Reaff.2019)	BDL (DL:0.005 mg/l)

[Signature] ...Contd....2

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CHENNAI METTEX LAB PRIVATE LIMITED

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(Approved/Recognized by APEDA, AGMARK, GAFTA, EIC, FSSAI, BIS & MoEF)

TEST REPORT

Page No.1 of 2

ISSUED TO : M/s. TVL S G Granites, EXTENT : 2.13.0 ha
S.F.No. 913/2B (Part),
Alambadi Village,
Gujilamparai Taluk, Dindigul District.

T.C Date : 22.04.2022

T.C No : CML/22-23/4595

Date Of Receipt : 13.04.2022

Cust. Ref : SRF Dated : 12.04.2022.

Analysis Commenced On : 13.04.2022

Lab No : 2302642.

Analysis Completed On : 20.04.2022

Sample Description : Ground Water (BW-1) - Core Zone.
(as stated by customer)

TEST	PROTOCOL	RESULTS
Discipline: Chemical		Group: Water
Colour	IS 3025 Part 4:1983 (Reaff:2017)	5 Hazen
Odour	IS 3025 Part 5:2019	Agreeable
pH at 25°C	IS 3025 Part 11:1983 (Reaff:2017)	7.05
Conductivity @ 25°C	IS 3025 Part 14:2013 (Reaff:2019)	895 µmhos/cm
Turbidity	IS 3025 Part 10:1984 (Reaff:2017)	Less than 0.5 NTU
Total Dissolved Solids	IS 3025 Part 16:1984 (Reaff:2017)	520 mg/l
Total Hardness as CaCO ₃	IS 3025 Part 21:2009 (Reaff:2019)	182 mg/l
Calcium as Ca	IS 3025 Part 40:1991 (Reaff:2019)	42 mg/l
Magnesium as Mg	IS 3025 Part 46:1994 (Reaff:2019)	18.7 mg/l
Total Alkalinity as CaCO ₃	IS 3025 Part 23:1986 (Reaff:2019)	172 mg/l
Chloride as Cl	IS 3025 Part 32:1988 (Reaff:2019)	168 mg/l
Sulphate as SO ₄	IS 3025 Part 24:1986 (Reaff:2019)	43 mg/l
Iron as Fe	IS 3025 Part 53:2003 (Reaff:2019)	0.57 mg/l
Residual Free Chlorine	IS 3025 Part 26:1986 (Reaff:2019)	BDL (DL:0.1 mg/l)
Fluoride as F	APHA 23 rd Edn. 2017:4500 F.D	0.62 mg/l
Nitrate as NO ₃	IS 3025 Part 34:1986 (Reaff:2019)	16.5 mg/l
Copper as Cu	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.01 mg/l)
Manganese as Mn	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.02 mg/l)
Mercury as Hg	USEPA 200.8	BDL (DL:0.0005 mg/l)
Cadmium as Cd	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.001 mg/l)
Selenium as Se	IS 3025 Part 65:2014 (Reaff:2019)	BDL (DL:0.005 mg/l)

...Contd....2

NOTE: Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders will be liable for legal action. Unless otherwise stated the scheduled results in this test report refer only to the samples tested and such samples are retained for 15 days only from the completion date of testing. Except in case of regulatory samples, which will be retained for a specific period as per statutory requirements, while perishable & environmental testing related transient samples will be discarded, consequent upon completion of testing. Samples are not drawn by us unless otherwise stated. This document cannot be reproduced except in full, without prior written approval of the laboratory. This report is for the exclusive use of Chennai Mettex Lab's customer. It is provided in accordance with the agreement between Chennai Mettex Lab and its Customer.



CHENNAI METTEX LAB PRIVATE LIMITED

Jothi Complex, 83, M.K.N. Road, Guindy, Chennai - 600 032

(Approved/Recognized by APEDA, AGMARK, GAFTA, EIC, FSSAI, BIS & MoEF)

TEST REPORT

Page No 1 of 1

ISSUED TO : M/s. TVL S G Granites, EXTENT : 2.13.0 ha
S.F.No. 913/2B (Part),
Alambadi Village,
Gujilamparai Taluk, Dindigul District.

T.C Date : 22.04.2022

T.C No : CML/22-23/4500

Date Of Receipt : 15.04.2022

Analysis Commenced On : 15.04.2022

Analysis Completed On : 22.04.2022

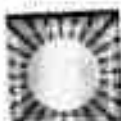
Cust. Ref : SRF Dated : 12.04.2022

Lab No : 2302647

Sample Description : Soil - 4 - Vasanthkathirpalayam,
(as stated by customer)

S. No	Test Parameters	Protocols	Results
01	pH @ 25°C	IS 2720 Part 26 - 1987 (Reaff.2016)	6.10
02	Conductivity @ 25°C	IS 14767 - 2000 (Reaff : 2016)	572 µmhos/cm
03	Texture :		
	Clay	Gravimetric Method	38.5 %
	Sand		27.6 %
	Silt		32.9 %
04	Water Holding Capacity	By Gravimetric Method	53.5 %
05	Bulk Density	By Cylindrical Method	1.12 g/cm ³
06	Porosity	By Gravimetric Method	37.4 %
07	Calcium as Ca	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	230 mg/kg
08	Magnesium as Mg		160 mg/kg
09	Manganese as Mn		39.6 mg/kg
10	Zinc as Zn		1.36 mg/kg
11	Boron as B		1.33 mg/kg
12	Chloride as Cl	APHA 23 rd Edn 2019 4500 Cl B	177 mg/kg
13	Total Soluble Sulphate as SO ₄	IS 2720 Part 27 : 1977 (Reaff.2015)	0.015 %
14	Potassium as K	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	39.1 mg/kg
15	Total Phosphorus as P	IS 10158 : 1982 (Reaff. 2019)	1.33 mg/kg
16	Total Nitrogen as N	IS 14684 : 1999 (Reaff.2019)	207 mg/kg
17	Cadmium as Cd	USEPA 3050 B - 1996 & USEPA 6010 C - 2000	BDL (DL : 1.0 mg/kg)
18	Total Chromium as Cr		BDL (DL : 1.0 mg/kg)
19	Copper as Cu		BDL (DL : 1.0 mg/kg)
20	Lead as Pb		0.81 mg/kg
21	Iron as Fe		3.5 mg/kg
22	Organic Matter	IS : 2720 Part 22 : 1972 (Reaff. 2015)	3.36 %
23	Organic Carbon	IS : 2720 Part 22 : 1972 (Reaff. 2015)	2.25 %
24	Cation Exchange Capacity	USEPA 9080 - 1986	51.8 meq/100g of soil

End of Report



For Chennai Mettex Lab Private Limited

(Signature)

Reviewed & Authorized By
P. KAVITHA

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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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