Executive Summary

For

Proposed Black Granite Quarry over an extent of 29.00.23 Ha

At

Survey No: 254 (Part)

Pathalahalli Village

Karimangalam Taluk

Dharmapuri District

Tamil Nadu

By

M/s. Tamil Nadu Minerals Limited

(Project termed under Schedule 1(a) Mining of Minerals 'B1' category as per EIA Notification 2006 and its Amendments)

Proposal No: SIA/TN/MIN/442957/2023

ToR: Lr No. SEIAA-TN/F.No.10401/SEAC/ToR-1599/2023 Dated: 06.11.2023

Baseline Period: March 2024 - May 2024

EIA Consultant & Laboratory

M/s. HUBERT ENVIRO CARE SYSTEMS (P) LTD, CHENNAI

NABET Certificate No & Validity: NABET/EIA/24-27/RA 0335, valid up to 31.03.2027

NABL Certificate No: TC-12310 Dated: 25.09.2023 Valid Till 24.09.2025

February 2025

Name of the Client	:	M/s. Tamil Nadu Minerals Limited
Name of the Project	:	Proposed Black Granite Quarry over an extent of 29.00.23Ha
Name of the Report	:	Executive Summary
Project No: H/01/2023/CON/003		**Document No:** RP004

Revision details:

Rev No.	Date	Details	Prepared by: Name	Prepared by: Sign	Checked by: Name	Checked by: Sign	Approved by: Name	Approved by: Sign
R2	04.02.2025	3rd submission- Draft EIA for Public Hearing	P.V.R.S Surendra		Mr.Vamsee Krishna		Dr.J.R.Moses	
R1	01.02.2025	2nd submission- Draft EIA to QC Team	P.V.R.S Surendra		Mr.Vamsee Krishna		Dr.J.R.Moses	
R0	20.01.2025	1st Submission	PVRS Surendra		Vamsee Krishna		Dr JR Moses	

1. Project Description

The proposed black granite quarry is over an extent of 29.00.23 Ha at S.F.No.254 (P) of Pathalahalli Village, Karimangalam Taluk, Dharmapuri District, and Tamil Nadu State. It is a Government poramboke land.

TAMIN has obtained Lease for 13.56.0Ha Vide Lease G.O Ms. No 517 Industries (H2) Department Dated: 16.05.1986 at S.F.No 254(Part) in Kathirnaickanahalli (Now renamed as Pathalahalli), Harur Taluk (Now Karimangalam Taluk), Dharmapuri District for the lease period from 23.06.1987 to 22.06.2007. Subsequently,TAMIN surrendered 2.25.04Ha. The Surrender proposal is accepted by the Government Vide G.O (D) No. 113 Industries (MME1) dated 11.04.2002. TAMIN has applied fresh lease an extent of 29.00.23 Ha on 19.06.2006 and obtained lease for 20 years vide precise area communication letter No.3774153/MME.1/2022-1, Dated: 14.02.2023. Accordingly, mining plan has been approved by the Commissioner, Department of Geology and Mining, Guindy, Chennai vide letter Rc. No.7377/MM4/2022 dated 28.08.2023 for the proposed production capacity of 10,500m^3 at 10% recovery of ROM 1,05,000m^3 during the five years of Mining plan period. Mining plan approval letter is enclosed as **Annexure-2** and approved mining plan is enclosed as **Annexure-3.**

ToR application was submitted to TN-SEIAA vide online proposal No. SIA/TN/MIN/442957/2023, dated: 11.09.2023 as the area of the proposed project is more than 5.00.0Ha. The proposal was appraised during 416th SEAC meeting held on 13.10.2023 and 670th SEIAA meeting held on 06.11.2023 and ToR was issued along with public hearing vide Letter No. SEIAA-TN/F.No.10401/SEAC/ToR-1599/2023, dated: 06.11.2023 under B1 Category, Schedule 1(a) Mining of Minerals as per EIA Notification 2006 and its subsequent amendments for the minor minerals as the area of the proposed project is more than 5Ha.

Based on the issued ToR, the Draft EIA report will be submitted to Tamil Nadu Pollution Contorl Board for Public Hearing. Public Hearing minutes along with compliance will be incorporated in the final EIA report and will be submitted for the appraisal of the proposed project in Tamil Nadu SEAC /SEIAA for seeking EC.

Table-1 Salient Features of the Project Site

Survey No	S.F.No.254 (Part)
Village	Pathalahalli
Taluk and District	Karimangalam Taluk, Dharmapuri District
State	Tamil Nadu

Toposheets No.	D44S8
Latitude	12° 09'00.00051"Nto 12°09'22.02671"N
Longitude	78°17'05.70541"E to 78°17'35.81481"E
Extent Area	29.00.23 Ha
Lease Period	20 years
Estimated Geological Reserves (ROM) m^3	Black Granite-15,59,462 m^3
Estimated Mineable Reserves (ROM) m^3	Black Granite-13,31,059 m^3
Black Granite production @10% recovery	Black Granite-10,500 m^3
Annual peak production in m^3	5,000 m^3
Depth of Mining	30m from top of the hill (Height of the hillock is 160m)
Method of Mining	Open cast semi mechanized method
Nearest NH/SH Roads	SH -60A (Dharmapuri- Morappur- Harur), ~0.96km, S NH-44 (Srinagar- Dharmapuri- Kanniyakumari), ~12.06km, WNW
Nearest town	Dharmapuri~13km, W
Nearest railway station	Thonganur~10.38km, SE
Nearest railway line	(Buddireddipatti RS-Thonganur RS), ~10.37km, SE
Nearest airport	Kempegowda International Airport, ~128.43km, NNW Salem Airport, ~46.41km, SSW
Project cost	99.97 lakhs
Water Requirement	3.5KLD
Power Requirement	60kVA
Fuel Requirement	200 liters/day
Depth of Water Table	11.6m(as per TWAD) (TWAD- Dharmapuri - May 2024) (Karimangalam Taluk falls under over exploited category as per CGWB)

2. PROJECT DESCRIPTION

2.1. Method of Quarrying

The quarrying operation is being carried out by open cast semi-mechanized method with deployment of HEMM for development and production activities under Regulation106. The quarrying work being carried out under the direct supervision of our statutory mining personal of TAMIN as approved by the Directorate General of Mines Safety (DGMS) under MMR,1961.

Reserves of Black Granite

The Geological reserve of black granite was computed based on the geological plan & sections. The Geological reserves of Black granite was15,59,462 m^3.

Mineable Reserves have been computed as 13,31,059 m^3 after deleting the reserves locked up in safety barrier and benches based on the Conceptual Plan and sections, the effective(Saleable) Mineable Reserves have been worked out as 1,33,106 m^3 by applying the recovery factor 10%. The total proposed production capacity is 10,500m^3 at 10% recovery of ROM 1,05,000m^3. The annual peak production per year would be 5,000m^3 at 10% recovery of ROM 50,000 m^3.

Table-2 Ultimate Pit Dimensional Details

S. No	Description	Ultimate Pit Dimensions (m)		
		Length	Width	Depth
1	Top	917	96	30
2	Bottom	869	55	

Table-3 Available Reserves

S. No	Geological Reserves (m^3)	Mineable Reserves (m^3)	Proposed Production at 10% recovery (m^3)
1.	15,59,462	13,31,059	1,33,106

Table-4 Year wise production details as per Mining Plan

S. No	Year	ROM (m^3)	Recovery@10% (m^3)	Granite Waste @ 90 % (m^3)
1	1st Year	25,000	2,500	22,500
2	2nd Year	50,000	5,000	45,000
3	3rd Year	10,000	1,000	9,000
4	4th Year	10,000	1,000	9,000
5	5th Year	10,000	1,000	9,000
Total		**1,05,000**	**10,500**	**94,500**

2.2 Waste Management

The waste generated during the mining operation i.e., side burden, granite rejects and the non-recoverable/un sized boulders and rubbles etc is around 1,25,819 m^3, will be dumped in the suitable area of around 2.39.00Ha which is already selected. The area of disposal waste rock has been identified in North East and South West portion of the lease area. The unsold blocks are kept within the boundary on the country rock area. The dump will be maintained not exceeding 5m height and the slope angle will be at 45° from horizontal.

Table-5 Proposed Generation of Waste

S. No	Year	Over Burden (m^3)	Side Burden (m^3)	Granite Rejects @ 90% (m^3)
1	1st Year	10,647	--	22,500
2	2nd Year	13,230	4,320	45,000
3	3rd Year	--	--	9,000
4	4th Year	1,251	--	9,000
5	5th Year	1,871	--	9,000
	Total	**26,999**	**4,320**	**94,500**

2.3 Greenbelt Details

The total area for the proposed green belt is 0.13.00Ha during 5 years of the proposed quarrying activity. TAMIN is proposing to plant 3,650 trees are proposed to plant within the 7.5m safety buffer zone mine lease area and also in the proposed green belt area.

Table-6 Proposed Greenbelt Details

Year	No of trees proposed to be planted	Name of the species to be plant	Survival rate expected in %	No of trees expected to be grown
2025-26	3,650	Neem, pungam, vengai	80	2,900

2.4 Man power Requirement

Manpower details are given in below table.

Table-7 Manpower Details

S.No	Description	No of persons
A	**Technical/Mining Personnel**	
1	Geologist/Agent (M.sc Qualified)	1
2	Mine Manager (Holder of Manager Certificate of Competency under MMR, 1961)	1
3	Mining Mate cum Blaster	1
4	Machinery operator	6
5	Diesel Mechanic	1
B	**Workers**	
1	Skilled	1
2	Semi- Skilled	9
3	Un-skilled	10
	Total	**30**

2.5 List of Equipments

The list of Equipment is given in below table.

Table-8 List of Machineries

S. No	Machinery	Capacity	Numbers
1	Excavator	300 LC	1
2	Compressor	400 cfm	2
3	Dumpers	25 Tonnes	2
4	Diamond wire saw	30 m^3/day	1
5	Jack Hammers (32mm dia.)	1.2 to 6m	6
6	Diesel Generator	125 kVA	1
7	Tractor Mounted Air Compressor		1

2.5 Land Use Pattern

Land Use Pattern of the Mining Lease area is given in below **Table-9.**

Table-9 Land Use Pattern of the Mining Lease area

S.No	Description	Present area (Ha)	Proposed Mining Plan Period (Ha)	Area at the end of the life of mine (Ha)
1.	Mining Area	1.25.00	1.09.00	8.62.00
2.	Waste Dump	1.74.00	2.39.00	13.70.50
3.	Office Infrastructure	0.01.00	--	0.01.00
4.	Road	0.17.00	--	0.17.00
5.	Mine Road	0.59.00	--	0.11.50
6.	Afforestation	0.28.50	0.13.00	1.00.00
7.	Unutilized Area	24.95.73	21.34.73	5.38.23
Total		**29.00.23**	**24.95.73**	**29.00.23**

3. IMPACTS AND MITIGATION MEASURES

Impacts due to Mining Activity

Various environmental impacts which have been identified due to the mining operations are discussed in the following sections. The environmental parameters most commonly affected by mining activities are:

3.1 Land Environment

Impacts

Potential impacts envisaged due to mining operations on land environment are

- The topsoil and bushes observed in the hill slides over the dyke will be removed completely. Hence the top hill ridge will be excavated which will interrupt the aesthetic view of the locality.
- The proposed quarrying operation will alters the hill lock slope and natural drainage pattern.

- Due to the proposed mining activity a pit will be created over the hill lock and left open with the approximate dimension as follows.

Table-10 Ultimate Pit

S. No	Description	Average Ultimate Pit Dimensions (m)		
		Length	Width	Depth
1	Top	917	96	30
2	Bottom	869	55	

- The Total waste (Granite waste+ Over Burden + Side Burden) to be generated during the five years of mining plan period will be around 1,25,819m^3. These wastes are proposed to be dumped on the North East and South West side of lease area.
- Usage of chemicals like Rock Breaking Powder ($Ca(OH)_2$ for secondary blasting, fuel and lubricants used for machineries will affect the soil quality and fertility.
- Generation of hazardous and non-hazardous wastages.
- Creation of infrastructure facilities like office building, rest shelter, first-aid centre, toilets and other service facilities.

Mitigation Measures

- Good housekeeping and best practices of waste handling shall be adopted to eliminate/minimize the risks of soil contamination.
- The wastes generated will be stored in temporary storage facility and disposed through nearby municipal disposal bins. Waste oil generated from quarry machineries will be disposed through TNPCB authorized dealers.
- Dust suppression using water tankers.
- Greenbelt around infrastructure within the mine lease area and along the periphery of the mine lease area by using native plants.
- Proper fencing will be provided around the mine lease area.

3.2 Air Environment

Impacts on Air Environment

Source

The major sources of air pollution due to mining operations are DG sets, Machineries and Vehicular transportation. The activities causing air pollution due to the mining operations will be excavation, drilling, blasting and transportation. The sources of air emission are given below in **Table-11.**

Table-11 Sources of air pollution at quarry

S. No	Source of emission	Pollutant
1.	Excavation of Granite	PM
2.	DG Set	PM,NO_X,SO_X
3.	Transportation of Granite	PM,NO_X

Impacts

- Due to mining activity, Air pollution will cause respiratory problems.
- Air pollution will affect nearby ecosystems, vegetation, livestock habitats and water sources.

Mitigation measures

The mitigation measures for the impacts on air environment due to the proposed mining activity are given below.

Table-12 Dust control measures in quarry

S. No	Activities	Control Measures
1	Drilling	➢ Adopting wet drilling method ➢ Drilling machine should be provided with dust extractors
2	Blasting	➢ Use of control blasting technique ➢ Water spray before blasting ➢ Usage of Rock breaking powder($Ca(OH)_2$) ➢ Usage of Wire saw cutting method
3	Loading	➢ Water spray on granite material before loading
4	Transportation of material	➢ Covering of the trucks/dumpers to avoid spillage ➢ Water spray on the haul roads before and after transportation ➢ Maintenance of haul road ➢ Speed of vehicles will be limited upto 25km/hr ➢ Development of a green belt of suitable width on both sides of haul road

3.2.1 Air Quality Modelling

Total maximum GLCs from emissions as given below **Table 13.**

Table-13 Total maximum GLCs from emissions

Pollutant	Max. Base Line Conc. (µg/m³)	Estimated Incremental Conc. (µg/m³)	Total Conc. (µg/m³)	NAAQ standard
PM	53.38	10.73	64.11	100
SO_2	14.07	0.73	14.8	80
NO_X	28.13	1.11	29.24	80

The maximum ground level concentration observed due to mining activities and traffic movement through Air Modelling for PM, SO_2 and NO_x are 64.11µg/m^3, 14.8 µg/m^3 and 29.24 µg/m^3respectively.

3.3 Transportation of Material

Impacts

The granite will be transported through existing road by tippers and approximately 2 times per week materials will be transported. The traffic load was observed on State High way –SH-60A Connecting Dharmapuri - Morappur – Harur. The vehicular movement for the proposed project is given in **Table-14.**

Table-14 Traffic Volume after Implementation of the Project

For the Road	Volume of Traffic	Volume (V)	Road Capacity (C)	V/C Ratio	LOS Category*	Traffic Classification
Existing	2359	2832	15000	0.31	"A"	Free Flow Traffic
After implementation	2379	2863	15000	0.34	"A"	Free Flow Traffic

*LOS (Level of Service) categories are A-Free Flow, B- Stable Traffic Flow, C- Restricted Flow, D-High Density Flow, E- Unstable flow, F- Forced or breakdown flow.

Due to propose project there will be slight increment in the vehicle movement but the level of service (LOS) anticipated will be Free Flow.

Mitigation Measures

- Covering of the trucks/dumpers to avoid spillage
- Water spray on the haul roads before and after transportation
- Maintenance of haul road
- Speed control on vehicles
- Development of a green belt of suitable width on both sides of haul roads.

3.4 Water Environment

Impacts

Impacts envisaged due to wastewater generation during mining operations are

- Wastewater generated from the mines can pollute surface water and groundwater, which can harm wildlife and human health.

- Runoff from mining wastewater can devastate surrounding vegetation.
- Explosive blasting in a mine can cause groundwater to seep to lower depths or connect aquifers, exposing them to contamination by toxic heavy metals.

Mitigation Measures

Surface Water Pollution Control Measures

- Construction of garland drains of suitable size around mine area and dumps to prevent rain water descent into active mine areas.
- Construction of baffle wall or trenches nearby water bodies to prevent runoff water from mines.
- The dumping will be provided with slopes and covered with grasses, shrubs, etc to prevent erosion.

Ground Water Pollution Control Measures

- The domestic sewage of 1.2 KLD will be disposed through septic tank followed by soak pit.
- Regular monitoring of water levels and quality in the existing open wells and bore well in the vicinity will be carried out.

3.5 Rain Water Harvesting

Impacts

Impacts envisaged due to rainwater on mining operations are

- Heavy rainfall can cause high water levels at a mining site, which can damage equipment and threaten worker safety.
- Rainwater can carry pollutants from a mining site into nearby water bodies; these pollutants can include heavy metals, acids, and other substances that can contaminate the water.
- When it rains, the loosened topsoil can be washed away, carrying sediments that pollute water bodies.

Mitigation Measures

- Construct barriers at suitable intervals along the path of the drains to restrict the flow of water.
- Construction of baffle wall or trenches nearby water bodies to prevent runoff water from mines.
- Provide necessary overflow arrangement to maintain the natural drainage system.
- The rainwater will be diverted by garland drains to the sump area within the mine lease. The stored water will be used for agriculture activities and also for dust suppression purpose

3.6. Noise Environment

Impact

The main sources of noise in the mine are as follows:

- Drilling
- Controlled Blasting
- Loading & unloading of minerals.
- Transportation vehicles

Mitigation Measures

Following mitigation measures should be taken to control noise pollution:

- Workers will be provided with earmuffs, ear plugs etc.
- All vehicles and machinery will be properly lubricated and maintained regularly.
- Speed of the vehicles entering and leaving the quarrying lease will be limited to 25 kmph.
- Unnecessary use of horns by the drivers of the vehicles shall be avoided.
- Controlled blasting with proper spacing, burden and stemming will be maintained.
- Usage of NONEL Blasting (Non-Electric Detonator).
- The blasting will be carried out during favourable atmospheric condition

3.7. Vibration due to mining activity

Impacts

Due to mining activities, the following impacts of vibration are envisaged as follows:

- Structural damage to infrastructure facilities within the mine lease area.
- Ground Subsidence
- Vibrations cause human health impacts such as fatigue, muscle strain, joint pain, sleep disturbances, cardiovascular problems etc.

Mitigation Measures

- No primary blasting will be used for granite quarry operations. Only secondary controlled blasting techniques will be used.
- Usage of NONEL Blasting.
- Proposed peripheral green belt will be developed in 7.5m safety zone around the quarry.
- All vehicles and machinery will be properly lubricated and maintained regularly.
- Periodical health checkup will be done for the workers.

3.8 Biological Environment

Impacts

Impacts on biodiversity are given below.

Table-15 Impacts on Biodiversity

S. No	Activity	Examples of aspects	Examples of biodiversity impact
1	Excavation	Land clearing	Loss of habitat, introduction of plant diseases, Siltation of water courses
2	Blasting, Digging and hauling	Dust, noise ,vibration, water pollution	Disruption of water courses ,impacts on aquatic ecosystems due to changes in hydrology and water quality
3	Waste dumping	Clearing, water and soil pollution	Loss of habitat, soil and water contamination, sedimentation.
4	Air emissions	Air pollution	Loss of habitat or species
5	Waste disposal	Oil and water pollution	Encouragement of pests, disease transfer, contamination of groundwater and soil
6	Access roads	Land clearing	Habitat loss or fragmentation, water logging upslope and drainage shadows down slope
7	Water supply (potable or industrial)	Water abstraction or mine dewatering	Loss or changes in habitat or species composition

Mitigation Measures

- To reduce the adverse effects on flora/fauna due to deposition of dust generation from mining operations, water sprinkling and water spraying systems will be ensured in all dust prone areas to arrest dust generation.
- Development of greenbelt around the mine lease area.

3.9 Impacts on Occupational Health due to project operations

Impacts

The following occupational health issues are observed due to mining operations.

- Exposure to chemicals
- Airborne hazards
- Dust
- Noise and vibration
- High temperatures and humidity
- Manual handling

Mitigation Measures

The mitigation measures of occupational health and safety is given below.

Table-16 Mitigation for occupational health and safety

S. No	Activity	Mitigation measures
1	Excavation	➢ Planned excavation, avoid haphazard mining
2	Drilling and blasting	➢ In addition, the operators and other workers should be provided with masks, helmets, gloves and earplugs.
3	Safety zone	➢ Provisions for a buffer zone between the local habitation and the mine lease in the form of a green belt of suitable width. ➢ Restricted entry, use of sirens and cordoning of the lasting area are some of the good practices to avoid accidents.
4	Overburden stabilization	➢ Accidents are known to happen due to overburden collapse. ➢ Therefore, slope stabilization and dump stability are critical issues for safety and environment. Proper measures will be taken care.
5	Worker's health surveillance	➢ Health survey programmes for workers and local community. ➢ Regular training and awareness of employees to be conducted to meet health and safety objectives.

4. PROJECT COST & ESTIMATED TIME OF COMPLETION

4.1. Project Cost

The estimated project cost is given below **Table-17.**

Table-17 Project cost

S. No	Description of the Cost	Amount in Rs.
A.	**Fixed Cost**	
1	Land Cost	Nil. Because Govt. land
2	Labour shed	50,000/-
3	Sanitary facilities	50,000/-
4	Fencing Cost	1,25,000/-
	Total	**2,25,000/-**
B.	**Operational Cost**	
1	Jack Hammers	1,98,000/-
2	Compressor	19,82,000/-
3	Diamond wire saw	4,87,000/-
4	Diesel General	4,00,000/-
5	Excavators	6,00,000/-
6	Tippers	58,00,000/-
7	Drinking water facilities for the labours	50,000/-
8	Safety kits	50,000/-
	Total Operational Cost	**95,67,000/-**
C.	**EMP Cost**	

1	Afforestation	30,000/-
2	Water Sprinkling	50,000/-
3	Water Quality test	25,000/-
4	Air Quality test	25,000/-
5	Noise/Vibration test	25,000/-
6	CSR activities	50,000/-
	Total EMP Cost	**2,05,000/-**
	Total Cost of the Project (A+B+C)	**99,97,000/- (Say 1 Crore)**

4.2. Proposed schedule for approval and implementation

The time schedule for the completion of the proposed mining project is given in the below as,

Table-18 Project schedule

Particulars	Time Schedule
Submission of Draft EIA/EMP to TNPCB for Public Hearing	February 2025
Conduction of Public Hearing	March 2025
Submitting final EIA/EMP	May 2025
Presentation to SEAC and Obtaining EC	June 2025

The project will be implemented after Obtaining EC from SEIAA and CTO from PCB.

4.3 CER Activity

Based on O.M F.No. 22-65/2017-IA.III 1.0% of the Project Cost need to be spent for CER activities i.e., Rs. 1.0 Lakhs need to be spent for the CER activity. However TAMIN proposing for Rs. 4.0Lakhs which is 4.0% of Project cost under CER activities for the Odasalpatti Government High School.

5. MINING CLOSURE PLAN

5.1. Progressive Mine Closure Plan

As a petro genetic character, the depth persistence of the black granite body in the mine lease area is beyond the workable limits. Based on the statutory provisions of mine safety rules and regulations the workable depth is proposed for 30m from top of the hill. However in course of time there is a possibility of up gradation of technology for safe mining beyond 30m. Hence it is proposed not to backfill the ultimate pit. The Pit boundaries shall be safely fenced with 7.5m buffer safety zone and rain water or seepage water stored in the pit will be used for agriculture purpose. Green belt development will be maintained in the 7.5m buffer safety zone. Garland drain will be constructed around the quarry area to prevent surface run off rain water entering

to the pit. At the end of the life of mine, the mine closure plan will be prepared and submitted to the competent authority to obtain approval and the same will be implemented.

6. REHABILITATION AND RESETTLEMENT

There will be no Rehabilitation and Resettlement in this proposed project.

7. SITE ANALYSIS

Environmental sensitive such as water bodies, reserved forest, wildlife sanctuary, national park, human settlements and other ecological features are given below.

Environmentally/Ecologically Sensitive areas

The environmental sensitive areas covering an aerial distance of 15 km from the project boundary is given in below table.

Table-19 Lists of Waterbodies

S.No	Water bodies	Distance (~km)	Direction
1.	Pond near Odasalpatti Pudur	0.70	SE
2.	Lake near Gollappatti	0.99	N
3.	Lake near Pamandappatti	4.30	NE
4.	Semmanda Kuppam Ar	5.05	N
5.	Pulappatti R	5.80	N
6.	Siriyampatti Lake	6.15	NW
7.	Lake near Kadattur	6.21	S
8.	Kambainellur Lake	6.37	NNE
9.	Chinna Kavundanpatti Lake	6.64	E
10.	Lake near Gollahalli	7.61	W
11.	Ponnaiyar R	9.92	NE
12.	Baisuhalli Lake	11.07	WNW
13.	Virupakshipuram Pallam	11.93	W
14.	Turinjihalli Ar	12.26	SSE
15.	Annasagaram Eri	12.55	WSW
16.	Ramakkal Eri	13.10	W
17.	Vadamangalam Lake	13.84	N

Table-20 List of Monuments

S.No	Reserve Forests	Distance(~km)	Direction
Nil			

Table-21 List of Reserved Forests

S.No	Reserve Forests	Distance(~km)	Direction
1	Mukkanur RF	3.28	SW
2	Mukkanur RF	10.69	SSW
3	Morappur RF	14.00	ESE
4	Kavaramalai RF	14.49	SSE
5	Kavaramalai Ext RF	14.94	S

Table-22 Lists of Nearby Habitations

S.No	Reserved Forests	Distance(~km)	Direction	Population
1	Odasalpatti Pudur	0.04	E	700
2	Kadirnayakkanahalli	0.36	ENE	500
3	Dinnappatti	0.51	W	350
4	Odasalpatti	0.91	S	1000
5	Gollappatti	1.42	N	250

8. BASELINE STUDY

8.1 Study Period

The baseline environmental surveys were carried out during **(March 2024 – May 2024)** within the study area.

8.2 Ambient Air Quality

Table-23 Summary of Ambient Air Quality Monitoring

S.No	Parameters ($\mu g/m^3$)	Minimum	Maximum	NAAQ Standards
1.	PM_{10} ($\mu g/m^3$)	35.92	44.92	100
2.	$PM_{2.5}$ ($\mu g/m^3$)	20.63	24.71	60
3.	SO_2 ($\mu g/m^3$)	8.49	11.84	80
4.	NO_2 ($\mu g/m^3$)	16.97	23.67	80

The ambient air quality has been monitored at 8 locations for 13 parameters as per NAAQS, 2009 within the study area.

8.3 Noise Environment

Ambient noise levels were monitored using precision noise level meter in and around the project site at 8 locations during study period.

- In Industrial area (Project site), day time noise level was about 65.48 dB (A) and 52.86 dB(A) during night time, which is within prescribed limit by CPCB for Industrial area (75 dB(A) Day time & 70 dB(A)Night time).
- In residential area day time noise levels varied from 43.56 dB (A) to 53.58 dB (A) and night time noise levels varied from 40.45 dB (A) to 43.91 dB (A) across the sampling stations. The field observations during the study period the ambient noise levels except one Residential area noise is not within the limit prescribed by MoEF & CC (55 dB (A) Day time & 45 dB (A) Night time).

8.4 Water Quality

The prevailing status of water quality at 8 locations for surface water and 8 locations for ground water have been assessed during the study period. The standard methods prescribed in IS 2296:1992 were followed for sample collection, preservation and analysis in the laboratory for various physiochemical parameters.

8.4.1 Surface water quality

Table-24 Summary of Surface Water Quality Monitoring

S.No	Parameters	Minimum	Maximum	IS 2296:1992 Standards
1.	pH	7.15	7.84	6.5 – 8.5
2.	TDS (mg/l)	391	466	500
3.	COD (mg/l)	16	24	-
4.	BOD (mg/l)	2	4	2
5.	Total Hardness (mg/l)	143	172	-

8.4.2 Ground Water Quality

Table-25 Summary of Ground Water Quality Monitoring

S.NO	Parameters	Minimum	Maximum	IS 10500: 2012 Standards	
				Acceptable Limit	Permissible Limit
1.	pH	7.12	7.85	6.5 – 8.5	NR
2.	Chloride	352	498	500	2000
3.	Total Hardness (mg/l)	261	324	200	600
4.	Sulphate	139	196	200	400
5.	TDS	905	1213	500	2000

- It is observed that all the collected ground water samples meets the drinking water standards (IS 10500:2012) and can be used for drinking.

8.5 Soil Quality

Soil sampling was carried out at eight locations in the study area. The summary of the soil quality is given below.

Table-26 Summary of Soil Quality Monitoring

S. No	Parameters	Minimum	Maximum
1.	pH	7.52	8.32
2.	Electrical conductivity (µmho/cm)	358	658
3.	Nitrogen (mg/kg)	102.59	128.52
4.	Phosphorus (mg/kg)	6.87	8.61

5.	Potassium (mg/kg)	95.26	119.34

8.6 Water Requirements

Water requirements details are given in **Table-27**.

Table-27 Water Requirements

S. No	Description	Water Requirement(KLD)
1	Drinking &Domestic purpose	1.5
2	Wire Saw Cutting	0.5
3	Dust suppression	1.0
4	Green Belt	0.5
	Total	**3.5**

9. HAZARD WASTE HANDLING

9.1 Solid Waste Management

The municipal solid waste generation and management details are given in **Table-28**.

Table-28 Municipal Solid Waste generation & Management

S. No	Type	Quantity Kg/day	Disposal method
1	Organic	8.1	Municipal bin including food waste
2	Inorganic	5.4	TNPCB authorized recyclers
Total		**13.5**	

As per CPHEEO guidelines: MSW per capita/day =0.45

9.2 Hazardous waste Management

The type of hazardous waste and the quantity generated are detailed in **Table-29**.

Table-29 Hazardous Waste Management

Waste Category No	Description	Quantity (L/Year)	Mode of Disposal
5.1	Waste Oil	3.0	Will be Collected in leak proof containers and disposed to TNPCB Authorized Agencies for Reprocessing/Recycling

10. POST PROJECT MONITORING

10.1 Post Project Environmental Monitoring

The Project proponent set up regular monitoring stations to assess the quality of the environment.

Table-30 Post Project Environmental Monitoring Program

S. No	Area of Monitoring	Number of Sampling Stations	Frequency of Sampling	Parameters to be Analyzed
1	Meteorology	One	Hourly and Daily basis.	Wind speed and direction, Temperature, Relative Humidity, Atmospheric pressure, Rainfall.
2	Ambient Air Quality	2 Stations (In downwind)	Twice a week:24 hourly period	PM_{10}, $PM_{2.5}$, SO_2, and NO_2
3	Noise	2 (two within core area and two in buffer area)	Once every season	Ambient Equivalent continuous Sound Pressure Levels (Leq) at day and Night time.
4	Exhaust from DG set	Stack of DG set	Quarterly	PM_{10}, $PM_{2.5}$, SO_2 & CO
5	Vehicular Emissions	Parking area	Periodic monitoring of vehicles	Air emission and noise, PCU
6	Soil	Two Locations within the Project Site	Yearly Once	Physico chemical properties, Nutrients, Heavy metals
7	Terrestrial Ecology	Within 10km, around the project	Once in three years	Symptoms of injuries on plants
8	Surface/ Ground water quality	Two Locations Within Project Site	Yearly Once	As per ISO 10500 Standard parameters

11. CONCLUSION

The proposed **"Proposed black granite quarry over an extent of 29.00.23Ha"** will be beneficial for the development of the nearby villages. Due to this proposed quarry, 30 no's of employment potential will be deployed which increase the social benefits of nearby villages. Environmental aspects like dust emission, noise, siltation due to surface run-off, etc. will have to be controlled within the permissible limit to avoid impacts on the surrounding environment. Necessary pollution control equipment, water sprinkling, plantation, personal protective equipment, and diamond wire saw cutting etc., will form regular practice in the project. Additional pollution control measures and environmental conservation measures will be adopted to control/minimize impacts on the environment. The CER measures proposed to be adopted by the proponent will improve the social and economic status of the nearby villages.