

Executive Summary

For

Proposed Ajjanahalli Black Granite Quarry over an extent of 17.50.0 Ha

Proposed Production Capacity: 6,940m³

At

Survey No: 896

Village: Ajjanahalli

Taluk: Pennagaram

District: Dharmapuri

State: 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)

ToR Identification No.TO24B0108TN5399141N Dated: 22.04.2024

Baseline Period: From March 2024 to 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

January 2025

Revision Status

Name of the Client		:	M/s. Tamil Nadu Minerals Limited					
Name of the Project		:	Proposed Ajjanahalli Black Granite Quarry Over an Extent of 17.50.0 Ha					
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R2	29.01.2025	3 rd Submission	PVRS Surendra		Vamsee Krishna		Dr JR Moses	
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Rev No.	Date	Details	Name	Sign	Name	Sign	Name	Sign
			Prepared by		Checked by		Approved by	

Executive Summary

1. Introduction

The Proposed Ajjanahalli Black Granite Quarry over an extent of 17.50.0 Ha at S.F.No.896 of Ajjanahalli Village, Pennagaram Taluk, Dharmapuri District, Tamil Nadu State. It is a Government Poramboke Land. TAMIN has applied lease application on 13.02.2022. Subsequently the Precise area communication letter has been issued by Additional Chief Secretary, Natural Resources (MME.1) Department, Secretariat, Chennai vide Letter No. Letter No.3740397/MME.1/2023-1, dated: 13.09.2023 to grant lease for 20 years. Precise area communication letter is enclosed as **Annexure-1**.

Accordingly, mining plan has been approved by the Commissioner of Geology and Mining, Chennai vide Rc.No.6167/MM4/2022, dated: 23.11.2023 for the proposed production capacity of 6,940m³ at 10% recovery of ROM 69,403m³ 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-14**.

ToR application was submitted to TN-SEIAA vide online proposal No. SIA/TN/MIN/460253/2024, dated: 07.02.2024 since the proposed project area is more than 5.00.0Ha. The proposal was appraised during 451st SEAC meeting held on 13.03.2024. During the meeting, the committee advised TAMIN to submit the revise the mining plan by leaving a minimum distance of 60m from the Masakkal Reserve forest abutting the proposed project site. Hence, the modified mining plan with 10% recovery has been prepared and same as been attached as **Annexure-3**. Further, the proposal was appraised in 709th SEIAA meeting held on 15.04.2024 and ToR was issued along with public hearing vide ToR Identification No. TO24B0108TN5399141N, dated 22.04.2024 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 was enclosed as **Annexure-5**.

Based on the obtained ToR, the draft EIA will be prepared and the draft EIA report will be submitted for Public Hearing after completion of Public Hearing the final EIA report will be prepared by incorporating the public hearing minutes along with compliance. The final EIA report will be submitted for the appraisal Tamil Nadu SEAC/SEIAA for seeking Environmental Clearance.

Table-1 Salient Features of the Project Site

Survey No	S.F.No. 896
Village	Ajjanahalli
Taluk and District	Pennagaram Taluk, Dharmapuri District
State	Tamil Nadu
Toposheets No.	D43X16
Latitude	12°3'48.1953"Nto12°4'13.7287"N
Longitude	77°49'7.5609"E to 77°49'37.3636"E
Extent Area	17.50.0 Ha

Land Classification	Government Poramboke Land
Lease Period	20 years
Estimated Geological Reserves (ROM)	8,87,700m ³
Estimated Mineable Reserves (ROM)	5,62,152m ³
Production Capacity	ROM-69,404m ³ & 6,940m ³ (@10% Recovery)
Annual peak production	ROM-17,000m ³ & 1,700m ³ (@10% Recovery)
Depth of Mining	30m from the top of hill
Method of Mining	Open cast semi mechanized method
Nearest Town	Pennagaram, ~10km, NE
Nearest Railway Station	Railway Station: Mettur Dam, ~28.51km, S
Nearest Airport	Nearest Airport: Salem Airport, ~40.07km, SE
Interstate boundary	Tamil Nadu- Karnataka State Boundary at 6.60km, NW
Water Requirement	3.5 KLD
Power Requirement	60 kVA
Ground Water Level	11.6m BGL (TWAD- May 2024) Category of Taluk: Critical (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 Regulation 106. 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 reserves of black granite have been computed based on the Geological Plan & Sections as 8,87,700m³. Mineable Reserves have been computed as 5,62,152 m³ after leaving 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 56,215m³ at 10% recovery. The total proposed production capacity is 6,940m³ at 10% recovery of ROM 69,404m³. The annual peak production will be 1,700m³ at 10% recovery of ROM 17,000m³.

Table-2 Ultimate Pit Dimensional Details

S. No	Description	Ultimate Pit Dimensions (m)		
		Length	Average Width	Depth
1	Top	734	65	30m
2	Bottom	529	23.17	

Table-3 Available Reserves

S. No	Geological Reserves (m ³)	Mineable Reserves (m ³)	Proposed Production at 10% recovery (m ³)
1.	8,87,700	5,62,152	6,940

Table-4 Proposed Year Wise Production

S. No	Year	ROM (m ³)	Recovery@10% (m ³)	Granite Waste @ 90% (m ³)
1	1 st Year	10,002	1000	9,002
2	2 nd Year	11,999	1200	10,799
3	3 rd Year	14,403	1440	12,963
4	4 th Year	16,000	1600	14,400
5	5 th Year	17,000	1700	15,300
Total		69,404	6,940	62,464

Waste Management

The granite waste generated during the mining operation is 62,464m³ will be dumped in the suitable area already selected. The area of disposal of waste has been identified in southern portion of the lease area. The unsold blocks are kept within the boundary on the country rock area.

2.2 Greenbelt Details

TAMIN is proposing to plant 2,200 trees are proposed to plant within the 7.5m safety buffer zone mine lease area and also in the proposed green belt area of 0.26.0Ha

Table-5 Proposed Greenbelt Development Details

Year	No of trees proposed to plant	Name of the species to be plant	Survival rate expected	No of trees expected to grow
2025-2026	2,200	Neem, Vilvam, Aathi, Panai	80%	1,750

2.3 Man Power Requirement

Manpower details are given in below table.

Table-6 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

2.4 List of Equipment

The list of Equipment is given in below table.

Table-7 List of Machineries

S. No	Machinery	Capacity	Numbers
1	Excavato0072	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 of the quarry area

Table-8 Land Use Pattern of the Study Area

S. No	Description	Present Area (Ha)	Upto Lease Period (Ha)	Area at the end of the life of Mine(Ha)
1	Mining Area	Nil	3.72.5	5..08.0
2	Waste Dump	Nil	4.63.5	4.59.0
3	Office Infrastructure	0.01.0	Nil	0.01.0
4	Tar Road	0.20.5	Nil	0.20.0
5	Afforestation	Nil	0.26.0	1.52.5
6	Un Utilized area	17.28.5	8.66.5	6.09.0
Total		17.50.0	17.28.5	17.50.0

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 alter the hill slope and natural drainage pattern.
- Due to the proposed mining activity a pit will be created over the hill and left open with the approximate dimension as follows.

Table -9 Ultimate Pit

S. No	Description	Ultimate Pit Dimensions (m)		
		Length	Average Width	Depth
1	Top	734	65	30m
2	Bottom	529	23.17	

- The granite waste to be generated during the five years of mining plan period will be around 62,464m³. These wastes are proposed to be dumped on the Southern 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

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-10**.

Table-10 Sources of air pollution due mining operations

S. No	Source of emission	Pollutant
1.	Excavation of Granite	PM
2.	Operation of diesel driven equipment	Gaseous emission
3.	Transportation of product	PM, NO _x , CO

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 due to the proposed mining activity for air environment is given below.

Table-11 Dust Control Measures

S. No	Activities	Control Measures
1	Drilling	<ul style="list-style-type: none"> ➤ Adopting wet drilling method ➤ Drilling machine should be provided with dust extractors
2	Blasting	<ul style="list-style-type: none"> ➤ 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	<ul style="list-style-type: none"> ➤ Water spray on granite material before loading
4	Transportation of material	<ul style="list-style-type: none"> ➤ 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-12**.

Table-12 Total maximum GLC

Pollutant	Max. Base Line Conc. ($\mu\text{g}/\text{m}^3$)	Estimated Incremental Conc. ($\mu\text{g}/\text{m}^3$)	Total Conc. ($\mu\text{g}/\text{m}^3$)	NAAQ standard
PM10	57.35	5.48	62.83	100
SO ₂	12.63	0.41	3.04	80
NO _x	25.13	1.87	27.0	80

The maximum ground level concentration observed due to mining activities and traffic movement through Air Modelling for PM, SO₂ and NO_x are 62.83 $\mu\text{g}/\text{m}^3$, 13.04 $\mu\text{g}/\text{m}^3$ and 27.0 $\mu\text{g}/\text{m}^3$ respectively.

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 **Major District Road MDR 654 - Pennagaram – Nagamarai Road**, The vehicular movement for the proposed project is given in **Table-13**.

Table-13 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	679	981	6000	0.26	“A”	Free Flow Traffic
After implementation	689	999	6000	0.17	“A”	Free Flow Traffic

*LOS (Level of Service) categories are A-Free Flow, B- Reasonably Free Flow, C-Stable Flow, D- Approaching unstable 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 generation during mining operations are

- Drilling
- Blasting
- Loading & unloading of materials
- Transportation

Mitigate 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 operations

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-14 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 Occupational Health due to mining 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-15 Mitigation for occupational health and safety

S. No	Activity	Mitigation measures
1	Excavation	➤ Planned excavation, avoid haphazard mining.
2	Drilling and blasting	<ul style="list-style-type: none"> ➤ Adopting wet drilling method. ➤ Using controlled blasting techniques. ➤ Usage of diamond wire saw cutting.
3	Safety zone	<ul style="list-style-type: none"> ➤ Provisions of green belt in the 7.5m safety zone area around the mine lease. ➤ Restricted entry, use of sirens and cordoning of the lasting area are some of the good practices to avoid accidents.
4	Overburden stabilization	<ul style="list-style-type: none"> ➤ 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	<ul style="list-style-type: none"> ➤ Providing personal protective equipments such as masks, helmets, gloves, earplugs etc., for workers. ➤ Health survey program 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-16**.

Table-16 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-17 Project schedule

Particulars	Time Schedule
Submission of Draft EIA/EMP to TNPCB for Public Hearing	January-2025
Conduction of Public Hearing	March-2025
Submitting final EIA/EMP	May-2025
Presentation to SEAC and Obtaining EC	July-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 dated: 01.05.2018, 2.0% of the Project cost need to be spent for CER activities i.e., Rs. 2.0 Lakhs. However, TAMIN is proposing for Rs. 4.0Lakhs which is 4.0% of Project cost under CER activities for the Ajjanahalli Government Higher Secondary 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 the flow of silt and sediment runoff. 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.

7.1 Environmentally/Ecologically Sensitive areas

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

Table-18 Lists of Wild Life Sanctuary

S.No	Monuments	Distance (~km)	Direction
1	Cauvery Wildlife Sanctuary Core/ESZ	6.41	NW
2	Cauvery South Wildlife Sanctuary	6.81	NNW

Table-19 Lists of Monuments

S.No	Monuments	Distance (~km)	Direction
Nil			

Table-20 Lists of Water bodies

S.No	Water bodies	Distance (~km)	Direction
1.	Odai	Within the site	
2.	Adda Vanka	0.06	E
3.	Adda Vanka	0.68	SSW
4.	Moongilmaduvu Check Dam	1.36	SSE
5.	Sintalapadi Pallam	1.44	SE
6.	Ichappadi Pallam	1.58	SSE
7.	Varattu Pallam	2.33	NW
8.	Periya Pallam	2.68	E
9.	Guttala Pallam	4.26	SE
10.	Metturankottai Check Dam	4.34	SSE
11.	Godubhavi Pallam	4.69	WSW
12.	Varattu Kanar	5.07	N

13.	Mathala Pallam	5.53	SE
14.	Kaveri(Cauvery) R	6.33	NW
15.	Voddamma Eri	6.43	ENE
16.	Chinnar R	6.61	NNW
17.	Tottimaduvu Pallam/Bhavi Pallam	6.85	NNW
18.	Morattu Pallam	6.89	SSW
19.	Bilimaduvu Halla	6.9	WNW
20.	Maddala Pallam	7.28	S
21.	Attukombai Halla	7.84	W
22.	Maththalapallam Check Dam	7.89	S
23.	Dasari Pallam	8.19	ESE
24.	Goddu Pallam	8.21	ESE
25.	Chinna Kinar Pallam	8.26	SSW
26.	Periya Pallam	8.4	SE
27.	Kalmaduvu Pallam	9.87	NNE
28.	Pullimadagu Halla	10.15	W
29.	Gaudikere Halla	10.51	W
30.	Doddavarti Halla	11.2	W
31.	Nagamarattu Pallam	11.32	NE
32.	Gulyada Halla	11.6	NW
33.	Chikkavarti Halla	11.61	W
34.	Periya Pallam	11.75	ENE
35.	Stanley Reservoir/Mettur Dam	12.62	SSW
36.	Yelakettu Halla	12.64	WSW
37.	Sembarattu Pallam	12.88	SW
38.	Ottu Pallam	13.0	SW
39.	Kora Pallam	13.16	SW
40.	Bennatti Halla	13.23	NNW
41.	Anaibidda Halla	14.01	NNE
42.	Panankattu Pallam	14.13	SW
43.	Kallumaduvu Pallam	14.72	NNW
44.	Kannikkal Pallam	14.86	WSW

Table-21 Lists of nearby Habitations

S.No	Name of the Village	Distance(~km)	Direction	Approximate population
1.	Karikallur	0.25	WNW	150
2.	Periya Vettilapuram	0.32	S	400
3.	Chinna Vettilapuram	0.39	S	650
4.	Santepete	0.54	ENE	200
5.	Neruppuran	0.86	WSW	100

Table-22 List of Reserved Forests

S.No	Reserved Forest	Distance (~km)	Direction
1	Bevanurmalai RF	Adjacent to Site	N
2	Masakkallu RF	0.50	ESE
3	Badanavadi RF	4.11	SW
4	Pennagaram RF	5.35	NNE
5	Erumbalai RF	6.48	SSE
6	Voddappatti RF	6.64	NNW

7	Madesvaramalai R	6.99	NW
8	Perumbalai Malai RF	7.06	S
9	Kalappambadi RF	7.47	ESE
10	Guttirayan RF	12.53	NNE
11	Biligundlu RF	13.26	NNW

8. BASELINE STUDY

8.1 Study Period

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

8.2 Ambient Air Quality

The ambient air quality has been monitored at 8 locations for 15 parameters as per NAAQS, 2009 within the study area.

Table-23 Summary of Ambient Air Quality Monitoring

S.No	Parameters	Minimum of Average ($\mu\text{g}/\text{m}^3$)	Maximum of Average ($\mu\text{g}/\text{m}^3$)	NAAQ Standards ($\mu\text{g}/\text{m}^3$)
1	PM ₁₀	35.34	48.26	100
2	PM _{2.5}	21.09	27.56	60
3	SO ₂	7.18	10.63	80
4	NO ₂	14.12	21.15	80

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 68 dB (A) and 65.45 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 40.2 dB (A) to 47.1 dB (A) and night time noise levels varied from 37.1 dB(A) to 41.4 dB(A) across the sampling stations. The field observations during the study period indicate that the ambient noise levels in Residential area are within the limit prescribed by CPCB for Residential area (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	7.3	8.26	6.5 – 8.5
2.	TDS (mg/l)	483	894	500
3.	COD (mg/l)	16	32	-
4.	BOD (mg/l)	1.4	4.3	2
5.	Total Hardness(mg/l)	204.1	564.6	300

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	6.84	7.83	6.5 – 8.5	NR
2.	Chloride	212.79	332.21	500	2000
3.	Total Hardness (mg/l)	210	584	200	600
4.	Sulphate	53.59	317.14	200	400
5.	TDS	680	1583	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

Assessment of soil characteristics is of paramount importance since the vegetation growth, agricultural practices and production is directly related to the soil fertility and quality. Soil sampling was carried out at 8 locations in the study area.

Table-26 Summary of Soil Quality

S.No	Parameters	Minimum	Maximum
1.	pH	6.95	8.47
3.	Nitrogen (%)	0.00939	0.01327

4.	Phosphorus (mg/kg)	BLQ	8.49
5.	Potassium (mg/kg)	2.03	8.78

9. WASTE HANDLING

9.1 Solid Waste Management

The municipal solid waste generation and management details are given in **Table-27**.

Table-27 Municipal Solid Waste generation & Management

S. No	Type	Quantity Kg/day	Disposal method
1	Organic	8.1	Municipal bin
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 its mode of disposal are detailed in **Table-28**.

Table-28 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 recyclers

10. POST PROJECT MONITORING

Post Project Environmental Monitoring

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

Table-29 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 (one in up wind and one 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)	Once every season	Ambient Equivalent continuous Sound Pressure Levels (Leq) at

		area)		day and Night time.
4	Exhaust from DG set	Stack of DG set	Quarterly	PM ₁₀ , PM _{2.5} , SO ₂ , and NO ₂
5	Soil	Two Locations within the Project Site	Yearly Once	Physico chemical properties, Nutrients, Heavy metals
6	Terrestrial Ecology	Within 10km around the project	Once in three years	Symptoms of injuries on plants
7	Surface/ Ground water quality	Two Locations within the study area	Yearly Once	As per ISO 10500 Standard parameters and IS 2296:1992 Standards

11. CONCLUSION

The “**Proposed Ajjanahalli Black granite quarry over an extent of 17.50.0Ha**” 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, vibration, 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 measures like 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.