EXECUTIVE SUMMARY

FOR OBTAINING

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

"B1" CATEGORY (Cluster) – MINOR MINERAL – CLUSTER –

PATTA LAND - EXISTING QUARRY

THIRU. K. PARAMASIVAM BLACK GRANITE QUARRY

Cluster Extent – 22.28.0 Ha

Project Proponent

THIRU. K. PARAMASIVAM,
S/o. Krishnasamy Gounder,
No. 135, Mullai nagar,
Old Bus Stand Road , Perundurai,
Erode District – 638 052.

PROJECT LOCATION	PROPOSED PRODUCTION
407/3 (Part) Extent: 1.00.0 Ha Siruvalai Village, Vikkiravandi Taluk, Viluppuram District, Tamil Nadu State.	**Reserves:** 34,955m3 of ROM (Granite Recovery @ 20% is 6,991m3) Annual Peak Production Capacity - 7,270m3 of ROM Proposed Depth = 30m(2m Topsoil + 3m Weathered rock +25m Black Granite)

ToR obtained vide

File No. 11004, Identification No. TO24B0108TN5140496N Dated: 10.08.2024

Environmental Consultant
GEO EXPLORATION AND MINING SOLUTIONS
Old No. 260-B, New No. 17,
Advaitha Ashram Road, Alagapuram,
Salem – 636 004, Tamil Nadu, India
Accredited for sector 1 Cat 'A', sector 31 & 38 Cat 'B'
Certificate No : NABET/EIA/2225/RA 0276
Phone: 0427-2431989,
Email: infogeoexploration@gmail.com
Web: www.gemssalem.com

Laboratory
EHS 360 LABS PRIVATE LIMITED,
10/2 Ground floor, 50th street, 7th Avenue,
Ashok Nagar, Chennai – 600 083.

Baseline Monitoring Period

MARCH to MAY 2024

SEPTEMBER 2024

* Calculated as per MoEF & CC Notification – S.O. 2269(E) Dated: 01.07.2016

K. Paramasivam

1. PROJECT DESCRIPTION

The Proposed Black Granite Quarry requires Environmental Clearance. There are 1 proposed and 1 existing quarry forming a cluster; calculated as per MoEF & CC Notification S.O. 2269(E) Dated 1st July 2016 and the total extent of cluster is 22.28.0 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..

1.1 DETAILS OF PROJECT PROPONENT –

PROPOSAL	
Name of the Project Proponent	**Thiru. K. Paramasivam,**
Address	S/o. Krishnasamy Gounder, No. 135, Mullai Nagar, Old Bus Stand Road, Perundurai, Erode District – 638 052.
Mobile	+91 94437 14257
EMail	esteemgranites@hotmail.com
Aadhar No	4018 9360 9432
Status	Individual

Source: Approved Mining Plan of Proposal

1.2 QUARRY DETAILS WITHIN 500 M RADIUS

PROPOSED QUARRY				
CODE	**Name of the Owner**	**S.F. Nos**	**Extent**	**Status**
P-1	**Thiru. K. Paramasivam,** S/o. Krishnasamy Gounder, No. 135, Mullai Nagar, Old Bus Stand Road, Perundurai, Erode District – 638 052.	407/3 (Part)	1.00.0	File No. 11004, Identification No. TO24B0108TN51404 96N Dated: 10.08.2024
P-2	Tvl. TAMIN Ltd., 37, Kamarajar Salai, Chepauk, Chennai–5	170/1 (P)	20.28.0	-
EXISTING QUARRY				
E1	Thiru. K. Paramasivam, S.F. No. 407/3, Siruvalai Vilage, Villupuram District.	407/3 (P)	1.00.0	09.01.2006 to 08.01.2026
		Total	**22.28.0 Ha**	
TOTAL CLUSTER EXTENT			**22.28.0 Ha Cluster Quarry**	

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

IC. Palanisamy

1.3 SALIENT FEATURES OF THE PROPOSAL

DESCRIPTION OF THE PROJECT

Name of the Quarry		Thiru. K. Paramasivam Black Granite quarry
SF.no		407/3 (Part)
Extent		1.00.0 Ha
Village & Taluk		Siruvalai Village, Vikkiravandi Taluk
Lease period		20 years
1st Scheme of Mining Plan Period		5 Years
Life of the Mine		5 years
Existing Depth		20m
Previous History and CCR		Previous Mining plan period – 2019 -20 to 2023-24 EC.No: Lr. No. DEIAA-VPM-TN/F.No. 18015/Ec. No.02/2018 Dated 4.12.2018 CCR Letter No: E.P/12.1/2024-25/SEIAA/12/TN/1055 Dated: 15.07.2024
Land use classification		It is a Patta land, Classified as Punjai and the entire land is covered by Granite boulders and sheet rock.
Previous lease particulars		It is a Patta land, jointly registered in the name of Thiru. K. Paramasivam and Tmt. R. Shanthi, vide patta No. 933 both the pattadhar and lessee signed in the lease agreement while execution of lease deed.
Proposed Depth for five years plan period		30m(2m Topsoil + 3m Weathered rock + 25m Black Granite)
Ultimate depth of Mining		35m (2m Topsoil +3m Weathered rock + 30m Black Granite)
Existing Pit Dimension		172m (L) X 34m (W) X 20m (D)
Ultimate Pit Dimension		175m (L) X 43m (W) X 35m (D)
Toposheet No		57 – P/08
Latitude between		12°02'01.31"N to 12°02'05.11"N
Longitude between		79°25'56.77"E to 79°26'03.51"E
Topography		The area is situated in flat terrain. The gradient is gentle towards South Eastern side and altitude of the area is 80m above from MSL. The Black granite is covered with 2m thickness of Reddish soil.
Ground water level		Ground water occurance in the area is about 53m below from the ground level.
Machinery proposed	Jackhammer	6
	Compressor	2
	Excavator	2
	Tipper	2
	Diesel Generator	2
	Diamond wire saw	1
	Crawl Crane	1
Proposed manpower deployment		35
Project cost		Rs.2,94,79,000/-
EMP Cost		Rs. 3,80,000/-
Total Project Cost		Rs. 2,98,59,000/-
CER cost		Rs. 5,00,000/-
Nearby Water Bodies	Odai	140m - East
	Kuttai	410m - SW
	Tank	510m - NE
	Periya Eri	900m - West
	Tank	1km - East
	Tank	2.2km - SE
	Anniyur Lake	4.8km - NW
	Pambai Aaru	6.5km - SW

	Pappanapattu Eri	7.3km - SE
Nearest Habitation	530m - East	
Nearest Reserve Forest	Odayanatham R.F – 9.7 Km – NW	
Nearest Wild Life Sanctuary	Oussudu Lake Birds Sanctuary – 34.5Km – SE	

Source: Approved Mining Plan

1.4 JURISDICATION DETAILS

- Proponent applied for Black Granite Quarry on 05.10.2017.
- Lease granted vide G.O. Number G.O. (3D) No. 50 Industries (MMB.2) Dated 18.12.2018 for a period of 20 years (18.01.2019 to 17.01.2039)
- The Mining plan was prepared for the period of 5 Years. The Mining Plan was approved by the State Geology and Mining Department, Guindy, Chennai vide letter Letter Lr. No. 3645/MM5/2018 Dated 01.10.2018. The Mining plan period is 2019-20 to 2023-24
- 1st Scheme of Quarrying approved letter RC. No. 7780/MM4/2023 Dated 16.12.2023 for a period of five years (2024-25 to 2028-29).
- Proponent applied for Terms of Reference vide Proposal No. SIA/TN/MIN/460034/2024, dated: 27.01.2024.

SITE CONNECTIVITY TO THE PROJECT AREA

Nearest Roadway	National Highway – Viluppuram – Tiruvannamalai (NH-38) –3km – South State Highway – Viluppuram – Gingee (SH - 4) – 4km – North East
Nearest Town	Viluppuram - 12km – South East
Nearest Railway Station	Viluppuram Railway Station – 12Km – South East
Nearest Airport	Chennai Airport – 131km – North East
Seaport	Chennai Seaport– 149km – North East
Interstate Boundary	Puducherry Interstate Boundary – 20.5Km – South East

Source: Survey of India Toposheet

LAND USE PATTERN OF THE LEASE APPLIED AREA

Description	*Present Area (Ha)*	*Area to be required during this Scheme period (Ha)*	*Area at the end of life of quarry(Ha)*
Area under Quarry	0.58.13	0.02.60	0.69.70
Waste dump	0.32.78	Nil	# Backfilled
Site Services	*Nil	*Nil	*Nil
Roads	0.02.00	Nil	0.02.00
Green Belt	Nil @ (0.02.00	Nil @ (0.26.30)	0.28.30
Stocking Blocks	0.05.09	0..02.49	Nil
Total	**1.00.0**	**0.05.09**	**1.00.0**

Source: Approved Mining Plans of Proposal

OPERATIONAL DETAILS OF LEASE APPLIED AREA

Description	Details
Geological Resources ROM	2,30,845
Granite Recovery (20 % in m^3)	46,169
Granite Waste (80 % in m^3)	1,84,676
Weathered rock(m^3)	8,081
Side Burden(m^3)	39,625
Top Soil in m^3	4,114
Mineable Reserves ROM	79,280
Granite Recovery (20 % in m^3)	15,856
Granite Waste (80 % in m^3)	63,424
Weathered rock (m^3)	4,366
Top Soil in m^3	1,140
Proposed Production for five years plan period ROM	34,955
Granite Recovery (20% in m^3)	6,991
Granite Waste (80% in m^3)	27,964
Weathered rock(m^3)	3,123
Top Soil in m^3	208
Number of Working Days	300
Production of ROM per day in five-year plan period	24
Production of Granite per day	5
Total Waste per day (Granite waste)	19
No of Lorry Loads per day for Transportation to Granite cutting units	1
No of Lorry loads for dump	2

Source: proposed mining plan

K. Paramasivam

FIGURE – 1: GOOGLE IMAGE OF THE PROJECT AREA

Source: Google Earth Imagery

FIGURE – 2: SATELLITE IMAGERY CLUSTER QUARRIES

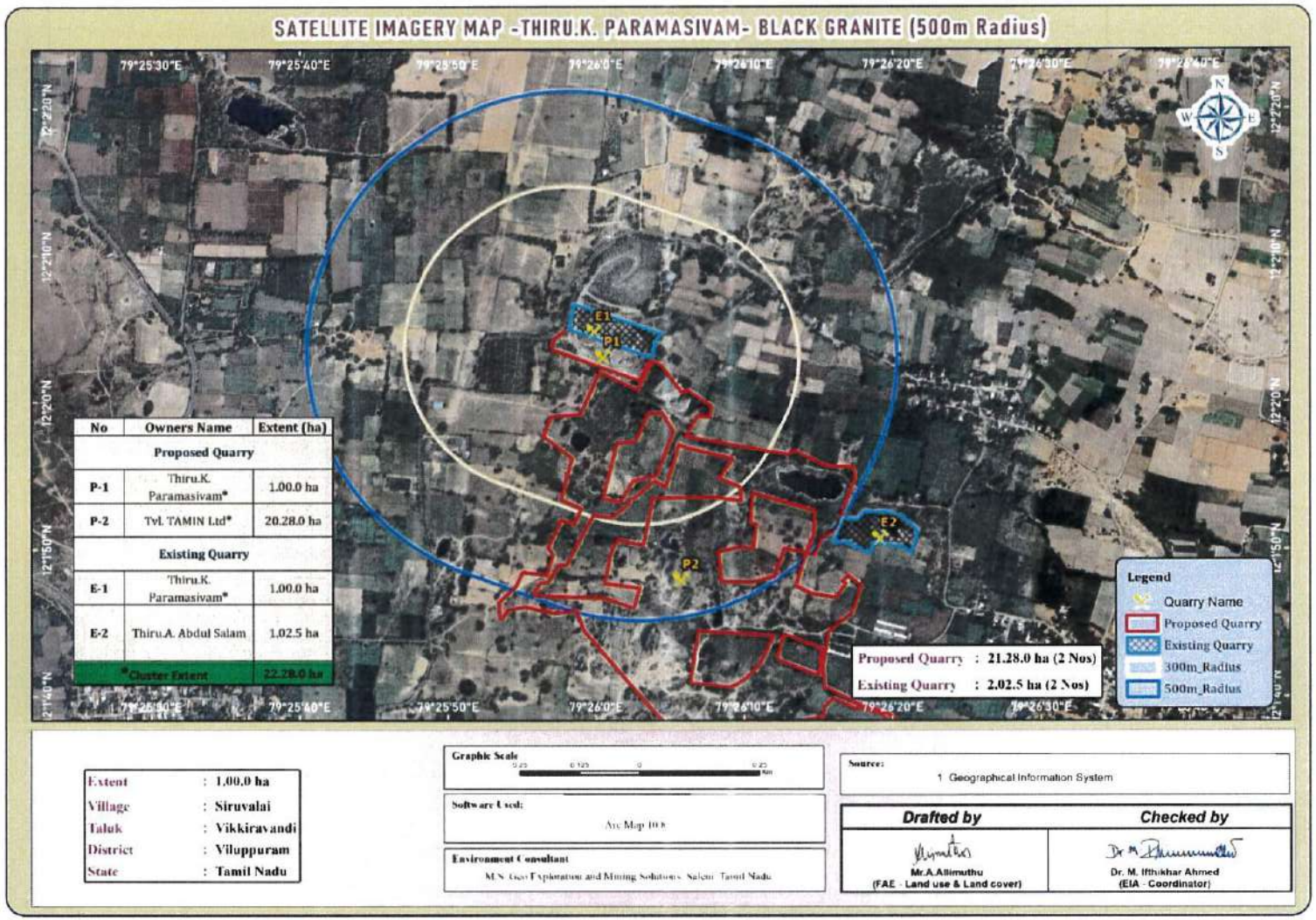


FIGURE 3: TOPOSHEET MAP OF THE STUDY AREA 10 KM RADIUS

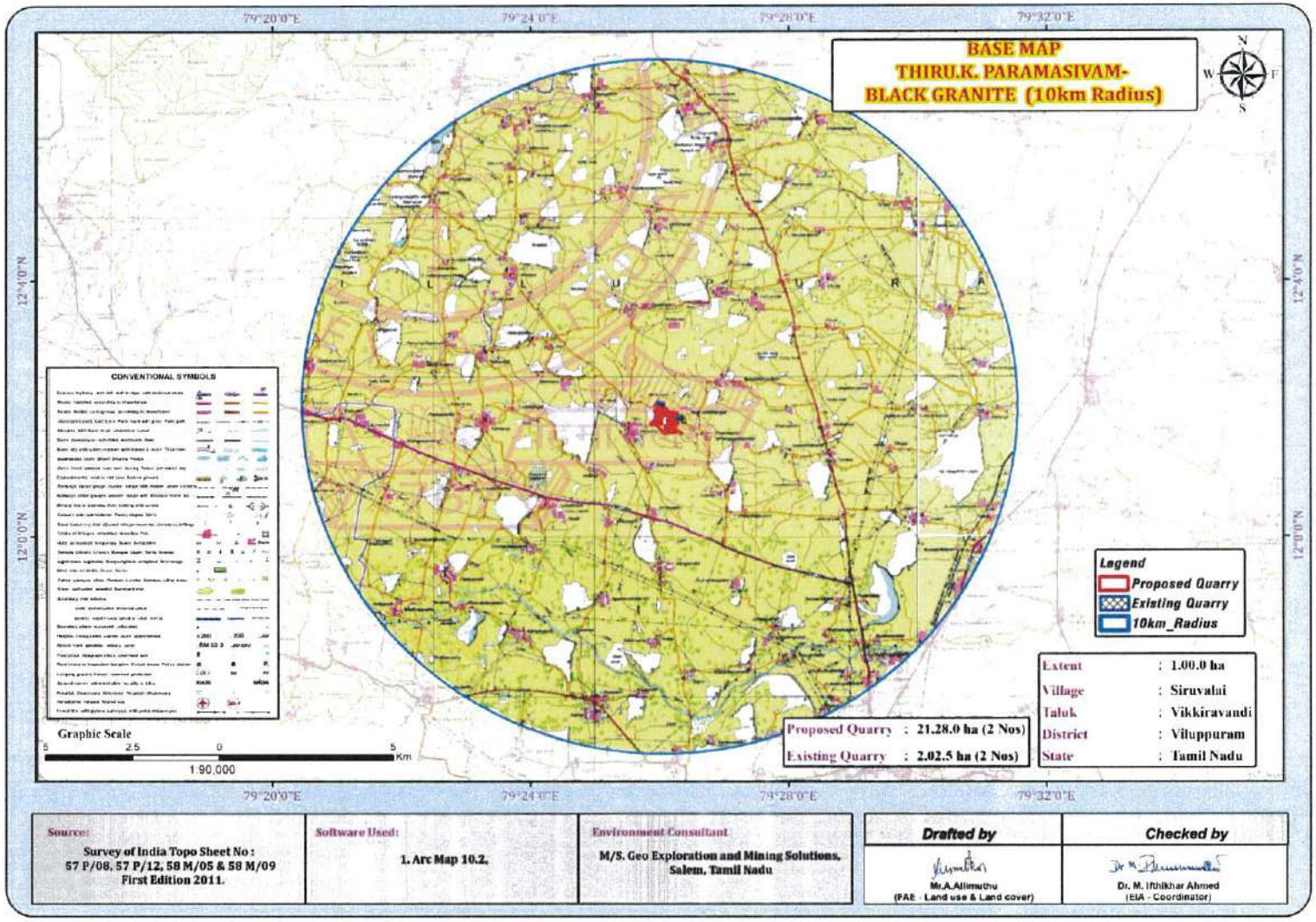
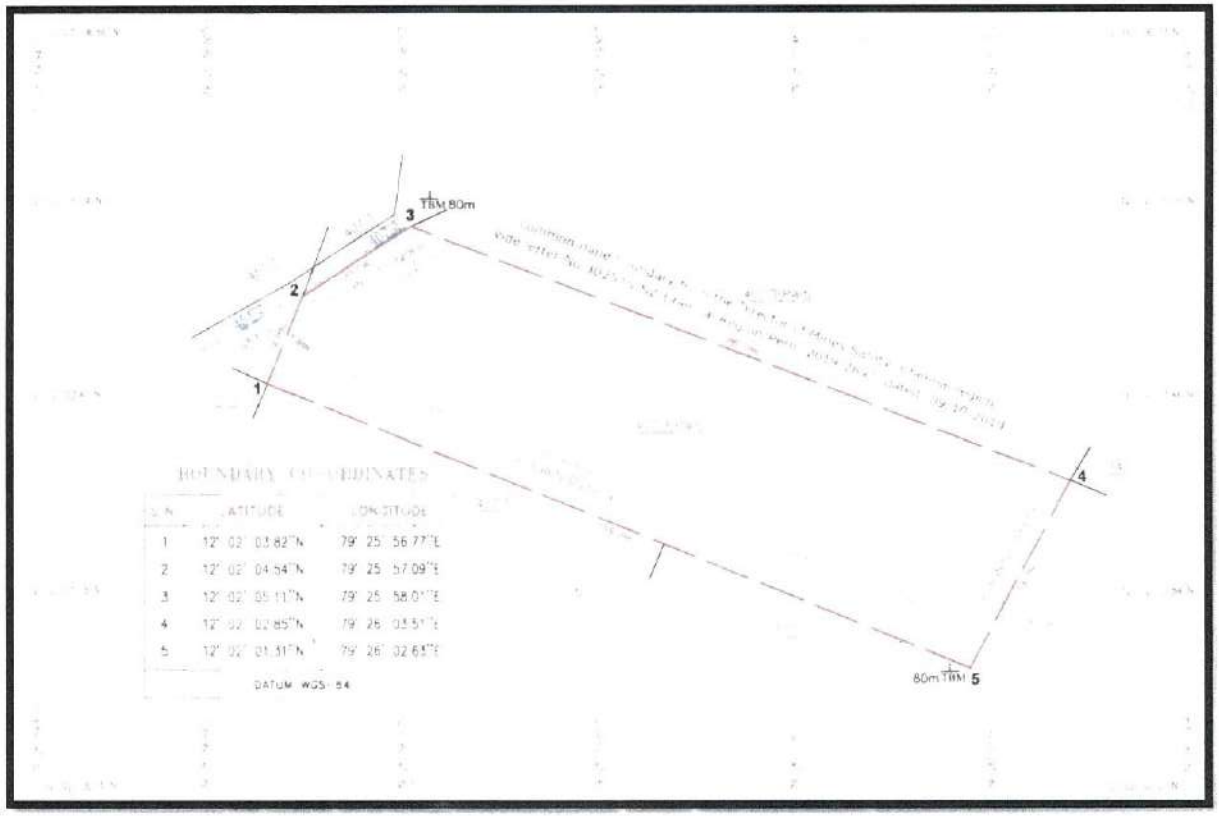


FIGURE 4: QUARRY LEASE PLAN / SURFACE PLANN



Source: Approved Mining Plan

FIGURE 5: PROJECT SITE PHOTOGRPAHS

FIGURE 2.2: FENCING AND PLANTATION PHOTOGRAPHS

PROPOSED MACHINERY DEPLOYMENT

Drilling Equipment's					
Type	No of Unit	Dia of Hole mm	Size capacity	Make	Motive Power
Jack Hammer	6	32	1.2m to 6m	Atlas Copco	Compressed air
Compressor	2	-	450/150psa	Atlas Copco	Diesel drive
Diamond Wire Saw	1	-	20m³/day	Optima	Diesel Generator
Diesel Generator	2	-	125kva	Kirloskar	Diesel

Loading Equipment				
Type	No of Unit	Capacity	Make	Motive Power
Crawler Crane	1	855	Tata	Diesel Drive
Excavator	2	220	Tata Hitachi	Diesel Drive

Haulage within the Mine & Transport Equipment				
Type	No of Unit	Capacity	Make	Motive Power
Tipper	2	20 tonnes	Ashoke Leyland	Diesel Drive

Source: Approved Mining Plans

ULTIMATE PIT DIMENSION

Length in m	Width in m	Depth in m
175	43	35

Source: Approved Mining Plan

2.0 DESCRIPTION OF THE ENVIRONMENT

Field monitoring studies to evaluate the base line status of the project site were carried out during March-May 2024 as per CPCB guidelines. Environmental Monitoring data has been collected with reference to proposed mine by EHS 360 Lab Private Limited, – An accredited by ISO/IEC 17025:2017 (NABL).

2.1 ENVIRONMENT MONITORING ATTRIBUTES

Attribute	**Parameters**	**Frequency of Monitoring**	**No. of Locations**	**Protocol**
Land-use Land cover	Land-use Pattern within 10 km radius of the study area	Data from census handbook 2011 and from the satellite imagery	Study Area	Satellite Imagery Primary Survey
*Soil	Physio - Chemical Characteristics	Once during the study period	6 (1 core & 5buffer zone)	IS 2720 Agriculture Handbook - Indian Council of Agriculture Research, New Delhi
*Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study period	6 (2 surface water & 4 ground water)	IS 10500& CPCB Standards
Meteorology	Wind Speed Wind Direction Temperature Cloud cover Dry bulb temperature Rainfall	1 Hourly Continuous Mechanical/Automatic Weather Station	1	Site specific primary data & Secondary Data from IMD Station
*Ambient Air Quality	PM10 PM2.5 SO2 NOX Fugitive Dust	24 hourly twice a week (Mar–May2024)	7 (1 core & 6 buffer)	IS 5182 Part 1-23 National Ambient Air Quality Standards, CPCB

*Noise Levels	Ambient Noise	Hourly observation for 24 Hours per location	7 (1 core & 6 buffer zone)	IS 9989 As per CPCB Guidelines
Ecology	Existing Flora and Fauna	Through field visit during the study period	Study Area	Primary Survey by Quadrate & Transect Study Secondary Data – Forest Working Plan
Socio Economic Aspects	Socio–Economic Characteristics, Population Statistics and Existing Infrastructure in the study area	Site Visit & Census Handbook, 2011	Study Area	Primary Survey, census handbook & need based assessments.

2.2 LAND ENVIRONMENT

S.No	CLASSIFICATION	AREA_HA	AREA_%
	BUILTUP		
1	RURAL	809.68	2.54
2	URBAN	47.58	0.15
3	MINING	37.58	0.12
	AGRICULTURAL LAND		
4	CROP LAND	20892.19	65.50
5	FALLOW LAND	3433.91	10.77
6	PLANTATION	2828.35	8.87
	BARREN/WASTE LANDS		
7	SCRUB LAND	755.02	2.37
	WETLANDS/ WATER BODIES		
8	WATER BODIES/LAKE	3092.20	9.69
TOTAL		31896.51	100.00

- The 10 km radius study area mainly comprises of Agriculture land (including Crop, Fallow & Plantation lnad) land accounting of 85.14% of the total study area

- Water Bodies such as ponds/ lakes comprises of 9.69% of the core and buffer area with in 1km Odai – 140m – East, Kuttai – 410m – SW, Tank – 510m NE & Periya Eri – 90m – West

- The Scrub land accounts of 2.37%. As per the primary survey, it was observed the scrub land is mainly occupied by the stony waste and left-over domestic waste generated by the nearby areas

- 0.12% of the total study area is occupied by the mine area. The area occupied by Mainly Black granite of the total buffer area. As also observed within the primary survey, the 10 km buffer area is also occupied by the medium scaled granite and marble and small Brick kiln industries also located in the study area

- 0.15% of the area is covered under the human Settlement. The nearest village is placed 530m on East side from the project site.

2.3 SOIL ENVIRONMENT

Physical Characteristics –

The physical properties of the soil samples were examined for texture, bulk density and water holding capacity. The Bulk Density of Soils in the study area varied between 0.99 to 1.11 g/cm3. The Water Holding Capacity between 42.2-48.3%.

Chemical Characteristics –

- The nature of soil is slightly alkaline to strongly alkaline with pH range 7.65 to 8.21

- The available Nitrogen content range between 410 – 470.1 mg/kg
- The available Phosphorus content range between 2.04 – 4.56 mg/kg
- The available Potassium range between 0.91-32 meq/l
- Whereas, the micronutrient as zinc (Zn) and iron (Fe) were found in the range of 1.05-5.5 mg/kg; 1.06-7.53mg/kg

2.4 WATER ENVIRONMENT

Surface Water

Ph:

The pH varied from 7.05 to 7.88 while turbidity found within the standards (Optimal pH range for sustainable aquatic life is 6.5 to 8.5 pH). .

Total Dissolved Solids:

Total Dissolved Solids varied from 451 to 506mg/l, the TDS mainly composed of carbonates, bicarbonates, Chlorides, phosphates and nitrates of calcium, magnesium, sodium and other organic matter. .

Other parameters:

Chloride varied between 73.5 to 80.2 mg/l. Nitrates varied from 9.2 to 9.52mg/l while sulphates varied from 45 to 51.5mg/l.

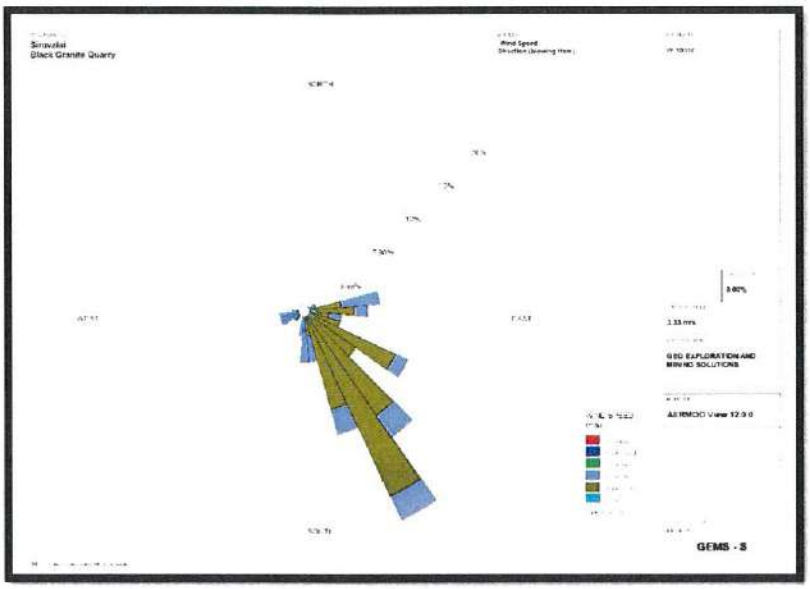
Ground Water

The pH of the water samples collected ranged from 6.97 to 7.97 and within the acceptable limit of 6.5 to 8.5. pH, Sulphates and Chlorides of water samples from all the sources are within the limits as per the Standard. On Turbidity, the water samples meet the requirement. Total Dissolved Solids were found in the range of 504-619mg/l in all samples. Total hardness varied between 167.17 – 195.47mg/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.

2.5 AIR ENVIRONMENT

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 proposed quarry forms the baseline information.

FIGURE – 6: WIND ROSE DIAGRAM



Interpretations & Conclusion

From the above datas, the concentration of main criteria pollutants has been observed that maximum concentration of PM10 is 45.6µg/m3 and minimum is 42.2µg/m3. The concentration of PM2.5 varies from 19.4 – 24.9µg/m3. SO2 concentration level ranged from 6.1-8.4µg/m3 and NOx concentration ranged from 23.2 – 26.7 µg/m3. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

2.6 NOISE ENVIRONMENT

Ambient noise levels were measured at 7 (Seven) locations around the proposed and existing project area. Noise levels recorded in core zone during day time were from 41.0dB (A) Leq and during night time were from 38.2dB (A) Leq. Noise levels recorded in buffer zone during day time were from 37.8-41.8dB (A) Leq and during night time were from 35.4-36.8dB (A) Leq.

2.7 ECOLOGICAL ENVIRONMENT

The study involved in the collection of primary data by conducting a survey in the field, examination of floral and faunal records in previously published reports and records. Analysis of the information is the view of the possible alteration in the environment of the project site. For the survey of fauna, both direct and indirect observation methods were used.

2.8 SOCIO ECONOMIC ENVIRONMENT

The socio-economic study of surveyed villages gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It is also found that a part of population is suffering from lack of permanent job to run their day-to-day life. Their expectation is to earn some income for their sustainability on a long-term basis. The proposed projects 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.

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3 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

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.

3.1 LAND ENVIRONMENT:

ANTICIPATED IMPACT

- 0.58.3Ha of the land will be under mining since the Permanent or temporary change on land use and land cover will occur.
- Movement of heavy vehicles sometimes cause problems to agricultural land, human habitations due to dust, noise and it also causes traffic hazards.
- Due to degradation of land by pitting the aesthetic environment of the core zone may be affected.
- Earthworks during the rainy season increase the potential for soil erosion and sediment laden water entering the water ways.

MITIGATION MEASURES

- The 0.58.3 Ha of the land will be converted into temporary reservoir which will full fill the water scarcity in the drought season and the nearby agriculture land will benefitted by the supply of water.
- About 500 Nos of trees will be planted in the lease area and approach road will retain the ecosystem
- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development in the production
- Construction of garland drains all around the quarry pits and construction of silt trap at strategic location in lower elevations to prevent erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area.
- Green belt development along the boundary within safety zone. The small quantity of water stored in the mined-out pit will be used for greenbelt.
- Thick plantation will be carried out on unutilized area, top benches of mined out pits, on safety barrier, etc.,
- Fencing will be constructed before starting the mining operation and it will be maintained in the conceptual stage Security will be posted round the clock, to prevent inherent entry of the public and cattle.

3.2 WATER ENVIRONMENT

ANTICIPATED IMPACT

- The major sources of water pollution normally associated due to mining and allied operations are:
  - Generation of waste water from vehicle washing.
  - Washouts from surface exposure or working areas
  - Domestic sewage
  - Disturbance to drainage course in the project area
  - Mine Pit water discharge
- Increase in sediment load during monsoon in downstream of lease area
- This being a mining project, there will be no process effluent. Waste from washing of machinery may result in discharge of Oil & grease, suspended solids.
- The sewage from soak pit may percolate to the ground water table and contaminate it.
- Surface drainage may be affected due to Mining
- Abstraction of water may lead to depletion of water table
- 2.4 KLD water will be utilized for the quarrying operation

MITIGATION MEASURES

- Water for the quarrying operation such as sprinkling on haul roads, Greenbelt development will be sourced from the lower part of the mine pit which is specifically allotted to collect the rain water.

- Garland drain, settling tank will be constructed along the proposed mining lease area. The Garland drain will be connected to settling tank and sediments will be trapped in the settling traps and only clear water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judicially utilize the rainwater as part of rainwater harvesting system.
- Periodic (every 6 month once) analysis of quarry pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits.
- Waste water discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
- De-silting will be carried out before and immediately after the monsoon season.

3.3 AIR ENVIRONMENT

ANTICIPATED IMPACT

- During mining, at various stages activities such as excavation, drilling, blasting, and transportation of materials, particular matter (PM), gases such as Sulphur dioxide, oxides of Nitrogen from vehicular exhaust are the main air pollutants.
- Emissions of noxious gases due to incomplete detonation of explosive may sometimes pollute the air.
- The fugitive dust released from the mining operations may cause effect on the mine workers who are directly exposed to the fugitive dust.
- Simultaneously, the air-borne dust may travel to longer distances and settle in the villages located near the mine lease area.

MITIGATION MEASURES

- 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.
- 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
- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Water sprinkling on haul roads & loading points will be carried out twice a day
- Dust mask will be provided to the workers and their use will be strictly monitored
- Over loading of tippers will be avoided to prevent spillage.
- Planting of trees all along main mine haul roads and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project areas
- Ambient Air Quality Monitoring will be conducted six months once to assess effectiveness of mitigation measures proposed.

3.4 NOISE ENVIRONMENT

ANTICIPATED IMPACT

Noise pollution poses a major health risk to the mine workers. Following are the sources of noise in the existing open cast mine project are being observed such as Drilling, & Blasting, Loading and during movement of vehicles.

MITIGATION MEASURES

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

3.5 BIOLOGICAL ENVIRONMENT

ANTICIPATED IMPACT

There are no National Park and Archaeological monuments within project area. There are no migratory corridors, migratory avian-fauna, rare endemic and endangered species. There are no wild animals in the area. No breeding and nesting site were identified in project site. No National Park and Wildlife Sanctuary found within 10km radius. The dumps / bunds around the mine itself act as a good barrier for entry of stray animals. In the post mining stage, barbed wire fencing is proposed all around the mined-out void to prevent fall of animals in the mine pits.

MITIGATION MEASURES

To reduce the adverse effects on natural flora/fauna status of the area due to deposition of dust generated from mining operations, water sprinkling and water spraying systems will be ensured in all dust prone areas to arrest dust generation. Methodical and well-planned plantation scheme will be carried out.

3.6 SOCIO ECONOMIC ENVIRONMENT

ANTICIPATED IMPACT

Employment generation due to the project will provide direct employment for about 20 persons.

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.
- Appropriate air pollution control measure will be taken to minimize the environmental impact within the core zone.
- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules.
- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, DMF, NMET etc, from this project directly and indirectly.

K. Paramasivam

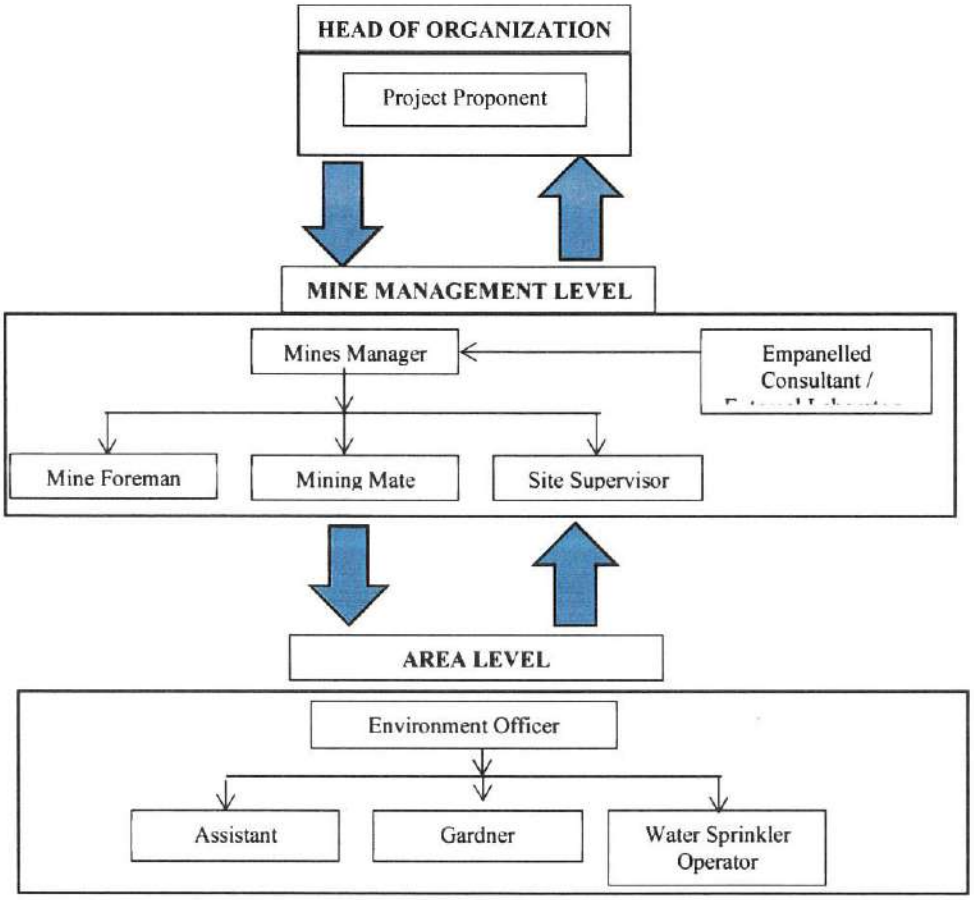
4 ENVIRONMENT MONITORING PROGRAM

Usually, an impact assessment study is carried over short period of time and the data cannot bring out all variations induced by natural or human activities. Hence regular monitoring program of Environmental parameters is essential to take into account the changes in the Environment.

The Objective of Monitoring -

- To check or assess the efficiency of the controlling measures;
- To establish a data base for future impact assessment studies.

PROPOSED ENVIRONMENTAL MONITORING CELL



4.1 POST ENVIRONMENTAL CLEARANCE MONITORING SCHEDULE

S.No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, $PM_{2.5}$, PM_{10}, SO_2 and NO_x.
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	2 Locations (1SW & 1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms

4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting Operation	Peak Particle Velocity
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

5 ADDITIONAL STUDIES

5.1 RISK ASSESSMENT

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

The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening.

5.2 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:

- 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.

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	Proposed production Granite for five-year period	Production of Granite Per day in m^3	Weathered rock in Production m^3	Weathered rock per day in m^3	Topsoil in Production m^3	Topsoil per day in m^3	Number of Lorry loads per day (ROM)
P1	79,280	15,856	34,955	23	6,991	5	3,123	10	208	1	2
Total	79,280	15,856	34,955	23	6,991	5	3,123	10	208	1	2
E1	39,760	9,940	18,000	12	4,500	3	-	-	-	-	1
Total	39,760	9,940	18,000	12	4,500	3	-	-	-	-	1
Grand Total	1,19,040	25,796	52955	35	11,491	8	3,123	10	208	1	3

SOCIO ECONOMIC BENEFITS FROM 2 MINES

Location code	Employment	Project Cost	CER
P1	35	Rs. 2,94,79,000	5,00,000
E1	34	Rs. 2,06,29,000	5,00,000
Total	**69**	**Rs. 5,01,08,000/-**	**10,00,000/-**

EMPLOYMENT BENEFITS FROM 2 MINES

Description	Employment
P1	35
Total	**35**
E1	34
Total	**34**
Grand Total	**69**

A total of 35 people will get employment due to one proposed mines in cluster and 35 people are already employed at existing mines

GREENBELT DEVELOPMENT BENEFITS FROM 2 MINES

CODE	No of Trees proposed to be planted	Area Covered Sq.m	Name of the Species
P1	500	The safety zone along the boundary barrier has been identified to be utilized for Greenbelt development	Neem, Pinnata, Pongamia, Ashoka etc.,
Total	**500**		
E1	500		
Total	**500**		
G.Total	**1,000**		

6 PROJECT BENEFITS

There is proposed project for Thiru. K. Paramasivam Black Granite Quarry village aims to Proposed production 34,955 (ROM for five year period) for Life of Mine of 11 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

7 ENVIRONMENT MANAGEMENT PLAN

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 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.

The Proponent Thiru K. Paramasivamwill –

- Meet the requirements of all laws, acts, regulations, and standards relevant to its operations and activities

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

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

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