

# EXECUTIVE SUMMARY

## FOR PROPOSED BLACK GRANITE

State	: Tamil Nadu	District	: Ranipet
Taluk	: Sholinghur	Village	: Kodakkal
SF No	: 1193/1(Part-15)	Extent	: 6.00.0Ha
Land Classification	:	Government Poramboke land	
Production capacity	:	18,015 M <sup>3</sup> RoM/annum	

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

### Project Proponent



## **TAMIL NADU MINERALS LIMITED**

**(A Government of Tamil Nadu Undertaking)**

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### EIA Consultant

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(Accrediated by NABL, NABET, MoEF)



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## EXECUTIVE SUMMARY

### 1.0 INTRODUCTION

**M/s. Tamil Nadu Minerals Limited** (An Undertaking of Government of Tamil Nadu) has been established in the year 1978 to carryout systematic mining and development of different minerals all over the state. Ever since its inception, TAMIN has developed expertise in the mining of granite dimensional stones of different varieties including black granite (Dolerite), Kashmir white (Leptynite), Paradiso (Migmatite gneiss), Green onyx (Syenite - porphyry) Red wave (Pink Feldspathic gneiss) Colombo Juparana (Pegmatitic granite gneiss of migmatitic origin), Raw silk (Yellow feldspathicLeptnite) and a number of other coloured granite varieties apart from other industrial minerals viz. quartz and feldspar, graphite, lime stone, silica sand, vermiculite, etc. TAMIN has also set up industrial units for processing the granite stones one each at Manali, Chennai and Madhepalli at Krishnagiri District respectively.

A Beneficiation plant for the beneficiation of graphite ore has been established close to Sivaganga graphite mine. An exfoliation plant for the processing of vermiculite mineral at Ambattur, Chennai has also been established. Further, TAMIN is the only Organization recognized by Bureau of Indian Standard for manufacture and supply of I.S. Sand all over the country.

TAMIN applied for fresh grant of quarrying lease for quarrying Black Granite over an extent of 6.00.0 Ha. In S.F. No.1193/1 (Part-15) of Kodakkal Village, SholinghurTaluk, Ranipet District, Tamil Nadu state for 20 years.

The Government of Tamil Nadu issued the precise area communication letter to furnish the approved Mining Plan under Rule, 8-C (3b) of Tamil Nadu Minor Mineral Concession Rules, 1959 vide letter No.014438/MME.1/2018-1,dated,11.02.2019. The Mining plan has been approved by the Directorate of Geology & Mining, vide letter No. 8590/MM5/2017, dated 18.05.2019.



As per Environmental Impact Assessment Notification, dated 14<sup>th</sup> September 2006 and its subsequent amendments from time to time, this project falls under "**1(a) Mining of Minerals**". This is green field project with the total extent of lease hold area of 6.00.0 Ha, as per the Hon'ble NGT order, dated: 04<sup>th</sup> September 2018 and MoEF&CC Office Memorandum on 12<sup>th</sup> December 2019 "the project falls under **Category B1**" for which EIA, EMP along with Public Hearing for obtaining Environmental Clearance (EC) from State Environmental Impact Assessment Authority is required.

**Table 1: Project Summary & Salient Features within 15km radius of the lease area boundary**

S. No	Particulars	Details
1	Latitude	13°04'45.02"N to 13°04'58.08"N
2	Longitude	79°25'22.22"E to 79°25'27.88"E
3	Site Elevation above MSL	≈304 AMSL
4	Topography	Hilly terrain
5	Land use of the site	Government Poramboke land
6	Survey No.	S.F.No.1193/1(Part-15)
7	Topo sheet No.	57 O/8
8	Location	Kodakkal Village, Sholinghur Taluk, Ranipet District, Tamil Nadu
9	Extent of lease area	6.00.0 Ha.
10	Quarry Lease period	20 Years
11	Peak yearly production capacity	Proposed production capacity of RoM around 18,015 M <sup>3</sup> / Annum (1,802 M <sup>3</sup> of recoverable production of granite per year)
12	Updated Mineable reserves	2,03,519 M <sup>3</sup> of ROM
13	Waste generation	Granite Waste: 81,009 M <sup>3</sup> ; S.B:13,998 M <sup>3</sup> for 5 years.
14	Granite waste ratio	1:1.055(M <sup>3</sup> : M <sup>3</sup> )
15	Method of mining	Semi Mechanized Open Cast mining
16	Bench parameters Bench Height & width Bench slope	6m & 6m Vertical slope is proposed
17	Life of Mine	11 years



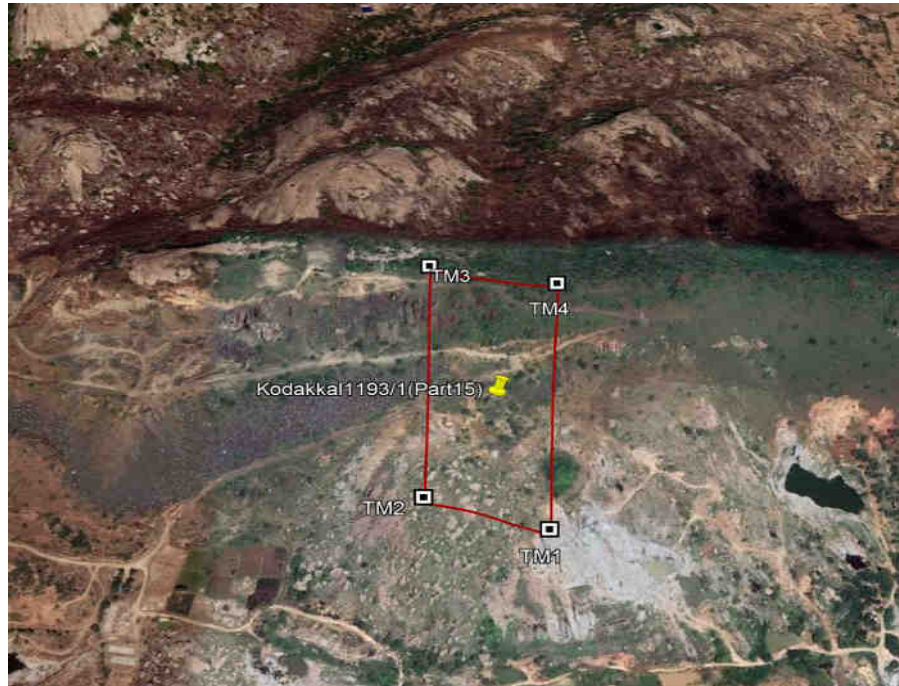
S. No	Particulars	Details
18	Water Requirement & Source	Water Requirement:- Drinking water & Domestic purpose : 0.5 KLD Wire Saw cutting : 0.3 KLD Dust suppression: 0.3 KLD Green belt:0.4 KLD Total:1.5 KLD Source : From Kodakkal Village Panchayat
19	Manpower	Direct:30 , Indirect about 20
20	Project Cost	100 Lakh
21	Nearest Highway	SH61 $\approx$ 2.2km (W) SH128 $\approx$ 1.50km (E)
22	Nearest Railway Station	Sholinghur Railway station $\approx$ 9.80 Km (SE) Walajah Railway station $\approx$ 13.80 Km (SW)
23	Nearest Airport	Tirupati Airport, Andhra Pradesh $\approx$ 62.90 km (NE) Chennai International Airport $\approx$ 82 km (SE)
24	Nearest Town / City	Town: Sholinghur, 4.35km, NW
25	Reservoir/Lake/River/Sea	Thakkankulam, 2.3 km, NE Nandhi River, 3,45km, NW VallimalaiEri, 2.55km, NW
26	Reserved/Protected Forests	Karadikuppam Reserve Forest, 6.1km, SE Ammur Reserve Forest, 7.45 km, SW Banavaram Reserve Forest, 8.95km, SE
27	State Boundary	Andhra Pradesh-Tamil Nadu State Boundary, 8.37km, NW
28	National parks/ Wildlife Sanctuaries	Nil with 10 km Radius
29	Archaeological Important Places	Nil with 10 km Radius
30	Defense Installations	Nil with 10 km Radius
31	Nearest Port	Nil with 10 km Radius
32	Seismic Zone	Zone-III (Least Active)

### 1.1 Environmental Sensitive Areas

There are no notified ecologically sensitive areas within 15km from project boundary. The Tamil Nadu State/Andhra Pradesh State boundary runs in North Westerly direction at about  $\approx$ 8.37km from the project boundary. Project doesn't attract the special conditions and general conditions as per EIA Notification.

## 1.2 Project Location

The total extent of the lease for this quarry is 6.00.0 Ha at S. F. No. 1193(Part-15) located at Kodakkal Village, Sholinghur Taluk, Ranipet District, Tamil Nadu. The project Latitude is  $13^{\circ}4'45.02''\text{N}$  to  $13^{\circ}4'58.08''\text{N}$  and longitude  $79^{\circ}25'22.22''\text{E}$  to  $79^{\circ}25'27.88''\text{E}$ . The site Elevation is above  $\sim 304$  m AMSL.



**Figure 1 Google Imagery of the lease area boundary**

## 2 PROJECT DESCRIPTION

### 2.1 Method of Mining- Open cast Working

Open cast semi mechanized mining with 6m vertical bench with a bench width of 6m has been proposed. The safety distance of 10 inner boundary of all along the boundaries of the lease area as well as the distance of 10m from the adjacent Government lands will be provided and maintained during the entire period of lease.

Under the regulation 106(2) (a) of the Metalliferous Mines Regulations, 1961, in all open cast workings in the hard ore body, the benches and sides should be properly benched and sloped. The bench height should not exceed  $60^{\circ}$  from horizontal.

Hence, it is proposed to obtain relaxation to the provisions of the above regulation from the Chief Inspector of Mines, for which necessary provision is available within the Regulation 106(2) (a). The production of Black granite dimensional stone in this mine involves the following methods typical for granite stone mining, in contrast to any other major mineral mining.

- 1) Splitting of rock mass of considerable volume from the parent sheet rock carefully avoiding any kind of damage in the form of cracks adopting the following methods.
  - a) Diamond wire cutting along the horizontal as well as two vertical sides parallel to strike and dip direction and the third vertical face will be a free face is liberated by conventional serial blasting.
  - b) Separation of the horizontal (bottom) and the vertical (length side) planes by serial blasting simultaneously along the above two planes by using 32mm dia. blast holes charged with mild explosive like gun powder or detonating cord. The process continued aiming at the liberation of huge volume of the granite body from the parent sheet rock is called Primary Cutting.

All the above process continued together aiming at the liberation of huge volume of the granite body from the parent sheet rock is called 'primary cutting'.

- 1) The secondary splitting into required size involves long hole drilling up to the bottom of the separated block and mild blasting along the required plans for which mostly rock breaking powder is used for splitting. It is chemically called as 'Calcium Hydroxide'  $\text{Ca}(\text{OH})_2$
- 2) Now-a-days the secondary splitting is carried out by the way of splitting and overturning cushion operational procedure. The procedure is by utilizing the compressed air available at the quarry at 7 to 8 bar pressure, initially (widening) splitting up to 15 to 18cms. Next by using super imposed cushion widening up to 80cms and overturning of the blocks.
- 3) Removing the defective portions and dressing into the dimensional blocks are done manually using feather and wedges and chiseling respectively by the labour that are skilled in this work.



### 2.1.1 Year-Wise Production for the First Five Years

In the mining lease area only 6.00.0-hectare area is available for mining and the Proposed production capacity of RoM around 18,015 M<sup>3</sup> / Annum (1,802 M<sup>3</sup> of recoverable production of granite per year). The year wise quantum of work proposed and the details of estimation of production quantity and generation of waste are furnished with reference to the year wise development/production plan.

**Table 2- Year-Wise Production for the First Five Years**

Year	Section	ROM(M <sup>3</sup> )	Recovery @ 10% (M <sup>3</sup> )	Granite waste @90 %(M <sup>3</sup> )	Side Burden
I	PQ-AB	17,993	1,799	16,194	1,536
II	PQ-CD	18,015	1,802	16,213	1,366
III	PQ-EF	17,996	1,800	16,196	3,483
IV	PQ-CD	18,000	1,800	16,200	4,808
V	PQ-AB	18,007	1,801	16,206	2,805
<b>Total</b>		<b>90,011</b>	<b>9,002</b>	<b>81,009</b>	<b>13,998</b>

- Total Proposed ROM: 90,011 M<sup>3</sup>
- Total Recoverable Reserves @ 10 %:9,002 M<sup>3</sup>
- Granite Waste @ 90%: 81,009 M<sup>3</sup>
- Top Soil: Nil
- Side Burden: 13,998 M<sup>3</sup>
- Granite: Waste Ratio: 1:1.055

**Table 3- Mineable Reserves**

Bench	Measurements			ROM M <sup>3</sup> )	Saleable Reserves @ 10% (M <sup>3</sup> )	Granite waste @ 90 %(M <sup>3</sup> )
	Length m	Width m	Depth m			
Sections PQ-AB, CD, & EF						
I	154.00	53+47+31/3	6+6+4.5/3	36,988	3,699	33,289
II	142.00	56+50+26/3	6.00	37,488	3,749	33,739
III	130.00	63+50+21/3	6.00	34,843	3,484	31,359
IV	118.00	63+47+16/3	6.00	29,736	2,974	26,762
V	106.00	62+42+11/3	6.00	24,378	2,438	21,940
VI	94.00	58+37+7/3	6.00	19,176	1,917	17,259
VII	82.00	53+32/2	6.00	20,910	2,091	18,819
<b>Total</b>				<b>2,03,519</b>	<b>20,352</b>	<b>1,83,167</b>

- Total Mineable Reserves: 2, 03,519 M<sup>3</sup>
- Total Recoverable Reserves @ 10%:20,352 M<sup>3</sup>
- Granite Waste @90%: 1, 83,167 M<sup>3</sup>
- Top Soil: Nil
- Side Burden: 1, 13,021 M<sup>3</sup>
- Granite: Waste Ratio: 1:1.455



## 2.2 Project Requirements

### 2.2.1 Land Requirement

The total extent area of the lease for this quarry is 6.00.0 Ha at S. F. No. 1193 (Part-15) located at Kodakkal Village, Sholinghur Taluk, Ranipet District. Quarry Land is classified as Government Poramboke land and leased to Tamil Nadu Minerals Limited (TAMIN).

**Table 4- Land use Pattern of the Quarry**

Description	Present Area (Ha.)	Area to be required during the mining plan period (Ha.)	Area at the end of life of the quarry (Ha.)
Area under Quarry	Nil	0.93.0	1.39.5
Waste Dump	Nil	1.56.5	4.10.5
Infrastructure	Nil	0.00.5	0.00.5
Road	Nil	0.07.5	0.10.0
Green Belt	Nil	0.06.5	0.20.0
Un-utilized Area	6.00.0	3.36.0	0.19.5
<b>Total</b>	<b>6.00.0</b>	<b>6.00.0</b>	<b>6.00.0</b>

### 2.2.2 Man Power Requirement

As per MMR 1961, Mines officials & other competent persons are deployed for effective supervision of mines. Mostly supervisors & skilled persons are required for looking after various aspects of operations including mining, loading & quality control etc. Details of manpower deployed in mine are as given below in Table – 5

**Table 5- Manpower Requirement**

S. No.	Designation	No.s
1.	Geologist / Agent (M.Sc. Degree Qualification)	1
2.	Manager (Second class Manager certificate of competency restricted)	1
3.	Mining Mate cum Blaster	1
4.	Diesel Mechanic	1
5.	Operators & Drivers	7
6.	Workers (Skilled, semiskilled & unskilled)	20
<b>Total</b>		<b>30</b>



### 2.2.3 Water Requirement

Total water requirement for the mining project is 1.5 KLD. Total water required for the mine will be met from tankers. Water will be required for the Domestic purpose, Dust Suppression & Green belt development etc.

**Table 6- Manpower Requirement**

S.No.	Description	Quantity (KLD)
1	Drinking and domestic	0.5
2	wire saw cutting purpose	0.3
3	Dust suppression	0.3
4	Green belt/plantation	0.4
<b>Total</b>		<b>1.5</b>

### 2.2.4 Solid Waste Management

Total Solid waste generation is 12 Kg/day. The Biodegradable waste of 7.2Kg/day which will be disposed to the local municipality and the about 4.8Kg/day of non-biodegradable will be disposed to the PCB authorized vendors.

### 2.3 Project Cost

Project cost of the project is shown in **Table 7**.

**Table 7- Project cost of the project**

S.No	Description of the Cost	Cost in Lakhs
<b>I. Fixed Asset Cost</b>		
	Land Cost (Lease)	Nil
	Labours Shed	50,000
1	Sanitary facilities	50,000
	Fencing Cost	1,25,000
	Sub Total	2,25,000
<b>II. Variable cost</b>		
	Operational Cost	
1	Machineries	95,67,000
	Sub Total	95,67,000
	EMP Cost	
	Afforestation	30,000
	Water Sprinkling	50,000
2	Water Quality Test	25,000
	Air Quality Test	25,000
	Noise/Vibration Test	25,000
	Sub Total	1, 55, 000
3	CSR Activities	50,000
<b>Grand Total</b>		<b>99,97,000/- ≈ Rs. 1 Crore</b>

### **3 BASELINE ENVIRONMENT**

#### **3.1 Meteorological Environment**

The micro-meteorological conditions during the study period for hourly data of wind speed, wind direction and temperature were recorded at the project site. The nearest Indian Meteorological Department (IMD) station is Vellore, the annually determined wind direction during the December, January & February is North east & East.

During the study period (December 2019 –February 2020), maximum temperature is 38°C. Minimum temperature is 21°C. Relative humidity is 29% to 96%. Average winds speed in the study period is 15.35Kmph. Predominant wind direction is from North East.

#### **3.2 Ambient Air Quality**

Maximum concentrations of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, CO, Pb, O<sub>3</sub>, NH<sub>3</sub>, C<sub>6</sub>H<sub>6</sub>, C<sub>20</sub>H<sub>12</sub>, As, Ni, are well within the National Ambient Air Quality Standards at all monitoring locations during the study period. The ambient air quality has been monitored at six (6) locations for 12 parameters as per NAAQS, 2009 and free Silica within the study area. The average baseline levels of PM<sub>10</sub>(39.7 to 58.4 µg/m<sup>3</sup>), PM<sub>2.5</sub>(17.8 to 30.7 µg/m<sup>3</sup>), SO<sub>2</sub>(<5 µg/m<sup>3</sup> to 8.6 µg/m<sup>3</sup>), NO<sub>2</sub>(8.1 to 17.3 µg/m<sup>3</sup>), CO (<0.1 to 0.23 mg/m<sup>3</sup>), O<sub>3</sub>(<5 to 11.4 µg/m<sup>3</sup>) were observed within the study area. Others parameters were Below Limit of Quantification. All the parameters are well within the National Ambient Air Quality Standards at all monitoring locations during the study period.

#### **3.3 Noise Quality**

The existing ambient noise levels were monitored using precision noise level meter in and around the project site at 10 km radius at 6 locations during study period.

- Within the mine area, day time noise level was about 46.6 dB(A) and 38.7dB(A) during night time, which is within prescribed limit by MoEF&CC (55dB(A) Day time & 45dB(A) Night time).
- In other monitoring locations, day time noise levels varied from 45.3 dB (A) to 54.2dB(A) and night time noise levels varied from 37.4dB(A) to 44.7 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 MoEF&CC (55 dB(A) Daytime & 45 dB(A) Night time).

### **3.4 Water Quality**

The water quality status at 3 locations for surface water and 6 locations for ground water were assessed.

#### **Surface water quality-**

Water sampling results are compared with Surface water standards IS 2296:1992. The results indicate that the pH ranges between 7.84 to 8.15, TDS ranges from 282 to 371 mg/l. The total hardness ranges from 110 to 160 mg/l, BOD ranges from 3.1 to 4.4 mg/l, COD ranges from 22 to 30 mg/l and DO ranges from 5.4 to 5.7 mg/l. The concentration of heavy metals with in detectable limits and within the limits of IS2296:1992.

#### **Ground water Quality-**

Water sampling results are compared with IS 10500:2012 standard. The results indicate that the pH ranges between 7.84 to 8.33, TDS ranges from 472 to 1220 mg/l. Total alkalinity in ground water samples ranges from 195 mg/l to 362 mg/l, sodium content in ground water samples ranges from 44 mg/l to 210 mg/l and Potassium content in ground water samples ranges from 1 mg/l to 5.7 mg/l. The heavy metals concentrations in the study area samples are below detection limits and all are well within the limits.

### **3.5 Soil Quality**

Soil sampling was carried out at six (6) locations within the study area. It has been observed that the pH of the Soil ranging from 7.69 to 8.38 indicating the moderate and ideal of plant growth properties. The soil is predominantly of loam type and clayey loam in some locations. The concentration of nitrogen is in the range of 246 kg/Ha to 442 kg/Ha, the value of phosphorus content varies between 18.2 kg/Ha to 41 kg/Ha and the Potassium ranges between 220 kg/Ha to 442 kg/Ha, which indicate that, the soil in the Study area shows moderate fertility and ideal for plant growth.

### **3.6 Ecological Environment**

There are no National parks /Wildlife Sanctuaries/ Elephant/ Tigre Reserves within 10km radius of the project site. The area did not record the presence of any critically threatened species. The floral diversity is grouped into trees, shrubs, climbers, herbs, aquatic plants and phytoplankton. Similarly, the faunal diversity is grouped into mammals, birds, reptiles, amphibians and zooplankton. The study area has good vegetation cover in the western and northern western regions. Large tracts of the land are under paddy, sugarcane, and coconut and groundnut cultivation.

### 3.7 Socio economic Environment

The baseline data includes the socio economic status of the area. The data about the human settlements in and around the project site, health status of the community, existing infrastructure facilities for social welfare, job opportunities, safety and security of the workers and the surrounding population. Total population in the study region (Census 2011) is worked out as 216157 out of which 108787 are male and 107370 female. The literacy rate of the total population is worked out to 146868 (67.95%). Male literacy 82573 (56.22%) and female literacy is 64295 (43.78%) and the total population of main worker 73035 (33.79%) and non-worker category are 23323 (10.79%).

## 4 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

### 4.1 Air Environment

The emissions mainly generated from the mining activities are blasting, drilling, scrapping, excavation, loading, unloading, and transportation etc. Machinery like compressors and jackhammers are used for drilling. Fugitive dust control in mine is given in Table-8.

**Table 8- Fugitive dust control in mine**

S. No	Activities	Best practices
1	Drilling	<ul style="list-style-type: none"> <li>• Drills should be provided with dust extractors (dry or wet system)</li> </ul>
2	Blasting	<ul style="list-style-type: none"> <li>• Water spray before blasting</li> <li>• Water spray on blasted material prior to transportation</li> <li>• Use of controlled blasting technique</li> </ul>
3	Transportation of mined material	<ul style="list-style-type: none"> <li>• Covering of the trucks/dumpers to avoid spillage</li> <li>• Compacted haul road and speed control on vehicles</li> <li>• Development of a green belt of suitable width on both sides of road, which acts as wind break and traps fugitive dust</li> </ul>

### 4.2 Noise Environment

Noise will be generated during drilling, blasting and transportation processes. However, the noise is not anticipated to affect any of the surroundings since there is no habitation within 1 Km nearby vicinity. The advancements in blasting techniques are also expected to bring down noise levels further. All mining operations including blasting processes will be done during the day time to avoid disturbing any of the local communities surrounding the mining site.

### **4.3 Water & waste water Management**

The accumulation of water inside the mines would be mainly due to the surface water entering the mines during rainy season. A pump will be installed & pumping will be done to dewater the mine seepage. The excess water pumped out during rainy season will be discharged into the nearby water course. During rest of the year, the water accumulated in the mine sump area would be utilized for green belt development & for dust suppression measures.

Sewage (0.4 KLD) is being sent to septic tank followed by soak pit. The septic tank will be cleaned regularly. There is no process effluent generation in quarry project.

### **4.4 Biological Environment**

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

### **4.5 Solid/ Hazardous Waste Management**

Municipal solid wastes including food waste are being disposed to municipal bin.

### **4.6 Occupational Health & Socio economic Environment**

Impacts to health can be caused due to exposure to dust in large quantities or accidents that happen during the mining processes like drilling, blasting etc. The impacts can be nullified if safety measures like personnel protection equipment are worn and adequate safety procedures are followed during the mining operations. In terms of socio-economic impacts, there will be a positive impact since jobs will be created for the local community.

## **5 ENVIRONMENTAL MONITORING PROGRAMME**

During the operation of mining, it is important in terms of evaluating the performance of pollution control equipments installed in the project. A monitoring schedule with respect to Ambient Air Quality, Water & Wastewater quality, Noise quality as per Tamil Nadu State Pollution Control Board (TNPCB) will be maintained.

## 6 ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan (EMP) for the proposed mining operation has to ensure that the residual environmental impacts are minimized, by adopting best possible economically viable techniques. The environmental Management Plan during the operation of the mine shall be directed to the following:

- It should be ensured that all the pollution control/environment management systems are commissioned as part of main equipments, before the commencement of operation.
- Regular monitoring of various components of environment should be undertaken to ensure effective functioning of pollution control measures as well as to safeguard against any unforeseen changes in the environment.
- The recommendations for Disaster Management Plan / Occupational Health and safety Plan should also be implemented along with the commissioning of the project.

### 6.1 Budget for Environmental Protection

It is necessary to include the environmental cost as a part of the budgetary cost component. Total of Rs.1,55,000/- allocated for environmental protection activities. Environmental Management cost is given in **Table 9**.

**Table 9: Environmental Management Cost**

S. No	Details	Cost in Rs.
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
<b>Total</b>		<b>1,55,000</b>

## 7 GREENBELT DEVELOPMENT

The green belt plantation programme will be continued till the end of the mining operation in the area. In framing out this programme on a sustainable and scientific base, due consultation and coordination with the forest department will be sought. Plants are chosen to provide aesthetic, ecological and economical value. Trees will help to arrest propagation of noise and help to lessen dust pollution due to dust arresting action. The plantation will be developed inside and around the lease area is 0.20.0 ha, out of 6.00.0 ha. The soil dumps, are planted to prevent erosion and for stabilization of the soil.



## **8 DISASTER MANAGEMENT PLAN**

The on-site and off-site emergency plans recommend various preventive and protective systems. A protective system includes Site controller, Incident controller and coordinators. Personnel protective equipments to be deployed at the site, control systems and mock drill and simulation exercises, mutual aid schemes, and procedures for Communications, Medical facilities to be provided and procedure for reporting to external agencies.

## **9 PROPOSED CORPORATE ENVIRONMENTAL RESPONSIBILITY (CER)**

TAMIN will comply with the 1<sup>st</sup> May 2018 OM w.r.t. CER and the cost will be assessed on actual project capital expenditure of that particular financial year. CER Expenditure outlay shall be spent in various social development cost based on the assessed needs @2% of the estimated project cost i.e, Rs.2 Lakhs over a period of 5-10 years.

## **10 Project Benefits**

### **Environmental Benefits:**

Proposed greenbelt outside mine lease area will minimize air pollution, also act as noise barrier to reduce noise levels and prevents soil erosion. Water will be sprinkled at regular intervals during quarry operation will minimize air pollution. No groundwater withdrawal

### **Social Benefits:**

This project will give indirect employment to the local people

### **Economic Benefits:**

- Improve in per capita income of the people.
- Financially viable and would be in the interest of construction industry thereby indirectly benefiting the masses.
- Revenue generation to State Govt. by way of taxes, royalties and DMF.

## **11 CONCLUSION**

Assessment of the impacts due to various emissions and discharges from the mining indicate that the environmental quality will remain within the stipulated standards even after commissioning and operation of the project. All the impacts due to the operation of the mine shall be mitigated by adopting state of art technologies and management systems. In addition, the benefits of the project in terms of utilization of barren land, improvement of living standards of the local population, improvements in infra structure etc., will add positive impacts of the project.

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