SUMMARY

OF

DRAFT EIA / EMP REPORT

FOR

ROUGHSTONE QUARRY OF THIRU K. NAGAMUTHUKUMAR

A. Project Proponent Details	
Name	Thiru K.Nagamuthukumar
Address	159/2, South Street, Ayyankottai, Ayyanpalayam, Pattiveeranpatti, Dindigul
B. Location Details	
Extent	2.00 Ha
S.F.No	263/1(P-2)
Location	Sivanganapuram Village, Nilakottai Taluk, Dindigul District.
C. Production Details	
Production	Roughstone – 3,30,453m3, Topsoil – 15,089m3
Depth	45m
D. EIA/EMP details	
ToR reference	TO24B0108TN5823311N dated 29.11.2024
Baseline Monitoring	Post Monsoon Season , (Oct – Dec 2024)

CONSULTANT

CREATIVE ENGINEERS & CONSULTANTS

NABET ACCREDITED CONSULTANCY, NABL ACCREDITED TESTING LAB

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MAY 2025

B1 Category

SUMMARY

1.1 INTRODUCTION:

Thiru K.Nagamuthukumar propose to operate Rough Stone Quarry over an area of 2.00Ha S.F.Nos. S.F.No.263/1(Part-2) of Sivanganapuram Village, Nilakottai Taluk, Dindigul District, Tamil Nadu. It involves the production capacity of 3,30,453m3 of Roughstone and 15,809 m3 of topsoil for 5 years with the annual peak production capacity of 71795m3 of roughstone and 15,809m3 of topsoil. The lease area is a Government land leased through Tender cum Auction for a period of 5 years

Besides, **Thiru B.Selvam** also propose to operate Rough Stone Quarry within 500m radius. Although the individual lease area of each project is less than 5 Ha, the other existing & proposed quarries within the 500m radius cluster along with this subject project works out to >5 Ha. Hence, this proposal is considered under Category – B1 and as per MoEF & CC notification necessitates preparation of EIA/EMP report and public hearing.

As such a combined draft EIA report with separate EMP measures is prepared for the above two mentioned projects based on standard and additional Terms of Reference issued by SEIAA, Tamil Nadu and is in conformance of the generic structure prescribed by MOEF&CC in their notification of September 2006 and the approved mining plan. Salient details of the EIA/ EMP report prepared for **Thiru K.Nagamuthukumar** project is provided below:

Table 1: Salient Details of the Project

Details	Thiru K.Nagamuthukumar
A. Statutory Clearances	
Precise Area Communication	Issued by Department of Geology & Mining vide Rc.No.25/Mines/2024 dated 09.02.2024 **(Annexure-1B)**
Mining Plan Approval	Approved by Deputy Director, Geology & Mining vide Lr.No. Rc.No.25/Mines/2024 dated 24.04.2024 **(Annexure-2B)**
Details of Quarries within 500m radius	Obtained from Deputy Director, Geology & Mining vide Rc.No.25/Mines/2024 dated 24.04.2024. **(Annexure-3B)**
B. Application for Environmental Clearance	
Terms of Reference	Received from SEIAA Tamil nadu vide identification no TO24B0108TN5823311N dated 29.11.2024

Baseline Data Collection	Carried out by Creative Engineers & Consultants , Chennai for postmonsoon Season (October – December 2024)
Location	S.F.No.263/1(Part-2), Sivanganapuram Village, Nilakottai Taluk, Dindigul District, Tamil Nadu
Coordinates	Latitude : 10º07'18.81" N to 10º07'27.15" N Longitude : 77º47'37.37" E to 77º47'43.92" E
Nearest Village	C.Pudur - 540 M –(SE), Kulipatti - 900m (W)
Nearest Town	Batlagundu - 5.2 kms–(NW)
Nearest Highway	SH-154 Vattalagundu - Usilampatti - 2.2 km (W).
Nearest Railway Station	Kodai Road - 14kms- (NE)
Nearest Airport	Madurai – 45 kms - (SE)
Accessibility	The lease area can be approached through Anaipatti road on the southern side of the lease area which joins SH-154 at a distance of 2.2 Km on the eastern side of the lease area
Topography	Massive Charnockite formation is clearly visible from the outcrops exposed in to the surface. The area gentle sloping towards Southwestern side of the area, the altitude of the area is above 250m above MSL.
C. Environmental Setting of the Study Area	
Nearest Water Bodies	Periyar Main Channel – 410m , SW, Vaigai River – 800m, SE SE, Manjal Ar – 1.3km, NW, Maruda Nadi – 1.8km, N
Nearest Reserve Forests	Vettilaippatti RF -5.6Km-S, Mettuppatti RF -7.4Km-SE, Vikkiramangalam RF -8.5Km -S, Uttappanayakkanur RF -7.6Km-S, Valaiyapatti RF -7.1Km-S, Rajadani RF-8.9Km-SW, Mankaradu Block RF -7.9Km-NW, Kadavakurichi RF-500m-NE
Notified Archaeologically important places, Monuments	Nil within 10km radius
Local Places of Historical and Tourism Interest	Nil within 10km radius
Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972*	Nil within 10km radius

Other industries	Other than crushers, Roughstone quarries, no other major industries are located in the study area.

1.2 Technical Description

Geological Reserves	Roughstone - 7,78,373m3, Topsoil- 18,513 m3
Mineable Reserves	Roughstone - 3,30,453 m3, Topsoil - 15,809m3
Mining Method	Opencast mechanized mining using jackhammer drilling, blasting, excavation through excavator & mineral transport through tippers will be carried out.
Production	<table><tr><th>Year</th><th>Roughstone (m3)</th><th>Topsoil (m3)</th></tr><tr><td>1</td><td>55,588</td><td>15,089</td></tr><tr><td>2</td><td>61,200</td><td>--</td></tr><tr><td>3</td><td>71,145</td><td>--</td></tr><tr><td>4</td><td>70,725</td><td>--</td></tr><tr><td>5</td><td>71,795</td><td>--</td></tr><tr><td>**Total**</td><td>**3,30,453**</td><td>**15,089**</td></tr></table>
Waste Generation and Management	There is no waste generation anticipated in these quarries since the entire excavated material will be utilized. The top soil to be generated will be used for plantation, peripheral bund formation.
Ultimate Depth	45m
Project Requirements	
Manpower	19 persons directly and 50 people indirectly.
Water Requirement and Source	Water Requirement: 8 KLD Source: The required water will be procured initially from outside agencies. Later Rain water harvested in the mine sump can also be used.
Power Requirement	No electricity needed for mining operation. The minimum power requirement for office, etc will be met from state grid.
Site Services	This is a proposed project. Site services like mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.
Project Cost	Rs.149.95 Lakhs

Figure 1: Location Map

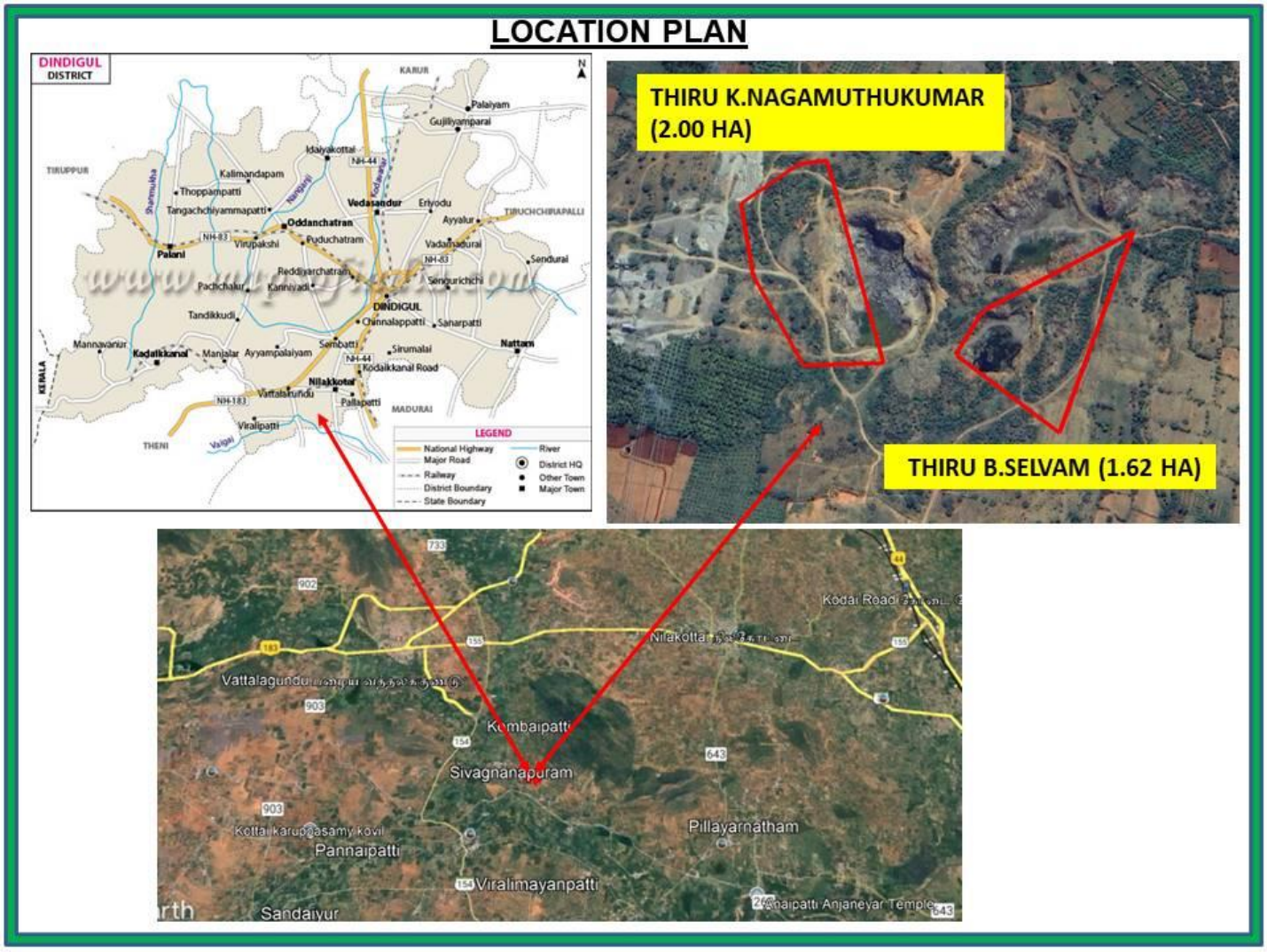


Figure 2: Lease Plan

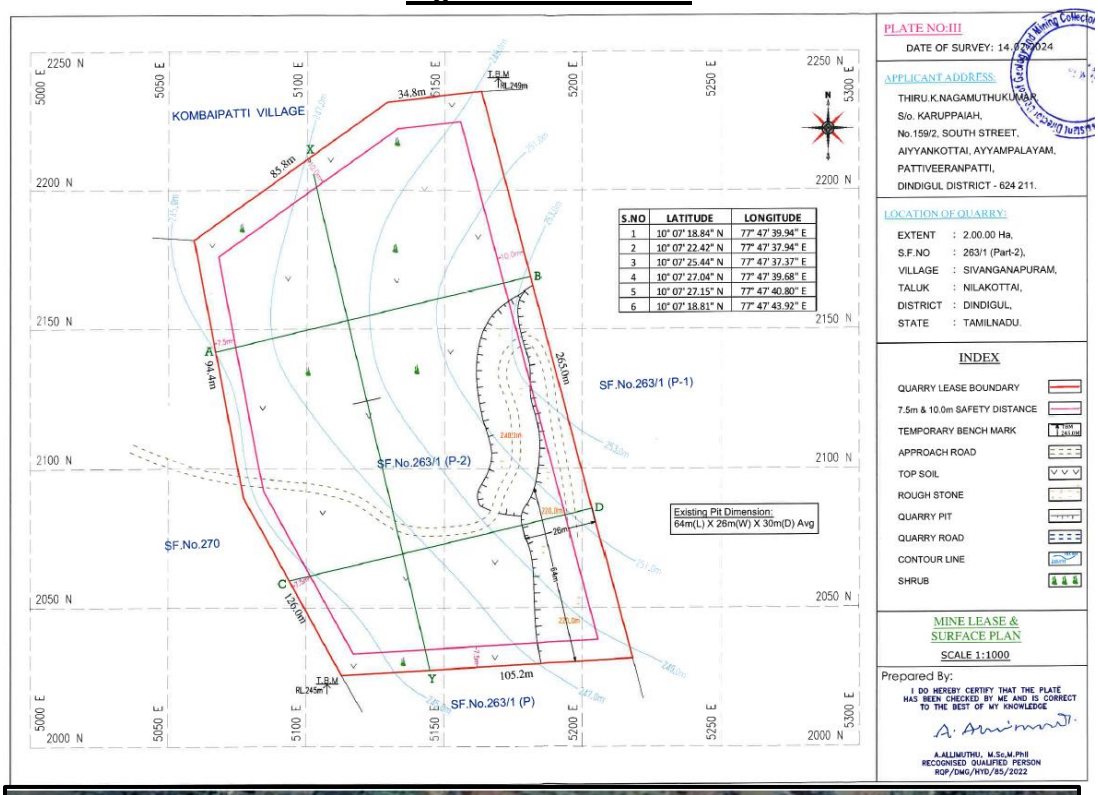
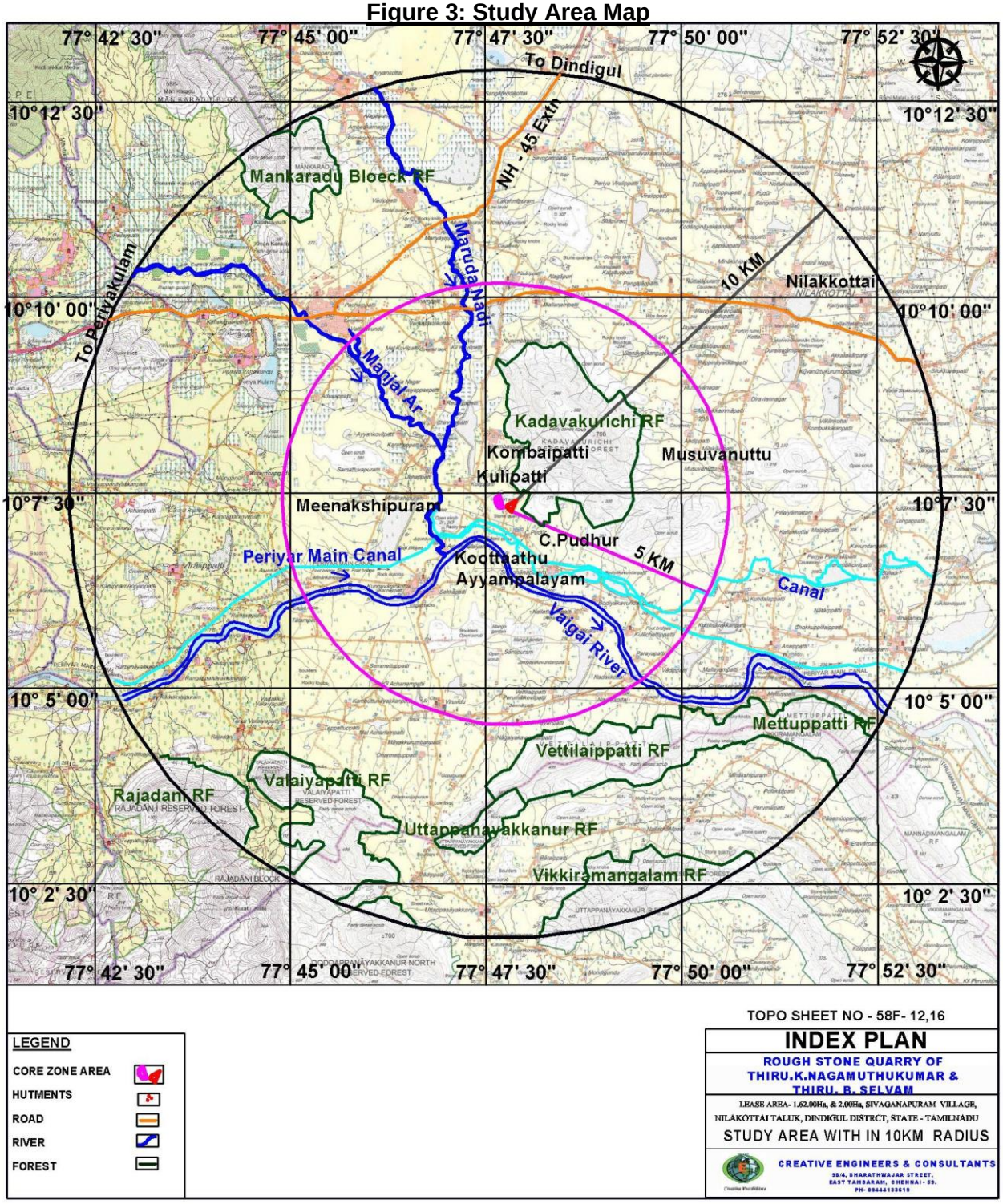


Figure 3: Study Area Map



1.3 EXISTING ENVIRONMENTAL SCENARIO:

The studies and data collection have been carried out systematically and meticulously as per relevant IS codes, CPCB and MoEF&CC guidelines and as per approved ToR during **Postmonsoon Season (October to December 2024).** For the purpose of this study, the area has been divided into two zones, namely, core and buffer zones. The lease area is considered to be the core zone while the buffer zone encompasses a 10km radius there are 31 Rural villages from Three Taluks namely Nilakottai, Usilampatti & Periyakulam Taluk, and Dindigul, Madurai & Theni District. The demographic profile of the study area is given below.

Table 2: Social, Economic And Demographic Profile of the Study Area

Details	Population	Percentage
A. Gender-wise distribution		
Male Population	112062	50.57
Female Population	109533	49.43
Total	**221595**	**100**
B. Caste-wise population distribution		
Scheduled Caste	56083	25.31
Scheduled Tribes	2158	0.97
Other	163354	73.72
Total	**221595**	**100**
C. Literate and Illiterate population		
Literate Males	83259	**37.57**
Literate Females	67747	**30.57**
Total Literate Population	**151006**	**68.14**
Others Males	28803	**13.00**
Others Females	41786	**18.86**
Others Population	**70589**	**31.86**
Total	**221595**	**100**
D. Occupational structure		
Main workers	91982	41.50
Marginal workers	17173	7.70
Total Workers	**109155**	**49.20**
Total Non-workers	**112440**	**50.80**
Total	**221595**	**100**

Further developments in this area with respect to these various facilities has occurred over the years.

1.4 EXISTING ENVIRONMENTAL QUALITY:

Table 3: Baseline Data

A. Ambient Air Quality Data – 6 Locations			
Parameters	**Core Zone- 1**	**Buffer Zone - 5**	**Limits**
Particulate Matter (Size <10 µm)	54.3 – 79.7	43.3 – 74.1	100
Particulate Matter (Size <2.5 µm)	29.5 – 37.9	22.0 – 37.2	60
Sulphur Dioxide (as SO_2)	3.7 – 5.7	3.3 – 6.1	80
Nitrogen Dioxide (as NO_2)	8.9 – 14.1	7.5 – 15.7	80
Conclusion: The existing Ambient Air Quality levels for PM10, PM2.5, SO2 and NO2, are within the NAAQ standards prescribed CPCB limits. The CO values in all the locations were found to be below detectable limit. Silica values in the study area are found to be below detectable limit. (Detection limit – 0.05 mg/m3)			
B. Water Quality – 6 Locations			
pH at 25 ˚C	7.23 – 7.95		**6.5-8.5**
Total Dissolved Solids, mg/L	175 – 560		**2000**
Chloride as Cl-, mg/L	18.90 – 158.80		**1000**
Total Hardness (as CaCO3), mg/L	92.90 – 391.90		**600**
Total Alkalinity (as CaCO3), mg/L	155.80– 307.50		**600**
Sulphates as SO42-, mg/L	14.10 – 32.20		**400**
Iron as Fe, mg/L	0.02 – 0.05		**0.3**
Nitrate as NO3, mg/L	1.09 – 1.61		**45**
Fluoride as F, mg/L	0.12 – 0.45		**1.5**
Conclusion: The water quality of ground water is is found to be good & within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications.			
C. Noise Levels – 6 Locations			
Parameter	**Core Zone- 1**	**Buffer Zone - 5**	**Limit**
Day Equivalent	49.5	49.0 – 50.6	55
Night Equivalent	39.4	38.6 – 42.8	45
Comparing with the MOEF&CC Norm of 55 dB(A) for day time and 45 dB(A) for night time, the monitored ambient noise levels were within the limit values for Residential areas.			
D. Soil Quality – 5 Locations			
Parameter	**Core Zone -1**	**Buffer Zone - 4**	
pH	7.89	6.33 - 7.22	
Electrical Conductivity (µmho/cm)	31.5	11.0 - 51.5	
Organic matter (%)	1.3	1.1 - 1.80	
Total Nitrogen (mg/kg)	186.2	128.90 -156.40	
Phosphorus (mg/kg)	3.2	2.40 - 3.40	
Sodium (mg/kg)	623	430.20 - 636.00	
Potassium (mg/kg)	929.5	816.40 - 1020.00	
Soil is of clay loam type.			

A. LAND ENVIRONMENT:

Land use pattern study carried out through remote sensing satellite data around the 10km buffer zone shows that 40.60 % of the buffer area is classified under the Agriculture/ Plantation followed

by 20.46 % of fallow land, 16.31 % constitutes scrub forest, 11.87 % constitutes land with out scrub and the balance 10.76 % falls under other land use categories.

B. BIOLOGICAL ENVIRONMENT:

Flora: The lease area is a non-forest, government land partly minedout area. Other areas contains grsses shrubs, few trees like Prosopis juliflora, etc.

Study area depicts varying land use comprising scrubby hills on the North east, South west and South east side with intervening plains. Dominant agricultural activities are observed in part of plains proximate to the available irrigation source alongside Vaigai river and periyar canal. Crops like Rice,cocount, vegetables, watermelon, ground nut, banana etc.

Fauna: There is no Wild Life Sanctuary or National Park within the study area of 10 km. Domesticated animals are commonly found. From the study it observed that the area in general consists of species of least concern only.

C. HYDROLOGICAL STUDY:

The applied lease area is exhibits an undulating topography with few outcrops of charnockite. Besides, the leases are small mound at higher elevation when compared to the general floor level of +200m to +210m RL on the southern side.

The drainage of the study area is controlled by first & second order streams which finally drains to Vaigai river located 850m from the lease area draining towards SE side.

Periyar canal branching from Vaigai river near Melmangalam (Andipatti) runs almost parallel to Vaigai river on its left side linked as system tanks and finally draining into the Vaigai river. Based on the water availability in the dam, the irrigational needs are met.

The lease area of both the projects are at higher elevation when compared to the river and canal course which are at plains sloping towards, East, South East.

1.5 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The identified impacts due to this mine during mining and associated activities have been studied in relation to various environmental components like Air, water, noise, vibration, land, transport etc.

1.5.1 AIR ENVIRONMENT:

The principal sources of air pollution in general due to mining and allied activities will be Excavation, Drilling, Movement of HEMM such as Excavators, tippers etc., Loading and unloading

operation and transportation. In case of this mine, the following measures will be adopted to control impact on the air quality due to mining operations in the lease area:

- Regular wetting of transport road using mobile water tanker.
- Wet drilling / Covering of drill holes with wet clothes
- Use of controlled blasting techniques with Nonel to keep the dust generation within the prescribed limits.
- Proper maintenance of roads.
- Avoiding overloading of tippers
- Transportation of material by tarpaulin covered trucks
- Proper maintenance of HEMM to minimize gaseous emission
- Setting up of tyre washing facility in the lease area exit.
- Vehicular emission tests with digital smoke meter.
- Provision of green netting around the lease periphery on all sides.
- Development of green belt/ plantation in various areas within the mine lease area etc.

By adoption of all these measures, no adverse impact on air quality is envisaged due to this proposed opencast mining operation.

The impact on air quality due to the proposed project operations is estimated using AERMOD dispersion models show that the resultant added concentrations with baseline figures with respect to PM10 is in the range of 53.8 μg/m3 to 81.0 μg/m3 and with respect to PM2.5 are in the range of 29.9μg/m3 to 38.9μg/m3 on individual basis for this project which are within the stipulated statutory limits.

On cumulative basis also, the post project concentration with respect to PM10 is in the range of 53.8 μg/m3 to 83.0 μg/m3 and with respect to PM2.5 are in the range of 29.9μg/m3 to 39.8 μg/m3 which are within the statutory limits in each case

For preservation of environment in this mine strict enforcement of management schemes will be undertaken for taking corrective actions, as needed. By adopting the effective implementation of all the mitigative measures, no adverse impact on Air quality due to the mining operation in this lease area is expected.

1.5.2 WATER ENVIRONMENT:

The total water requirement for this project will be 8.0 KLD. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose.

The domestic effluent to be generated from the project will be collected in septic tank with soak pits arrangements. This being a mining project there will not be any process effluent. Towards surface runoff management, garland drain of 700m length will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users.

The lease area is part of a huge dyke like compact rock formation with less intergranular porosity and fractures leading to less permeability and transmissivity values and as such the ground water level in this area is deep from surface. As such hence no major water seepage within the mines is expected from the periphery. Besides, mining operation will be on a small mound at higher elevation. The ultimate pit depth of mining is 45m. The ground water table in this area is below this level. Hence, ground water intersection in not envisaged and ground water will not be affected appreciably due to the quarrying operation. By adoption of various mitigative measures as explained in the report it will be ensured that there are no impact on the surrounding water environ.

Good rainwater harvesting measures for augmenting the ground water level in the region will be implemented.

1.5.3 NOISE ENVIRONMENT:

During mining operation there will be noise generation due to working of excavators, movement of vehicles, etc. However, it will be felt near the active working area only and at away from its source it will get reduced. There will also be attenuation due to vegetation, tin sheet/ green netting to be erected by the proponent all around the lease and as such there will not be any adverse noise propagation outside the lease boundary Due to natural attenuation effects, by proper green belt development, design / maintenance of machines, etc., the impact on noise levels will be negligible and are expected to be well within the prescribed limits.

1.5.4 VIBRATION:

In the proposed mine workings, blasting & vibration effects will be controlled by adopting following measures.

- Carrying out controlled blasting using Nonel delay detonator.

- Optimum design for burden and spacing.
- The peak particle velocity (PPV) of ground vibration will be kept very low through optimally controlled blasting techniques, after necessary field trials.
- Reducing explosive charge per delay to minimum.
- Using rock breaker wherever possible
- Proper care and supervision during blasting by a competent and experienced person to be carried out.
- Besides, different blasting time for both the projects is suggested and the timing is to be mentioned in the display board in the mines entrance.

By adoption of above measures, it will be ensured that ground vibrational levels due to blasting will be maintained within the prescribed DGMS conditions of 10 mm/s for the domestic houses/structures.

1.5.5 IMPACT ON LAND ENVIRONMENT:

The lease area of the Rough stone Quarry falls in Government Land. Out of the lease area of 2.00Ha, in the post mining stage, 1.62.6Ha of mined out area will be left as water body and 0.33.40 Ha will be greenbelt area.

Effective post closure monitoring will be done to ensure that there will be no adverse impact due to mining operations.

1.5.6 BIOLOGICAL ENVIRONMENT:

Part of the lease area is mined out with rock exposure and the remaining land is free from major vegetation and consists of thorny prosophis bushes and shrubs only, no agricultural activities are possible and practiced in the lease and its nearby areas. Agricultural activities are carried out far away lands irrigated by tanks and wells during monsoon rainfall. By adoption of systematic mining adhering to all the environmental mitigation measures as explained earlier, no adverse impact on away agricultural or surrounding environs envisaged.

There are no migratory corridors, migratory avian-fauna, rare endemic and endangered species. Therefore, there shall be no impacts due to mining activity on them.About 1000 trees will be planted in and around the lease area in a phased manner.

1.5.7 SOCIO ECONOMIC ENVIRONMENT:

The entire lease area is Government Land.. There are no habitations or hutments in the core zone area and no rehabilitation or resettlement problems will arise here. The mining operations in the proposed mine will provide the following socio-economic benefits:

- Direct Employment for about 19 persons.
- Besides through allied opportunities in logistics, trading, repairing works etc. good employment potential will arise in this area, which will provide raising income levels and standards of living in the area through various service-related activities connected with the project operations.
- Benefit to State and central exchequer by way of royalty, taxes.
- Improvement in infrastructural facilities, providing education aids etc. in nearby schools
- Betterment of drinking water facilities.

From above details, it is clear that the project operations will have highly beneficial positive impact in the area. Towards the socio-economic development of the surrounding area, the proponent has earmarked an amount of Rs.5.0 Lakhs. The activities identified will be implemented in a phased manner in the nearby Government school. In consultation with the locals based on the need & priority it will be implemented.

1.5.8 IMPACT ON LOCAL LOGISTICAL SYSTEM DUE TO PROJECT:

The material mined out from this lease area will be directly transported to the crusher units for producing stone aggregates of different sizes or construction of roads, bridges, buildings and other buyers etc. During the project operations, there will be 3 trips/hr. The transport route will be properly maintained to absorb this traffic due to this project. The following mitigative measures are suggested for mitigation of adverse impacts on the logistical aspect of the project:

- Water sprinkling on material in the transport vehicles before transporting, so that no dust nuisance during transport will arise.
- Plantation in consultation with the concerned department.
- Proper maintenance of transport roads and transport vehicles.
- Avoiding overloading of material

- Covering of loaded vehicles with tarpaulins sheet
- Keeping traffic regulators at vulnerable locations.
- Distribution of transport vehicles for avoiding choking of roads
- Limiting of speed
- Installation of barriers at vulnerable locations
- Provision of tyre washing facility at the mine outlet

1.5.9 WASTE MANAGEMENT:

There is no process effluent generation from this mine. Hence no liquid waste is generated. Single use plastics/ use and throwaway plastics will be banned in the site as directed by the Tamil Nadu Government vide GO(Ms)No.84 regarding ban on use of plastic products. The employees will be encouraged to use compostable material or reusable material.

1.6 ENVIRONMENTAL MONITORING PROGRAME:

Regular, systematic and sustained programme schedules for implementation and monitoring of various control measures are devised with clear cut guidelines of various concerned plans for keeping a continuous surveillance on the various environmental quality parameters in the area. The Mines Manager in the mine project site will be directly responsible for various environmental activities in the mine and will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level control, plantation programme, social development schemes, etc in the mine. Towards implementation of environmental control measures, Rs.19.34 Lakhs is allocated under capital cost and Rs.18.95 Lakhs per annum will be spent under recurring cost.

1.7 ADDITIONAL STUDIES:

Although the individual lease area of this project is less than 5 Ha, the other existing and proposed quarries within the 500m radius along with this subject project works out to >5 Ha. The baseline monitoring carried out for this project reflects the cumulative impact of the existing quarries. The cumulative impact assessment of both the proposed quarries in the cluster given in the EIA/ EMP report also reflects no adverse impact on the surrounding environ on the post project basis.

1.8 CONCLUSION:

Production from this lease is less and as such the magnitude of operation and no of equipment's to be used is less.By systematic and scientific mining adhering to all the statutory norms and enforcing and strictly implementing the above said mitigation measures mentioned in this report, no adverse impact is envisaged. The proposed mining project will benefit this region in the fields of potential employment opportunities, improved income for local people, improved social welfare facilities in respect of education, medical healthcare systems, etc. in its own way and also revenue to Government through royalty, taxes etc. Besides, it will meet the raw material requirement of the construction industry also.

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