EXECUTIVE SUMMARY

OF

DRAFT EIA / EMP REPORT

FOR

ROUGHSTONE AND GRAVEL QUARRY

Extent	**2.331Ha**
Survey No.	**388/1A2(P)**
Land Type	**Patta Land**
Location	**Kolumankondan village, Palani Taluk, Dindigul District, Tamil Nadu.**
Production for 5 years	**Roughstone – 2,29,340 m3** **Gravel – 15042 m3** **Weathered Rock – 60168 m3**
Depth	**40m**

PROJECT PROPONENT

THIRU T.KUMARESH

S/o.Thangamuthu Madukkarai (Via), Coimbatore District - 641105

CONSULTANT

CREATIVE ENGINEERS & CONSULTANTS

NABET ACCREDITED CONSULTANCY, NABL ACCREDITED TESTING LAB

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Category – B1

MAY 2023

SUMMARY

1.1 INTRODUCTION:

Thiru T.Kumaresh proposes to operate a **Rough Stone and Gravel Quarry** Survey No. at 388/1A2(P) over an area of 2.331 Ha in Kolumankondan Village, Palani Taluk, Dindigul District, Tamil Nadu and has initiated action towards obtaining environmental clearance. The lease period is five years. Entire land is in proponents possession.

It is proposed to mine 2,29,340 m^3 of Roughstone, 15,042 m^3 of Gravel, 60,168m^3 of Weathered for a period of 5 years upto a depth of 40m as per approved ToR as against the mining plan approved quantity of 2,33,610 m^3 of Roughstone, 15,042 m^3 of Gravel, 60,168m3 of Weathered for a period of 5 years upto a depth of 45m.

Although the individual lease area of this project is less than 5 Ha, the other quarries within the 500m radius along with this subject project works out to > 5Ha and as such this proposal is considered under Category – B1 Nessistating preparation of EIA/EMP Report and public hearing.

1.2 STATUTORY APPROVALS:

1.	Precise Area Communication Letter	Rc.No.50/2022 (Kanimam) dated 04.05.2022
2.	Mining Plan Approval	Rc.No.50/2022 (Kanimam) dated 09.05.2022
3.	Terms of Reference	SEIAA, Tamil Nadu vide their Lr No.SEIAA-TN/F.No.9430/SEAC/ToR-1274/2022. Dated:08.10.2022.

Based on the conditions of Precise Area Communication letter, a safety distance of 10m for nearby Government Lands, 50m safety distance for the odai on the southern side, 10m safety distance for cart track on western side.

As per TOR Condition, EIA/EMP report is prepared. Salent details of the report is given below.

2.1 SITE DESCRIPTION:

Table No.1: SITE DETAILS

<table>
<tr><th>S.No</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1.</td><td>Name of the Project</td><td>Rough Stone and Gravel Quarry of Thiru T.Kumaresh</td></tr>
<tr><td>2.</td><td>Location of the project</td><td>Kolumankondan Village, Palani Taluk, Dindigul District, Tamil Nadu</td></tr>
<tr><td>3.</td><td>Proposed production</td><td>
<table>
<tr><th>YEAR</th><th>ROUGHSTONE (m3)</th><th>WEATHERED ROCK (m3)</th><th>GRAVEL (m3)</th></tr>
<tr><td>I</td><td>31110</td><td>30088</td><td>7522</td></tr>
<tr><td>II</td><td>31500</td><td>30080</td><td>7520</td></tr>
<tr><td>III</td><td>56960</td><td>-</td><td>-</td></tr>
<tr><td>IV</td><td>56870</td><td>-</td><td>-</td></tr>
<tr><td>V</td><td>52900</td><td>-</td><td>-</td></tr>
<tr><td>Total</td><td>229340</td><td>60168</td><td>15042</td></tr>
</table>
</td></tr>
<tr><td>4.</td><td>Latitude & Longitude</td><td>Latitude: 10°33'33.00"N to 10°33'41.74"N
Longitude: 77°26'32.44"E to 77°26'37.19"E</td></tr>
<tr><td>5.</td><td>Mining Lease area</td><td>2.33.10 Ha</td></tr>
<tr><td>6.</td><td>Type of land</td><td>Patta Land</td></tr>
<tr><td>7.</td><td>Mine site topography</td><td>Almost Plain Terrain</td></tr>
<tr><td>8.</td><td>Accessibility</td><td>There is an existing road from the area leads to Kolumankondan – Korikadavu road on Northern side of the area.</td></tr>
<tr><td>9.</td><td>Nearest Highway</td><td>(SH-192) Melkaraipatty – Palani – 1.0km (W)</td></tr>
<tr><td>10.</td><td>Nearest Railway station</td><td>Pushpathur RS – 4.5km - SW</td></tr>
<tr><td>11.</td><td>Nearest Airport</td><td>Coimbatore – 68Km – NW</td></tr>
<tr><td>12.</td><td>Nearest water bodies</td><td>Odai – (S) Lease Area
Odai - 240m- N,
Shanmukha Nadi- 4.5km-E,
Amaravathi River- 7.1km-W,</td></tr>
<tr><td>13.</td><td>Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)</td><td>Nil within 10m radius</td></tr>
<tr><td>14.</td><td>Reserved / Protected Forests</td><td>Nil within 10 Km radius</td></tr>
<tr><td>15.</td><td>Seismic Zone</td><td>Zone – II (Least Active)</td></tr>
</table>

Table No.2: TECHNICAL DESCRIPTION

<table>
<tr><th>S.No</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1.</td><td>Geological reserve</td><td>Roughstone – 9,32,520cum ,
Gravel- 23,313cum
Weathered Rock-93,252cum</td></tr>
<tr><td>2.</td><td>Mineable reserve Upto 40m</td><td>Roughstone – 2,29,340cum ,
Gravel- 15,042cum
Weathered Rock-60,168cum</td></tr>
<tr><td>3.</td><td>Method of Mining</td><td>Opencast semi mechanized mining using jackhammer drilling, blasting, excavation through excavator & mineral transport through tippers.</td></tr>
<tr><td>4.</td><td>Production</td><td>
<table>
<tr><th>YEAR</th><th>ROUGHSTONE (m3)</th><th>WEATHERED ROCK (m3)</th><th>GRAVEL (m3)</th></tr>
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</table>
</td></tr>
<tr><td>5.</td><td>Life of the mine</td><td>5 Years</td></tr>
<tr><td>6.</td><td>Waste Generation and Management</td><td>No waste generation anticipated in this quarry operation since the entire excavated material will be utilized.</td></tr>
<tr><td>7.</td><td>Ultimate Mine depth</td><td>40m</td></tr>
<tr><td>8.</td><td>Manpower</td><td>31 People directly and more than 50 people indirectly</td></tr>
<tr><td>9.</td><td>Water Requirement & source</td><td>Total water – 10 KLD
Will be procured from outside agencies initially. Later, water collected in the mine pit will be used to meet the needs.</td></tr>
<tr><td>10.</td><td>Power Requirement</td><td>All the equipment will be diesel operated. No electricity is needed for mining operation. The minimum power requirement for office, etc will be met from state grid.</td></tr>
<tr><td>11.</td><td>Site services</td><td>Mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.</td></tr>
<tr><td>12.</td><td>Project cost</td><td>Rs.83,68,600/-</td></tr>
<tr><td>13.</td><td>CER cost</td><td>Rs.5.0 Lakhs</td></tr>
</table>

3.1 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 **Winter Season, December 2022 to February 2023)** For the purpose of this study, the area has been divided into two zones, namely, core and buffer zones. Core zone is considered as the total lease area, while buffer zone encompasses an area of 10 km radius distance from the periphery of core zone. The proposed Roughstone, and gravel quarry is located in in Kolumankondan Village, Palani Taluk, Dindigul District. Based on 2011 census data, in the 10km radius the following are present:

Table No.3: SOCIAL, ECONOMIC AND DEMOGRAPHIC PROFILE OF THE STUDY AREA

Details	Population	Percentage
A. Gender-wise distribution		
Male Population	77279	49.89
Female Population	77615	50.11
Total	**154894**	**100**
B. Caste-wise population distribution		
Scheduled Caste	37901	24.47
Scheduled Tribes	1157	0.75
Other	115836	74.78
Total	**154894**	**100**
C. Literacy Levels		
Total Literate Population	103162	66.60
Others	51732	33.40
Total	**154894**	**100**
D. Occupational structure		
Main workers	74782	48.30
Marginal workers	7915	5.10
Total Workers	**82697**	**53.40**
Total Non-workers	**72197**	**46.60**
Total	**154894**	**100**

3.2.1 EXISTING ENVIRONMENTAL QUALITY:

Table 1: Baseline Data

B) AMBIENT AIR QUALITY	**Monitoring Location –** 5 locations		
PARAMETER	**RESULT (µg/m3)**		***LIMIT (µg/m3)**
Location	**Core Zone**	**Buffer Zone**	

Particulate Matter (Size <10 µm)	51.4 – 76.2	38.6 – 69.2	100
Particulate Matter (Size <2.5 µm)	23.6 – 35.2	17.8 – 31.1	60
Sulphur Dioxide (as SO_2)	5.5 – 8.4	4.4 – 7.2	80
Nitrogen Dioxide (as NO_2)	7.4 – 12.1	6.0 – 10.2	80

Conclusion: The existing Ambient Air Quality levels for PM10, PM2.5, SO2 and NO2, are within the NAAQ standards prescribed CPCB limits of 100 µg/m3, 60 µg/m3, 80 µg/m3 & 80 µg/m3. 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)

C) WATER QUALITY	**Monitoring Location –** 5 locations	
PARAMETER	**Result**	***LIMIT (µg/m3)**
pH at 25 ˚C	6.98 -7.84	**6.5-8.5**
Total Dissolved Solids, mg/L	392 - 946	**2000**
Chloride as Cl-, mg/L	93.4 - 255	**1000**
Total Hardness (as CaCO3), mg/L	182 - 523	**600**
Total Alkalinity (as CaCO3), mg/L	155 - 242	**600**
Sulphates as SO42-, mg/L	53.2 - 158	**400**
Iron as Fe, mg/L	0.03 - 0.06	**0.3**
Nitrate as NO3, mg/L	2.52 - 3.42	**45**
Fluoride as F, mg/L	0.39 - 0.54	**1.5**

Conclusion: The water quality of ground water is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications.

D) NOISE LEVELS	**Monitoring Location –** 5 locations		
PARAMETER	**RESULT dB(A)**		***LIMIT (µg/m3)**
	Day Equivalent	**Night Equivalent**	
Core Zone	49.3	39.6	**90**
Buffer Zone	42.8 – 46.5	39.0 – 40.2	**Day Equivalent - 55dB(A), Night Equivalent - 45dB(A)**

*Permissible noise for industrial workers as laid down by CPCB (at 8 hrs Exposure Time). While comparing with the MoEF&CC Norms, the monitored ambient noise levels are generally within the limit values.

E) SOIL QUALITY	**Monitoring Location –** 3 locations
PARAMETER	**Range of values**
pH	6.41 – 6.74
Electrical Conductivity (µmho/cm)	45.88 – 94.28
Organic matter (%)	0.94 – 1.25
Total Nitrogen (mg/kg)	246 – 355

Phosphorus (mg/kg)	18.14 – 18.94
Sodium (mg/kg)	1.98 – 2.32
Potassium (mg/kg)	395 – 620
Soil is of Silt Loam type.	

3.2.2 LAND EVIRONMENT:

Landuse pattern study carried out through remote sensing satellite data around the 10km buffer zone shows that 33.36% of the buffer area is classified under the Agriculture/ Plantation followed by 48.23 % of fallow land, 9.34 % constitutes land with scrub, 2.97 % constitutes land without scrub and the balance falls under other land use categories.

3.2.3 BIOLOGICAL ENVIRONMENT:

Flora: The lease area is a non forest, private land. Lease area is exposed with rock and bushy area. The lease area is dominated with Prosopis juliflora. There are 4 trees species from 2 families followed by 3 shurbs from 3 families and 3 herbs from 3 family were recorded in the core zone.

The Dominated species are Albizia amara, Borassus flabelliformis, Morinda tinctoria, Azadirachta indica, Cocus nucifera are also observed

Fauna: There is no Wild Life Sanctuary or National Park within the study area of 10 km. Domesticated animals are commonly found. No wild mammalian species was directly sighted during the field survey. There is no Schedule I species in the core & buffer zone.

3.2.4 HYDROLOGICAL STUDY:

Study of the area shows that the sub-surface formations reveal less of soil with low recharge potentials. Subsequently hard and massive formations of rock are found.

In the study area, the shallow aquifer is developed through dug wells and deeper aquifer through tube wells. The study has revealed that potential fractures are encountered at deeper levels. The water in the wells are available mainly after post monsoon and it reduces during summer necessitating only dry crops cultivation. Bore wells are deep and it reflects that the yield is only better at deeper water levels.

Mining area consists of hard compact rock, no major water seepage within the mine is expected. There is no water seepage noticed in to the already quarried pits situated nearby the proposed quarry area. Hence, the quarrying rough stone up to the proposed depth may not have any adverse impact in the area over ground water conditions.

Rain water collected in the tanks in the region acts as a good source of water during post monsoon. In order to increase the recharge, tanks, and percolation ponds may be provided with the recharge wells/recharge shafts penetrating this impervious layer to make it more effective in recharging the aquifer.

4.1 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This is a proposed project and Semi – Mechanized Open Cast mining will be carried out to quarry out Rough Stone, & Gravel. 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.

4.1.1 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
- 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 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 is estimated using AERMOD View Gaussian Plume Air Dispersion Model.

The resultant added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to PM_{10} are in the range of 56.2 μg/m3 to 76.2 μg/m3 and with respect to PM2.5 are in the range of 28.3 μg/m3 to 36.2 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.

4.1.2 WATER ENVIRONMENT:

The total water requirement for this project will be 10.0 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. The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc. Towards surface runoff management, garland drain 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.

There is a seasonal odai passing on the southern side of the lease area for which 50m safety distance is maintained. Earthen bund formation in this side within the lease will be done. Good plantation will also be carried out in the safety zone. Besides, there is no proposal to discharge any effluent into this water body. No major impact is envisaged on the nearby water bodies due to project operations. There is no proposal to discharge any effluent into this water body. No major impact is envisaged on the nearby water bodies due to project operations.

4.1.3 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.

4.1.4 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.
- 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.

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.

4.1.5 IMPACT ON LAND ENVIRONMENT:

Ultimately the entire mined out area of 1.500Ha will be left as water body. 0.020 Ha will be the mine roads & infrastructure, 0.250 Ha will be covered with vegetation, 0.010Ha will be infrastructure and 0.550 Ha will be unutilized area.Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals. In the post mining stage the rainwater harvested in the mined out void shall be utilized.

4.1.6 BIOLOGICAL ENVIRONMENT:

Necessary mitigative measures like dust suppression, proper maintenance of equipment's, greenbelt and plantation etc., will be carried out to prevent dust generation & any further impact on the vegetation or agricultural activity nearby. Greenbelt / Plantation will be carried out to enhance the vegetative growth and aesthetic in the safety zone area.

4.1.7 SOCIO ECONOMIC ENVIRONMENT:

The entire lease area is private patta land owned by the applicant. 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 31 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.

Towards the socio-economic development of the surrounding area, the proponent has earmarked an amount of Rs.5.0 Lakhs under Corporate Environmental Responsibility. The activities identified under CER 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.

By carrying out systematic and scientific mining and implementing all the environmental mitigative measures it will be ensured that there will be no adverse impact on this front.

4.1.8 IMPACT ON LOCAL LOGISTICAL SYSTEM DUE TO PROJECT:

The material mined out from this lease area will be directly transported to the required customers. During the project operations, there will be 5 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 mineral in the transport vehicles before transporting, so that no dust nuisance during transport will arise.

- ❖ Plantation on either side of the transport road in consultation with the concerned department.
- ❖ Proper maintenance of transport road.
- ❖ Proper maintenance of transport vehicles.
- ❖ Avoiding overloading of material.
- ❖ Covering of loaded vehicles with tarpaulins sheet.
- ❖ Keeping traffic regulators at vulnerable locations.
- ❖ Limiting of speed
- ❖ Installation of barriers at vulnerable locations

4.1.9 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.

5.1 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 EMP measures, Rs.20.86 Lakhs is allocated under capital cost. Besides, Rs.18.78 Lakhs per annum is allocated as recurring cost. The baseline monitoring carried out for this project reflects the cumulative impact of this existing quarry.

6.1 CONCLUSION:

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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