

**DRAFT EXECUTIVE SUMMARY FOR
PROPOSED ROUGH STONE AND GRAVEL QUARRY
CATEGORY – B1**

(Public Hearing Upgraded after Terms of Reference (ToR) as per the provisions
of EIA Notification 2006 & amendments thereof)

ToR Identification No. TO24B0108TN5397062N, dated 14.05.2024

PROPOSED QUARRY LEASE DETAILS	
SURVEY NOS	8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B
VILLAGE	SITHALAPAKKAM
TALUK	VEMBAKKAM
DISTRICT	TIRUVANNAMALAI
EXTENT	3.87.5 HA
PROPOSED PRODUCTION QUANTITY FOR FIVE YEARS	ROUGH STONE : 2,12,855 m ³ GRAVEL : 15,912 m ³
LAND	PATTA LAND

(Sector No. 1(a) Sector No.1 as per NABET)

Category of the Project: B1 Cluster Mining, Total Cluster Area – 10.33.5 Ha
Baseline Monitoring Period – March 2024 to May 2024

APPLICANT

THIRU.M.N. BALASUNDARAM,
S/O.NATARAJAN,
NO.72, MAIN ROAD, MANGADU,
KUNDRATHUR TALUK, KANCHIPURAM DISTRICT

ORGANIZATION

M/s. GLOBAL MINING SOLUTIONS
(NABET ACCREDITED & ISO 9001 CERTIFIED CONSULTANT)
PLOT NO. 6, SF NO. 13/2, A2, VS CITY, RC CHETTYPATTY,
KOTTAMETTUPATTY, OMALUR, SALEM, TAMIL NADU – 636 455
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OCTOBER- 2024



EXECUTIVE SUMMARY

OVER ALL JUSTIFICATION FOR IMPLEMENTATION OF THE PROJECT

INTRODUCTION

Thiru.M.N.Balasundaram, S/o.Natarajan has obtained Precise Area Communication Letter from Deputy Director, Department of Geology and Mining, Tiruvannamalai to quarry out 2,12,855 m³ of Rough Stone and 15,912 m³ from an extent of 3.87.5 Ha located in S. F. Nos. 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A and 8/3B in Sithalappakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State.

As per EIA notification, 2006 and its subsequent amendments the proposed "Rough Stone and Gravel Quarry" of Thiru.M.N.Balasundaram, S/o.Natarajan mines cluster falls under Schedule 1(a) of EIA Notification and its subsequent amendments the project comes under Category B1. The ToR for preparation of EIA/EMP report of the project was approved vide ToR Identification No. TO24B0108TN5397062N, dated 14.05.2024. This report has been prepared in line with the approved TOR for production of maximum excavation of 2,12,855 m³ of Rough Stone and 15,912 m³ gravel.

S.No.	Description	Status/Remarks
1.	Sector	Non-coal mining
2.	Category of the project	B1
3.	Proposed mineral	Rough Stone & Gravel quarry
4.	Type of Lease	New Project
5.	Extent of the lease	3.87.5 Ha
6.	Proposed depth of Mining	47m BGL
7.	Method of mining	Opencast- mechanized
8.	Proposed lease period	5 Years
9.	Proposed Environmental Clearance	5 Years
10.	Proposed production quantity for five years	Rough Stone: 2,12,855 m ³ Gravel: 15,912 m ³

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LOCATION

This project site is located in Sithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District, Tamil Nadu State with Latitude 12°42'45.97"N to 12°42'52.67"N and Longitude 79°43'25.08"E to 79°43'33.64"E. with Survey of India Topo Sheet No. 57 P/10. To conduct the study, the proposed mine lease area (core zone) and an impact zone of 10 km radius (called buffer zone) around the proposed mine site were considered. The EIA report is based on three months baseline data (i.e. March 2024 to May 2024)

GEOLOGY

The rock type noticed in the area for lease is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian minerals. The Charnockite is part of peninsular Gneisses, a high grade metamorphic rock. The strike of the Charnockite formation is N40°E – S40°W with dipping towards SE70°.

PROJECT DESCRIPTION

This is a proposed Rough Stone and Gravel quarry by Opencast-Mechanized mining method with drilling and blasting. The quarrying is restricted up to a depth of 47m below ground level. The geological method is estimated to be 13,79,140 m³ of Rough Stone and 48,088 m³ Gravel. The mineable reserve calculated by deducting 7.5 m, 10m and 50m safety distance and bench loss. The mineable reserves is 2,12,855 m³ of Rough Stone and 15,912 m³ of Gravel which will be recovered at the rate of 100% recovery upto a depth of 47m Below ground level for the period of five years.

- It is proposed to quarry out rough stone and Gravel with 5m bench height, 5m width with 80° slope using conventional Open cast Mechanized method. The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough Stone and Gravel.
- There is no overburden anticipated during entire rough stone and Gravel quarrying operation.

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S.No.	Type of Detail	Description
1	Sector	1(a) Non coal mining
2	Fresh/Existing project	New Project
3	Category	B1
4	Nature of mineral	Minor Mineral
5	Production	5 years
6	Life	Rough Stone - 2,12,855 m ³ Gravel - 15,912 m ³
7	Waste generation and management	Nil
8	Bench height and width	Proposed bench height & width is 5.0m respectively and number of proposed benches is 10 Nos (1+9).
9	Ultimate pit depth	47 m BGL
10	End use	The excavated Rough Stone and Gravel is used for construction industries for Government & Public sector projects besides catering domestic housing and infrastructure projects in and around the district.

PROJECT REQUIREMENTS

The requirements of the project is given below.

S.No.	Nature of requirement	Description
1	Water requirement	Total water requirement of 6.0 KLD which will be procured from the outside agencies. 2.0 KLD drinking water requirement, green belt development is 2.0 KLD and dust suppression is 2.0 KLD.
2	Power requirement	No electricity is needed for mining operations, for office demands, it will be met from the state grid.
3	Manpower requirement	Permanent employees - 10, temporary employees - 15
4	Financial requirement	The total project cost as per PFR will be INR 306.44 lakhs including Operational cost, Fixed Asset cost and EMP cost
5	Funds for Socio economic development	INR 10 Lakhs is allocated. In addition, any demand raised by people during public hearing will also be met.

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DESCRIPTION OF LEASE AREA

Description of the lease area				
S.No.	Areas	Distance from project site		
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Nil within 15km radius		
2	Areas which are important or sensitive for ecological reasons			
A	Wetlands, water courses or other water bodies,	Water bodies	Distance	Direction
		Canal	Adjacent	N
		Tank	120m	E
		Tank	425m	SW
		Tank	850m	SE
		Tank	720m	S
		Suruttal Lake	2.76km	N
		Cheyyar River	2.2km	SE
		Palar River	7.61km	NE
		Arapakkam Lake	4.16km	NE
		Mangal Lake	4.64km	W
		Kannikulam Lake	4.75km	SE
		Adavapakkam Lake	5.03km	SE
		Marudham Big Lake	7.02km	SE
Uthiramerur Lake	7.42km	S		
Mamandur Tank	7.49km	NW		
B	Coastal zone, biospheres,	Nil within 10km radius		
C	Mountains, forests	Nil within 10km Radius Marudham R.F – 7.04km (SE) Karikili Birds Sanctuary (17.17km - SE) & Vedanthangal Birds Sanctuary (22.90 km - SE)		

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3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	Nil within 15km radius
4	Inland, coastal, marine or underground waters	Nil within 15km radius
5	State, National boundaries	Nil within 15km radius
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	Nil within 15km radius
7	Defense installations	Nil within 15km radius
8	Densely populated or built-up area	Mamandur (6.75km, NW)
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Mamandur (6.75km, NW)
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	Nil
11	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	Nil
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (earth quakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions) similar effects	No. The area is not prone to earthquakes, floods, etc.

The features in the study area are given below.

The baseline data collection for meteorology, air, water, noise and soil environments have been carried out during March to May 2024.

Air, water, noise and soil samples are collected and analyzed through NABL accredited lab.

EXPLANATION OF HOW ADVERSE EFFECTS HAVE BEEN MITIGATED

AIR ENVIRONMENT

The air monitoring have been carried out in 6 locations and the results are given below.

Details Of Ambient Air Quality Monitoring Locations				
S. No.	Station Code	Locations	Distance & Direction	Coordinates
1	AAQ 1	Proposed Mine Site	Core Zone	12°42'50.15"N 79°43'28.67"E
2	AAQ 2	Arasanipalai	0.71 km, SE	12°42'31.88"N 79°43'47.64"E
3	AAQ 3	Chithalapakkam	1.17 km, E	12°43'2.37"N 79°44'11.3"E
4	AAQ 4	Ezhacheri	1.27 Km, NW	12°43'10.28"N 79°42'46.22"E
5	AAQ 5	Pavoor	2.36 Km, SW	12°42'3.96"N 79°42'20.85"E
6	AAQ6	Punnai	1.98 Km, S	12°41'45.35"N 79°43'10.68"E

Station ID	Min	Max	Avg.
Particulate matter PM₁₀ - (µg/m³)			
AAQ-1	56.9	76.2	66.55
AAQ-2	51.3	66.4	58.85
AAQ-3	48.3	58.7	53.50
AAQ-4	46.0	55.2	50.60
AAQ-5	40.9	54.7	47.80
AAQ-6	42.9	52.1	47.50
CPCB NAAQS 2009 for PM₁₀ - 100 µg/m³			
Particulate matter PM_{2.5} (µg/m³)			
AAQ-1	26.8	35.8	31.30
AAQ-2	23.6	30.6	27.10
AAQ-3	22.74	27.6	25.17
AAQ-4	20.69	24.83	22.76
AAQ-5	18.5	24.9	21.70
AAQ-6	20.5	25.0	22.75
CPCB NAAQS 2009 for PM_{2.5} - 60 µg/m³			
Sulphur Di-oxide as SO₂ (µg/m³)			
AAQ-1	5.1	6.8	5.95
AAQ-2	5	6.1	5.55
AAQ-3	4.2	6.1	5.15
AAQ-4	4	5.5	4.75
AAQ-5	2.9	4.3	3.63
AAQ-6	2.9	5.2	4.05

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Station ID	Min	Max	Avg.
CPCB NAAQS 2009 for SO₂ – 80 µg/m³			
Oxide of Nitrogen as NO₂ (µg/m³)			
AAQ-1	7.4	13.8	10.60
AAQ-2	6.6	11.6	9.10
AAQ-3	5.8	11	8.40
AAQ-4	5.7	10.6	8.15
AAQ-5	6.4	8.5	7.45
AAQ-6	6.5	8.8	7.65
CPCB NAAQS 2009 for NO₂ – 80 µg/m³			

All the values of pollutant concentrations were found to be within the NAAQS Standards.

WATER ENVIRONMENT

Results of Ground Water sampling Analysis in 6 locations							IS:10500: 2012	
	W1	W2	W3	W4	W5	W6	Desirable	Permissible
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity	<1	<1	<1	<1	<1	<1	Agreeable	Agreeable
pH at 25 °C	7.59	7.62	7.05	6.60	7.06	6.98	6.5 - 8.5	No Relaxation
Electrical Conductivity	753.9	1352	1579	2255	1627	2268	1	5
Total Dissolved Solids	450	810	950	1350	974	1362	500	2000
Total hardness as CaCO ₃	293	309	519	582	586	576	1	15
Calcium as Ca	79.2	66.5	124	130	165	141	200	600
Magnesium as Mg	22.8	34.2	50.4	61.8	41.8	53.8	200	600
Calcium as CaCO ₃	198	166	309	325	412	352	75	200
Magnesium as CaCO ₃	95.0	143	210	257	174	224		
Total alkalinity as CaCO ₃	283	424	384	436	291	420		
Chloride as Cl-	90.5	195	264	394	277	456	250	1000
Free Residual chlorine as Cl-	BDL (D.L - 0.2)	BDL (D.L - 0.2)	BDL (D.L - 0.2)	BDL (D.L - 0.2)	BDL (D.L - 0.2)	BDL (D.L - 0.2)	30	100
Sulphates as SO ₄ ²⁻	45.6	210	229	365	247	354	45	No Relaxation
Iron as Fe	0.05	0.11	0.06	0.04	0.08	0.05	200	400
Nitrate as NO ₃	2.34	4.35	1.98	6.89	5.64	4.62	1	No Relaxation
Fluoride as F	0.42	0.47	0.44	0.52	0.54	0.59	0.1	0.3
Manganese as Mn	BDL (D.L - 0.05)	BDL (D.L - 0.05)	BDL (D.L - 0.05)	BDL (D.L - 0.05)	BDL (D.L - 0.05)	BDL (D.L - 0.05)	Not Specified	Not Specified

All the values were found to be within permissible limits

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NOISE ENVIRONMENT

Noise levels were measured in 6 locations and the results are given below.

Noise monitoring results					
S. No	Location	Day equivalent	Night equivalent	Day equivalent limits by CPCB	Night equivalent limits by CPCB
1	Proposed Mine Site	43.8	38.6	75	70
2	Arasanipalai	48.1	37.7		
3	Chithalapakkam	46.1	37.7		
4	Ezhacheri	47.3	38.3		
5	Pavoor	49.1	39.8		
6	Punnai	45.4	44.1		

SOIL ENVIRONMENT

Soil samples are collected from 6 locations and the results are given below.

Results of Soil Sample Analysis								
S. No	Parameter	Unit	S1	S2	S3	S4	S5	S6
S. No	Parameter	Unit						
1	pH at 25 °C	-	6.78	6.66	7.26	7.05	7.56	6.96
2	Electrical Conductivity	µmhos/cm	70.24	158.80	104.30	110.60	174.10	95.64
3	Dry matter content	%	95.68	94.67	96.14	97.84	90.70	97.78
4	Water Content	%	4.32	5.33	3.86	2.16	9.30	2.22
5	Organic Matter	%	1.25	1.95	2.09	1.68	2.09	1.65
6	Soil texture	-	sandy clay	clay	silt loam	loam	SILTY CLAY	SILTY CLAY
7	Grain Size Distribution	%	61.00	37.76	17.89	36.47	5.86	6.48
	i. Sand							
8	ii. Silt							
9	iii. Clay	%	53.74	41.20	16.41	19.93	54.59	46.84
10	Phosphorous as P	mg/kg	0.69	0.78	1.32	0.96	1.75	1.11
11	Sodium as Na	mg/kg	745	998	1020	812	656	1042
12	Potassium as K	mg/kg	366	1056	976	765	794	896
13	Nitrogen and Nitrogenous Compounds	mg/kg	232	364	297	255	366	455

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14	Total Soluble Sulphate	%	BDL(D.L. 0.02)	BDL(D.L. 0.02)	BDL(D.L. 0.02)	BDL(D.L. 0.02)	BDL(D.L. 0.02)	BDL(D.L. 0.02)
15	Porosity	%	20.7	24.4	23.1	21.6	20.5	22.3
16	Water Holding Capacity	Inches/foot	38	36	40	42	40	36

BIOLOGICAL ENVIRONMENT

FLORA

For measuring the extent of flora present in the study area, the area is divided into 4 quadrants. The flora population in each quadrant is summed up for the total population in the study area. Field survey is done. Erukku, Aavarai and Nayuruvi are found in lease area. In the buffer zone, common trees like Neem, papaya, mango, teak, etc and shrubs like Avarai, Aloe vera, etc, climbers like Kovai, jasmine etc are found.

FAUNA

In the study area, commonly found animals like dogs, cats, bush rat, cows, birds like crow, Myna, Sparrow, etc., were found.

LAND USE

The land use land cover data is found using the LANDSAT – 9 satellite imagery. The number of bands used are 11. The land use pattern is given below:

Major Land Use Units of the Study Area in Percentage

S. No	1st Level Classification	Area in (sq.km)	Percentage (%)	2nd Level Classification	Area in (sq.km)	Percentage (%)
1	Built-up or habitation	40.19	12.44	Residential	35.19	10.89
				Commercial/Industrial	5.0	1.55
2	Agriculture	184.1	57.00	Crop/fallow land	184.1	57.00
3	Water bodies	82.2	25.45	Reservoir/Lake /Pond	59.97	18.57
				River/Stram	22.23	6.88
4	Waste Land	8.63	2.67	Open without scrub	2.43	0.75
				Open with scrub	6.20	1.92
5	Mines	7.01	2.17	Mines	7.01	2.17
6	Forest	0.87	0.27	Forest	0.87	0.27
Total		323	100	Total	323	100

SOCIO ECONOMIC ENVIRONMENT

The socio-economic environment of the study area is studied by conducting primary sites through site visits and conducting sample surveys. The secondary data obtained from Census 2011 is also used.

The following data area collected from secondary data.

- Demographic pattern.
- Health pattern
- Occupational structure.
- Amenities available.
- The expert visited 5 villages in the study area namely Arasanipalai, Chithalapakkam, Ezacheri, Pavor and Punnai villages. Discussions were held with the people from nearby locality to study the social and economic conditions prevailing in the area. The expert also visited nearby hospitals, primary health centers and Tiruvannamalai. The following observations were made.
- Primary schools are available in many villages. For hospital facilities, people in the locality have to go to hospital in Kanchipuram which is about 8.5 km from

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the lease area. Major schools with higher secondary and senior secondary schools are located in Kanchipuram. The major sithalapakkam Union located in the area is Tiruvannamalai. Facilities like petrol pump stations, ATM facility are available in Kanchipuram.

HYDROGEOLOGY OF THE LEASE AREA

Since There is Cheyyar River is located at a distance of 2.2 km in South East and Palar River is located at a distance of 7.61 km in North East direction of lease area.

is studied in detail using satellite imagery.

There is Cheyyar River is located at a distance of 2.2 km in South East and Palar River is located at a distance of 7.61 km in North East direction of lease area. But there is no running water currently in the river. Only during monsoons, water gets stagnated at a few places.

There are many tanks located in the study area, which are mostly dry throughout the year. These tanks get water only during monsoons. The factors may be monsoon failure, insufficient rainfall, poor rain water management and water consuming patterns.

GROUND WATER STUDY

For Ground water study, satellite imagery is used. Water levels from monitoring levels are collected through imaging. The pre-monsoon and post-monsoon data are collected and the results are analyzed.

During field visit, it is observed that water is available in wells only after monsoon. The yield is obtained at deep levels only.

As far as the mining lease area is considered, the area is rocky and no major seepage is envisaged. The production quantity is very less and the depth proposed is 47m BGL. Hence, there will not be any major impact due to mining on water levels or ground water levels in the area.

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Environmental impacts on the following environments are identified.

- Land environment
- Water environment
- Vegetation
- Fauna
- Air environment
- Noise environment
- Socio-economic impacts

LAND ENVIRONMENT: IMPACT AND MITIGATION MEASURES

The major impact due to this project on land environment is the change in land use. Since this quarry is a small one and the production is less, mining activity will be carried out upto 47 m BGL. Other than quarrying of minerals, no other change will be done since there is no dumping. To prevent soil erosion during monsoon season, garland drain will be constructed with silt traps. At the mine closure stage 2.27.0 Ha of lease area will be left as rain water harvesting pond 1.57.5 Ha will be developed with green belt. For this, plants like Pungai, Vagai, Vembu, Manjal konrai, Naval, Puvarasu, etc., are selected. A total of 2000 trees are planned to be planted. Spacing will be 3m x 3m.

WATER ENVIRONMENT: IMPACT AND MITIGATION MEASURES

There is no water body present inside the lease area. The entire water requirement for the project is 6.0 KLD which will be sourced from outside agencies. Negligible sewage will be generated, for which a septic tank with soak pit will be set up.

During monsoon season, the excess rain water, if any, will be led through garland drain of 0.6m width and 0.3 m depth to the collection pond with silt traps.

Since the mining operation will be limited upto depth of 47 m (BGL), there will not be any seepage. However, the rain water percolation and collection of water from

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seepage shall be less than 300 lpm and it shall be pumped out periodically by a stand by diesel powered Centrifugal pump motivated with 7.5H.P.Motor. The quality of water is expected to be potable. Hence, water stored in the quarry pit will be pumped into the adjacent agricultural fields. Further the water can also be used for plantation purposes

The major water bodies found in the buffer zone are.

Water bodies	Distance	Direction
Canal	Adjacent	N
Tank	120m	E
Tank	425m	SW
Tank	850m	SE
Tank	720m	S
Suruttal Lake	2.76km	N
Cheyyar River	2.2km	SE
Palar River	7.61km	NE
Arapakkam Lake	4.16km	NE
Mangal Lake	4.64km	W
Kannikulam Lake	4.75km	SE
Adavapakkam Lake	5.03km	SE
Marudham Big Lake	7.02km	SE
Uthiramerur Lake	7.42km	S
Mamandur Tank	7.49km	NW

Since these water bodies are located outside the lease area and there is no discharge of effluent or any untreated water from the mines will be made in to these water bodies, there is no major impact. For the canal, adequate safety distance is left. The proponent will restrict the mining operation only within the lease and no other work will be carried out near the canal or any area outside the lease.

It is planned to carryout appropriate rainwater harvesting schemes and artificial recharge schemes in the area.

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- Rain water falling in the quarry will be collected efficiently through garland drains.
- Water thus collected will be passed through collection tank with silt traps. This water can be used by the proponent for water sprinkling and for green belt purposes.
- Excess water after desiltation will be provided to downstream users, if any

BIOLOGICAL ENVIRONMENT: IMPACT AND MITIGATION MEASURES

Impacts

- Fauna is affected due to noise and vibration.
- Dust generation due to mining activities
- Change in land use of the lease area
- Accidental falling of animals

Mitigation measures

- Sirens will be blown before blasting in the mines. To reduce noise levels, plantation will be done. Blasting will be carried out only in the allotted time.
- To reduce dust generation, mist sprayers will be used. During transportation, the material will be covered with tarpaulin. Water sprinkling will be done to reduce generation of pollutants
- After the mine closure stage, the mine pit will be left as rain water collecting tank, which can attract bird population in the nearby areas.
- To prevent entry of animals, the mining area will be properly fenced.

AIR ENVIRONMENT: IMPACT AND MITIGATION MEASURES

The major air pollutants due to mining operations are fugitive emissions like PM₁₀, PM_{2.5}. Other than these pollutants, gaseous emissions of sulfur dioxide (SO₂) and oxides of nitrogen (NO_x) due to excavation/loading equipment and vehicles plying on haul roads are the cause of air pollution in the project area.

The major impacts are Dust emission due to drilling, blasting and transportation. The major mitigation measures include Using Wet drilling methods, Allowing drilling only with PPE, Carrying out blasting only during specified times, Avoiding blasting during

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unfavorable weather conditions, Using explosives of good quality, Using mist sprayers Regular wetting of transport, Covering the materials carried in tippers with tarpaulin, Proper maintenance of vehicles used for transportation, Conducting regular emission tests for vehicles used for transport Development of greenbelt is proposed in the safety zone of 7.5m barriers in the lease area.

The anticipated data is calculated using AERMOD software and the projected values are found to be within limits.

NOISE ENVIRONMENT: IMPACT AND MITIGATION MEASURES

Impacts

- ✚ Noise generation in mining is due to operation like drilling, blasting and transportation of minerals within and outside the lease area.
- ✚ As per DGMS (Directorate General of Mines Safety) and OSHA (Occupational Safety and Health Administration) limits, the acceptable noise level is 85 dB(A) for an exposure period of 8 hours.
- ✚ Exposure to loud noise can also cause high blood pressure, heart disease, sleep disturbances, and stress. Noise pollution also impacts the health and well-being of wildlife.
- ✚ Noise exceeding prescribed limits may cause impairment like abnormal loudness perception, tinnitus, which causes a persistent high-pitched ringing in the ears, paracusis or distorted hearing

Mitigation measures

- ✚ As the distance between the source and receptor increases, the noise level also decreases. Hence, there will be a natural attenuation
- ✚ The proposed has planned to develop green belt in the periphery of the lease area, which diminishes sound volume by dampening them.
- ✚ All the equipment/machinery/trucks involved will be properly maintained to control noise generation
- ✚ Conducting regular health checkups for employees involved

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- ✦ Employees will be made to work on shifts to reduce their exposure time
- ✦ Providing earplugs to all employees

By adopting these measures, the noise levels will be maintained well within MoEF & CC limits since the baseline value is low.

VIBRATION: IMPACT AND MITIGATION MEASURES

Impacts

- ✦ Though vibration will be only felt by the people working inside the lease area, it is usually undesired.
- ✦ Vibration may also cause flyrocks
- ✦ It may frighten the birds and small insects in the lease area. However, it will be felt only for a short period

Mitigation measures

- ✦ Carrying out blasting on limited scale, only from 12:00 PM to 2:00 PM
- ✦ Control of fly rock and vibration by maintaining peak particle velocity within standard as prescribed by the DGMS and MOEF & CC.
- ✦ Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive
- ✦ Supervising blasting by competent and statutory foreman/ mines manager

SOCIO ECONOMIC ENVIRONMENT

Impact and Mitigation measures

No land is acquired from anyone. No rehabilitation is needed. Hence, there is no negative impact. The proponent has planned to spend INR 8,00,000 for CER activities. This amount will be subjected to change after public hearing.

OCCUPATIONAL HEALTH

Impacts

Dust generation due to drilling and blasting, Noise generation due to drilling and blasting, unexpected accidents. Continuous exposure to dust causes Pneumonia, Tuberculosis, Rheumatic arthritis and Segmental Vibration, Short term impact will be lack of sleep, high blood pressure and heart ailments. Long term exposure may lead

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to partial or permanent deafness, Risks include fly rocks, cracks or fissures due to improper mining methods

Mitigation measures

- Using dust suppression measures like water spraying on roads to reduce rise of air pollutants
- Providing green belt for air pollutant and noise attenuation
- Ensuring slope stability
- Employing only trained professionals for blasting
- Conducting Pre-Medical Examination for employees before inducting
- Conducting periodical Medical Examination once in 6 months.
- Making all first aid kits available in mines office
- Keeping fire extinguisher in place
- Educating the employees about how to handle unexpected happenings
- Posting information containing emergency contact numbers in mines office
- By adopting all these measures, the safety of the employees working in the quarry will be ensured.

ENVIRONMENTAL MONITORING PROGRAMME

Monitoring is done to measure the efficiency of control measures implemented. Regular monitoring of various environmental parameters like air, water, noise and soil environments is needed to assess the status of environment during the project operation. A schedule is framed with timeline to monitor various parameters during the operation of the project. To evaluate the effectiveness of environmental management programme, regular monitoring of the important environmental parameters will be taken up. Air monitoring will be carried out once in 3 months, water sample will be collected once in a season, noise will be monitored once in 3 months, soil samples will be analyzed once per season. For EMP, a budget of INR 218.19 Lakhs is allocated.

PROJECT BENEFITS

Financial benefits

- This project will contribute financially through payment of taxes like royalty, GST, etc.,
- The project will also contribute via CSR.
- The demands of people during public hearing will also be considered by the project proponent

Social benefits

- This project provides employment to 25 people directly. Local people will be hired for unskilled labour.
- Through CSR, nearby schools, hospitals will be benefitted.
- For CSR, INR 10,00,000 is allocated.
- Based on the demand of the people during public hearing, further funds will be allocated, if necessary.
- 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 218.19 lakhs for the five years has been allocated as EMP cost. 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. 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.



ANNEXURE-1

ந.க.எண்:429/கனிமம்/2022

துணை இயக்குநர் அலுவலகம்,
புவியியல் மற்றும் தனி வருவாய் துறை,
திருவண்ணாமலை 4.
நாள்: 11.2023.

அறிவிக்கை

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - திருவண்ணாமலை மாவட்டம் - வெம்பாக்கம் வட்டம் - சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள்: 8/1A (0.90.0) மற்றும் சிலவற்றின் மொத்தப் பரப்பு 3.87.5 ஹெக்டேர் பரப்பில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க - குவாரி குத்தகை உரிமம் வழங்கக்கோரி திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவர் விண்ணப்பம் செய்தது - பரிந்துரை அறிக்கை வரப்பெற்றது - சுரங்கத் திட்டம் (Mining Plan) தயார் செய்து சமர்ப்பிக்க கோருவது - தொடர்பாக.

- பார்வை:
1. திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், எண்.72, மெயின் ரோடு, மாங்காடு, குன்றத்தூர் வட்டம், காஞ்சிபுரம் மாவட்டம் என்பவரின் விண்ணப்ப நாள்.21.08.2023.
 2. இவ்வலுவலக கடிதம் ந.க.எண்.429/கனிமம்/2023, நாள்.21.08.2023.
 3. சார் ஆட்சியர் செய்யார் அவர்களின் கடிதம் ந.க.அ5/4297/2023 நாள்.20.10.2023.
 4. உதவி புவியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர் புவியியல் மற்றும் சுரங்கத்துறை, திருவண்ணாமலை அவர்களின் புலத்தணிக்கை அறிக்கை நாள்.01.11.2023.
 5. அரசாணை (MS)எண்.169 தொழில்துறை (எம்.எம்.சி1) துறை நாள்.04.08.2020.
 6. தொடர்புடைய ஆவணங்கள்.

திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள்: 8/1A (0.90.0), 8/1B (0.56.0), 8/1C (0.15.0), 8/1D (0.08.0), 8/1E (0.25.5), 8/1F (0.19.5), 8/1G (0.65.5), 8/1H (0.13.5), 8/1I (0.26.0), 8/1J (0.08.0), 8/1K (0.01.5), 8/1L (0.23.5), 8/1M (0.04.0), 8/3A (0.16.5) மற்றும் 8/3B (0.15.0) ஆகியவற்றின் மொத்தப்பரப்பு 3.87.5 ஹெக்டேரில் சாதாரணகல் மற்றும் கிராவல் வெட்டியெடுக்க 5 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவர் அளித்த பார்வை (1)-ல் கண்ட விண்ணப்பத்தின் மீது பார்வை 2-ல் காணும் இவ்வலுவலக கடிதம் மூலம் சார் ஆட்சியர் அவர்களை அறிக்கை அனுப்பி வைக்க கோரப்பட்டது.

2. அதனைத்தொடர்ந்து (3)-ல் கண்ட சார் ஆட்சியர் செய்யார் மற்றும் பார்வை 4-ல் காணும் திருவண்ணாமலை மாவட்ட புவியியல் மற்றும் சுரங்கத்துறை, துணை இயக்குநர் அலுவலக உதவி புவியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர் ஆகியோர் அளித்த பரிந்துரை அறிக்கைகள் பரிசீலிக்கப்பட்டது.

3. திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவர் சாதாரணக்கற்கள் மற்றும் கிராவல் வெட்டியெடுக்க 5 ஆண்டுகளுக்கு குவாரிக்குத்தகை உரிமம் வழங்கக்கோரி விண்ணப்பித்துள்ள திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள்: 8/1A (0.90.0), 8/1B (0.56.0), 8/1C (0.15.0), 8/1D (0.08.0), 8/1E (0.25.5), 8/1F (0.19.5), 8/1G (0.65.5), 8/1H (0.13.5), 8/1I (0.26.0), 8/1J (0.08.0), 8/1K (0.01.5), 8/1L (0.23.5), 8/1M (0.04.0),

8/3A (0.16.5) மற்றும் 8/3B (0.15.0) ஆகியவற்றின் மொத்தப்பரப்பு 3.87.5 ஹெக்டேர் நிலப்பரப்பில் எவ்வித தடையும் இன்றி குவாரிப்பணி செய்ய வாய்ப்பு உள்ளதால், மேற்படிமலை விண்ணப்பதாரர் திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவருக்கு சாதாரணதகர்கள் யன்றும் கிராவல் மண் வெட்டி எடுக்க குவாரி குத்தகை உரிமம் வழங்க பரிந்துரை செய்யப்பட்ட 3.87.5 ஹெக்டேர் பரப்பினை கற்குவாரி செய்ய உகந்த புலம் (Precise Area) என தீர்மானித்து கீழ்க்கண்ட நிபந்தனைகளுக்கு உட்பட்டு அறிவிப்பு செய்யப்படுகிறது.

நிபந்தனைகள்

- 1) விண்ணப்ப புலத்திற்கு வடக்கில் புல எண் 6 மற்றும் 10-ல் கிழக்குமேற்காக செல்லும் கால்வாய்க்கு 50மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 2) விண்ணப்ப புலத்திற்கு மேற்கில் புல எண் 7-ல் வடக்குமேற்காக செல்லும் பாதை மற்றும் தெற்கில் புல எண் 8/2-ல் கிழக்குமேற்காக செல்லும் வண்டிபாதை புறம்போக்குக்கு 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 3) அருகில் உள்ள பட்டா நிலங்களுக்கு 7.5மீ மற்றும் அரசு புறம்போக்கு நிலங்களுக்கு 10மீ பாதுகாப்பு இடைவெளி விடவேண்டும்.
- 4) பொதுமக்களுக்கும் அருகிலுள்ள நிலங்களுக்கும் எவ்வித பாதிப்பும் ஏற்படுத்தக்கூடாது.
- 5) குவாரிப்பணி தொடங்குவதற்கு முன்பாக குவாரியை சுற்றி முள் கம்பிவேலி அமைத்து குவாரிப்பணி தொடங்க வேண்டும்.
- 6) முறைப்படியும், விஞ்ஞானபூர்வமாகவும் குவாரிப்பணி செய்யவேண்டும்.
- 7) சான்றிதழ் பெறப்பட்ட போர்மேன், வெடிப்பாளர் மற்றும் சுரங்க மேலாளர் மூலம் முறையே குவாரிப்பணி செய்யப்பட வேண்டும்.
- 8) குவாரிப்பணி தொடங்குவதற்கு முன் சுரங்க பாதுகாப்பு இயக்குநர், சென்னை அவர்களுக்கு தகவல் தெரிவிக்கப்பட வேண்டும்.
- 9) பாறைகளைத் தகர்க்க கைத்துளைப்பான்களை கொண்டு பாறைகளை துளையிட்டு குழைவாலா வெடிபொருட்கள் பயன்படுத்த வேண்டும்.

4. தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதிகள் 41 மற்றும் 42-ன்படி கல் மற்றும் இதர சிறு கனிமங்களுக்கு குவாரி குத்தகை உரிமம் வழங்கும் முன்பு ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்று பெறப்பட வேண்டும் என வரையறுக்கப்பட்டுள்ளது.

5. எனவே, திரு.M.N.பாலசுந்தரம் த/பெ. நடராஜன், என்பவர் ஒப்புதல் பெறப்பட்ட சுரங்கத்திட்ட அறிக்கை மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மைச் சான்றினை பெற்று சமர்ப்பிக்கும் பட்சத்தில் திருவண்ணாமலை மாவட்டம், வெம்பாக்கம் வட்டம், சித்தலப்பாக்கம் கிராம பட்டா புல எண்கள் 8/1A (0.90.0), 8/1B (0.56.0), 8/1C (0.15.0), 8/1D (0.08.0), 8/1E (0.25.5), 8/1F (0.19.5), 8/1G (0.65.5), 8/1H (0.13.5), 8/1I (0.26.0), 8/1J (0.08.0), 8/1K (0.01.5), 8/1L (0.23.5), 8/1M (0.04.0), 8/3A (0.16.5) மற்றும் 8/3B (0.15.0) ஆகியவற்றின் மொத்தப்பரப்பு 3.87.5 ஹெக்டேர் பரப்பில் கற்குவாரி செய்ய தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண் 19(1) மற்றும் 20-ன்கீழ் 5 ஆண்டுகளுக்கு குத்தகை உரிமம் வழங்க உரிய நடவடிக்கை மேற்கொள்ளப்படும் என்ற விவரம் தெரிவிக்கப்படுகிறது.

6. மேலும், இவ்வறிவிப்பு கிடைக்கபெற்ற 90 நாட்களுக்குள் மேற்சொன்ன நிபந்தனைகளையும் குறிக்கும் வகையில் வரைவு சுரங்கத்திட்ட அறிக்கை தயார் செய்து துணை இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை திருவண்ணாமலை அவர்களிடம் ஒப்புதல் பெற சமர்ப்பிக்குமாறு அறிவுறுத்தப்படுகிறது.

துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
திருவண்ணாமலை.

பெறுநர்:

திரு.M.N.பாலசுந்தரம்
த/பெ. நடராஜன்,
எண்.72, மெயின் ரோடு,
மாங்காடு, குன்றத்தூர் வட்டம்,
காஞ்சிபுரம் மாவட்டம்.

08/11/23



ANNEXURE-2

APPROVAL LETTER AND
AD MINES 500M LETTER

From

Thiru.A.Perumal, M.Sc., M.Phil.,
Deputy Director,
Geology and Mining,
Tiruvannamalai - 4.

To

Thiru.M.N.Balasundaram,
S/o. Natarajan,
No.72 Main Road,
Mangadu, Kundrathur Taluk,
Kanchipuram District.

Rc.No.429/Kanimam/2023, dated: 29.11.2023

Sir,

Sub: Quarries and Minerals – Minor Mineral Rough Stone and Gravel – Tiruvannamalai District – Vembakkam Taluk – Chithalapakkam village – Patta SF.Nos.8/1A (0.90.0) & etc., over an extent 3.87.5 hecets., - Application preferred by Thiru.M.N.Balasundaram S/o. Natarajan – **Precise area communicated – Submission of Mining Plan for approval** - Approved - Regarding.

- Ref: 1. Application from Thiru.M.N.Balasundaram S/o. Natarajan, dated.21.08.2023
2. Precise Area Communication Notice Rc.No.429/Kanimam/2023, dated.08.11.2023
3. Mining Plan submitted by Thiru.M.N.Balasundaram S/o. Natarajan dated.28.11.2023.

In the reference 2nd cited, the Deputy Director, Geology and Mining Tiruvannamalai has communicated the SF.Nos.8/1A (0.90.0), 8/1B (0.56.0), 8/1C (0.15.0), 8/1D (0.08.0), 8/1E (0.25.5), 8/1F (0.19.5), 8/1G (0.65.5), 8/1H (0.13.5), 8/1I (0.26.0), 8/1J (0.08.0), 8/1K (0.01.5), 8/1L (0.23.5), 8/1M (0.04.0), 8/3A (0.16.5) & 8/3B (0.15.0) over an extent 3.87.5 hecets., of Chithalapakkam Village, Vembakkam Taluk, Tiruvannamalai District as precise area to the applicant **Thiru.M.N.Balasundaram S/o. Natarajan** for grant of quarry lease for quarrying Rough Stone and Gravel for a period of 5 years with a direction to produce an approved mining plan in respect of the **precise area as per Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959** by incorporating the conditions stipulated in the Deputy Director, Geology and Mining Tiruvannamalai letter dated 08.11.2023.

2. In response to the precise area communication letter issued by the Deputy Director, Geology and Mining, Tiruvannamalai the applicant has prepared the draft Mining Plan through the Recognized Qualified Person for approval vide reference 3rd cited.

3. The draft mining plan submitted in respect of the precise area communication has been examined with reference to the provisions of Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959 and the followings are observed.

- i) The boundary Co-ordinates (GPS readings) for the entire boundary pillars of the area have been incorporated and shown in the mining plan.

- ii) All the conditions stipulated in the Deputy Director, Geology and Mining Letter Re.No.429/Kanimam/2023 dated:08.11.2023 have been incorporated in the mining plan.
- iii) The reserves estimated in the mining plan is

Depth in Mts.	Geological reserves in Cu.m	Mineable Reserves in Cu.m
47m below ground level (2m Gravel + 45m Rough Stone)	Rough Stone : 13,79,140 Gravel : 48,088	Rough Stone : 2,12,855 Gravel : 15,912

4. In the light of the above, in exercise of the powers conferred under Rule 41 (7) of Tamil Nadu Minor Mineral Concession Rules, 1959 the mining plan in respect of Rough Stone quarry of Thiru.M.N.Balasundaram S/o. Natarajan is approved subject to the following conditions.

- i) The mining plan is approved without prejudice to any other Law applicable to the quarry lease from time to time whether such Laws are made by the Central Government, State Government or any other authority.
- ii) The approval of the mining plan does not in any way imply the approval of the Government it terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules 1981, Environment Protection Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- iii) The mining Plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.
- iv) Quarrying operations and production shall be carried out as per the approved Mining Plan and the applicant shall be liable to pay the cost of mineral if there is any deviation in the quantum indicated in the approved year wise quantum of production and any such cases as on date are to be dealt with as per Court direction.

5. Further, other quarries situated within 500 mts radial distance are as follows.

i) Existing Quarries

Sl. No.	Name of the Owner (Tvl.)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1.	Thiru.R.Elumalai S/o.Rajagopal, No.20, Pillaiyar koil street, Arasanipalai village, Vembakkam Taluk.	Ezhacheri & 62/ 1A, 1B ,2C,2D,4 5,6,7,9,10,11	1.24.0	02.11.2021 to 01.11.2031	Existing Quarry
2.	Thiru.P.Sanker S/o. Ponnappan, No.1/63 Pillaiyar koil street, Erumaiyur village, Thirumudivakkam, Chennai	Ezhacheri & 21/2F, 2G, 2H, 2I, 2J & 2K	2.09.5	02.11.2021 to 01.11.2031	Existing Quarry

3.	Thiru.R.Monishkumar, s/o Rajendiran, No.35/88, Rajaji Street, Chengalpattu.	Ezhacheri & 16/5A, 16/5B, 19/1B3, 4A1, 4B1, 4C1, 4D1, 5A, 5B1, 21/1C, 1D, 1E, 1F, 22/2B	3.12.5	02.11.2021 to 01.11.2031	Existing Quarry
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ii) Abandoned quarries

Sl. No.	Name of the Owner (Tvl.)	Village & S.F. Nos.	Extent in Hect.	Lease Period	Remarks
1.	B. Deenan , No.79, Gajapathi Street, Sanai Nagar, Chennai	Ezhacheri & 25/2	1.00.5	19.3.2010 to 18.3.2015	Expired Quarry
2.	R.Seenuvasan, Road Street, Arasanipalai village, Vembakkam Taluk	Ezhacheri & 65/4, 5, 7, 8A, 66/4	3.42.0	27.06.2014 to 26.06.2019	Expired Quarry
3.	B. Deenan , No.79, Gajapathi Street, Sanai Nagar, Chennai	Ezhacheri & 65/6	0.95.5	20.07.2018 to 01.03.2021	Expired Quarry


iii) Present Proposed Quarries

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
1	Thiru.M.N.Balasundaram, S/o. Natarajan, No.72 Main Road, Mangadu, Kundrathur Taluk, Kanchipuram District.	Chithalapakkam 8/1A, 8/1B, 8/1C, 8/1D, 8/1E, 8/1F, 8/1G, 8/1H, 8/1I, 8/1J, 8/1K, 8/1L, 8/1M, 8/3A & 8/3B	3.87.5

iv). Future Proposed quarries

Sl. No	Name of the Owner (Tvl)	Village & S.F. Nos.	Extent in Hect.
---Nil---			

Encl: 2 Copies of Approved Mining Plan.


 Deputy Director,
 Geology and Mining,
 Tiruvannamalai.

Copy submitted to:

1. The Chairman, SEIAA,
Tamil Nadu, 3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet, Chennai-15.
2. The Commissioner of Geology and Mining, Chennai-32.
3. The District Collector, Tiruvannamalai.

087/123