

# **EXECUTIVE SUMMARY**

For

## **A.P. NADANUR ROUGH STONE, WEATHERED ROCK & GRAVEL QUARRY**

**Over an extent of 4.38.0Ha.**

At

**Survey No: 467/2, 3, 477/3, 4, 5 & 468/1**

**Village: A. P. Nadanur**

**Taluk: Alangulam**

**District: Thenkasi**

**State: TamilNadu**

By

**Thiru. M. Mohamed Ismail,**

**S/o. Mohamed Mahaboob,**

**No. 8/143, Main Road,**

**Pottalpudur,**

**Thenkasi District**

**(Project termed under Schedule of 1(a) Mining of Minor Minerals 'B1' category as per  
EIA Notification 2006 and its Amendments thereafter and O.M issued vide F. No. L-  
11011/175/2018-IA-II (M), dated: 12.12.2018)**

### **Environmental Consultant**

**M/s. EHS360 Labs Pvt. Ltd.,**

**Ashok Nagar, Chennai**

**NABET Certificate No. NABET/EIA/2225/IA 0098 validity 24<sup>th</sup> June 2025**

**JULY 2023**

## EXECUTIVE SUMMARY

### 1. Project Description

The total extent area of the quarry is 4.38.0 Ha, situated at S.F. No. 467/2, 3, 477/3, 4, 5 & 468, A.P.Nadanur Village, Alangulam Taluk, Tenkasi District, TamilNadu.

The District Collector of Tenkasi had issued the precise area communication letter to produce the approved Mining Plan within a period 90 days as per Rule 8-C (3b) of Tamil Nadu Minor Mineral Concession Rules, 1959 vide RC No. Rc. No. M1/6695/2021, Dated: 09.04.2022.

Subsequently, the Mining Plan was submitted for the subject area and the same was approved by Department of G&M, Tenkasi vide Letter Rc.No.M1/6695/2021 dated 26.04.2022

The project falls under B1 Category, Schedule 1(a) Mining of Minerals as per EIA Notification dated 14<sup>th</sup> September 2006 and its subsequent amendments. In line with the provisions of Environment Impact Assessment (EIA) Notification 2006 (incl. its amendments from time to time), the SEIAA, Tamil Nadu had issued the Standard Terms of Reference (ToR) vide Letter No. SEIAA-TN/F.No.9520/SEAC/ToR-1342/2022, Dated: 09.02.2023 along with additional Terms of Reference, for carrying-out EIA Studies and preparation of an EIA/EMP Report.

The draft EIA/EMP report will be submitted for Public Hearing (PH). After completion of Public Hearing, the minutes issued will be incorporated in the EIA report along with action plan by the proponent. Final EIA will be submitted to TNSEAC for further appraisal of the project and obtaining Environment Clearance.

### 2. Management Commitment

Project Proponent will firmly address all the EC and its requirements and will execute the Environmental Management Plan.

### 3. Environmental Sensitive Areas

As seen in **Table-I** below, there are no notified ecologically sensitive areas, State and National boundary within 15km from Project Boundary. Thus the project does not attract the special conditions and general conditions as per EIA Notification.

S. No	Areas	Aerial distance (within 15 km.) Proposed project location boundary																																																																																																
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3	Nearby Town, City and Head Quarters	Town: Kadiyam, 6.54Km, WNW City: Tirunelveli - 26.19Km, ESE District HQ - Thenkasi - 20.40Km, NW																																																																																																

4	Nearest Airport, Port and Railway Stations	Railway Station: Kizhakadaiyam - 6.11Km, WNW Airport: Tuticorin Airport, 64.63Km, E
5	Nearest Highways	SH 40 Tiruchendur - Tenkasi - Shencottai Road, 4.21Km, WSW SH 41 A Tirunelveli - Pottalpuur Road, 2.24Km, SSW MDR 922 Kadayam - Mukkudal Road, 3.68Km, NNW NH 44 Srinagar to Kanyakumari, 31.93Km, E
6	Densely Populated	Pottapudur, 4.63Km, W Kadiyam, 6.54Km, WNW Ambasamudram, 9.66Km, SSE Alangulam, 8.47Km, NE

#### 4. Rough Stone & Gravel Quarry Reserves

- The estimated Geological Reserves of Rough stone & Gravel estimated based on the Geological cross sections was 19,70,685 m<sup>3</sup> of Rough Stone 2,18,965 m<sup>3</sup> of weathered rock and 87,586 m<sup>3</sup> of Gravel.
- The Mineable Reserves have been arrived as 76,944 m<sup>3</sup> of Gravel, 1,85,470 m<sup>3</sup> of Weathered rock and 10,24,965 m<sup>3</sup> of Rough stone.
- The Proposed production capacity is 10,24,965 m<sup>3</sup> of rough stone, 1,85,470 m<sup>3</sup> of Weathered rock and 76944 m<sup>3</sup> of gravel for a period of 5 years.

#### 5. Summary of the Magnitude of Operation

- The Rough stone & Gravel quarrying operation is proposed to carry out by opencast semi mechanized method by formation of benches. Benches are proposed with a height of 5m & 5m width. Major machineries are Compressor, Jack hammer, and excavator is used in proposed quarry. Tippers and dumpers will be used for transportation.
- Proposed Production Capacity is 10,24,965 m<sup>3</sup> of rough stone, 1,85,470 m<sup>3</sup> of Weathered rock and 76944 m<sup>3</sup> of gravel for a period of 5 years
- The mineable reserves have been computed as 76,944 m<sup>3</sup> of Gravel, 1,85,470 m<sup>3</sup> of Weathered rock and 10,24,965 m<sup>3</sup> of Rough stone.

#### 6. Project Requirements

##### I. Land requirement:

- The Rough stone & Gravel mine is over an extent of 4.38.0 Ha.
- Lease area located at SF. No. 467/2,3,477/3,4,5 & 468/1, A.P.Nadanur Village, Alangulam Taluk, Tenkasi District, TamilNadu. The proposed quarry is located between the Latitude 08°48'08.86" N & 08°48'17.74" N and Longitude 77°26'03.91" E to 77°26'12.39" E
- The lease area topography is plain terrain; site elevation is 95 m (max) AMSL. The area is marked in the survey of India Topo sheet No. 58 H/5.

##### Quarry Lease area breakup:

S. No	Description	Present area (Ha.)	Area at the end of this quarrying period (Ha.)
1	Area under quarrying	Nil	3.75.0
2	Infrastructure	Nil	0.02.0
3	Roads	Nil	0.02.0
4	Greenbelt	Nil	0.50.0
5	Unutilized Area	4.38.0	0.09.0
<b>Grand Total</b>		<b>4.38.0</b>	<b>4.38.0</b>

##### II. Water Requirement

- The total water requirement is 2.5 KLD (Drinking & Domestic purpose-0.5 KLD, Dust

suppression -1.0 KLD & for Greenbelt-1.0KLD). The total water requirement will be met from Road tankers.

- The rough stone & gravel quarry will not produce toxic effluent in the form of solid, liquid or gas.
- No wastewater will be discharged by quarry operation. Domestic wastewater will be disposed to Septic Tank followed by soak pit.

### **III. Power & Fuel Requirement**

- No power is required during mining operations. Working is restricted on day time only between 9AM to 5PM with 1PM to 2PM as lunch break.
- 8,19,968 liters of HSD for the entire project life will be brought from nearby diesel pumps.

### **IV. Manpower**

- Manpower requirement for the proposed project is 20 Nos.

### **V. Solid Waste Generation & Management**

- Municipal solid waste (9 kg/day) will be segregated as Organic will dispose through local municipal bins and inorganic waste (5 kg/day) will be disposed through TNPCB authorized recyclers.
- Waste diesel Oil will be collected in leak proof containers and disposed to TNPCB Authorized Agencies for Reprocessing/Recycling.

## **7. Project Cost**

- The total capital investment on the project is Rs. 1,01,25,080/-including EMP cost is Rs. 18,08,000/-.

## **8. Description of Environment**

### **Project Influence Area (PIA)/Study Area:**

An area covering 10 km radius from the proposed Rough stone & Gravel quarry boundary has been earmarked as study area for baseline studies.

### **Study Period:**

The baseline environmental surveys were carried out during (March 2023 to May 2023) within the study area.

### **Summary of Baseline Studies:**

- Site has an undulating terrain with level 95m Above MSL.
- The project site falls under Zone- II (Low Risk Zone) as per IS 1893 (Part- I).
- The predominant wind direction is North West (as per IMD).

### **Ambient Air Quality Monitoring**

The ambient air quality has been monitored at 8 locations for 12 parameters as per NAAQS, 2009 within the study area. Maximum concentrations of all the parameters are well within the National Ambient Air Quality Standards (CPCB, NAAQS, 2009):

- PM<sub>10</sub> ranged between 41.7– 66.3 µg/m<sup>3</sup>, (NAAQ standard 100 µg/m<sup>3</sup>)
- PM<sub>2.5</sub> values varied from 17.2– 31.3 µg/m<sup>3</sup>. (NAAQ standard 60 µg/ µg/m<sup>3</sup>)
- SO<sub>2</sub> levels varied from 6.6 µg/m<sup>3</sup> to 13.4 µg/m<sup>3</sup>. (NAAQ standard is 80 µg/m<sup>3</sup>)
- NO<sub>x</sub> ranged between 14.4 µg/m<sup>3</sup> to 29.2 µg/m<sup>3</sup>. (NAAQ standard is 80 µg/m<sup>3</sup>)

### **Noise Environment**

- In Industrial areas daytime noise levels were about 53.7 dB(A) and 43.2 dB(A) during nighttime, which is within prescribed limit by CPCB (75 dB(A) Day time & 70 dB(A) Nighttime).
- In residential areas daytime noise levels varied from 49.2 dB(A) to 52.1 dB(A) and nighttime noise levels varied from 39.9 dB(A) to 42.7 dB(A) across the sampling stations. The field observations during the study period indicate that the ambient noise levels are well within the prescribed limit by CPCB (55 dB(A) Day time & 45 dB(A) Nighttime).

### **Ground Water Quality**

- The prevailing status of water quality at 8 locations for ground water has been assessed during the study period. Groundwater samples are within the permissible limits specified for drinking water quality standards as per IS: 10500 (2012).
- The ground water results of the study area indicate that the pH range varies between 6.94 and 8.11. It is observed that the pH range is within the limit of IS 10500:2012.
- The Total Dissolved Solids range is varied between 1020 mg/l – 1350 mg/l for the ground water. All the samples are well within the permissible limit of IS 10500: 2012.
- The acceptable limit of the chloride content is 250 mg/l and permissible limit is 1000 mg/l. The chloride content in the ground water for study area ranges between 269.3 mg/l – 342.5 mg/l. It is observed that all are well within the permissible limit of IS 10500:2012.
- The desirable limit of the sulphate content is 200 mg/l and permissible limit is 400 mg/l. The sulphate content of the ground water of the study area varies between 125.6 mg/l – 211.4 mg/l. It is observed that all the samples are within the permissible limit of IS 10500: 2012.

### **Surface Water Quality**

- The pH value ranges from 6.83 to 7.8 and within the limits (6.5 – 8.5) of IS 2296:1992.

- The Electrical Conductivity (EC) of the collected surface water ranges from 1255  $\mu\text{S}/\text{cm}$  to 2358  $\mu\text{S}/\text{cm}$ .
- The chloride content in the collected surface water ranges from 205.6 mg/l to 349 mg/l.
- The sulphate content in the collected surface water sample ranges from 97.7 mg/l to 164.9 mg/l.
- COD of the collected surface water sample ranges from 11.3 mg/l to 32.6 mg/l.
- BOD of the collected surface water sample ranges from 6.9 mg/l to 20.7 mg/l.
- The concentration of heavy metals like As, Cd, Cr, Pb, Mn, Hg, Ni and Se at all locations are within the limits of IS 2296:1992(Class-C: Drinking water with conventional treatment followed by disinfection.)

### **Soil Quality**

- Soil sampling was carried out at eight (08) locations in the study area. It is observed that, Soil types are Sandy Clay Loam, Loam, Loam sand, and clay and the soil samples are slightly alkaline in nature.
- The pH of the soil samples ranged from 6.8 to 7.91.
- The potassium content ranged from 49 mg/kg to 91 mg/kg.
- Nitrogen content ranged from 153 mg/kg to 311 mg/kg.
- Phosphorous ranged from 46 mg/kg to 73 mg/kg .

### **Biological Environment**

- None of the plant species and fauna recorded in the core area belongs to the Rare/Endangered/Endemic/Threatened category. Except Least Concern, -Vulnerable and none classified species are found.
- There is no Rare/Endangered/Endemic/Threatened category species were found in study area.

### **Socio-economic Conditions:**

- The total population of the project area is 394418. The area has 193647 male (49.10%) and 200771 female (50.90%) population. The percentage of Scheduled caste is 15.74 % and Scheduled tribe population is 0.48%. The child population (0 to 6 years) is 9.94 % of the total population of the area.
- The study area has more than 50% non-workers. There is a need to establish more industries so that maximum number of employments can be generated

## **9. Anticipated Environmental Impacts with Mitigation Measures**

Anticipated impacts on the environmental and social attributes, which are likely to arise due to quarry operations have been identified, predicted and evaluated.

- The proponent has obtained lease from the Pattadhar Thiru. Mohamed Mahaboob, in the year 2021 for a period of 15 years which is valid up to 2036, over an extent of 4.38.0Ha, of Patta land for Rough stone & Gravel mining at A.P.Nadanur Village, Alangulam Taluk, Tenkasi District, TamilNadu. There are no R&R issues.
- The lease area topography is plain terrain with site elevation is 95 m AMSL. The proposed Project will be provided with self-sufficient infrastructure like office, Toilets, to minimize impact/strain on the existing infrastructure.
- All the necessary Air pollution control measures will be adopted to control the fugitive emissions, particulates, SO<sub>2</sub> and NO<sub>x</sub>.
- The impact on air environment was studied through air quality modeling studies. The 1<sup>st</sup> highest 24hour average concentrations of NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> at all receptor locations are found to be well within the National Ambient Air Quality Standards (NAAQS), 2009.
- The designed equipment with noise levels not exceeding beyond the requirements of Occupational Health and Safety Administration Standard will be employed.
- The water demand for the project will be met from private tankers. Proper garlands will be provided around the quarry. Domestic sewage will be disposed to septic tank followed by soak pit. Septic Tank will be cleaned periodically. There is no effluent generation due to mining activities.
- The solid waste generated may impact soil quality, water quality and public health if not regulated properly. Municipal Solid Wastes including food waste are disposed to municipal bin. Waste Diesel oil will be properly disposed through authorized recycler as per the Hazardous and Other wastes (Management and Transboundary Movement) Rules 1989 and subsequent amendment in 2016. Top soil will be stored and used for afforestation within lease area.
- To reduce the adverse effects on flora/fauna status that are found in project area due to deposition of dust generating from mining operations, water sprinkling and water spraying systems will be ensured in all dust prone areas to arrest dust generation.

## **10. Greenbelt Development**

An area of 0.50 Ha hectare land was allotted for greenbelt development during first 5 years of mining plan. It is proposed to plant 300 No's of trees per year and Rs. 70,000/- will spend for proposed greenbelt development and maintenance.

## **11. Analysis of Alternatives**

The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise. No R&R, no Sensitive area etc., making the site suitable for the mining of Rough stone & Gravel. The site meets the requirement of all critical factors that are important for success of mining in the state and could be a pre-eminent location.

## **12. Environment Monitoring Programme**

Environmental monitoring programme has been formulated for the environmental attributes (Air, Water, Noise, and Soil) and the same will be implemented as per CPCB guidelines. The effective implementation and close supervision of the environmental management to mitigate the environmental impacts due to mining activities.

## **13. Disaster Management Plan**

The salient features of Disaster Management Plan include

- Emergency shutdown procedure
- Fire protection system
- Emergency safety equipment & Reporting and response to emergency
- Emergency Help from nearby industries and tie up with nearby industries

## **14. Corporate Environmental Responsibility**

- The site has no Relocation and Rehabilitation.
- Most villages have benefitted mutually at meenakshipuram where the mining industry has provided indirect jobs for labor and villages provide accommodation for the labor and staff.
- Supportive industries like food supply and essential shops are economic growth in the villages.
- 2 % (2.02 Lakhs) on total cost will be allocated for CER activities as per MoEF&CC Office memorandum dated 1<sup>st</sup> May, 2018.

## **15. Benefits of the Proposed Project**

- The quarrying activities in this belt will benefit to the local people 20 Nos.
- Improvement in Per Capita Income.
- The socio - Economic conditions of the village and distance will enhance due to the project, hence the project should be allowed after considering all the parameters.
- It can thus be concluded that the project is environmentally compatible, financially viable and would be in the interest of construction industry thereby indirectly benefiting the masses.

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