

*Pre-Feasibility Report of
Virahalur Sand Quarry Project for
Restoring the Functional efficiency of the Coleroon River*

(Under the Guidelines of Ministry of Environment and Forest in terms of the provisions of EIA notification
2006 and specifically in circular No J-11013/41/2006-IA.II (I) dated 30th December, 2010)

Location of the Quarry Lease area

S.F.No. 214 (Part) and 234 (Part)

Virahalur Village,

Lalgudi Taluk,

Tiruchirappalli District,

Extent: 24.00.0Ha

Category: B1 Project

Project Proponent

The Executive Engineer

Water Resources Department,

Mining and Monitoring Division,

Tiruchirappalli District

Tamil Nadu State – 620020



1. EXECUTIVE SUMMARY

Project Details:

- ❖ Name of the Project: Virahalur Sand Quarry Project
- ❖ Project Proponent: The Executive Engineer, Water Resources Department, Tiruchirappalli
- ❖ Location of the area: S.F.No. 214 (Part) and 234 (Part) of Virahalur Village, Lalgudi Taluk, Tiruchirappalli District, Tamil Nadu.
- ❖ Area of the Project: 24.00.0Ha
- ❖ Ownership: It is a Government land (River Poramboke).

Government Order/Letter Details:

- ❖ The precise area communication letter was received from the District Collector, Tiruchirappalli District vide ***Rc.No. 698/2021/Mines, Dated: 22.02.2022.*** To submit approved mining plan and to obtain Environmental Clearance from the State Level Environmental Impact Assessment Authority, Tamil Nadu (Refer Annexure No. I).
- ❖ As per the precise area communication letter the Mining plan was approved by the Assistant Director, Department of Geology and Mining, Tiruchirappalli vide ***Rc.No. 698/2021/Mines Dated: 12.05.2022. (Enclosed Annexure No. VIII).***

Operation Details:

- It is a fresh lease application of Virahalur Sand quarry project for **“Restoring the Functional efficiency of the Coleroon River”**

Production Details:

- ❖ Geological Resources: **12,00,000m³** of Sand
- ❖ Mineable Reserves: **7,68,000m³** of Sand
- ❖ Recoverable Reserves: **7,68,000m³** of Sand
- ❖ Proposed Depth: **3.2m (2.2m Above Bed Level + 1m Below Bed Level)**
- ❖ Lease Period: Two years

EIA Notification & Norms:

- ❖ EIA notification 2006 requires Submission of Form – 1, Form 1M and Pre-Feasibility report for obtaining Environmental Clearance since the Pre-feasibility report is prepared as per the Guidelines issued by the Ministry of Environment and Forest dated 30th December 2010.



❖ As per the Notification S.O. 3977 (E) Dated 14th August, 2018: The Mining project is falls under Schedule 1 (a), **Categorized as B1**, Form – 1, Form 1M, **Pre- Feasibility Report (PFR)** and Approved Mining plan is required to Obtain Environmental Clearance from State Environmental Impact Assessment Authority (SEIAA), Chennai.

SALIENT FEATURES OF THE PROJECT

S.No	PARTICULAR	DETAILS															
1.	Name of the Proponent	The Executive Engineer, Water Resources Department, Tiruchirappalli.															
2.	Type of Project	Removing of Sand quarry for Restoring the Functional efficiency of the Coleroon River” in Virahalur Village.															
3.	Location	S.F.No. 214 (Part) and 234 (Part) of Virahalur Village, Lalgudi Taluk and Tiruchirappalli District, Tamil Nadu.															
4.	Mining lease area	Area: 24.00.0Ha															
5.	Type of land Patta/forest/PWD	It is a Government land - Non-Forest															
6.	Geographical co-ordinates	Latitude between: 10°53'53.3283"N to 10°54'01.5626"N Longitude between: 78°58'21.6578"E to 78°59'01.4184"E Boundary Co-Ordinates (Plate No. II) <table border="1" style="margin-left: 20px; border-collapse: collapse; width: 80%;"> <thead> <tr style="background-color: #d9ead3;"> <th>S.No</th> <th>Latitude</th> <th>Longitude</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>10°53'59.8297"N</td> <td>78°58'21.6578"E</td> </tr> <tr> <td style="text-align: center;">2</td> <td>10°54'01.5626"N</td> <td>78°59'01.1264"E</td> </tr> <tr> <td style="text-align: center;">3</td> <td>10°53'55.0612"N</td> <td>78°59'01.4184"E</td> </tr> <tr> <td style="text-align: center;">4</td> <td>10°53'53.3283"N</td> <td>78°58'21.9501"E</td> </tr> </tbody> </table>	S.No	Latitude	Longitude	1	10°53'59.8297"N	78°58'21.6578"E	2	10°54'01.5626"N	78°59'01.1264"E	3	10°53'55.0612"N	78°59'01.4184"E	4	10°53'53.3283"N	78°58'21.9501"E
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7	Topo Sheet No.	Topo sheet No: 58-J/ 13															
8	Name of the mineral mined	Sand quarry project															
9	<u>Production (quantity in m³)</u> <ul style="list-style-type: none"> ➤ Sand - 7,68,000m³ ie., 1,28,000 Lorry Loads ➤ Proposed depth - 3.2m (2.2m Above Bed Level + 1m Below Bed Level) ➤ Lease Period - Two years <table border="1" style="margin-left: 20px; border-collapse: collapse; width: 80%;"> <thead> <tr style="background-color: #d9ead3;"> <th>Description</th> <th>Sand (m³)</th> </tr> </thead> <tbody> <tr> <td>Geological Resources</td> <td style="text-align: center;">12,00,000</td> </tr> <tr> <td>Available Mineable reserves</td> <td style="text-align: center;">7,68,000</td> </tr> <tr> <td>Proposed Quantity as in the approved mining plan</td> <td style="text-align: center;">7,68,000</td> </tr> </tbody> </table>	Description	Sand (m ³)	Geological Resources	12,00,000	Available Mineable reserves	7,68,000	Proposed Quantity as in the approved mining plan	7,68,000								
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10	Overburden /Waste	There is no over burden/Waste within the applied area															
11	Rate of Production (in tons)	7,68,000Ts															
12	Life of mine	Available Mineable reserves = 7,68,000m ³ Average production = 3,84,000m ³ life of mine = 7,68,000m ³ / 3,84,000m ³ = 2 years															
13	Method of Mining	It is a conventional mechanized quarrying operation without drilling and blasting.															
14	Drilling/Blasting	It is an Opencast method of conventional mechanized quarrying operation without drilling and blasting.															
15	Ultimate depth of Mining	The ultimate depth of mining is about 3.2m (2.2m Above Bed Level + 1m Below Bed Level)															
16	Break-up of land utilization pattern	<table border="1"> <thead> <tr> <th>Description</th> <th>Present area in (Ha)</th> </tr> </thead> <tbody> <tr> <td>Quarrying pit</td> <td>Nil</td> </tr> <tr> <td>Infrastructure</td> <td>Nil</td> </tr> <tr> <td>Roads</td> <td>Nil</td> </tr> <tr> <td>Green Belt</td> <td>Nil</td> </tr> <tr> <td>Unutilized Area</td> <td>24.00.0</td> </tr> <tr> <td>Grand Total</td> <td>24.00.0</td> </tr> </tbody> </table>	Description	Present area in (Ha)	Quarrying pit	Nil	Infrastructure	Nil	Roads	Nil	Green Belt	Nil	Unutilized Area	24.00.0	Grand Total	24.00.0	
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17	Topography of the area	Lease area – Exhibits flat topography Altitude –43.35m to 48.07m above from MSL and the River bed level is 43.69m on the upstream side and 43.45m on the downstream side above from MSL Slope – towards Eastern side															
18	Land use classification	The applied area is located in Coleroon River and it was tributary of Coleroon River.															
19	Name of River/ Nallahs /Tanks /Spring/ Lakes etc.	<ul style="list-style-type: none"> ➤ Stream – 900m -N ➤ Nandiyar Vaykkal – 1.2km-N ➤ Odai – 3.1km-NE ➤ Cauver River – 3.2km-S ➤ Kulaiyar River – 3.2km-W ➤ Canal – 3.4km-NW ➤ Canal – 3.7km-S ➤ Canal – 4.0km-NW ➤ Kodamurutti River – 4.6km-S ➤ Palanganatham lake – 4.6km-N ➤ Elandai Lake – 4.8km-NE 															

		<ul style="list-style-type: none"> ➤ Alangudimahajanam Lake – 5.2km-W ➤ Pullambadi Canal – 5.3km-N ➤ Kadungal Vaykkal – 5.9km-S ➤ Vennar River – 9.8km-S ➤ CRZ – 78.0km-SE
20	Name of Reserve Forest, Wildlife Sanctuary/National Park	<ul style="list-style-type: none"> ➤ Aranmanaikurichi R.F - 9.3km - NE ➤ Karaivetti Bird sanctuary - 9.6km - NE ➤ Karaipakkam Ext R.F - 10.7km - NE ➤ Kodaikanal Wildlife -156.2km - SW
21	Ground water level	Ground water is about 12m depth below ground level.
22	Climatic condition	Rainfall - 818mm/annum Temperature - 42°C - 22°C (Source from Approved Mining plan)
23	Land use pattern	<u>Land use pattern (Plate No.II)</u> Road/Trees – 15% Stream/River – 40% Agricultural land – 45%
24	Nearest habitation	Habitation – 980m- N
25	Nearest Town	Lalgudi – 17.0km – SW
26	Nearest Railway station	Pullambadi Railway station – 8.0Km – NW
27	Nearest Airport	Tiruchirappalli Airport – 32.0Km – SW
28	Nearest National Highways & State Highways	NH-81 - Tiruchirappalli – Ariyalur –8.0km – NW SH-22- Tiruchirappalli – Kumbakonam –3.0km-S
29	Nearest Hospital	Pullambadi – 8.0km-NW
30	Aerial distance to the nearest Eco sensitive areas, CRZ, forest, wild life sanctuary, Interstate boundary, critically polluted area if the quarry site is within 500m of these areas.	There are no Eco sensitive areas, CRZ, forest, wild life sanctuary, Interstate boundary, Reserve Forest, Western Ghats, critically polluted area within the radius of 500m



31	Details of other quarries for a radius of 500m around the quarry site	<p>There is no other quarry located within the radius of 500m from the proposed project site. Details –</p> <p>Abandoned quarries – Nil</p> <p>Existing quarries – Nil</p> <p>Proposed quarries – 1No (24.00.0Ha)</p> <p>Future proposed quarries – Nil</p> <p>The total extent of the proposed quarry within the radius of 500m is 24.00.0Ha.</p> <p>The quarry details letter issued by Assistant Director, Department of Geology and Mining, Tiruchirappalli vide <i>Rc.No. 698/2021/Mines Dated: 12.05.2022</i> (Enclosed Annexure No. IX).</p>
32	Man power	Total Employees proposed for the quarry operation is 40Nos.
33	Water requirement & source	<p>Requirement –2.4KLD</p> <p>Source - From Approved water vendors and nearby open well</p>
34	Cost of the project	<p><u>The Project cost:</u></p> <p>A. Project cost = Rs. 1,34,10,000/-</p> <p>B. EMP cost = Rs. 1,50,000/-</p> <p>Total Project Cost (A+B) = Rs.1,35,60,000/-</p>



2.0 INTRODUCTION OF THE PROJECT OR BACKGROUND INFORMATION

The Sand is proposed to excavate by conventional opencast mechanized method in applied sand quarry located in Virahalur Village, Lalgudi Taluk, Tiruchirappalli District, Tamilnadu State over an extent of **24.00.0Ha** and it is a Category – B1 project. The Proposed Sand production capacity of maximum 7,68,000m³ for during this period. Brief description of the project is given below:-

(i) Identification of project and project proponent: In case of mining project, a copy of mining lease/letter of intent should be given:

Identification of Project

Name of the Project	Removing of Sand quarry for Restoring the lost Functional efficiency / Carrying capacity of the Coleroon River” in Virahalur Village.
Lease area	24.00.0Ha-It is a Govt. Land (Coleroon River)-Non-Forest
Location	Survey No. 214 (Part) and 234 (Part) Virahalur Village, Lalgudi Taluk, Tiruchirappalli District and Tamil Nadu State. Topo sheet No. 58-J/ 13

Project Proponent Name with Address

The Executive Engineer,
Water Resources Department,
Mining and Monitoring Division,
Tiruchirappalli District –620020
Mobile No: +91 98424 62467
Email Id: mmdivntry@gmail.com

In case of mining project, a copy of mining lease/letter of intent should be given

- I. The precise area communication letter was received from the District Collector, Tiruchirappalli District vide ***Rc.No. 698/2021/Mines, Dated: 22.02.2022 (Enclosed Annexure No. I).***
- II. The Mining plan was approved by the Assistant Director, Department of Geology and Mining, Tiruchirappalli vide ***Rc.No. 698/2021/Mines Dated: 12.05.2022. (Enclosed Annexure No. VIII).***

(ii) Brief description of nature of the project

The Opencast method of shallow mining is proposed. Only earth moving machineries like excavators are proposed for this sand quarry operation. No drilling or blasting is proposed for this type of sand quarry, it is a conventional eco-friendly quarrying operation. The Proposed bench height 3.2m (average).

The lease applied area exhibits flat topography, having gentle slope towards Eastern side. The altitude of the area varies from 43.35m to 48.07m above from MSL and the River bed level is 43.69m on the upstream side and 43.45m on the downstream side above from MSL.

- ✓ The maximum proposed production is around **7,68,000m³** of Sand.
- ✓ Ultimate depth of the pit is proposed at **3.2m (2.2m Above Bed Level + 1m Below Bed Level)**
- ✓ Proposed period of mining Two Years.

There is no overburden/waste generated during this plan period. The quarried-out Sand (100%) will be directly loaded into tippers and stacked in the nearby approved Government sand depot for sale to the needy customers.

After completion of quarry operation, the pit will be allowed to restore the original capacity of flow of water. The rivers sand will replenish naturally during the ensuing rainy season. The rate of Replenishment will be carried out by Water Resources Department, Mining and Monitoring Division.

(iii) Need for the project and its importance to the country and or region

The basic objective of the project is to effective utilization of material in the region. If the sand is removed from Coleroon River to restore its original capacity. The quarried-out Sand (100%) will be directly loaded into tippers and stacked in the nearby approved Government sand depot for sale to the needy customers.

The mining and associated activities in the mineral bearing areas will add to the revenue of the state through royalty on the mineral and the taxes as well as improve the economic conditions of the local people through direct and secondary employment.

The mining project will provide employment to local people. Applicant will pay royalty for the mineral produced from the mine, direct and indirect taxes will be paid thereby contributing to the regional revenue. The public revenue so generated will further be put for use in infrastructural development and other sectors like health, education and social welfare. The applicant will spend 2%

of profit for the socio-economic development of the area i.e. medical facilities, schools, temples and other social work.

(iv) Demand and supply gap

The quarried-out Sand (100%) will be directly loaded into tippers and stacked in the nearby approved Government sand depot for sale to the needy customers. Hence this project of removing sand for restoring the storage capacity of the Coleroon River is significant to the state and country.

(v) Imports vs indigenous production

There is no import of sand at present in India. India especially the peninsular India (southern India) has good resource of Sand.

(vi) Export Possibility

There is no possibility for export of this Sand.

(vii) Domestic/Export Markets

Domestic demand is one of the main reasons for the rapid growth of sand business in Tamil Nadu. Thus, domestic market for Sand as construction purpose is well established.

(viii) Employment Generation (Direct and Indirect) due to the project

Project will create direct & indirect employment opportunities within the surrounding region. Unit will use good faith efforts to employ local people from the nearby villages depending upon the availability of skilled & un-skilled man-power surrounding the project site. In operation phase, the proposed project would require significant workforce of non-technical and technical persons. About 40 people will get direct employment and 15 people will get secondary employment opportunities with allied and related industries, such as transportation, maintenance, shops, garages, eateries, etc.

About 40 persons will be employed in the mine.

<i>1. Supervisory and Skilled Persons</i>			
<i>S. No.</i>	<i>Designation</i>	<i>No. of Person</i>	
1	WRD Assistant Engineer	1	
2	Technical Assistant	1	
3	Excavator Operator	4	
4	Permit Slip issuer	3	
5	Office Helper	2	
Total		11	
<i>2. Unskilled</i>			
6	Excavator Co – operator	4	
7	Traffic Regulator	Entrance	2
		Exit	2
		Quarrying Site	3
8	Bucket Watcher /Stopper	4	
9	Track Maintainer	8	
10	Watchman (Three Shift)	6	
Total		29	
Grand Total		40	

Pre-employment and periodic training will be given to the employees for the safe and systematic quarrying operation. All the labors engaged for quarrying operations will be provided with necessary personal protective equipment's and will be insured during the quarry lease period.

The above man power is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and also to comply with the stationary provisions of the Mines safety regulation.

It is been ensured that the labours will not be deployed less than 18 years, No Child labours will be engaged or entertained for any kind of quarrying operations. All the labours engaged for quarrying operations will be insured till the end of life of quarry.

3.0. PROJECT DESCRIPTION

(i) Type of project including interlinked and interdependent projects, if any

The removing of sand for Restoring the Functional efficiency of Coleroon River in Virahalur Village, it is an opencast method of shallow mining is proposed.

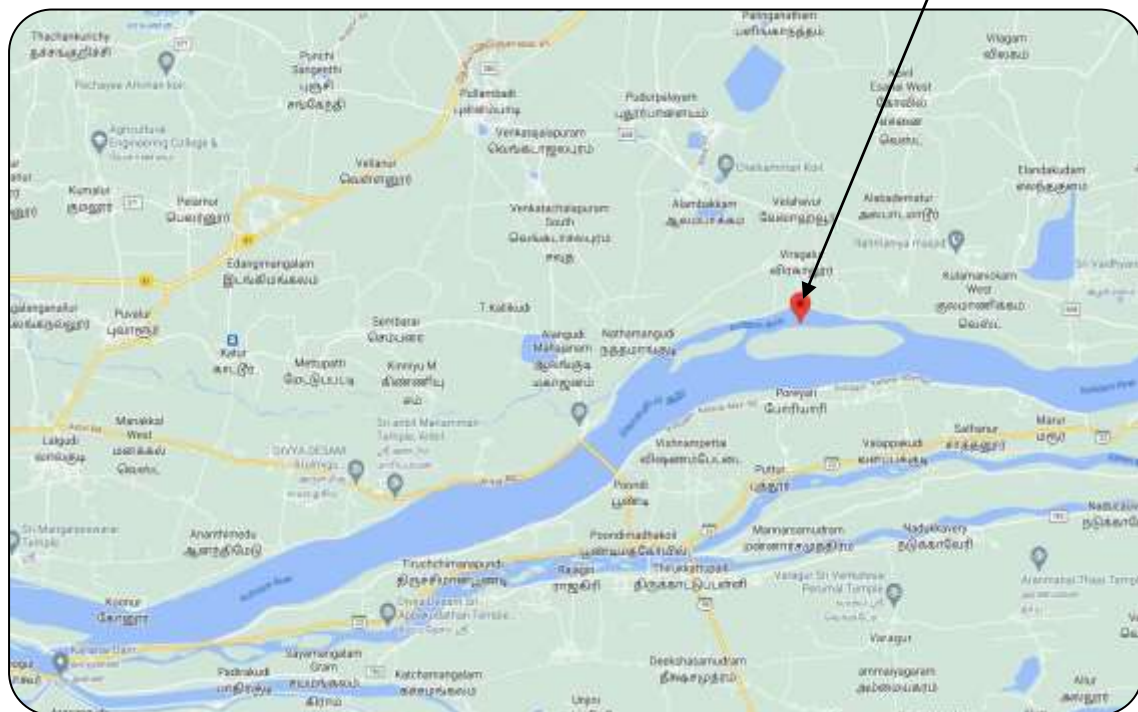
There is no interlinked & interdependent project. This is a quarrying project for production of Sand at proposed for a maximum quantity of **7,68,000m³** for a period of Two years. The quarry operation is proposed up to depth of **3.2m (2.2m Above Bed Level + 1m Below Bed Level)**. The project is site specific. The Sand (100%) will be directly loaded into tippers and stacked in the nearby approved Government sand depot for sale to the needy customers.

(ii) Location (map showing general location, specific location, and project boundary & project site layout) with coordinates

- The area is located in *S.F.No. 214 (Part) and 234 (Part) of Virahalur Village, Lalgudi Taluk, Tiruchirappalli District, Tamil Nadu.*
- The area applied for lease is a government land maintained by Water Resources Department, Mining and Monitoring Division, Tiruchirappalli, the lease applied area exhibits flat topography.
- The altitude of the area varies from 43.35m to 48.07m above from MSL and the River bed level is 43.69m on the upstream side and 43.45m on the downstream side above from MSL.
- The area is falls in GSI Topo sheet No: **58-J/ 13**
- The Latitude between of **10°53'53.3283"N to 10°54'01.5626"N**
- The Longitude between of **78°58'21.6578"E to 78°59'01.4184"E** on WGS 1984 datum
- **Boundary Co-Ordinates:**

S.No	Latitude	Longitude
1	10°53'59.8297"N	78°58'21.6578"E
2	10°54'01.5626"N	78°59'01.1264"E
3	10°53'55.0612"N	78°59'01.4184"E
4	10°53'53.3283"N	78°58'21.9501"E
Datum: UTM-WGS84, Zone 44 North		

Location Map of the Virahalur Sand Quarry Lease Applied Area



SATELLITE IMAGES OF VIRAHALUR SAND QUARRY
LEASE APPLIED AREA



சுமதி

SATELLITE IMAGES COVERING 300M AND 500M RADIUS OF VIRAHALUR SAND QUARRY



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Details of alternate sites considered and the basis of selecting the proposed site, particularly the environmental considerations gone into should be highlighted

Mining is site specific project hence no alternate site is considered.

(iv) Size or magnitude of operation

The total area of the project is about **24.00.0Ha**. It is a proposed to produce a maximum of **7,68,000m³** per annum of Sand. The quarry operation is proposed up to depth of **3.2m (2.2m Above Bed Level + 1m Below Bed Level)** by opencast method of shallow mining is proposed. It is a conventional mechanized quarrying operation proposed without drilling and blasting.

<i>Description</i>	<i>Sand (m³)</i>
Geological Resources	12,00,000
Available Mineable reserves	7,68,000
Proposed Quantity As in the approved mining plan	7,68,000

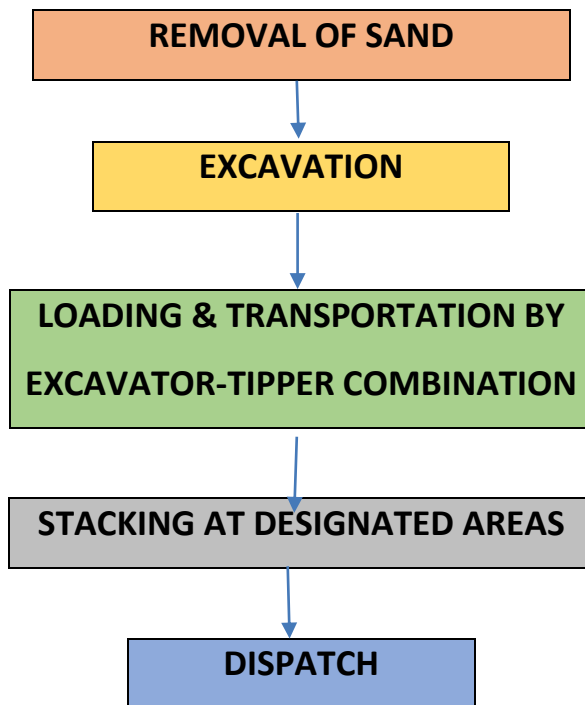
(v) Project with process

description details (a

schematic diagram/flow chart showing the project layout, components of the project etc. should be given)

The proposed mining operations will be carried out by open cast method. The process flow diagram given below depicts the mining process:-

SCHMATIC PROCESS FLOW CHART



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MINING:

Method of Mining:

Opencast method of shallow mining is proposed. Initially to approach the proposed site a temporary road will be formed by using of bio-degradable materials and formed a grit around the sand quarrying site to move the vehicles easily. During forming the approach road and grit, necessary temporary pipes will be provided wherever necessary for free flow of water to downstream. After forming this approach roads the trucks/ lorries are allowed for transportation after paying the necessary fees to the Government bodies. In this process contract labours from neighbouring villages are engaged for the purpose of maintaining the approaches. Regulating the vehicle movements, assisting to take levels, issuing of permits etc., to regulate the quarrying operation in a scientific and systematic manner. The sand will be loaded directly to the trucks / Lorries and dumped in the nearby approved sand stock yard for sale to the needy customers. Hence, no mineral processing is involved. The trucks are loaded by excavators in direct supervision of the Assistant / Junior Engineers Water Resources Department. The competent statutory mines foreman will also be deployed for the safety movement of vehicles inside the quarry.

After that the loaded vehicles are allowed to go out only after covering the sand load properly by tarpaulin to prevent any spillage.

Mode of Working:

It is an opencast method of conventional mechanized quarrying operation without drilling and blasting.

Proposed bench height & width:

3.2m (Average) of Sand

Overburden:

There is no over burden/waste within the applied area. Hence, disposal of overburden/waste does not arise.

Year wise Development and Production:

<i>Year</i>	<i>Pit No.(s)</i>	<i>Overburden</i>	<i>ROM ore/ Mineral</i>	<i>Saleable ore / Mineral</i>	<i>Sub grade ore / mineral</i>	<i>Mineral rejects</i>	<i>Ore to overburden ratio</i>
I	1	Nil	3,60,000m ³	3,60,000m ³	Nil	Nil	Nil
II	1	Nil	4,08,000m ³	4,08,000m ³	Nil	Nil	Nil
III	The District Collector has recommended to a period of Two years only						
IV							
V							

Total Proposed Reserves of Sand @ 100% = **7,68,000m³**

The applicant intends to quarry **7,68,000m³ of Sand @ 100%** recovery for the period of two years upto an average depth of 3.2m (2.2m Above bed level and 1m below Bed level (Refer Plate No. II-A and II-B).

One lorry load = 6m³ (approx.)

No of Working days (Except Holidays and Monsoon period) = 250 Days per year

Total Sand to be removed Two years plan period = 7,68,000m³

1st year Lorry loads per day (Above Bed Level 1.5m) = 3,60,000m³/6m³

= 60,000 loads

= 60,000/250 days

1st year Average Lorry loads of Sand per day = **240 Lorry load per day**

2nd year Lorry loads per day = 4,08,000m³/6m³

(Above Bed Level 0.7m + Below Bed Level 1m) = 68,000 Lorry loads

= 68,000/250 days

2nd year Average Lorry loads of Sand per day = **272 Lorry load per day**

Working hours = 7.00 am to 5.00 pm (with 12.00-1.00 P.M. lunch break).

Machineries:a) For mining

Excavator attached with bucket 200 of 0.9m³ capacity, Diesel Drive (Rental Basis – 4 Nos.).

b) Loading equipment

Excavator attached with bucket 200 of 0.9m³ capacity, Diesel Drive (Rental Basis).

c) Transportation

Hired Tippers 10/20/30Ts capacity. Diesel Drive. (From quarry to nearby approved Government sand depot) (Rental Basis – 15Nos)

Overburden:

There is no over burden/waste within the applied area. Hence, disposal of overburden/waste does not arise.

Conceptual Mining plan:

The ultimate pit dimensions of the quarry are given below.

<i>ULTIMATE PIT DIMENSION</i>		
<i>Maximum Length (m)</i>	<i>Maximum Width (m)</i>	<i>Average Depth (m)</i>
1200	200	3.2 (2.2m ABL + 1m BBL)

It is a Conventional Eco friendly Quarrying operation without drilling and Blasting. After completion of quarry operation the pit will be allowed to restore the original capacity of functional efficiency/ flow of water. The rivers sand will replenish naturally during the ensuing rainy season. The rate of Replenishment will be carried out by Water Resources Department, Mining and Monitoring Division.

(vi) Raw material required along with estimated quantity, likely source, marketing area of final products, Mode of transport of raw Material and Finished Products

The final product will be sent to consumer based on their demand. The mode of transportation of raw material and finished product will be by road. Tippers/ trucks will be used for transportation to the end users.

The proposed quarrying activity requires HSD (High Speed Diesel) for machineries as per below quantum –

1. For Sand:

Per hour Excavator will consume	=	10 liters / hour
Per hour Excavator will excavate	=	60m ³ of Sand
Sand quantity	=	7,68,000/60 = 12,800hours
Diesel consume	=	12,800hours x 10 liters
Total diesel consumption	=	1,28,000 Liters of HSD will be utilized for Sand

The HSD (High Speed Diesel) will be obtained from nearby fuel station near the vicinity of the project site and will be transported in Fuel Barrel specified for transport of HSD (High Speed Diesel)

(vii) Resource optimization/recycling and reuse envisaged in the project, if any, should be briefly outlined

No optimization/ Recycling and Reuse envisaged in the proposed Sand quarry project.

(viii) Availability of water its source, Energy/power requirement and source should be given

It is expected the total water need is about 2.4kilo litter per day in the quarry.

The details of water balance of proposed quarrying project are given below:

<i>Purpose</i>	<i>Quantity calculation in KLD</i>	<i>Source</i>
Mine site (material transportation & plantation)		
Dust Suppression	0.7KLD	From nearby river area
Green Belt	0.9KLD	From nearby river area
Domestic (for labors)		
Sanitation & Drinking	0.8KLD	From existing, bore wells and drinking water will be sourced from Approved water vendors.
Total	2.4KLD	

Electricity:

Electricity for Mines office and Lights only at nights (working is restricted on day time only between 9Am to 5Pm) will be obtained from state electricity board. DG sets will be provided for emergency use.

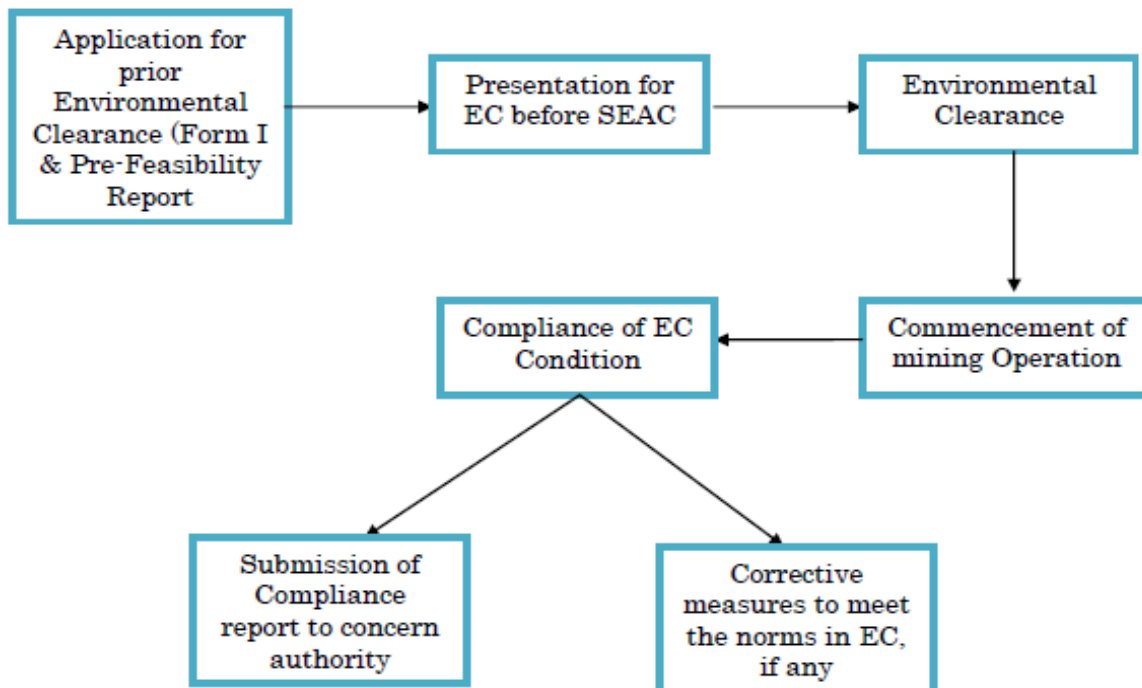
(ix) Quantity of wastes to be generated (liquid and solid) and scheme for their management/disposal

There is no wastage is encountered during this operation the entire sand is utilized for construction material for infrastructure development besides the removing of the sand to maintain the functional efficiency carrying capacity of the river.

There is no toxic effluent expected to generate in the form of solid liquid and gases and the no requirement of treatment of waste. There is no top soil available in the lease applied area.

(x) Schematic representations of the feasibility drawing which give information of EIA purpose

As the project is categorized in category-B1of Schedule under item 1 (a) in the EIA notification, 2006 and its subsequent amendments; it will be considered at the State Expert Appraisal Committee (SEAC), for the purpose of obtaining Environmental Clearance and also for determining whether or not the project or activity requires further environmental studies for preparation of an Environment Impact Assessment (EIA) for its appraisal prior to the grant of Environmental Clearance depending up on the nature and location specificity of the project.



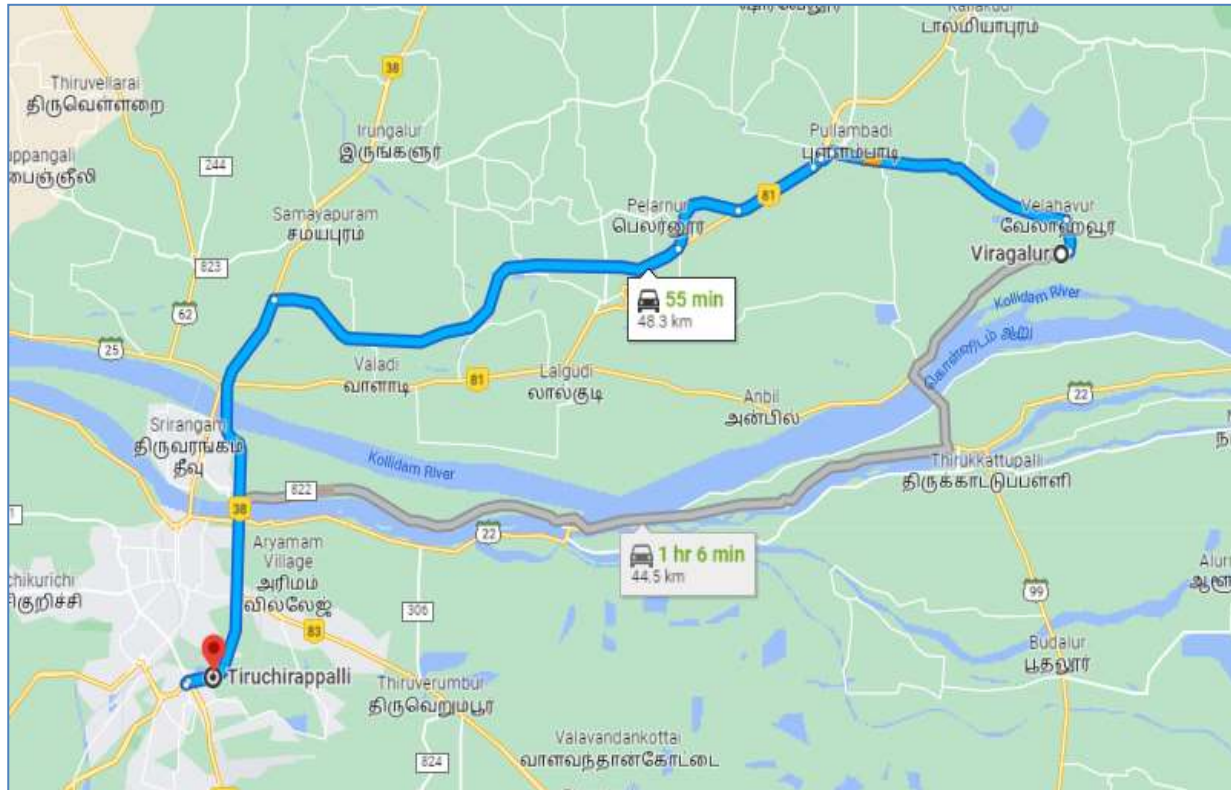
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4.0 SITE ANALYSIS

(i) Connectivity

- The National Highway (NH-81) Tiruchirappalli – Chidambaram road is situated at 8 km on the Northwestern side of the area.
- The State Highway (SH-22) Tiruchirappalli – Kumbakonam road is situated about 3 km on the Southern side of the applied area.
- The Nearest Railway line is Tiruchirappalli – Ariyalur line which is located about 8 km on the Northwestern side of the area.

SITE CONNECTIVITY MAP



(ii) Land Form, Land use and Land ownership

The entire project area is 24.00.0Hectares, which is private non-forest land and there is no habitation in the applied area. It is a Government land (River Poramboke) maintained by Water Resources Department, Tiruchirappalli District. (Refer Annexure No. IV and V).

<i>District</i>	<i>Taluk</i>	<i>Village</i>	<i>S.F No</i>	<i>Area in</i>	<i>Classification</i>
Tiruchirappalli	Lalgudi	Virahalur	214 (Part) and 234 (Part)	24.00.0Ha	It is a Government land (River Poramboke) (Non-forest)

(iii) Topography (along with map)

The lease applied area exhibits flat topography, having gentle slope towards Eastern side. The altitude of the area varies from 43.35m to 48.07m above from MSL and the River bed level is 43.69m on the upstream side and 43.45m on the downstream side above from MSL. The sand is derived by erosion of weathered rocks and Mineral particles and transported by the river water and deposited on the floor of the river in the interface. Please refer the Topography, Geological plan and sections (Plate No-II-A).

The entire area is covered by Sand. The Coleroon is the northern tributary of the Cauvery River as it flows through the delta of Thanjavur. It splits from the main branch of the Cauvery River at the island of Srirangam and flows eastward direction for diversion of water during heavy rain and flood in the Cauvery river also for irrigation purpose and confluence with Bay of Bengal.

The Coleroon river is too wide, hence the area contain more siltation and the rate of sedimentation is quite high which leads to the reduction in carrying capacity resulting in a loss of functional efficiency/carrying capacity of the River.

TOPOGRAPHICAL VIEW OF VIRAHALUR SAND QUARRY LEASE APPLIED AREA

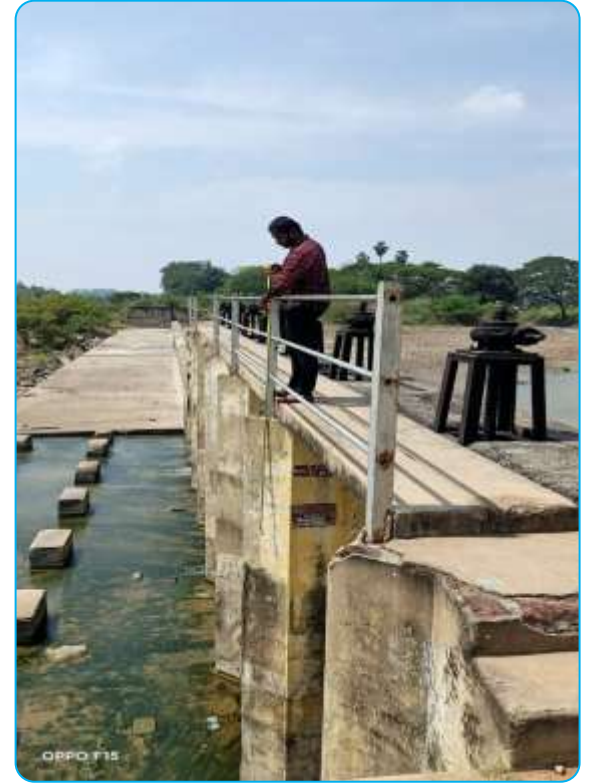


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TOPOGRAPHICAL VIEW OF VIRAHALUR SAND QUARRY LEASE APPLIED AREA



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(iv) Existing land use pattern (agriculture, non-agriculture, forest, water bodies (including area under CRZ)), shortest distances from the periphery of the project to periphery of the forests, national park, wild life sanctuary, eco sensitive areas, water bodies (distance from the HFL of the river), CRZ. In case of notified industrial area, a copy of the Gazette notification should be given.

The proposed mining area exhibits flat topography. The quarrying operation will be restricted up to depth for **3.2m (2.2m Above Bed Level + 1m Below Bed Level)**. Hence the quarry operation will not affect the ground water table. The region experiences semi – humid climate and there is natural growth of vegetation in and around the lease applied area (seasonal vegetation is mostly observed).

- Aranmanaikurichi R.F - 9.3km - NE
- Karaivetti Bird sanctuary - 9.6km - NE
- Karaipakkam Ext R.F - 10.7km - NE
- Kodaikanal Wildlife - 156.2km - SW
- Stream - 900m -N
- Nandiyar Vaykkal - 1.2km-N
- Odai - 3.1km-NE
- Cauver River - 3.2km-S
- Kulaiyar River - 3.2km-W
- Canal - 3.4km-NW
- Canal - 3.7km-S
- Canal - 4.0km-NW
- Kodamurutti River - 4.6km-S
- Palanganatham lake - 4.6km-N
- Elandai Lake - 4.8km-NE
- Alangudimahajanam Lake - 5.2km-W
- Pullambadi Canal - 5.3km-N
- Kadungal Vaykkal - 5.9km-S
- Vennar River - 9.8km-S
- CRZ - 78.0km-SE
- Karnataka Interstate boundary - 183.3km-NW

(v) Existing Infrastructure

The National Highway (NH-81) Tiruchirappalli – Chidambaram road is situated at 8.0km on the Northwestern side of the area.

The approach road will be constructed with bio-degradable material to approach the quarry site and the same will be maintained to the entire lease period, no other Patta roads are encountered for the haulage of Sand. All necessary infrastructures will be developed before commencing the

mining operation. Site services as per Mines Rules 1955 will be developed. First-Aid centre with all necessary medical facilities, Toilets as per the provisions of Mines Rules will be developed. Regular medical check-up of the mine employees will be carried out as per the provisions of Mines Rules 1955.

(vi) Soil Classification

The area is mostly covered with Sand formation.

(vii) Climatic data form secondary sources

Both the NE & SW occurs here and the summer is hot and winter is cool. During Oct - Jan the temperature may shoot upto 42°C and during winter the temperature does not fall below 22°C. The average annual rainfall is around 818mm.

(viii) Social infrastructure available

- The nearest town is **Lalgudi**, health & educational facilities are available there.
- Medical facilities, Primary Health Centre are available at the nearby villages, imparting services, for advance medical facilities. In each village, one health worker has been appointed by the Govt. to provide primary health facilities.
- Village people are availing drinking water facilities generally from the hand pump, open well and tube well. The water supply is also supplied through tanker in few villages. During summer scarcity of water has been noticed.
- Communication services like post office and telephones are available in the nearby village. Many of the villagers are having mobile phones.

<i>S. No</i>	<i>Particulars</i>	<i>Location</i>	<i>Direction</i>	<i>Approximate Distance in Km</i>
1	Nearest Post Office	Virahalur	North	1km
2	Nearest School	Virahalur	North	1km
3	Nearest Dispensary	Pullambadi	NW	8km
4	Nearest Town	Lalgudi	SW	17km
5	Nearest Police Station	Lalgudi	SW	17km
6	Nearest Hospital	Pullambadi	NW	8km
7	Nearest D.S.P. Office	Lalgudi	SW	17km
8	Nearest Railway Station	Pullambadi	NW	8km
9	Nearest Airport	Tiruchirappalli	SW	32km
10	Nearest Harbour	Thoothukudi	SW	253km
11	District Head Quarters	Tiruchirappalli	SW	32km

5.0 PLANNING BRIEF

(i) Planning Concept (type of industries, facilities, transportation etc.) Town and Country Planning/Development authority Classification

Conventional Opencast Mechanized mining will be adopted in extraction of Sand. The excavated sand will be transported to stack in the nearby approved Government sand depot for sale to the needy customers.

Facilities such as power, Transportation and community infrastructure facilities are locally available near the project site. Covered transportation of the sand and imposing speed limits will be practiced to avoid disturbance to the nearby habitations. The haul roads will be periodically sprinkled with water to prevent dust.

The total area of the project is about **24.00.0Ha**. Conventional Open cast mechanized quarrying will be adopted for the excavation of Sand up to a depth of **3.2m (2.2m Above Bed Level + 1m Below Bed Level)** . For the excavation of Sand Machineries like Excavator attached with bucket are proposed. Excavators are used for loading sand into the tippers and then transport by the tippers from stacked in the nearby approved Government sand depot for sale to the needy customers..The maximum proposed production of **7,68,000m³** of sand will be obtained from the mine.

The Project land is devoid of Vegetation and lies in the backward town of **Lalgudi**. There are no specific industries or factories in and around the project areas.

(ii) Population project

Man power requirement for mining is estimated to be 40Nos. Most of the employees will be recruited from neighboring village depending upon the availability of skilled & unskilled people. Migration of highly educated and skilled person will take place but it will be on temporary basis and in a very small number. So there will no permanent migration of people, hence there will be no significant population increase due to the project.

(iii) Land use planning (breakup along with green belt etc.)

The Virahalur Panchayat road and Coleroon river bund on the Northern side to be utilized for afforestation by planting 500 Nos. of Neem, Thespesiapopulnea and Pongamia pinnata, Tamarind, Morindacitrifolia, etc., tree saplings with an anticipated survival rate of 80%. The estimated budget for tree sapling would be around Rs.50,000/- for the period of two years.

(iv) Assessment of Infrastructure Demand (Physical & Social)

Temporary office and stores will be provided in the mining area. Specified first-aid box with all necessary facilities will be maintained at the site office and the rest shelter as per Mines Act-1952. Medical facilities, Primary Health Centre exist in the nearby villages, imparting services, for advance medical facilities. Communication services like post office and telephones are available in the nearby villages.

(v) Amenities/Facilities

Following facilities shall be provided for the smooth working of the mine:-

- Mine office
- First aid room
- Store facility
- Toilet facility
- Drinking water facilities: Potable water are provided
- Rest shelters: Rest shelter room is provided to take lunch and rest for the workers.

6.0 PROPOSED INFRASTRUCTURE

(i) Industrial Area (Processing area)

Temporary arrangements like site office, rest shelters & approach roads etc., shall be provided. There is no processing area proposed within the lease applied area.

(ii) Residential area (Non processing area)

As the local persons will be given employment, no residential area/ housing are proposed.

(iii) Green Belt

The Virahalur Panchayat road and Coleroon river bund on the Northern side to be utilized for afforestation by planting 500 Nos. of Neem, *Thespesiapopulnea* and *Pongamia pinnata*, Tamarind, *Morindacitrifolia*, etc., tree saplings with an anticipated survival rate of 80%. The estimated budget for tree sapling would be around **Rs.50, 000/-** for the period of two years. Appropriate plant species of different life forms will be grown to re-establish the vegetation cover and thereby provide habitat for the faunal species. The list of plant species suggested includes the following criteria:-

- Tree species which are well adapted to local environmental setting, tall, bearing larger canopy cover and leaf area.
- Tree species of different size classes (small, medium and large) were suggested to maintain the different canopy levels at vertical profile.

- Fruit bearing trees plantation would help to attract birds and small animals.
- Wild species are suggested to provide habitat for faunal species, increase the flora species diversity and maintain the naturalness in the post mining stage.

(iv) Social infrastructure

- The infrastructure like, drinking water facilities. Rest shelter, toilets, first aid stations etc. will be developed at mine site.
- Local people will be employed on priority basis as per their skills.
- Medical facilities to the workers employed at site.
- Direct & indirect development of the society.
- An occupational health unit will be organized and the proposed measures will be adopted:
 - Pre & Periodical Medical Check-up program for all the workers.
 - Compulsory medical check-up program and first-aid box with necessary equipment will be provided.
 - Safety equipment i.e. dusts mask, ear muffs etc.

(v) Connectivity (traffic and transportation road/ Rail/ Metro/ Water ways etc.)

<i>Mode</i>	<i>Description</i>
Road connectivity	<ol style="list-style-type: none"> 1. The National Highway (NH-81) Tiruchirappalli – Ariyalur road is situated at 8km on the Northwestern side of the area. 2. The State Highway (SH-22) Tiruchirappalli – Kumbakonam road is situated about 3km on the Southern side of the applied area.
Railway station & Railway line	<ol style="list-style-type: none"> 1. The Nearest Railway station is Pullambadi – 8.0km– North western sides. 2. The Nearest Railway line is Tiruchirappalli – Ariyalur line which is located about 8km on the Northwestern side of the area.
Air port	<ol style="list-style-type: none"> 1. The Nearest Airport is Trichy – 32.0km- South western sides.

(vi) Drinking Water management (Source& Supply of water)

This sand quarry project does not require huge water for the project. Details of daily water requirements in 2.4KLD as given below:

Drinking Purpose	0.7KLD
Dust Suppression	0.9KLD
Green Belt	0.8KLD
Total	2.4KLD

The required water will be met from nearby river area.

(vii) Sewerage System

Toilets will be constructed on semi-permanent structure and sewage will be discharged once in three months. The sewage waste will be collected in soak pit and discharged as manure.

(viii) Industrial Waste Management

No industrial waste will be generated from the project.

(ix) Solid Waste Management

The Sand quarrying does not produce any waste. The entire Sand is excavated and utilized. This waste may not produce any toxic effluent in the form of solid liquid or gas.

(x) Power Requirement & Supply / source

The proposed sand quarrying does not require any power supply for the quarrying operation. It is proposed to operate in day time only from 7 AM to 5PM with 1 Hour lunch interval between 1PM to 2PM. Electricity for use in office will be obtained from SEB. DG set will be provided for emergency use.

7.0REHABILITATION AND RESETTLEMENT (R & R PLAN)**(i) Policy to be adopted (Central/State) in respect of the project affectedpersons including home oustees, land oustees and landless laborers (a brief outline to be given)**

The applied area is located in Coleroon River and, there is no habitation in the area proposed for mining. Hence, rehabilitation & resettlement plan is not required.

8.0 PROJECT SCHEDULE & COST ESTIMATES

(i) Likely date of start of construction and likely date of completion (Time schedule for the project to be given)

The project will commence once Environmental Clearance and other necessary approvals will be obtained from the concern departments.

Expected Time Schedule for the Project

Sl.No.	Particulars	Time Schedule (In Month)*					Remark if any
		1 st	2 nd	3 rd	4 th	5 th	
1	Environmental Clearance						
2	Consent To Establish						Project Establishment Period
3	Consent To Operate						Production Start Period
*Time line may vary; subjected to rules and regulations /& other unforeseen circumstances							

(ii) Estimated project cost along with analysis in terms of economic viability of the project

A. Project Cost / Investment:

i)	Land cost	Nil
ii)	Machinery to be used	Rs. 1,28,00,000/-
iii)	Refilling/ Fencing	Rs.2,50,000/-
iv)	Laborers shed	Rs.50,000/-
v)	Sanitary facility	Rs.70,000/-
vi)	Others items	Nil
vii)	Drinking water facility for the labourers	Rs.1,00,000/-
viii)	Sanitary arrangement	Rs.80,000/-
ix)	Safety kit	Rs.60,000/-
Total Project Cost		Rs.1,34,10,000/-

B. EMP Cost: -

i.	Water sprinkling	Rs.1,00,000/-
ii.	Greenbelt etc.	Rs. 50,000/-
Total EMP Cost		Rs.1,50,000/-
Description		Amount (Rs.)
A. Project Cost		Rs. 1,34,10,000/-
B. EMP Cost		Rs. 1,50,000/-
Total Project Cost (A+ B)		Rs.1,35,60,000/-
(The Total cost of the project including EMP Cost is Rupees one crore thirty five lakh and sixty thousand only).		

9.0 ANALYSIS OF PROPOSAL (FINAL RECOMMENDATIONS)

(i) Financial and social benefits with special emphasis on the benefit to the local people including tribal population, if any, in the area

- Project will create direct & indirect employment opportunities within the surrounding region. Unit will use good faith efforts to employ local people from the nearby villages depending upon the availability of skilled & semi-skilled man-power surrounding the project site.
- The project will benefit marginally to the state revenue through royalty on the sand and other taxes.
- The quarry owner will carry out various socio-economic welfare activities in the nearby villages.
- It is envisaged that socio-economic impact due to this project will positively increase the chance of more employment opportunities for local inhabitants. There are no Resettlement and Rehabilitation issues involved in this project. The State Govt. will benefit from the revenue generated due to the project.

Place: Tiruchirappalli

Date:

1. Signature of the Applicant



Executive Engineer, WRD,
Mining and Monitoring Division,
Tiruchirappalli

2. Signature of the Recognized Qualified Person



Dr. M. Ifthikhar Ahmed, M.Sc., F.G.S, M.B.A., Ph.D.,
RQP/MAS/183/2004/A

