

PRE-FEASIBILITY REPORT

PFR for Proposed Sand Mining Project of Area 57.80 Ha at Rohtas Sone- 13 Sand Ghat on Sone River of District-Rohtas of State-Bihar

EXECUTIVE SUMMARY

The proposed project of Acre 57.80 Ha or 142.77 Acre of river bed sand mining falls under Category- “B-1” as per of EIA Notification Sep. 14, 2006 and subsequent amendment thereof by Ministry of Environment Forests & Climate Change, GOI. Earlier, the state government had given consent for mining for five years to **Bimal Kumar, S/o: Shyam Sunder Yadav** through letter No 4491, dated 26-11-2022, but now state government has given consent to Vikash Kumar Singh, S/o- Ram Lakhan Singh through letter no 955/Khanan, Sasaram, Dated- 12.06.2024. The mining lease area is located at **Rohtas Sone- 13 Sand Ghat** on Son River, Mauza- Hurka, Block- Dehri, District- Rohtas, Bihar. The proposed project activity will be carried out in the dry river bed of the Sone river. Details of the proposed project are as follows:-

S.No.	Information	Details
1.	Project Name	Proposed Sand Mining Project Rohtas Sone- 13 Sand Ghat on Sone River of District- Rohtas, State- Bihar
2	Mining Lease Area	57.80 Ha or 142.77 Acre
3.	Location of mine	
	Khasra & Thana number	Khata -103 Khesra -700/712,700, 715
	Village/Mauja	Mauza- Hurka
	Tehsil	Block- Dehri
	District :	Rohtas
	State :	Bihar
4.	River/Nalla/Nadi	Sone River
5.	Minerals of mine	Sand
6.	Mining Period	5 Years
7.	Proposed Production	1040400 Cum per year 1872720 TPA
8	Bulk Density	1.8
9.	Method of mining	Open Cast semi-mechanized method
10.	Drilling or Blasting	No
11.	No of working days	240 days

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12.	Water demand	Domestic Water :0.66 KLD
		Dust Suppression: 5.0 KLD
		Green Belt Development : 1.734 KLD
		Total Water Requirement:7.394 KLD
13.	Man Power	66
14.	Nearest railway station	Dehri on Son Railway Station, approx. 3.50 Km towards SW
15.	Nearest state highway/ national highway	SH-15, Approx. 1.0 Km towards West
16.	Nearest air port	Gaya International Airport, approx. 74.0 Km towards SE
17	Eco- Sensitive Zone	Kaimur Wildlife Sanctuary, Approx. 12.24 Km towards SW

2. INTRODUCTION

2.1 Identification of Project and Project Proponent

The project is proposed by Vikash Kumar Singh, S/o- Ram Lakhan Singh and Deposits having an area of 57.8 Ha or 142.77 Acre. Earlier, the state government had given consent for mining for five years to Bimal Kumar, S/o: Shyam Sunder Yadav through letter No 4491, dated 26-11-2022, but now state government has given consent to Vikash Kumar Singh, S/o- Ram Lakhan Singh through letter no 955/Khanan, Sasaram, Dated- 12.06.2024. A LOI is attached as Annexure I. The details of the project are given below:

Name of the Lessees	Vikash Kumar Singh
Name & Address of POA Holder	Vikash Kumar Singh S/o: Ram Lakhan Singh Address: Mohalla – Chandanpura, Civil line, Sasaram, P.O.+ P.S- Sasaram, District- Rohtas, Bihar
Name of Mine	Rohtas Sone- 13 Sand Ghat
Mineral	Sand
Area (ha)	57.80 Ha or 142.77 Acre
Status of Mine	Fresh application for Environmental Clearance.

2.2 Brief description of the nature of the project

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It has been proposed to collect approximately 1040400 Cum per year 1872720 TPA of sand from the mining area. No mining activity will be undertaken during the monsoon season. So the mining material will be replenished during the monsoon season every year.

Surface Mining: The mining will be confined to extraction of sand from the bed of **Sone**. The operation will be semi mechanized in which the material will be collected in its existing form. Sand Mining will be carried out only upto a depth of 3 m. Mining of minor minerals in river-bed proves to be most viable and least disturbing to the environment. The mining process is opencast semi mechanized method without drilling & blasting. There would be no risk to the employee working in the mines, except in cases of emergency. Semi mechanized mining operations may be resorted to, without drilling & blasting. As the working is going to be methodical i.e. mining will be done in benches. There would be no risk to the employee working in the mines.

- a) Mining will be starting from its center and advance toward the banks across the river uniformly. The mineral extraction will be done for a period of 240 days in a year.
- b) In order to maintain safety and stability of river banks a safety distance of 3 m or 1/10th of the width of the river on both side of river bank will be left as per Sustainable Sand Mining Guidelines issued by MOEFCC in 2016.
- c) No mining zone will also be left from the bridge for its safety.
- d) The lease area gets the sediment deposit due to the river flow which remains undisturbed during the monsoons. The extraction process can slow or stop aggradation thereby maintaining the channel's capacity and its flow.
- e) No mining operations shall be carried out in proximity of 300 meter from any Rail, Road, bridge and/ or embankment.
- f) No mining operations shall be carried out in proximity of 250 meter from any RF/PF.

For the optimum utilization of the mineral available in the lease area, mine working has been planned in a scientific and systematic way as shown in the working plan and section. The excavation planning, slope, height, width and length of the bench are planned on the basis of deposit. Since the deposit is very simple, shallow and beds are horizontal, the simple semi mechanized mining is most suitable.

2.3 Need for the project and its importance to the country and region

The project lies on the bed of Sone River. The sediment in the form of river bed material (RBM) deposited in the last many years had changed the shape of the Sone bed from a valley to a raised land. Hence, it is necessary to remove the materials so that the stream gets channelized. Due to rapid infrastructure development in India, the demand of construction material has increased. To supply this demand, mining of sand is done. This project operation will provide employment directly and indirectly to the people residing in vicinity, thus improving the Socio-economic status of the area.

2.4 Demands-Supply Gap

The demand for sand is ever growing with the growth of the infrastructure sector in our country. The mineral is used mainly in the construction activities like buildings, bridges etc. The requirement for the mineral is always high in the cities and towns. Therefore there is always a good demand of the mineral in the domestic market.

2.5 Domestic/ Export Markets

The demand in the domestic market is high especially in the nearby towns and cities and hence the need for sand mining.

2.6 Export Possibility

There is no proposal to export the mineral as the minerals excavated, to cater the indigenous demand and the development is a never- ending process.

2.7 Domestic/ Export Markets

a) DOMESTIC MARKET

There is always an ever-increasing demand of these minerals in the domestic market.

b) EXPORT MARKET

The proposed mining activity is for indigenous consumption only for real state, road making etc. So, no export will be envisaged.

2.8 Employment Generation

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The total direct manpower requirement for the proposed mining operation will be around **66** Significant Indirect employments is also expected due to the associated activities. This project operation will provide livelihood to the poorest section of the society.

EMPLOYMENT DETAILS

Sl. No.	Category	Total Manpower
1	Transport Manager	7
2	Supervisor	7
3	Time Office	7
4	Others	38
5	Operators	7
Total		66

3.0 PROJECT DESCRIPTION

3.1 Type of project including interlinked and interdependent projects, if any

The proposed project is for the extraction of sand from the bed of a river by semi mechanized operation. This is an independent project.

3.2 Location

The mining lease area is located at Khata No. 103 Khasra No. 700/712,700,715 in Mauza-Hurka, Block- Dehri, District- Rohtas. The proposed project activity will be carried out in the bed of the Sone. Key Plan is Annexure-II. Detailed Surface cum Geological Plan & Sections of the site is attached as Annexure III respectively.

The mine site is located at:

Table-1:-Pillar co-ordinates of the proposed sand mining site

Sl. No	Latitude	Longitude
1	24° 55' 10.528" N	84° 13' 6.698" E

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2	24° 55' 46.687" N	84° 13' 15.863" E
3	24° 55' 46.783" N	84° 13' 15.889" E
4	24° 55' 46.074" N	84° 13' 16.783" E
5	24° 55' 45.658" N	84° 13' 17.307" E
6	24° 55' 44.878" N	84° 13' 18.289" E
7	24° 55' 44.759" N	84° 13' 18.438" E
8	24° 55' 43.953" N	84° 13' 19.454" E
9	24° 55' 43.770" N	84° 13' 19.684" E
10	24° 55' 42.940" N	84° 13' 20.730" E
11	24° 55' 42.786" N	84° 13' 20.924" E
12	24° 55' 41.946" N	84° 13' 21.982" E
13	24° 55' 41.740" N	84° 13' 22.241" E
14	24° 55' 41.118" N	84° 13' 23.025" E
15	24° 55' 41.005" N	84° 13' 23.167" E
16	24° 55' 39.783" N	84° 13' 24.706" E
17	24° 55' 39.658" N	84° 13' 24.863" E
18	24° 55' 38.793" N	84° 13' 25.953" E
19	24° 55' 38.520" N	84° 13' 26.297" E
20	24° 55' 37.522" N	84° 13' 27.553" E
21	24° 55' 37.212" N	84° 13' 27.944" E
22	24° 55' 36.501" N	84° 13' 28.839" E
23	24° 55' 36.379" N	84° 13' 28.992" E
24	24° 55' 35.579" N	84° 13' 30.000" E
25	24° 55' 35.297" N	84° 13' 30.355" E
26	24° 55' 34.523" N	84° 13' 31.330" E

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27	24° 55' 34.439" N	84° 13' 31.436" E
28	24° 55' 33.572" N	84° 13' 32.528" E
29	24° 55' 33.352" N	84° 13' 32.805" E
30	24° 55' 32.557" N	84° 13' 33.806" E
31	24° 55' 32.424" N	84° 13' 33.973" E
32	24° 55' 31.453" N	84° 13' 35.197" E
33	24° 55' 31.260" N	84° 13' 35.439" E
34	24° 55' 30.638" N	84° 13' 36.223" E
35	24° 55' 30.361" N	84° 13' 36.572" E
36	24° 55' 30.130" N	84° 13' 36.862" E
37	24° 55' 29.955" N	84° 13' 36.724" E
38	24° 54' 58.527" N	84° 13' 9.839" E
39	24° 55' 10.528" N	84° 13' 6.698" E

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The Location map of the project site is given below:

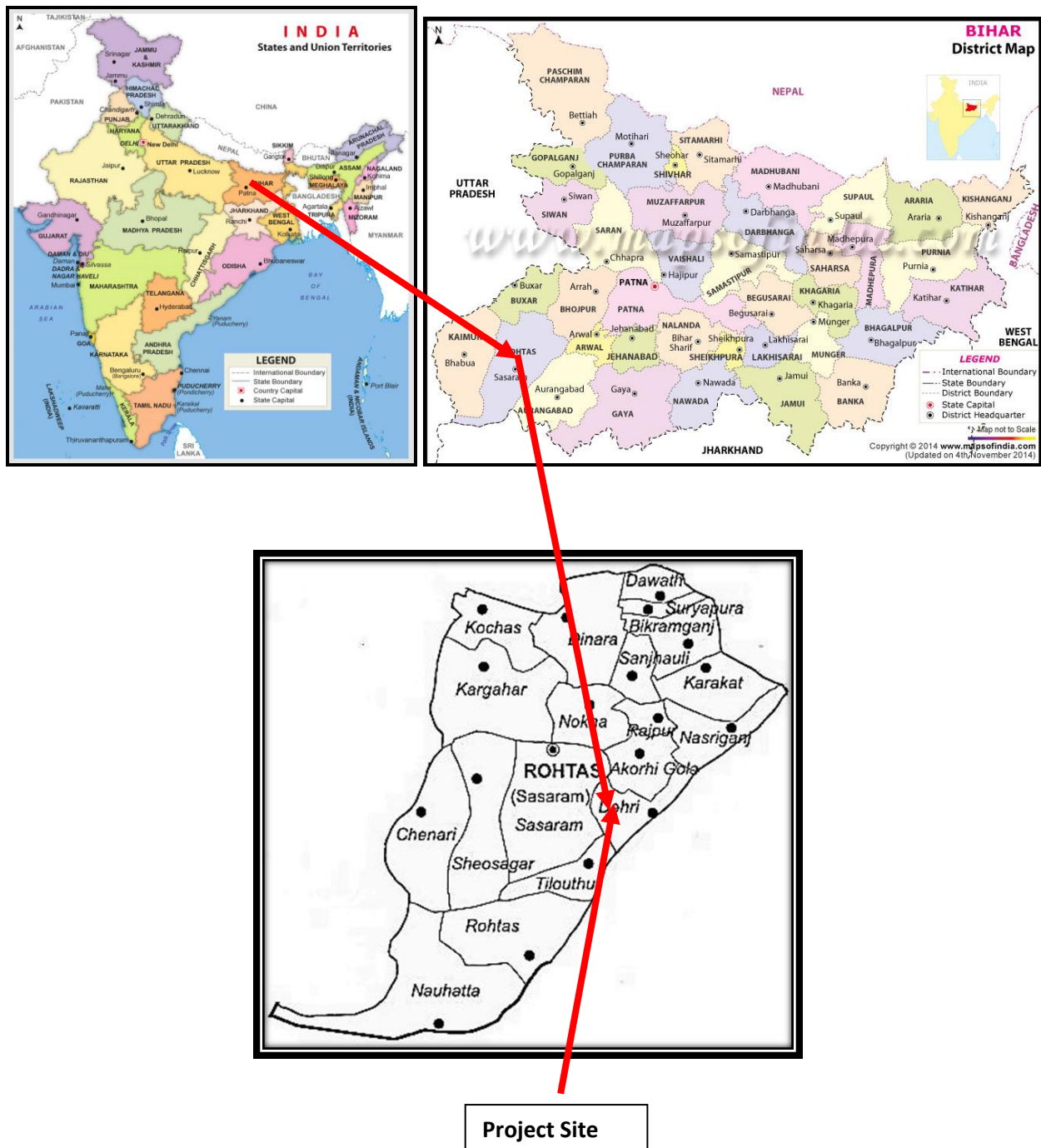


Figure: 1- Location map of the proposed site

3.3 Details of alternate sites considered

No alternative site has been considered, as mining is site specific.

3.4 Size or magnitude of operation

Sand mining will be carried out about 240 days in a year and confined in the day light only. As per bench slope configuration, total mineable reserve is calculated as 1655313.828 cum per year but as per EMSGM Guideline, the mineable reserve will be restricted to 1040400 cum per year (60.00% of total geological resource).The estimation according to EMGSM Guideline and five-year plan have been furnished below.

Table no.: 3: Estimation of sand reserve considering 87.87% replenishment rate

Mining Area(ha)	Maximum Depth(m)	Geological Resource(cum)	Replenishable reserve(cum)	Mineable Reserve(cum)
57.80	3	1734000	1523665.8	1040400

Year wise sand reserve according to EMGSM guideline is given below

Table no.4: Year wise sand reserve according to EMGSM guideline

Serial Year	Production in Cum
Year-1	1040400
Year-2	1040400
Year-3	1040400
Year-4	1040400
Year-5	1040400
Total	5202000

In five years of lease period, total production will be 5.202 million cum. considering density of 1.8, the total production comes to 9.3636 million tons.

It has been envisaged to deploy JCB/ Excavator of excavation of sand while tippers of 12 tons will be deployed for transportation of sand from river bed to nearby stacking area at distance of 5 km from the project site. Estimated number of equipment along with their fuel consumption is given below in table no 5.

Table no. 5: list of machineries required for the sand mining project

S. L. No.	Name of Machinery	Capacity (Cum) / Ton	Max. Nos.	Fuel Consumptions (Lit Per Hour)	Fuel Consumption in day (Litres)
1	JCB/ Shovel	1.20	2	12	240
2	Trucks Tippers	12	19	7.0	1330
3	Water Sprinklers	4	3	4	120
4	Light vehicles	-	3	3	90
5	Tractor	4	10	2.5	250
			TOTAL		2030

3.5 Project description with process details

3.5.1 Method for developing and working the deposits

The sand deposited as river bed material will be collected in its existing form.

3.5.2 Method of Estimation of reserves:

The mining is confined to extraction of sand from the dry river bed. The operation will be semi mechanized in which the material will be collected in its existing form. Mining will be carried out only during the day time. Extraction of the minor mineral will be completely stopped during the monsoon season.

3.5.3 Working Depth (below ground level)

The deposits occur in the middle/bottom of the water stream. During the lease period, the mining will be restricted down to 3 m below river bed or above ground water table/ or above the ground water level.

3.6 Raw Material Required Along with Estimated Quantity, Likely Source, Marketing Area of Final Product/S, Mode of Transport of Raw Material and Finished Product

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No raw material will be required in the proposed project. The operation involves the extraction of sand in its existing form and loaded into trucks/trolleys which will transport the material to the local market. The existing roads will be utilized for the transport of sand from mine site to market.

3.6.1 Use of Mineral

Minor mineral namely sand is used as construction material for buildings, bridges etc.

3.6.2 Mineral Beneficiation

No mineral beneficiation is involved.

3.6.3 Surface Transport

The transportation of sand will be carried out by the Proponent through their own transport. There are all weather metalled road and then an unmetalled road right up to the mines to dispatch the material from mines to the market. It will be purchased by the customers at mine site and transported by them through their own arrangement of trucks. The practice is quite sound in the area and ensure continuous lifting of the material. However necessary arrangement of truck can be done from the local truck operator union.

3.7 Resource optimization/ recycling and reuse

Minerals are generally depleting asset once mined; but minerals like Sand will be replenished naturally. Thus, a scientific approach will be taken up for excavation of mineral with systematic method.

3.8 Availability of water its source, energy/ power requirement and source

3.8.1 Water Requirement

Total water requirement will be 7.39 KLD. This water will be supplied by nearby available sources or private water tankers.

Table 3:-Water requirement of the project

Activity	Water requirement (KLD)
Dust suppression	5.0
Domestic	0.66
Green Belt Development	1.73
Total	7.39

3.8.2 Power Requirement

All the activities will be carried out semi mechanically. The operation will be done only from sunrise to sunset hence there is no power requirement for the project at site.

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

3.9.1 Solid Waste Generation & its Disposal

There are no mineral rejects of any kind produced during mining. However small quantity of municipal solid waste will be generated at the mining site such as paper pouch, Gutkha pouch and some food residue by working laborers only, for that separate bin will be provided at the mine site, which will be sent to the nearby community disposal facility on daily basis by laborers itself.

3.9.2 Liquid Effluent

No liquid effluents will be generated at the mine site.

4. SITE ANALYSIS

4.1 Connectivity

Rohtas Sone- 13 is well connected to the nearest metalled road SH- 15 via an approach road of approx. 1.0 Km towards west. Other forms of connectivity are as follows:-

Table 4: Connectivity

Nearest Railway Station	Dehri on Son Railway Station, approx. 3.30 Km towards SW
Nearest Airport	Gaya International Airport, approx. 75.0 Km towards East.
Nearest Highway	SH-15, Approx. 1.0 Km towards West

4.2 Land form, land use and land ownership

The proposed activity is to take place in the dry river bed of concerned rivers. The land form is mostly river bed and non-forest land. The entire land is Government land.

Moreover, there will be no change in land use as the mining will be confined to the river bed, which will get replenished naturally with the continuous flow of water.

4.3 Topography

Rohtas district is characterized by flat quaternary alluvial plain with average surface elevation of 100 meter about mean sea level.

Source: As per Approved DSR

4.3.1 Geology

The district is broadly expressed in two distinct geological domains viz. (i) Middle Proterozoic sedimentary sequence of Vindhyan Supergroup and (ii) unconsolidated to semi consolidated alluvial sequence of late Pleistocene to late Holocene age.

Geological Unit of Rohtas District

(Source: District Resource Map, Geological Survey of India, 2002)

GEOLOGICAL UNIT	AGE	NATURE AND CHARACTERISTICS
Durgauti formation	Late Holocene	Present day channel deposit
Ramgarh formation	Holocene	Linear deposit of unconsolidated sediments developed along prominent river channels
Bare formation	Holocene	Linear deposit of unconsolidated sediments forming major flat terrain
Mohanpur formation	Late Pleistocene	Semiconsolidated to consolidated sediments occurring in the proximity of hills
Kaimur Group Vindhyan Supergroup Semri Group	Middle Proterozoic	Soft to medium hard rocks, conspicuously form escarpment of the plateau landform
		Thick succession of cavernous and cherty limestone forming hillocks and undulating uplan; gently sloping northwards and steep escarpment to the south.
		Soft to medium hard rocks forming escarpment to the plateau landform

4.5 Existing land use pattern

The mine lease area is flat. There is no forest land or agriculture land in the mine lease area. The entire mining lease lies within the inactive channel of the bed of rivers, The existing land use pattern is dominated by agriculture followed by barren lands.

4.6 Soil classification

Rohtas district which treasures various geological formation ranging from Vindhyan to Recent have diversified paedogenesis depending upon the composition of the parents materials, palaeogeographical and climatic conditions to which it was subjected. The major soil group which have got strategic significance in present day land utilisation are described below

- (a) The forest and hilly area in the south of the GT road with yellowish brown to reddish brown soil.
- (b) Alluvial soils, light grey to dark grey in colour of recent age occurs in the north of GT road (NH-2) in Gangetic plain.
- (c) Marginal alluvial soils, (Colluvial deposits) greyish yellow in colour to the south of GT road upto the foothill of Kaimur plateau.

The hilly soils are characterized by low nitrogen, medium to high potash, acidic and light to medium textured. The alluvial soils in the northern part of the district are neutral to slightly alkaline, heavy textured. The alluvial plain soil is practically unaltered alluvium representing a broad spectrum of sand, silt and humus bog clay depending on landform component. The marginal alluvial soils are heavy textured, calcareous, with more than 10% of CaCO₃.

Source:http://cqwb.gov.in/District_Profile/Bihar/Rohtas.pdf.

4.7 Climatic data from secondary sources

RAINFALL & CLIMATE

The climate of the district is sub-tropical monsoonic, characterized by hot summer, high humidity and dry winter. January is the coldest month when the minimum temperature comes down to approximately 4°C. Winter season starts from the month of November and lasts till February. The temperature begins to rise in the March and it reaches the peak in the month of May when the mercury touches about 45°C.

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Rains sets sometimes in June also and lasts till middle of September. The district gets easterly wind from June to September, whereas westerly wind blows from October till May. The district gets maximum rainfall during the months of July and August. Some winter rains occurs in January and February. About 90 % of rainfall is received during the monsoon months between June to September. The average annual rainfall is 1144.2 mm. The monthly distribution of normal rainfall in Rohtas district is given in figure:

With an average of 34.8 °C, May is the warmest month. In January, the average temperature is 17.6 °C. It is the lowest average temperature of the whole year.

The precipitation varies 318 mm between the driest month and the wettest month. The average temperatures vary during the year by 17.2 °C.

Source: As per approved DSR

Details of rainfall data of five years (from 2016 to 2020) is furnished in Table No.

Details of rainfall data of five years (from 2016 to 2020)

YEAR	JAN		FEB		MAR		APR	
	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP
2016	25.5	96	1.7	-87	32.3	255	0	-100
2017	0.5	-96	0	-100	2.9	-68	0.8	-86
2018	0	-100	2.2	-83	0	-100	0.2	-97
2019	4.9	-55	6.5	-58	7	18	2.4	-56
2020	7.1	-35	43.5	182	56.8	862	3.7	-33
YEAR	MAY		JUN		JUL		AUG	
	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP
2016	15.1	9	54	-40	489.3	78	245.2	-12
2017	22	59	49.6	-45	474.5	72	266.4	-4
2018	3.8	-73	73.3	-19	221.8	-19	219.7	-21
2019	7.2	-62	18.2	-84	213.9	-27	189.6	-29
2020	74.1	296	243.7	120	216.7	-26	214.8	-20
YEAR	SEPT		OCT		NOV		DEC	
	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP
2016	261.1	37	57.2	33	0	-100	0	-100
2017	35.9	-81	6.3	-85	0.4	-97	0	-100
2018	147.9	-23	3.4	-92	0	-100	4	-17
2019	360.3	87	26	-32	0	-100	16.4	235
2020	115.8	-40	24.7	-35	1	-85	0.9	-82

5. PLANNING BRIEF

5.1 Planning concept

Production of sand will be done as per the market demand not exceeding 1040400 Cum per year 1872720 TPA.

5.2 Population projection

The project will employ most of the workers from nearby villages. There will not be any increase in population due to the project.

5.3 Land use planning

The land use of the mine lease area is the Son river and there will be no change in land use after operation. The excavated sand will be replenished every year during the monsoon season. Hence the ultimate land use of the mine lease area will not be change.

5.4 Amenities/facilities

Temporary rest shelters, portable toilets and First aid provision will be made available to the mine workers at the site.

6. PROPOSED INFRASTRUCTURE

6.1 Industrial area (Processing Area)

No industrial area is proposed.

6.2 Residential area (Non- Processing Area)

The mine workers will be hired from nearby villages, so residential areas will not be made.

6.3 Green belt

Plantation will be raised along both sides of roads and civic amenities in consultation with the local authorities. Total **578** trees of will be planted with various types of species.

Sl .No.	River Name	Name of Ghats	Mining Area in Ha	No. of Saplings@10/Ha.	Cost in Rs.
1	Sone	Rohtas Sone 13 Ghat	57.80	578	173400
Total			57.80	578	173400

6.4 Social infrastructure

- Road facility (existing roads will be maintained regularly)
- Employment opportunity
- Medical camps
- Social awareness camps,
- Donations to schools
- Secondary employment opportunities
- Formation of self-help groups for the women in nearby villages.

6.5 Connectivity

Rohtas Sone-13 is well connect to the nearest metalled road SH 15 via an approach road of approx. 1.0 Km towards West. Haul route map attached as **Annexure-IV** & Toposheet Map is attached as **Annexure-V**.

6.6 Drinking Water Management

Water for drinking purpose will be ensured from nearby available sources.

6.7 Sewerage System

Not applicable

6.8 Industrial Waste Management

Not applicable

6.9 Solid Waste management

No any solid waste other than municipal solid waste is expected to be generated at the mining site.

6.10 Power Requirement & Supply/ Source

All the activities will be carried out semi mechanically. The operation will be done only from sunrise to sun set hence there is no power requirement for the project at site.

6.11 Environmental Management Plan

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The environmental management plan consists of the set of mitigation, management, monitoring and institutional measures to be taken during the implementation and operation of the project, to eliminate adverse environmental impacts or reduce them to acceptable levels. The present environmental management plan addresses the components of environment, which are likely to be affected by the different operations in the mine area.

Table-5: Budget Allotted for the Environmental Management Plan: -

Sl. No	Description	Capital (Cost lakh)	Recurring Cost (lakh)
1	Pollution Control & Dust Suppression	Nil	2.5
2	Pollution Monitoring i) Air pollution ii) Water pollution iv) Noise Pollution	--	3.5
3	Plantation and salary for one gardener (part time basis).	11.56	0.5
4	Haul road Maintenance Cost	1.5	1.44
TOTAL		13.06	7.94

Note: * 578 plants * 2000 Rs (for each plant including hedges and fences) = 11.56 lakhs

- Salary of Labour for haul road maintenance 2 labor*300=600 per day
600* 240= 144000 or 1.44 lakh
- * 2.5 lakh per kilometer (250000 *0.6 km haul road) = 1.5 lakh/-

7. REHABILITATION AND RESETTLEMENT (R&R) PLAN

Not applicable

8. PROJECT SCHEDULE & COST ESTIMATES.

The project will commence once Environmental Clearance and other necessary certificates are obtained from the respective departments. The total cost of project would be around Rs. **1774.66 lakhs**. Break-up of the total project cost areas:-

Table-6:- Break-Up of Total project cost

S. No.	Description	Cost in Rs.
1	Auction cost	17,16,66,000/-
2	Cost of Labour & Equipment	5700000/-
3	Miscellaneous	100000/-
TOTAL		177,466,000/-

Corporate Environment Responsibility Cost :-

CER cost will be 2.0% of the total project cost. This amount will be used for social welfare.

CER COST is **177,466,000** x 2.0% = Rs 3,549,320/-.

9. ANALYSIS OF PROPOSAL

The project involves collection of sand from the Son river bed. This is very essential in order to prevent widening of the riverbeds and to prevent flooding off and damage to the adjoining areas. This can only be achieved by maintaining the existing course of the river.

The river banks, on both sides are covered slightly by vegetation and human habitats. Widening of river banks results in excessive erosion; resulting in damage to flora, agricultural land and settlements which are situated at very close proximity. This project operation will provide livelihood to the poorest section of the society. It provides employment to the people residing in vicinity directly or indirectly by the project. The sand extracted is in high demand in the local market. This is also to ensure scientific method of sand extraction.
