

PRE- FEASIBILITY REPORT

EXECUTIVE SUMMARY

The proposed project of 8.74 ha area is of river bed sand mining and falls under Category- “A”, as per EIA Notification 2006 amended thereof of the Ministry of Environment and Forests, New Delhi. The mining lease area is located in Village: Naudiha, Anchal: Chandan Kiyari, District: Bokaro, State: Jharkhand. The proposed project activity will be carried out in the bed of the River Gowai.

The salient features of the project are detailed below:

Mining Lease Area	8.74 ha		
Location of mine	PILLAR NO	COORDINATE	RIVER NAME
	A	23°32'31.79"N 86°19'26.95"E	GOWAI
	B	23°32'35.20"N 86°19'24.54"E	
	C	23°33'14.23"N 86°19'30.54"E	
	D	23°33'9.61"N 86°19'39.25"E	
Toposheet No.	Restricted		
River/Nalla/Tanks/Lakes etc	Gowai River		
Topography	Flat		
Minerals of mine	Sand		
Proposed production of mine	2,25,000 TPA		
Method of mining	Opencast Manual Mining		
Drilling/Blasting	No drilling and blasting is proposed		
Water demand	Dust Suppression	1.2 KLD	
	Domestic Use	2.1 KLD	
	Total	3.3 KLD	
Sources of water	Surface Water & tube wells of nearby village		
Ultimate depth of Mining	3 m		
Man power	56		
Solid Waste	No waste is expected as all the mineral collected is saleable		
Nearest railway station	<u>Railway Station:</u> Bhojudih Junction Railway Station (about 15.73 km in NE		

	direction) Pathardih Railway Station (about 17.43 km in NW direction) Bokaro Railway Station (about 26.02 Km in NW direction)
Nearest Roads /highways	<u>Roads /highways :</u> SH-12(Approx 3.80 in N direction) Dhanbad-Puruliya Road (Approx 1.78 Km in E direction)
Nearest Airport	<u>Airport:</u> Bokaro Airport (about 20.40 km in NE direction) Ranchi Airport (about 104 Km in WSW direction)

2. INTRODUCTION

2.1 Identification of Project and Project Proponent

The project is proposed by Shri Om Kalani. State government issue the lease in favor of Shri Om Kalani through LOI (letter no. 2209/M Dated 27/06/15 is attached as **Annexure I**. The details of the project are given below:

Name of the Lessees	Shri Om Kalani
Name & Address of POA Holder	Shri Om Kalani S/o Shri Gaurishankar Kalani 03 H-28, Jawahar Nagar, Shri Ganganagar, Rajasthan 7549675066
Name of Mine	Naudiha Balu Ghat Project
Mineral	Sand
Area (ha)	8.74ha
Postal Address	S/o Shri Gaurishankar Kalani 03 H-28, Jawahar Nagar, Shri Ganganagar, Rajasthan
Status of Mine	Fresh application for Environmental Clearance.

2.2 Brief description of the nature of the project

It has been proposed to collect approximately 2,25,000 TPA of sand. No mining activity will be undertaken during the monsoon season. So the river bed material will be replenished during the monsoon season every year.

Surface Mining: The mining is confined to extraction of sand from the bed of Gowai. The operation will be manual in which the material will be collected in its existing form. Sand Mining will be carried out only upto a depth of 3 m, manually. Mining of minor minerals in river-bed proves to be most viable and least disturbing to the environment. The mining process is opencast manual method without drilling & blasting. There would be no risk to the employee working in the mines. Except in cases of emergency, when suppliers are to be effected to Government agencies and other requisite parameters of need, manual 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 260 days in a year.
- b) In order to maintain safety and stability of river banks a safety distance of 15 m or 1/5th of the width of the river on both side (whichever is maximum) of river bank has been left.
- c) 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 aggradations thereby maintaining the channel's capacity and its flow.
- d) No mining operations shall be carried out in proximity of 500 meter from any Rail, Road, bridge and/ or embankment.
- e) No mining operations shall be carried out in proximity of 250 meter from any RF/PF.

Mode of working:

The guidelines of the Ministry of Environment and Forests & Climate Change, New Delhi as also of the Geological Survey of India will be followed for a proper & scientific mining.

- I. Dry pit mining will be followed which means mining at all times will be above flowing river bed water level with no mining when water is above bed level.
- II. Sand will be collected in slices upto a depth of 3.0m or above the ground water level, whichever is less (Maximum depth as per model guidelines of Geological Survey of India and Ministry of Environment & Forest& Climate Change).

- III. Stream will not be diverted to form inactive channel.
- IV. Mining at the concave side of the river channel will be avoided to prevent bank erosion. Mining will be restricted minimum 3m away (inward) from river bank to minimize effect of river bank erosion and to avoid consequent channel migration.
- V. Area of mining lease will be demarcated prior to mining and Pucca Pillars will be erected on ground which will enable systematic mining.
- VI. No mining operations shall be carried out in proximity of any bridge and/ or embankment.

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 manual 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 Gowai River. The sediment in the form of river bed material (RBM) deposited in the last many years had changed the shape of the Gowai 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/Moram 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 nearby 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 Employment Generation

This project operation will provide livelihood to the poorest section of the society. It will provide employment to the people residing in vicinity and indirectly by the development of supporting infrastructure.

S. No.	Category	Numbers
1.	Foreman	1
2	Supervisor	2
3	Water sprinkler	2
4	Drinking water supplier	2
5	Labour	49
TOTAL		56

3. 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 water stream by manual operation. This is an independent project.

3.2 Location

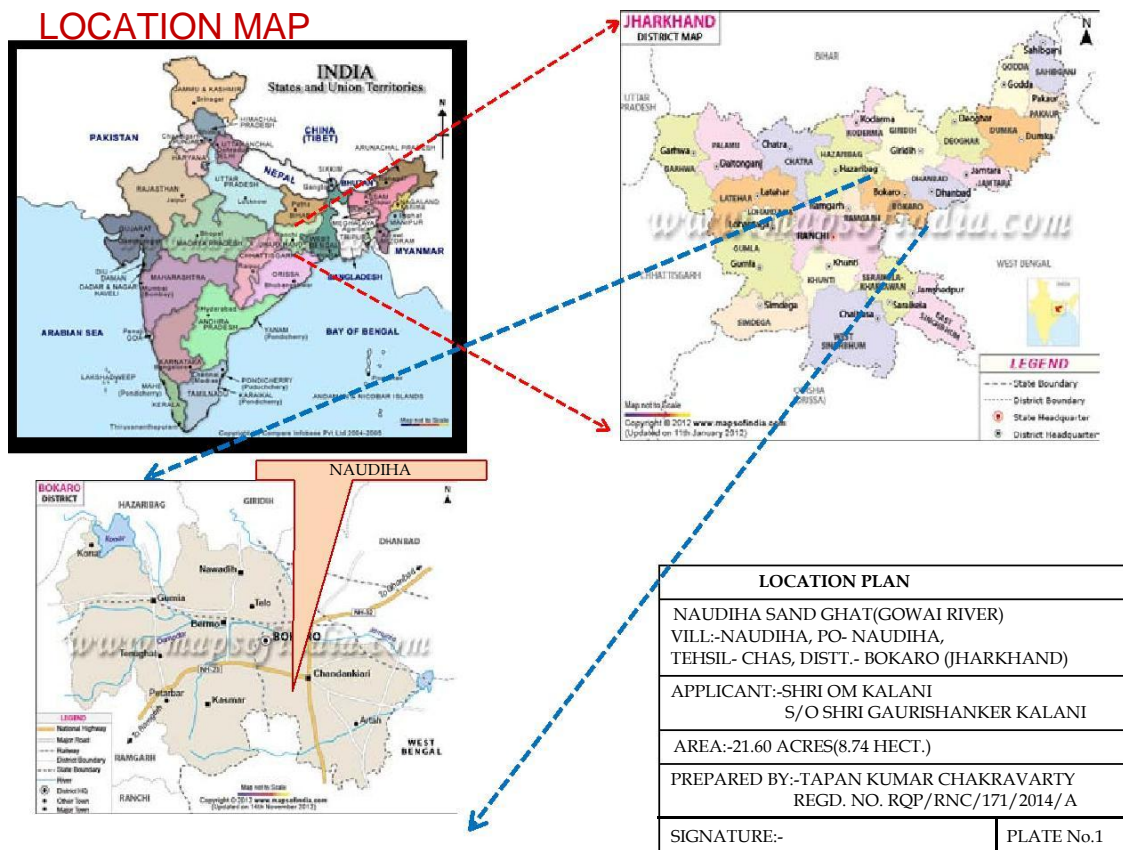
The mining lease area is located in Village- Naudiha, Anchal: Chandan Kiyari, District Bokaro, Jharkhand. The proposed project activity will be carried out in the bed of the Gowai. The mining lease area falls in Survey of India 1:50,000 scale. Google earth image showing buffer of 10 km radius and Toposheet map of 1:2, 50,000 scale showing buffer of 10 km radius is attached as **Annexure VI**.

The mine site is located at:

PILLAR NO	COORDINATE		RIVER NAME
	Latitude	Longitude	
A	23°32'31.79"N	86°19'26.95"E	

B	23°32'35.20"N	86°19'24.54"E	GOWAI
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Vicinity map showing site location is given below:



3.3 Details of alternate sites considered

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

3.4 Size or magnitude of operation

The proposed mine has lease over an area of 8.74 ha. The total extractable material would be approx. 2,25,000 TPA.

3.5.1 Method for developing and working the deposits

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

3.5.2 Method of mining

The mining is confined to extraction of sand from the bed of Gowai. The operation will be manual in which the material will be collected in its existing form. Sand Mining will be carried out only upto a depth of 3 m, manually. Mining of minor minerals in river-bed proves to be most viable and least disturbing to the environment. The mining process is opencast manual method without drilling & blasting. There would be no risk to the employee working in the mines. Except in cases of emergency, when suppliers are to be effected to Government agencies and other requisite parameters of need, manual 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.

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- f) Area of mining lease will be demarcated prior to mining and Pucca Pillars will be erected on ground which will enable systematic mining.
- g) No mining operations shall be carried out in proximity of any bridge and/ or embankment.
- h) For the optimum utilization of the mineral available in the lease area, mine working has been planned in 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 manual mining is most suitable.

Working Depth (below ground level)

During the entire lease period, the deposit will be worked the top surface to 3 m bgl or above ground level, whichever comes first.

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

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 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 purchaser 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

Not envisaged.

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

3.8.1 Water Requirement

In the proposed project there is no need of water to carry out operations but for drinking water which will be required for the working people and for the dust suppression. The number of working people will be 56, so the water requirement for drinking and for dust suppression will be around 3.3 KLD. This water will be supplied from the nearby village by tankers.

3.8.2 Power Requirement

All the activities will be carried out in a manual manner. 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, therefore, no provision of stock yard is proposed. The entire mineral produced is saleable.

3.9.2 Liquid Effluent

No liquid effluents will be generated at the mine site.

4. SITE ANALYSIS

4.1 Connectivity Nearest

Railway Station

Bhjudih Junction Railway Station (about 15.73 km in NE direction)

Pathardih Railway Station (about 17.43 km in NW direction)

Nearest Airport

Bokaro Airport (about 20.40 km in NE direction)

Ranchi Airport (about 104 Km in WSW direction)

Nearest Highway/Road

SH-12(Approx 3.80 in N direction)

Dhanbad-Puruliya Road (Approx 1.78 Km in E direction)

Evacuation map is attached as Annexure VII.

4.2 Land form, land use and land ownership

The proposed activity is to take place in the bed of the Gowai River and hence there will be no change in land use. The area considered for mining of the material has not been utilized for any purpose other than for the natural flow of the Gowai River. The objective of this operation is only to regulate the flow in its natural course which is presently being hindered by the sedimentation over a long period of time.

4.3 General Geology:

The state of Jharkhand was created as 28th state of the Indian Union by the Bihar Reorganization Act on 15th November 2000. The state covers 7.970 million hectare area with a population of 26.9 million (as per census 2001). The spatial extent of Jharkhand State is approximately 21°55' to 25°35' North Latitude and 83°20' to 88°02' East Longitude. The state is land locked and it shares its boundary with Orissa on the southeast, Chhattisgarh on the southwest, Bihar on the north, West Bengal on

the east and Uttar Pradesh on the northwest. It comprises of the Chotanagpur Plateau, which forms a part of Deccan bio-geographic province. It is a hilly undulating plateau characterized by predominantly tropical forests and tribal settlements. The State is endowed with natural resources that need to be conserved and utilized in a sustainable manner for all-round development of the state in general and the marginalized tribal population in particular. The total geographical area of the State is 79.70 lakh hectares, out of which 23.22 lakh hectares (29.33%) are under forests; 5.66 lakh hectares (7.12%) are barren lands; 7.24 lakh hectares (9.10%) are put to non-agricultural use; 0.90 lakh hectares (1.15%) are under pastures & other grazing lands; 3.07 lakh hectares (3.86%) are cultivable wastelands; 0.88 lakh hectares (1.11%) are under miscellaneous trees and groves; 12.04 lakh hectares (15.14%) are current fallows; 8.45 lakh hectares (10.63%) are under other fallows; and 17.95 lakh hectares (22.58%) are the net sown area. The number of electrified villages is 14667 (45.0 per cent of the total villages). 26.0 per cent (8484) per cent of the total villages are connected by roads. The lengths of the National Highways and the State Highways are 1006 and 4662 kms respectively.

4.3.1 Local Geology

LOCAL GEOLOGY OF THE AREA:

The area is dominated by medium to fine sand geologically the area comprising of Terrace alluvium deposited in depositional terraces of old rivers & contain cyclic sequence of yellowish micaceous fine to course grained sand. It is angular two subangular and the angularity of the grains of this category of sand decreases with depth. The Litho unit shown on the geological map of the leased out area have been plotted on the basis of physical characteristics observed in the field.

4.4 Topography

The predominant physical feature over major part of the district is the rolling topography dotted with isolated inselbergs except in the Borijore and Sundarpahari blocks. A substantial part of Borijore and Sundarpahari block is under forest cover. The altitude of the land surface increases from west to the east. The major hills are confined to the eastern part of the district comprising the Gandeshwari Pahar (238.41m) and Kesgari Pahar (268.29m) while in the western part of the district isolated hills are in the form of the inselbergs and other small hillocks. The soil is mostly acidic, reddish yellow; light textured and highly permeable with poor water holding capacity.

The state has different relief because of its physiographic as it consists of four series of plateaus of having different heights. The highest plateau lies in the west known as Western or Higher Ranchi Plateau or locally known as the Pat region located at 2500 to 3600 feet above sea level covering northern part of the old Ranchi district and the southern edge of the old Palamu district. The term Pat represents a feature similar to a table with steep edges around and a flat top. It is full of dissected hills having a hill station, Netarhat, at the top. The second plateau is known as Ranchi Plateau having a height of 2000 feet composed of gneisses and granites. It is separated by the Damodar trough from the Hazaribagh Plateau. The next plateau is Lower Chotanagpur Plateau consisting mainly of gneisses and granite and partly of schists and other Dharwar rocks.

Bokaro district is a newly created district carved out from Giridih and Dhanbad district. It is one of the highly industrialized coal belt district in Jharkhand. Bokaro district is bounded by Giridih in the North, Purulia (West Bengal) in the South, Dhanbad in the east and Hazaribagh in the West. The district is spread over 2861 Sq.Km lying between latitude $23^{\circ}24'27''$ to $23^{\circ}57'24''$ and East Longitude $85^{\circ}34'30''$ to $86^{\circ}29'10''$. The district headquarter is at Chas. The district comprises of two sub divisions i.e. Chas and Bermo with eight blocks, 127 Gram Panchayat and 681 villages. According to 2001 census the total population of district is 17,77,662. It has 8 developed blocks namely (1) Chas, (2) Gomia, (3) Nawadih (4) Bermo, (5) Peterwar, (6) Kasmar, (7) Jaridih and (8) Chandankiyari.

Naudiha is a small Village/hamlet in Chandankiyari Block in Bokaro District of Jharkhand State, India. It comes under Naudiha Panchayath. It is located 27 KM towards East from District head quarters Bokaro Steel City and 128 KM from State capital Ranchi. The district is bounded by the district of Sahebganj in the north, Dumka district in the south, Pakur district in the east and Banka and Bhagalpur districts of Bihar state in the west. Source: CGWB, Oct 2009.

4.5 Soil classification

Soil content of Jharkhand state mainly consist of soil formed from disintegration of rocks and stones, The soils of Bokaro district can be broadly grouped into the soil developed in different formations like Granite or Granite Gneiss of Archean age, sandstone and shales of Gondwana Formation and Alluvial Plain. Texturally the soils of Bokaro district have been classified into four classes as :-

- **Stony and Gravelly** : These are low grade soils having an admixture of cobbles, pebbles and gravels, generally found at the base of the hills.

- Sandy Soils : It is found near the stream beds containing 60% sand and are easily drained. These are poor in respect of fertility and requires heavy manuring.
- Loamy Soils : These consists mostly of detritus of decomposed rocks and vegetable matter. It is suitable for cultivation. Normally these are found in valleys near the hills.
- Clayey Soils : These soils are found near tank beds. These are sticky soils. Their water bearing capacity is very high. The area is very fertile but crop yielding capacity improved with addition of sand, lime and organic manures etc. Source: CGWB, Oct 2009.

4.6 CLIMATIC DATA FROM SECONDARY SOURCES

RAINFALL & CLIMATE

An average rainfall of the district is 1363.57mm. Each block has a rain gauge station. The maximum rainfall is 1669.58mm in Chandan Kiyari Block and minimum in Bermo block (1093.70mm). The normal rainfall of the district is 1185mm. The maximum rainfall occurs during the monsoon months viz middle June to middle of October. The climate of Bokaro district is humid and sub tropical. It is characterized by hot and dry summer from March, to October and cold winter from November to February. Humidity is high from July to September. The mean annual humidity is nearly 60%. In Summer the temperature rises to 420 – 460. Source: CGWB, Oct 2009.

5. PLANNING BRIEF

5.1 Planning concept

Mining plan is not required for the Sand Mining in the state of Jharkhand. Production will be done as per the market demand not exceeding 2, 25,000 Tonnes/Annum. The sand shall be exploited manually with conventional hand tools. The height & width of benches shall be kept 1.5m & over all pit slopes shall be maintained less than 45⁰. Mining shall be carried out manually without adoption of drilling & blasting. The sand shall exploit manually. The sand shall be loaded manually in to tippers/tractor trolleys & dispatched to various parties. Ultimate depth of pit shall be kept 3.0m from the surface & height shall be kept 1.5 m.

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 Gowai 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, 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)

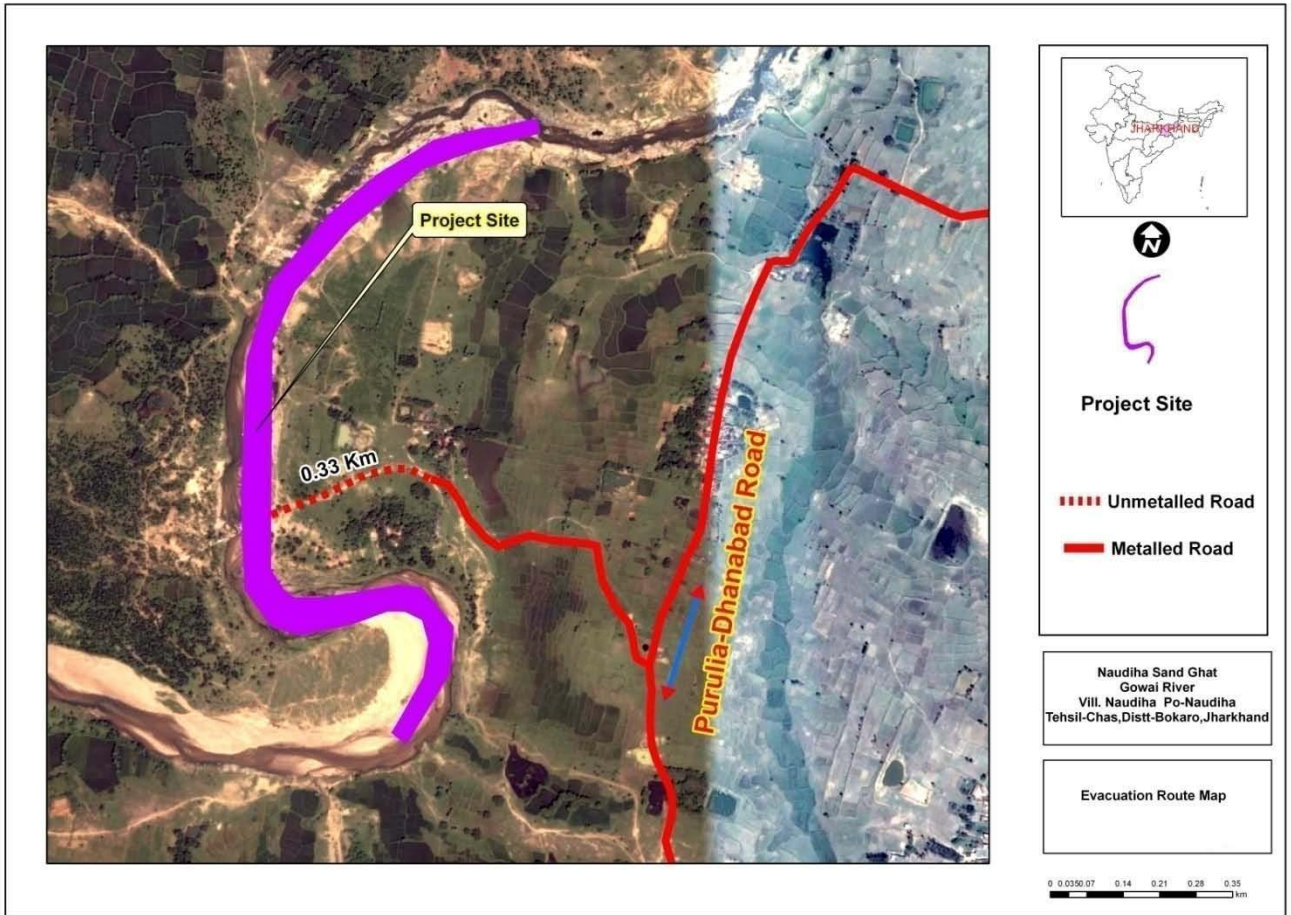
The mine workers will be hired from nearby villages, so residential areas will not be made.

6.3 Green belt

Plantation will be raised along both sides of roads and civic amenities in consultation with the local authorities. Every year 40 to 90 trees will be planted with various types of species.

6.4 Connectivity

Project site is conveniently connected to SH-12 (Purulia- Dhanbad Road) through an unmetaled road at a distance of 0.33 Km which finally meets.



6.5 Drinking Water Management

3.3 KLD of water for drinking and operations is proposed to obtain water from ground water from nearby villages. And proper permission will be taken from concerned authorities.

6.6 Sewerage System

No Sewerage System is provided at the mine site.

6.7 Industrial Waste Management

Not applicable

6.8 Solid Waste management

No solid waste generation is expected from the mining operation.

6.9 Power Requirement & Supply/ Source

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

6.10 Budgets for Corporate Social Responsibility (CSR)

CSR plan has been proposed to actively contribute to the social, environment and economic development of the communities in which we operate. In doing so, build a better, sustainable way of life for the weaker sections of society and raise the country's human development index. It is proposed to allocate 5% of the project cost for the CSR activity.

An amount of Rs. 5,00, 000 is allotted towards CSR activities & it is given in the subsequent slide.

SI. No.	Activity	Capital Cost (in Rs.)
1	Provide drinking water facility in surrounding villages and schools by construction water tanks at schools	1,00, 000/-
2	Solar lamp distribution	1,25, 000/-
3	Construction of Ladies Toilets	1,25,000/-
4	Educational support & sanitary facilities in schools for poor students	1,50,000/-
TOTAL (in life time)		5,00,000/-

6.11 Environmental Management Plan

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.

Budget Allotted for the Environmental Management Plan:-

SI. No.	Measures	Recurring Cost (in Rs.)	Capital Cost (In Rs.)
1	Pollution Control Dust Suppression	1,00,000	20,000/-
2	Pollution Monitoring i) Air pollution ii) Water pollution iii) Soil Pollution iv) Noise Pollution	40,000/- 40,000/- 40,000/- 40,000/-	- -
3	Plantation	1,40,000	55,000/-
Total		4, 00, 000	75, 000/-

6.12 Social Infrastructure

The Applicant shall spend some amount of project cost for the development of the area as per the local needs i.e. treatment of poor, schools, temples and other social work.

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. 85, 00,000.

Sr. No.	Description	Cost in Rs.
1	Land cost expenditure	Nil
2	Cost of infrastructure, Equipment, Vehicles, etc.	72,25,000
3	Environmental Protection & Implementation	4,75,000
3	Green belt Development	3,00,000
4	Socio-economic development	5,00,000
TOTAL		85,00,000

9. ANALYSIS OF PROPOSAL

The project involves collection of sand from the Gowai 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.
